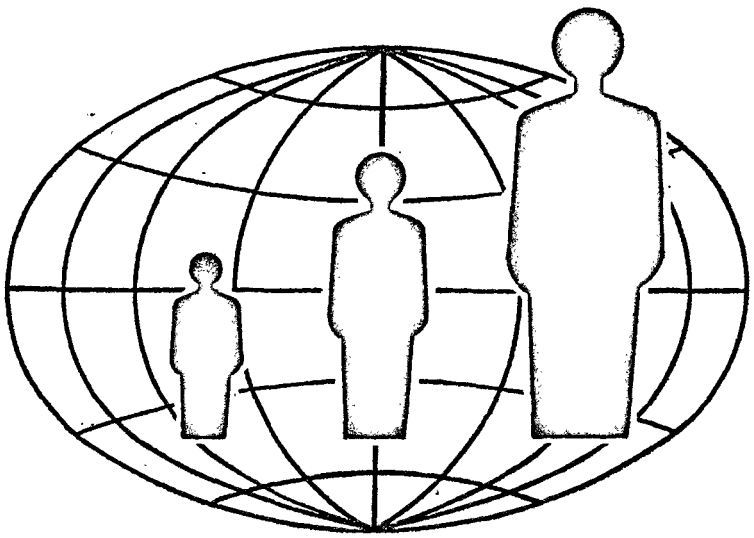

WORLD POPULATION CONFERENCE, 1965

Volume IV: MIGRATION
URBANIZATION
ECONOMIC DEVELOPMENT

UNITED NATIONS

Department of Economic and Social Affairs

PROCEEDINGS OF THE WORLD POPULATION CONFERENCE

Belgrade, 30 August-10 September 1965

Volume IV: SELECTED PAPERS AND SUMMARIES

MIGRATION

URBANIZATION

ECONOMIC DEVELOPMENT

UNITED NATIONS
New York, 1967

E/CONF.41/5

UNITED NATIONS PUBLICATION

Sales No.: 66. XIII. 8

Price: $U.S. 5.50
(or equivalent in other currencies)

PREFACE

The *Proceedings of the World Population Conference, 1965,* are published in four volumes, arranged as follows:

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Summary report

Organization of the Conference

Programme of meetings

Summary report of meetings

Officers of the Conference and members of committees

List of participants and observers

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All papers contributed by authors invited by the organizers for their meetings and a few selected volunteered papers are published in the alphabetical order of their authors within each meeting. Only summaries of the other volunteered papers contributed by participants are included in the *Proceedings*.

In addition, twenty-six background papers were prepared to summarize the state and recent developments of knowledge on the topics of almost all meetings and to provide a basis for discussion at the Conference. Most of these background papers prepared for topical meetings of the Conference will form the basis of chapters on the revised edition of *The Determinants and Consequences of Population Trends* and hence are not included in the Conference *Proceedings*.

All cross-references to papers contained in these volumes are given in the following form:

Name of the author, title of the paper, *Proceedings*, vol. I, vol. II, vol. III or vol. IV.

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DEMOGRAPHIC ASPECTS OF SAVINGS, INVESTMENTS, TECHNOLOGICAL DEVELOPMENT AND INDUSTRIALIZATION

PAPERS

The decrease in the Danish agricultural labour force, the increase in the real capital and the effects on productivity

KJELD BJERKE

1. From table 1 (annexed to this paper) it can be seen that, especially after the Second World War, there has been a remarkable decrease in the agricultural labour force.

2. This development is not a feature peculiar to Denmark, but because the Danish economy is very much influenced by the vigorous development of Danish agriculture, the development in the agricultural labour force is worth while studying a little further.

3. Before the war there was not such a decrease in the agricultural labour force. There was a remarkable structural unemployment in the urban industries and, therefore, it was impossible for the agricultural labour force to go from agriculture to the other industries.

4. In consequence of the conditions mentioned, wages in agriculture remained very low. During and since the Second World War there have been much better employment opportunities in the urban industries than before and, therefore, the farmers have been compelled to pay much higher wages—wages on the same level as in the urban industries. This has led to the farmers wanting to economize on the labour force.

5. The decline is also owing to the fact that a comparison of the labour conditions and the future development in agriculture with the conditions in the urban industries has been unfavourable to agriculture, and the young people are therefore inclined to go to the urban areas.

6. From 1949 to 1962 there has been a decrease in the agricultural labour force of about 160,000 persons—that means 30 per cent.

7. As one may expect, it is first and foremost the agricultural labourers who have disappeared from agriculture, and it is both the relatives (children etc.) and the hired labour force who have decreased. The farmers themselves have stayed on the farm, but with the smaller labour force.

8. One might have expected that this very heavy decrease in the agricultural labour force would have involved more extensive operations in agriculture, but that is not the case.

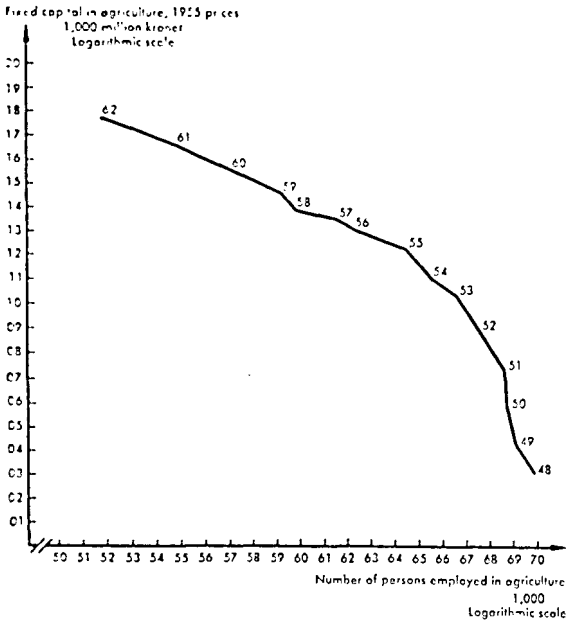
9. If one looks at the development in the national product for agriculture in fixed prices, it will be seen from table 2 in the annex that there has been a rise from 1949 to 1962 in the national product of about one third.

10. The—as it seems—unfortunate decrease in the agricultural labour force has not given rise to a more extensive Danish agriculture. The reason that such a development has not taken place is that the farmers have replaced the expensive and scarce labour force by an extensive use of machinery and by an improvement of the buildings.

11. Some very rough calculations concerning the development in the real capital in agriculture (including the value of the agricultural land), i.e., capital in fixed prices, show the following picture (cf. table 3 in the annex).

12. The labour force has, to a considerable extent, been replaced by real capital. From 1949 to 1962 the real capital has increased by 21 per cent.

13. If one looks at the development in employment and in real capital (given in a logarithmic scale), one gets the following diagram.



The diagram shows that at the beginning of the period there was a relatively rapid acceleration in the real capital compared with the change in the labour force, but from 1953 this development has changed. The decrease in the labour force has accelerated relatively more than the increase in real capital.

14. It is evident that when there are such strong shifts in the factors of production it would not be wise to look solely at the labour productivity because it would give a wrong impression of what has happened. It is necessary to look at another productivity concept in which both the decreasing labour force and the increasing real capital have been taken into account.

15. To make such calculations, the author has made a weighted average of the indices concerning the labour force and the real capital. As weights—where 1955 is the base year —the wage bill (including an imputed wage for the farmers) has been used for the labour force, and the farmers' income, i.e., the difference between the net national product and the wage bill mentioned, has been used for the real capital.

16. For 1955, the calculation, of course, will give a figure identical with the net national product for 1955. For all the other years, there will be a difference between the input figures calculated in this way and the net national product in fixed prices (e.g., the output figures).

17. Taking the ratio between the output and input figures, one gets a rough idea of the development in the productivity of agriculture —a measure in which both the decrease in labour force and the increase in real capital have been taken into account.

18. It is obvious that such calculations must be very uncertain, but, nevertheless, they will give a good picture of the effect of the changes from labour force to machinery in Danish agriculture. The result is shown in table 4 in the annex.

19. The tendency is clear enough. There has been a remarkable rise in productivity during the period under review. It has been shown that there is a strong negative correlation between the change in the labour force and in the real capital, and for the period 1953 to 1962 there seems to be a linear regression.

20. On the basis of the figures for the period 1953-1962, the author obtained the following equations, where the figures are given in natural logarithms:

$$1n\,N = 6000 - 2.061\ (1n\,\frac{K}{10} - 7226) \qquad (1)$$

$$1n\,X = 8365 + 0.52\ (1n\,\frac{K}{10} - 7226) \qquad (2)$$

Here K is the real capital, N the labour force and X the national product. The equations show that a decrease of 2 per cent in the labour force is accompanied by an increase in the real capital of 1 per cent; under these conditions the national product in fixed prices increases by 0.5 per cent.

21. This small analysis has shown how a picture of an industry's real economic condition—economic growth, e.g.,—assumes that one tries to explain the development in the different factors of production. It is therefore necessary to incorporate the demographic variables in the interaction with the other production factors. This is what the author of the present paper was attempted to do.

ANNEX

Table 1. Labour force (including farmers)

Year	*Labour force per thousand*
1949	492
1950	489
1951	488
1952	475
1953	466
1954	455
1955	444
1956	423
1957	414
1958	399
1959	393
1960	376
1961	355
1962	331

Table 2. Net national product in 1955 prices
(Millions of kroner)

Year	*NNP*
1949	3,358
1950	3,815
1951	3,697
1952	3,989
1953	4,384
1954	3,989
1955	3,994
1956	4,148
1957	4,573
1958	4,378
1959	4,089
1960	4,441
1961	4,505
1962	4,498

Table 3. Real capital (including the value of land)
(Millions of kroner)

Year	*Real capital*
1949	10,998
1950	11,382
1951	11,828
1952	12,284
1953	12,698
1954	13,019
1955	13,247
1956	13,448
1957	13,632
1958	13,776
1959	13,976
1960	14,300
1961	14,679
1962	15,025

Table 4. Productivity index

Year	*1949=100*
1949	100
1950	113
1951	107
1952	115
1953	127
1954	116
1955	116
1956	126
1957	136
1958	133
1959	123
1960	135
1961	139
1962	141
—	—
—	—

Some simple economic-demographic relationships—the Canadian experience

N. K. CHOUDHRY and Y. KOTOWITZ

INTRODUCTION

1. Myriad relationships have been postulated between economic variables (e.g., standard of living, economic growth, industrialization and urbanization) and demographic variables (e.g., age composition, birth rate and death rate, immigration and emigration). In this paper two related and important aspects of the relationship between demographic changes and economic growth are examined. These are: (*a*) the effects of growth in population on aggregate saving; and (*b*) the effect of technical change on the substitution between labour and capital. The importance of saving to economic growth needs no elaboration, that of the latter turns on the question of the employability of the increase in labour force (consequent upon the increase in population, given the participation rate).

2. The approach in this paper may be described as "heuristic statistical", as distinguished from "econometric". An attempt is made to deduce implications that seem relevant to the questions at hand from relationships that do not explicitly incorporate growth of population. However, it is felt that the conclusions inferred in this paper confirm, rather than contradict, those that may be derived from *a priori* reasoning.

THE BACKGROUND

3. The level and growth of the Canadian population has come in for renewed attention in the context of the debate on Canadian economic growth and its prospects. Thus, in a widely heralded report, the Economic Council of Canada estimated that during the decade of the 1960's, the Canadian population would grow by 21.6 per cent to 21.7 million and its labour force by almost 27 per cent.[1] The Council then went on to estimate, on assumption of a 97 per cent employment rate, that the estimated increase in labour force would imply (given a certain envisaged increase in average labour productivity) the following annual average rates of growth of the Canadian gross national product and other related magnitudes: gross national product (5.5 per cent); consumption (5.1 per cent); gross private investment (9.2 per cent); and government expenditures (5.0 per cent).

4. These annual rates of growth are not "forecasts", but rather "projections" of what must happen if the expected increase in labour force is to be gainfully utilized with some maximum limit on unemployment (in this case, 3 per cent). On the other hand, similar, although not identical, orders of magnitudes were forecast by Hood and Scott.[2]

5. Most of the current analyses of Canadian economic trends share certain common characteristics that become readily apparent. For example, there is widespread agreement on the prospects of rapid growth in the Canadian population and labour force. Most analysts take the employment ratio as a parameter—a policy parameter or target, as in the report of the Economic Council of Canada; or an observed parameter, as in the analyses by Hood and Scott. Perhaps it is no mere coincidence that both the Economic Council and Hood and Scott assume the employment ratio to remain at the 97 per cent figure. Again, most analysts make some estimates of the increase in labour productivity and use these to project total domestic output.

6. It is these common characteristics that serve as the point of departure for the present paper. It seems, in the authors' opinion, that analyses of the above-mentioned type are entirely too incognizant of forces that might affect the performance of their forecasts. Any number of pertinent points come readily to mind. For example, the constancy of the capital/output ratio assumed by Hood and Scott presupposes that the growth of population is either likely to leave saving-investment behaviour unaffected or change it in such a manner as to keep the capital/output ratio constant. Whether

[1] Economic Council of Canada, *Economic Goals to 1970* (December, 1964).

[2] Wm. C. Hood and A. Scott, "Output, labour and capital in the Canadian economy", *Report of the Royal Commission in Canada's Economic Prospects* (February, 1957).

or not the foregoing assumption is likely to obtain in practice clearly remains an open question.

7. Another major weakness lies in the treatment of technical change. The reasoning goes something like this—"If the labour force is doubled and each worker produces twice as much as before, then clearly output will be quadrupled". Obviously, whether this quadrupling of output comes about or not will depend on the degree to which the opportunities of employment for twice as many men remain unaffected by the forces that double the output per man. If, indeed, as one often sees argued in the context of automation, the nature of technical progress makes large blocks of labour redundant and if the elasticities of substitution between labour and capital are low, then neither fond hope nor wage policies may prove strong enough forces to ensure that there shall be a 97 per cent employment ratio. The above-mentioned issues are examined in detail in the following sections.

Population growth and saving

8. It is commonplace that, all other things remaining equal, increase in population increases aggregate consumption and lowers aggregate saving. Therefore, over time one would expect savings to be positively correlated with income and negatively with population. Unfortunately, since time series on both income and population are often closely correlated, one would likely fail to find confirmation of that thesis through a time series regression of saving on income and population.

9. In the present paper, the authors rely mainly on cross-sectional evidence. Asimakopulos[3] used data collected by the Canadian consumer expenditure survey for 1959 to estimate regressions of the form:

$$C_i = a_{0i} Y^{a_{1i}} S^{a_{2i}} V_i \qquad (1)$$

where C_i represents expenditures on the i^{th} commodity group, Y measured income, S family size, V_i random error and a_{0i}, a_{1i} and a_{2i} are parameters. Estimates of the family size elasticities of consumer expenditures (a_{2i}) are presented below in foot-note 3.

10. If one calculates a weighted average of these elasticities (using average per capita expenditures on the commodity groups as weights) to estimate an average family-size elasticity for all commodity groups, then this average would roughly measure the percentage increase in the consumption expenditures by an average family given a 1 per cent increase in its family size. This over-all family size elasticity is estimated to be 0.092.

11. Thus one sees that although increase in family size has the expected effect of increasing family consumption, the family-size elasticity of over-all consumption is quite small. On the limiting assumption that the entire projected 22 per cent increase in population would be reflected in a 22 per cent increase in the average family size, the calculations lead one to expect the average family's consumption expenditures (hence, also the aggregate consumption) to rise by about 2 per cent.[4]

12. In practice, however, increase in population will be reflected both in increasing family size and in increase in the number of families. What would be the effect on consumption—and hence on savings—of such a change? The answer clearly depends upon the assumption that is deemed realistic about the employment of (and income produced by) these additional families. If one were to make the rather limiting assumption that the increase in population would not, by itself, create employment and output and also that even families without incomes must make some minimal consumption expenditures, then the conclusion is inescapable that aggregate consumption would rise. The mechanics of redistributing income (from families with income to families without income) or of inducing income-recipient families to forego some consumption is not directly relevant here. And if aggregate consumption rises, given income, then savings (or some other component of income) must fall.

13. One may be tempted to argue that since history generally evinces concomitance between growth in population and growth in output, the foregoing paragraph takes an extremely "partial view". The issue is causality and not concomitance. The question is—"Does income rise

[3] A. Asimakopulos, "Analysis of Canadian expenditure surveys", *Canadian Journal of Economics and Political Science* (May 1965), pp. 234-235. The figures for family-size elasticities for each commodity group is followed by the weighted average per capita dollar expenditure on the commodity group specified. The estimates are: food, 0.390 (366); housing, fuel etc., 0.040 (259); household operations, 0.022 (60); furnishings and equipment, 0.134 (76); clothing, 0.152 (141); transportation, 0.218 (175); car purchase, 0.436 (68); car operation, 0.051 (75); other transportation, 0.500 (32); medical care, 0.181 (66); personal care, 0.125 (33); recreation, 0.013 (43); reading, 0.184 (10); education, 1.215 (10); smoking and alcoholic drinks, 0.087 (64); and other, 0.013 (19).

[4] This estimate may appear to be on the low side. The authors are, however, primarily interested in the direction of effects. The specific numbers used are only incidental.

purely in consequence of population growth?" If the answer is "no", then clearly increased aggregate consumption must be matched by a reduction somewhere else; if "yes", then whether savings rise, fall or remain constant will depend on whether the increase in income (output) exceeds, falls short of or equals the increase in consumption.

14. Yet another aspect of the effect of population growth on saving and investment is brought to light in a study by Waters.[5] In connexion with its work on Canadian economic prospects, the Gordon Commission collected a sample of over a thousand urban households with data on their wealth and asset holdings. These data have been analysed by Waters with a view to discovering interrelationships between familial demographic characteristics and saving and investment behaviour. Waters finds that family asset holdings are quite closely linked with the age of household and income. In general, younger families prefer "service" yielding assets (homes, consumer durables) to income yielding assets. As the age of household rises, the holding of income yielding assets also rises. Again, towards the end of the household's life cycle, "safer" investments are preferred to "riskier" ones.

15. Most analyses of Canadian population trends are agreed that the population of both "new" and "retired" households is likely to rise in the decades to come. Thus Hood and Scott forecast that by 1980 the population of men and women in Canada between the ages of 20 and 30 will rise to nearly 16 per cent from 14.7 per cent in 1955. In the same period, the population of men and women of age 65 and over is expected to rise from 7.7 per cent to 8.9 per cent.

16. If one attempts to collate these two sets of findings, one sees that in the years to come, in relative terms, there should be a trend away from risk-bearing assets in favour of either consumers' durables (including houses) and bonds and debentures. In arriving at this conclusion, one is clearly abstracting from the effects of income changes.

17. How is this trend likely to affect savings and investment? It is clear that a shift in asset preferences favouring consumer durables and "conservative" investments will reduce the supply of savings for risk bearing. Although a more definitive opinion on this subject must await Waters' final results, the authors are inclined to infer that foreseeable change in the age composition of the Canadian population, as a result of its growth, may adversely affect private savings available for financing investment in business plant and equipment.[6]

[5] Wm. R. Waters, "The composition of household wealth", doctoral dissertation in progress, University of Chicago (United States of America).

Technical change and labour-capital substitution

18. In analysing whether available information on technical progress in Canada indicates it as being labour-saving or capital-saving, the authors largely relied on a production function for Canadian manufacturing estimated by Kotowitz.[7]

19. Kotowitz first estimated a consumer expenditure survey production function involving both a Hicks neutral technical change term and a cyclical variation term of the form:

$$Q_t = \Upsilon_0[\delta K_t^{-\rho} + (1-\delta)L_t^{-\rho}]^{-\frac{1}{\rho}} e^{\lambda t + \alpha D_{\omega_t}} \quad (2)$$

where Q_t represents an index of manufacturing output, K and L indices of the two primary inputs, t is time, D a cyclical variate and ω_t a random disturbance term.

Υ_0, δ, ρ, λ and α are constants.

His preliminary results led him to reformulate (2) as,

$$Q_t = \Upsilon_0[\delta_0 e^{\lambda_3 t + \alpha_3 D} K_t^{-\rho} + (1-\delta_0)L_t^{-\rho}]^{-\frac{1}{\rho}} e^{\lambda_t + \alpha D_{\omega_t}} \quad (3)$$

or in the alternative form,

$$Q_t = \Upsilon_0[\delta_0 e^{\lambda_1 t + \alpha_1 D} K^{-\rho} + (1-\delta_0) e^{\lambda_2 t + \alpha_2 D} L_t^{-\rho}]^{-\frac{1}{\rho}} \omega_t \quad (3a)$$

where $\lambda_1 = \lambda_3 - \rho\lambda$, $\lambda_2 = -\rho\lambda$, $\alpha_1 = \alpha_3 - \rho\alpha$ and $\alpha_2 = -\rho\alpha$. λ_3 may be interpreted as the rate of differential technical progress associated with capital only. While Kotowitz's numerical estimates were obtained for (3), the authors will work with (3a). Also bear in mind that ρ is related to the elasticity of substitution between labour and capital (σ). $\sigma = \frac{1}{1+\rho}$. $\sigma < 1$ implies $\rho > 0$.

20. From (3a) one obtains:

$$\frac{d}{dt} \log \left(\frac{\partial Q}{\partial K} \Big/ \frac{\partial Q}{\partial L} \right) = (1+\rho) \left(\frac{1}{L_t} \cdot \frac{dL_t}{dt} - \frac{1}{K_t} \cdot \frac{dK_t}{d_t} \right) + \lambda_1 - \lambda_2 \quad (4)$$

[6] It may be plausibly argued that reduction in the supply of savings for risk bearing will be partly offset by the rise in profits and by the increased preference for bonds and debentures. Waters' preliminary work leads the authors of the present paper to believe that such offsets will be insufficient.

[7] Y. Kotowitz, "Capital labour substitution and technical change in Canadian manufacturing", paper delivered before the Canadian Political Science Association Annual Meetings, 1965.

One sees that technical change is Hicks non-neutral if, at a constant capital/labour ratio $\left(\text{i.e., } \frac{1}{K_t} \cdot \frac{dK_t}{d_t} = \frac{1}{L_t} \cdot \frac{dL_t}{d_t}\right)$, $\lambda_1 \neq \lambda_2$.

Again, in Hicks' terms, technical change will be labour saving if $\lambda_1 > \lambda_2$ and capital saving if $\lambda_1 < \lambda_2$. Kotowitz's estimates are: $\rho = 1.41$ ($\sigma = 0.41$), $\lambda = 0.04$, $\lambda_3 = 0.03$, $\alpha = 0.004$, $\alpha_3 = 0.002$, $\delta_0 = 0.5$ and $\gamma_0 = 0.51$. All the coefficients are significant at the 5 per cent level. Thus, it is clear that the elasticity of substitution, $\sigma < 1$ and $\lambda_1 > \lambda_2$.

21. What can be concluded from the above? First, in Canadian manufacturing, technical change seems to exhibit a labour-saving bias (in the Hicks sense). Secondly, whether in an actual circumstance technical change is labour saving or not depends also on the rate at which the labour and capital employed have been growing. That is, change in the marginal productivity of capital relative to that of labour depends not only on λ_1, and λ_2, but also on the difference between the rates of growth of employed labour and capital. Thus, it is quite possible that if capital is growing fast enough, the labour-saving bias of $\lambda_1 > \lambda_2$ may be mitigated. And lastly, should λ_1, λ_2 $\frac{1}{L_t} \cdot \frac{dL_t}{dt}$ and $\frac{1}{K_t} \cdot \frac{dK_t}{dt}$ be such that the ratio of the marginal productivity of capital to that of labour rises, then wage reductions alone will not guarantee full employment of the labour force. It is also worth noting that while changes in the ways of measuring L and K will affect estimates of λ_1 and λ_2, (4) remains unaffected by it since these changes also occur in the estimates of $\frac{1}{L_t} \cdot \frac{dL_t}{dt}$ and $\frac{1}{K_t} \cdot \frac{dK_t}{dt}$.

The impact of population growth on "non-economic" determinants of economic growth

HARVEY LEIBENSTEIN

1. In this paper, we interpret noneconomic factors broadly and exclude only direct economic inputs, such as increases in capital or increases in labour. There are some boundary-type elements that are not in themselves economic variables, but that can improve or increase the effects of economic variables. Thus, improvements in nutrition may increase the health and strength of the work force,[1] and improvements in education, leading to greater literacy, may also increase the qualitative work capacity of labour. Yet both the acquisition of literacy and the improvement in diet may be brought about by noneconomic considerations. For the most part, our discussion will be limited to the problems of countries normally considered economically underdeveloped, say, countries whose per-capita income is less than two hundred dollars per year. We assume that there is nothing unusual about the resource structure of such a country. Thus a country, such as Kuwait, with unusual oil resources, is not part of our typical problem area.

THE QUALITY REPLACEMENT RATE

2. In considering the influence of population growth, two basic aspects must be approached simultaneously:. (*a*) the effect of the growth rate itself; and (*b*) the effect of the concomitantly changing age structure.[2] A crucial effect of population growth is to supplant old units in the work force by new ones. Various members of the existing labour force leave because of death, retirement, or some change in social status, while young people enter as they reach working age and as they acquire a certain amount of education or training. It is significant that the newcomers to the work force will, in many cases, be different in quality from those that leave. Thus, as a consequence of population growth, as well as of direct and indirect types of sustained education, the qualitative nature of the work force changes. It is these types of changes that we attempt to trace, and to connect with economic growth.

3. Two important factors affecting economic growth are (*a*) the work capacities of the population and (*b*) the attitudes of the economically active population. By work capacities, we mean increases in the representative worker's health and strength, as well as improvements in his acquired skills. The attitudes of the work force are shaped by religious, social, cultural, and political traditions. Some basic attitudes affecting growth are those involving changes in adherence to traditional occupations and procedures. Such attitudinal changes will usually influence the degree of labour mobility, the extent of participation of women in the work force, and the age at which people normally enter the work force. In addition, they will affect the willingness of people within a given occupation to accept new techniques and equipment or to work effectively under changing organizational forms.

4. First, let us consider the effect of the rate of population growth on the assumption that the age structure remains stable. To achieve a quality shift in the population, those entering the work force must be differently equipped in terms of education, and formal or informal training, than those leaving. But how can this occur? One circumstance under which this might happen is if the proportion of young people receiving a full primary school education were greater than it was when the members of the current labour force were themselves children. Assume that this proportion is invariant with respect to the rate of population growth. In that case, the greater the rate of population growth, the larger the extent to which people with a primary school education will replace uneducated people who leave the work force. Of course, this is based on an other-things-equal assumption.

[1] W. D. Keller and H. A. Kraut, "Work and nutrition," in G. Bourne, *World review of nutrition and dietetics*, vol. III (Pittman Medical Publishing Company Ltd., London, 1962), pp. 77-79.

[2] N. Keyfitz, "Age distribution as a challenge to development" (unpublished manuscript), p. 10. I am indebted to Professor Keyfitz, since this section was inspired by his work.

5. To illustrate the implications involved, consider some numerical examples. Suppose, for purposes of illustration, that the length of working life is fifty years. In a stationary population with a stable age structure, 2 per cent leave every year and 2 per cent enter. If those entering are of a new quality compared to those in the work force initially, then after twenty-five years 50 per cent of the work force will represent the new quality and 50 per cent the old. Say 50 per cent will be literate and 50 per cent illiterate. But if the population grows at 2 per cent per year and the entry rate rises to 4 per cent, then at the end of twenty-five years approximately 70 per cent will be literate and 30 per cent illiterate. If the entry rate were 6 per cent, then at year twenty-five the work force literacy rate rises to over 80 per cent. The results are a little more decisive if we consider a five-year period and compare a stationary population in which entry rates and retirements are at 2 per cent per year with one in which the entry rate is 6 per cent. In the stationary population at the end of five years, only 10 per cent are literate, whereas in the rapidly growing population over 25 per cent have become literate in the same period. Of course, any other acquired skill—such as a high school education—can be substituted for simple literacy. Clearly the composition of the work force is very different if 25 per cent of the work force has a high school education, rather than 10 per cent. Of course, in this calculation, we ignore the required gestation period for education. The formulization can be complicated to include a variety of years of education but the basic nature and direction of the impact are the same.

6. A similar line of reasoning can be followed in the case of physical improvement in the labour force. Superior nutrition does produce a taller, stronger, and more disease resistant population than the previous generation.[3]

7. Now consider the age structure part of the problem. The greater the degree to which the age structure is skewed towards children, the greater is the replacement of more educated people for less educated. In addition, high rates of population growth which have recently gone up, or increasing rates of population growth, will normally be associated with a fall in the average age of the population. Such changes will also work to replace less educated people by more educated ones. The rate of replacement rises as the average age of the population falls.

[3] J. M. Tanner, *Growth at adolescence* (Springfield, Ill., Charles C Thomas, 1955), pp. 83-97.

8. A similar analysis can be made of the attitudes of the population. If we assume that we can classify attitudes in terms of degree of commitment to traditional ways, and if we assume further that one effect of education is to decrease such commitment, then we can visualize the replacement of tradition-bound people by less tradition-bound individuals as a result of population growth.

Some indirect costs of population growth

9. We have considered the way in which population growth may change the work quality and "tradition-boundedness" of the population by assuming that the rate and pattern of population growth has no influence on the predetermined proportion exposed to education and the influences that change attitudes. Quite clearly this assumption must be relaxed. The reasons are readily apparent in connexion with expenditures for publicly supported primary and secondary education. Obviously such expenditures will not increase in direct proportion to the number of young people in the population. There are a number of other important limiting factors. Governmental taxing capacity will depend somewhat on the community's real income. There are also alternative claims on public revenues, such as the need for investment funds for industrialization. These conflicting claims will vary with the rate and pattern of population growth. In a largely agricultural population, the greater the rate of population growth, the less land per man; the greater the degree of fragmentation, and hence the smaller the output per man. There is obvious competition between investment in potentially cultivatable land, increasing industrialization investment, and population quality investment. Further, high growth rates will normally increase the burden of dependency and decrease potential taxable revenues. Here there are two opposing influences. Population growth may raise population replacements to a higher quality from an economic viewpoint, but it will simultaneously make it more difficult to provide a given amount of education for the same proportion of children entering the population.

10. We must not overemphasize the importance of population growth in improving the average quality of the population. The quality of the work force is by no means uniquely related to the rate of growth. While improvement in the quality of the work force is frequently a necessary accommodating factor, the absence of which may operate as an obstacle to growth, it is not a sufficient source of growth. If more people have secondary school

education productivity is not increased if the bulk of the population educated through secondary school work as clerks.[4] It seems reasonable that growth will be increased if entrepreneurial activities and the educational level grow simultaneously. There is a complementary relationship between improvements in different segments of the work force, and balance must be achieved if improvements in one area are to be translated into increased output. There is likely to be an inherent dynamic in the tension between skill growth and economic growth. At this point, we can only suggest the nature of this dynamic in its crudest and most unsophisticated form. Rapid growth in skills without economic growth must lead to some unused skills and eventually to an attrition of skills, so that there will be a tendency towards an equilibrium between skill growth and economic growth. On the other hand, rapid economic growth without skill growth cannot persist because the lack of skills forms an obstacle to further growth. In either case, there would be a tendency towards an equilibrium determined by whichever type of growth was lower. Of course we have ignored here the degree to which some types of capital may be used as substitutes for skills.

Intellectual changes and economic growth

11. Another crucially significant consideration is that some segments of the population may be much more important in fostering growth than others. The entrepreneurial group may be exceedingly small compared with the population as a whole, but since its activities are crucial to growth, its composition, attitudes and capacities may be more important than its absolute number,[5] if the quality of other segments of the work force is not too low to obstruct its effective promotion of growth. If a group is small, compared to the population as a whole, it can increase in size and capacity at a considerable rate irrespective of the growth rates of other segments of the population. This fact weakens the significance of the general population growth rate and of the replacement effect that is associated with it.

12. Population growth and the attendant changes in age structure increase family size. In general, there are three direct effects: (*a*) the number of children per family and hence the number of siblings with which any child comes in contact is increased; (*b*) similarly, a more rapidly growing population results in a younger population, and hence each child will have a greater number of possible contacts with other children of the same age; (*c*) the younger families will be headed by younger parents who, in many ways, have less accumulated information and experience to communicate to their offspring than older parents would have, and with larger families, smaller opportunity to communicate with each child. We may consider these effects in connexion with three qualities of the population: (*d*) entrepreneurial capacities, (*e*) level of intelligence, and (*f*) acquired verbal and intellectual skills.

13. At present, we know little about the relation between entrepreneurial capacities and contact with siblings. But there is a relation between intelligence and entrepreneurship, although intelligence is only one of the qualities requisite to entrepreneurship. There are some data that suggest that an unusual proportion of those who have considerable intellectual achievements to their credit were either only children or came from families in which there was a relatively large age gap between siblings. It seems plausible that the ability to think abstractly would be developed earlier or would, on the whole, be greater if children learned the concomitant verbal skills either from adults or from siblings considerably older than themselves. While it is difficult in fact to separate the level of intelligence from acquired skills, there is evidence to suggest that a young child's intelligence level can actually be raised by a culturally nurturant upbringing or by the kinds of environmental stimuli available in an urban setting; and that there is a close connexion between family size and intellectual capacity.[6] Intellectual capacity, and the attendant ability to manipulate abstractions that typifies educated intelligence, are unquestionably important to economic development. It is evident in the contribution of professionalized skills to the economy, i.e., in the work of engineers, lawyers, doctors, architects, and teachers of various levels. It seems likely that acquired intellectual capacities are also related to managerial skills. It would appear, then, that the smaller the rate of population growth and the smaller the family size, the greater the extent to which these skills could be developed.

[4] W. A. Lewis, "Secondary education and economic structure," *Social and Economic Studies*, vol. XIII, No. 2 (June, 1964), p. 230.

[5] D. McClelland, *The achieving society* (Princeton, Van Nostrand, 1961), chap. VI.

[6] A. Anastasi, "Differentiating effect of intelligence and social status," *Psychological Bulletin*, vol. VI, No. 2, pp. 84-91; D. McCarthy, "Language development in children," in L. Carmichael, *Manual of child psychology* (New York, 1946), pp. 558-559.

14. The factors considered above have an impact on economic development opposite to that of the replacement effect. Since our knowledge about these factors is fragmentary, it is not possible to assess numerically, at present, the relative influence of these contrary forces. We must remember also that when we consider unusual achievers, we are concerned only with people who form a minute proportion of the population, and that the relation between their numbers and average family size may be tenuous. An additional consideration is whether average or marginal analysis applies here. In other words, does the number of talented people increase in some proportionate sense as the pool from which such people could come increases, or is it unrelated to the pool and responsive to conditions of a non-demographic type? Only if the size of the pool is significant can we be concerned about the demographic aspects of the problems.

Relation between demographic projections and formulation of a development programme

MILOŠ MACURA

1. Conceived as an integral and consolidated set of projections dealing with population, labour force and their main contingents, demographic projections are a recent instrument aimed at increasing the efficiency of the formulation of development policy. Their origin is both in theoretical thinking, particularly concerning interrelationships of economic, social and demographic changes, and in practical needs for additional tools in planning. In contrast with the theory which provides sufficient room for demographic considerations of economic and social development, the current planning techniques do not allow for their integral treatment. This is perhaps owing to man's deficient knowledge of the pertinent interrelationships, a consequence of inadequate research and analyses.

2. The existing economic models and planning procedures cannot provide more space for demographic projections, for obvious reasons. They are already overburdened by economic variables which are of key importance for estimating dynamics and balances of such a complex phenomenon as economic development. They usually comprise population and labour force variables, either explicity or implicity, but with a rather limited scope.[1] Sectorial projections further consider specific supply of and demand for labour, with a view to assessing an appropriate balance of labour. However, neither economic models nor planning procedures currently include demographic factors and effects as integral components of an anticipated development process. Even if the plan comprises labour force projections and balances, it does not cover other important demographic phenomena.[2]

3. On the other hand, demographic models seem to be limited to the demographic variables in their narrow sense, at least according to the current thinking of many demographers.[3] While model building stands still in the traditional areas of demography, population projections—conceived at the beginning as projections of fertility and mortality, size and sex-age structure of population—tend to include new approaches. Projections of the working age, school age, old age and other sex-age functional contingents, as well as projections of the economically active population, extend the scope of demographic projections.[4] This, in fact, brings demographic projections nearer to economic and social planning, and opens new avenues to their development.

4. Development planning should, no doubt, take more into account demographic factors, while future demographic effects should be evaluated in the light of the economic and social progress. In addition, a development programme should be assessed by demographic changes, as well as by economic and social criteria, since demographic projections have to be integrated with planning methods and procedures. Obviously, this is not an easy task, since the methods currently used in economic, social and demographic projections substantially differ. But, if integration is understood as the linkage of economic, social and demographic processes at their point of interaction and if procedure allows for action-effects consideration, it seems there should not

[1] Compare economic models by Harrod, Domar, Tinbergen, Mahalanobis, Boyarski. See also Institute of Economics of the World Socialist System of the Union of Soviet Socialist Republics Academy of Science, *Planirovanie v evropeiskih stranah socializma* ("Planning in the European Socialist Countries") (Moscow, 1962), pp. 111-121, 227-228 and 241-243; United Nations Economic Commission for Asia and the Far East, *Programming Techniques for Economic Development, with Special Reference to Asia and the Far East*, Development programming techniques series, No. 1 (United Nations publication, Sales No.: 60.II.F.3).

[2] M. Ya. Sonin, *Vosproizvodstvo robočei sili v SSSR i bilans truda* ("Reproduction of Manpower in the Union of Soviet Socialist Republics and the Manpower Balances") (Moscow, 1959), pp. 326-354.

[3] W. Winkler, "Types and models in demography", *International Population Conference New York, 1961*, (London, IUSSP, 1963), pp. 358-367; W. Brass, "Summary of discussion", op. cit., pp. 368-377.

[4] A. J. Coale and E. M. Hoover, *Population Growth and Economic Development in Low Income Countries* (Princeton, N.J., 1958), pp. 231-237; E. Rosset, *Perspektywy demograficzne Polski* ("Demographic Perspectives of Poland") (Warsaw, 1962).

be serious obstacles to proceeding with interdisciplinary analyses of the future.

Recent experience: partial demographic projections

5. There is no need of pointing out the extent of the use of projections of population growth and sex-age structure in planning over the past years. Lessons were learned from the poor experiences of some countries whose population projections were biased and discredited the plans. This encouraged studies of future population, for population projections acquired, in addition to demographic interest, a large economic interest.

6. Besides their use in economic planning, population projections are used in preparing various social projects. In some countries, estimated growth of population has been an important argument in discussing family planning programmes. Old age pensions and other social security schemes were either introduced or modified in many countries only after a careful examination of future population trends and structures. Sex and age projections have been useful in many countries in assessing future school age contingents. In fact, this was the beginning of the utilization of population projections for educational planning.

7. Labour force projections have been incorporated in the development plans of many countries. However, while population projections in almost all countries follow the same analytical pattern, the contents and methods of labour force projections, with the exception of sex and age structure projections, widely differ.[5] In addition to estimates of future supply of and demand for labour, national plans and programmes comprise various labour force estimates. In the United Arab Republic plan, there are estimates of the future labour force by industries and by broad social categories. The Ethiopian plan gives a qualitative statement of the labour force on the small farms (traditional sector), but makes precisions for non-agricultural employment with emphasis on managerial, technical and administrative personnel. An interesting approach was introduced in the Indian planning, where, in addition to conventional labour indicators, the concept of employment backlog was introduced. It should also be mentioned that some countries with a diversified structure of labour do estimate future employment by occupation, and many others forecast occupations of key importance.

8. Very many countries do proceed by demographic projections concerning educational contingents and output, either within the framework of educational planning or in other contexts. An early experience was the projections of educational levels of the Italian population, worked out by the Associazione per lo Sviluppo dell'Industria nel Mezzogiorno (SVIMEZ). It seems that educational planning is an important device in planning procedure in the Union of Soviet Socialist Republics, but there is no evidence as to how far its demographic components are integrated with other demographic projections. This is, *mutatis mutandis*, likely in many western countries, as well as in the development plans of some Asian countries. Two international experiments in this field seem to be of interest also. The first is the Mediterranean project of the Organization for Economic Co-operation and Development (OECD), which aims at forecasting future technical and scientific manpower in relation to anticipated economic development. The other is the African Educational Development Programme sponsored by the African Governments and the United Nations Educational, Scientific and Cultural Organization, with a view to increasing levels of education at a rapid pace.[6]

9. Other demographic projections, such as household or family projections, urban-rural and regional projections have also been worked out in many countries. Their purpose was to provide a demographic basis for forecasts of the demand for durable goods, housing etc., or to assess future distribution of the population within a broader context.

Recent experience: more comprehensive schemes

10. There are several studies which approach demographic projections from a more complex standpoint. Owing to scarce space here, only six of them are briefly reviewed. The study made by SVIMEZ covers a set of demographic projections related to the antici-

[5] Unification of methods and techniques for population projections by age and sex is owing to the rich literature on this subject and also to the work done by the United Nations. It should be expected that the studies in methods and techniques of the labour force projections undertaken by the International Labour Organisation will yield good results also.

[6] United Nations Economic Commission for Africa and United Nations Educational, Scientific and Cultural Organization, *Final report of the Conference of African States on the Development of Education in Africa*, Addis Ababa, 15-25 May 1961 (United Nations document E/3498/Add.2). See particularly pp. 47-54 and 71-79, as well as pp. 24-28.

pated growth of economy and education.[7] The projecting procedure was, in brief, as follows: (*a*) population by sex and age → (*b*)active population by sex and age → (*α*) growth of the economy → (*c*) economic structure of the labour force → [as related to (*α*)] → (*d*) occupational structure of the labour force → [as related to (*α*)] → (*e*) skill structure of the labour force → (*β*) educational system → (*f*) student population and educational output → (*γ*) out-door training. Three factors were considered in this system of projections: demographic, economic and educational. Their interactions at the critical points were considered as well, though in a less formal manner.

11. A similar approach, but emphasizing the implications for economic development, was taken in a study on population and labour force from 1957 to 1977 in the Philippines.[8] Five basic projections, all by sex and age (total population, urban, rural, labour force and activity rates) were assumed to be primarily demographic, but modified by anticipated economic factors. Seven additional projections, viz, school age population and population attending school (for both elementary and high levels), job requirements, and employment in agriculture and in non-agricultural industries, were used to assess socio-economic implications. Here, alternative assumptions for the main demographic variables were used. This study did not focus on demographic and socio-economic interactions, but on the socio-economic consequences and effects of the anticipated demographic development.

12. A study of regional job requirements in 1970 undertaken in France followed a different procedure.[9] Assuming spontaneous demographic development (without inter-district migrations and following past trends of the transfer from agriculture to non-agricultural industries, as well as of the extension of education), this study takes account of economic and social changes only implicitly. Therefore, it considers only demographic variables, such as growth of the population, its age and sex structure, participation rates, effects of transfer and educational extension etc. These regional projections consist of estimates for 1970 of: (*a*) the economically active population by sex: (*b*) the agricultural active population; and (*c*) estimates of the losses of agricultural population, owing to their transfer into non-agricultural fields and to education.

13. Labour force balances in the Soviet Union aim to maximize the utilization of human resources and to provide adequate labour for economic and cultural development.[10] They consist of an elaborate system of indicators: labour resources, their utilization and distribution by main socio-economic groups, by industries etc. In addition to balance in man-units, they comprise balance in worker-day-units, including losses. A particular balance deals with the young population, where educational and employment factors are combined. Occupational balance also makes provision for educational and training requirements, both on account of replacement and on account of increase in occupational groups. Other aspects, such as regional, urban-rural, female employment etc., are incorporated as well.

14. Manpower projections of the United States of America proceed, on the supply side, from sex and age projections of the population, through specific activity rates to the labour force projections. Owing to the fact that there is no quantified economic programme in the United States of America, the requirement side had to be worked out only after projections of future economic activity were made, rather a complex work.[11] In addition to the industrial structure of future employment, the occupational structure was also projected by means of an occupation-industry matrix. The final step was to assess the occupational supply, which was, in broad terms, the output of educational and training institutions. It may be noticed that in the United States of America, in spite of the lack of quantitative programmes, labour force projections have been worked out on an assumption of the mutual interrelation of demographic and economic factors.

[7] Associazione per lo Sviluppo dell'Industria nel Mezzogiorno, *Mutamenti della struttura professionale e ruolo della scuola; Previsioni per il prossimo quindicennio* ("Changes of occupational structure and the role of education; estimates for the next quinquennium") (Rome, 1961).

[8] United Nations, *Population Growth and Manpower in the Philippines*, a joint study by the United Nations and the Government of the Phlippines (United Nations publication, Sales No.: 61.XIII.2). A similar study was made by the United Nations Economic Commission for Latin America, *Human Resources of Central America, Panama and Mexico, 1950-1980, in Relation to Some Aspects of Economic Development* (United Nations publication, Sales No.: 60.XIII.1).

[9] M. Pressat, *Les besoins en emplois nouveaux en France par départements jusqu'en 1970* ("Additional employment requirements in France, by department, as of 1970"), report of the Haut comité consultatif de la population et de la famille (Paris, 1961).

[10] Sonin, op. cit., pp. 315-316.

[11] S. L. Wolfbein, "Manpower projections and techniques", *Human Resources — Training of Scientific and Technical Personnel*, vol. XI, United States papers prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (Washington, Government Printing Office, 1963), pp. 20-29.

15. Demographic projections as a tool of planning were experienced for the first time in Yugoslavia in a study of economic development of the southern European countries, sponsored by the United Nations Economic Commission for Europe.[12] In addition to sex and age projections (by I. Lah), four other projections were worked out at that time. Another series of demographic projections was prepared for the Seven-year Plan (1964-1970) by the Demographic Research Centre.[13] The Centre's study covered many aspects of demographic development and also of the supply side of the labour force. The requirement side was projected by the planning authority, while educational projections are still under process in a research institution. This kind of division of work had some justification indeed, but it was not efficient enough, owing to insufficient co-ordination.

Demographic projections and development programme

16. There is a lack of knowledge about how demographic projections are currently being utilized in the formulation of development programmes. Demographic and economic theories discuss the matter in broad and general terms; development plans and programmes are usually very meagre in this respect; empirical studies almost take a neutral, sometimes quasi-scientific position. Therefore, the preceding analyses of recent experience could firmly state only components of demographic projections, without any decisive statement on how these projections affect the thinking of planners and policy-makers. It is true that many papers and recommendations suggest the utilization of demographic projections in economic and social planning. But none analyses the complex intellectual process which, in the course of formulating a development policy and by means of quantitative assessment, anticipates future demographic and socio-economic changes.

17. In spite of the experience being partial and insufficient, some guiding principles may be derived from it. In the most general terms, planners and policy-makers must be aware of the productive capacity and the consumption requirements of the population, as well as of the demographic modifications which may arise from changes in the economy. Demographic processes are, in general, slow and long-term processes; but when affected by rapid and sudden economic and social changes, they may turn fast and even to an unexpected direction. It is an art not easy to achieve, to direct modifications in the occupational and economic structure of population, the migration or any other demographic changes provoked by socio-economic behaviour of people, to the direction which is most suited both to economic and to demographic development.

18. Currently, development planning tends to cover all the main aspects of human life. Besides economic development, the development of social services, town-planning, regional development and others are being incorporated in the national programmes. As a consequence, population is more directly involved, either as a subject or as an object of development. Recent ideas of an over-all development focus on the role of man and his specific aggregate, i.e., human populations. Thus, population should no longer be considered a mere variable of per capita estimates, but should be regarded, in all the diversity of its functions and the complexity of its nature, as an important factor in development.

19. The size, distribution and growth of population have, no doubt, a very decisive role in formulating a development policy. The evaluation of human *versus* extra-human resources, the assessment of the real rate of saving and rate of growth of economy, anticipating the levels of living and consumption—all these key components have, obviously, to deal with population trends and prospects. At this stage of thinking, the patterns of population growth have to be reconsidered, with a view to achieving human and rational reproduction. This involves both mortality and fertility, and their impact on public health, education, family planning and other policies and measures.

20. Employment, as a means and a target of economic development, seems at first glance to have an adequate place in existing development programmes. Projections can provide sufficient information on the availability of the labour force (which is a function of the sex-age structure), employment opportunities, education and social institutions. But its proper utilization, which is in close relation with the labour requirement as formulated in the investment programmes and technological schemes, seems to be a weak point in many cases. Owing to insufficient domestic saving and inadequate foreign resources, developing countries suffer from marginal growth of employment, with manifold consequences. On the other hand,

[12] M. Macura, "Projections of the economic composition of the Yugoslav labour force and population", *Ekonomist*, No. 1 (Belgrade, 1955), pp. 16-44.

[13] M. Sentić and D. Breznik, "Demografska kretanja i projekcije u Jugoslaviji" (Demographic trends and projections in Yugoslavia), *Stanovništvo*, No. 2 (Belgrade, 1964), pp. 101-140.

owing to structural changes in the economy, many industrialized countries are not in a position to make satisfactory use of their human resources. These are, therefore, the problems which planners and policy-makers have to consider further. Thus, research on these problems has to be encouraged, both from the technological and from the human points of view. Another important subject, not to be neglected, is the income distribution policy, which is closely related to employment in general, and to saving and economic activity rates of the families in particular.

21. The merits of demographic projections in educational planning were confirmed by recent experiences, particularly by highlighting the relationships between the educational and occupational structures of the population and their influence on labour supply. As a matter of fact, educational planning related to economic planning—which is feasible only by means of demographic projections—becomes more realistic, for it meets both the requirements of general education as human right, and of skill and knowledge as crucial factors of economic development.

22. Public health and social programmes, which currently form a part of development programmes, rely primarily on demographic projections, particularly on projections of mortality, old age, young groups, and families or households. When anticipating improvement in these fields, the policy-maker must take into account the segments of population or households involved, to be able to make realistic cost estimates. Housing schemes and investment programmes, as well as many infra-structural or social overhead schemes, definitely call on household projections. In more sophisticated procedures, such projections are used not only for the estimates of production of durable goods, but also to structurize consumption of various households by using the consumption elasticity techniques.

23. When planning for economic and social development, allowance must be made for spatial redistribution of the population. Estimates of flows of people from countryside to urban areas, as well as those of total migration, derived from changes in the economic structure of labour force and population and their mobility, may be a useful tool in balancing social costs of economic development. Location of schools, hospitals, housing schemes etc. should be based on urban-rural and migration projections. Such projections may also encourage regional planning, as a spatial feature of development planning.

Demographic aspects of capital formation in economies with large subsistence sectors (Africa)

CYRIL J. MARTIN

1. Most countries with a large subsistence sector and no special natural advantages, such as oil or minerals, have a low per capita income, achieve little capital formation and are only in the early stages of economic development.

2. A subsistence sector has been defined in a number of ways, but the essence of all these definitions is that the population living within such a sector is relatively self-contained. Food, huts and possibly some implements are produced, and such personal services as the carrying of water and the collection of firewood are undertaken, each by the family for its own consumption, with possibly some barter. Since production is for consumption in the near future, the effort required in obtaining the output is neither great nor continuous over the year. Any increase in food crops is roughly proportionate to the growth in population, leaving the per capita level unchanged. The only major fluctuations in consumption result from variations in climatic conditions, unpredictable and uncontrollable. By the very nature of a sector which presupposes a low expectation of life, there would seem to be no advantage to the inhabitants in deferring consumption.

3. Like the term "subsistence sector", "capital formation" is equally capable of different definitions, particularly where nomadic or primitive tribes are being studied. The United Nations publication, *Concepts and Definitions of Capital Formation,* defines gross capital formation as "all goods produced for use in future processes" and states that "Domestic capital formation is that part of a country's current output and imports which is not consumed or exported during the accounting period but set aside as additions to its stock of capital goods".[1] Some researchers have regarded as capital any activity which can give rise to a stock of equipment, capable of providing goods or services in the future. Cattle, even when kept for prestige or demonstration of wealth, are sometimes included, while the bride price demanded in some tribes has been considered partly as the purchase of a capital asset—a wife for work—while huts produced in a day and not of a permanent nature are also sometimes taken into account in any estimation. The United Nations Statistical Commission's paper, "Capital formation statistics: problems and methods with special reference to under-developed countries", emphasized the problem of "own account" construction and mentioned that any omission of such activities would not be serious, except in the agricultural sector where capital improvements made by farmers might amount to a sizable total. It stated, "Improvements carried out by farmers themselves take many forms: the construction of barns, sheds, fences and roads; the digging of wells and irrigation ditches; the planting of orchards; the reclamation, drainage and terracing of lands; etc. It is doubtful whether the bulk of investments of this sort can be ignored in agricultural countries without limiting unduly the usefulness of capital formation totals".[2]

4. Since there are very few "pure" subsistence sectors, capital formation in such unusual conditions is not discussed here. Winter has described what he considers to be the stages of agricultural development.[3] The first four are of interest to the discussion of subsistence. The first stage which he describes is that of "pure subsistence", which would include areas with "no cash crops; no tax; no import or export of labour". The second stage is "subsistence with taxes", where cash crops are grown and labour seeks employment outside the sector mainly to earn wages and to pay taxes. The third stage is "subsistence plus cash crops", where taxes are of less importance in the total cash outlay and where crops are grown to provide cash for the purchase of consumer or other goods, while the fourth is "sub-

[1] United Nations, *Concepts and Definitions of Capital Formation* (United Nations publication, Sales No.: 53.XVII.6).

[2] United Nations (United Nations document E/CN3/227, 1957).

[3] E. H. Winter, *Bwamba Economy* (East African Institute of Social Research, 1956).

sistence plus cash", where large numbers of adult males seek work outside the district, the families remaining on the tribal land, being fed from home-produced food and receiving commodities or cash from the men. Arthur Lewis has defined the subsistence sector as that part of the economy which is not using reproducible capital and where output is lower than in the capitalist sector.[4] Such a definition would eliminate the examination of capital formation in a subsistence sector. However, an attempt is made in this paper to consider countries in Africa where a capitalist sector has evolved from the economic activities of the indigenous population, usually by the development of cash crops, and also those countries where such a sector has been established by foreign capital and foreign *entrepreneurs*. These countries have in common a sector in which a considerable proportion of the indigenous population relies for much of its sustenance on the production of goods for direct consumption.

5. The position of such countries as South Africa and, to a lesser degree, Northern Rhodesia,[5] do not come within the scope of this paper because of the paramount importance of their mining complex, but it must be acknowledged that subsistence agriculture in those countries still remains important to some of the indigenous people. The more typical conditions exist in countries with a large expatriate-owned plantation or farm sector or a developing cash sector, based on cash crops, usually for exportation, produced by peasant farming methods.

6. Such areas have a comparable population structure. African populations are new or emergent. For long periods through history the population in the continent is believed to have remained fairly stable, with some increase after a series of good harvests and with decimations at other times through famines, plagues and pestilences. Most parts of the continent are not over-populated. The problem is often the reverse, that of sparse populations and large uninhabited areas. Whether the areas are uninhabited because of dangerous or unhealthy swamps or because of the tsetse fly (bringing sleeping-sickness) is of no consequence to this discussion, but it is important to remember that if there were heavy population pressures, there would be movements into the tsetse-infected areas, resulting in the elimination of the fly. The very existence of this kind of area is indicative of the sparseness of the population. The recent rapid growth of population has not yet brought uniform heavy densities.

7. The recorded age distribution of populations of African countries in early stages of development has the child group, e.g., up to 15 years, as between 41 per cent and 45 per cent of the total. Sometimes the figure for a country is higher. The elderly persons account for between 13 per cent and 17 per cent; the elderly can include anyone over about 45 years of age. The remainder does not form a large proportion of the population; there is a high dependant-worker ratio. Changes in the age composition of the population and its social structure can have as serious consequences for economic development as changes in absolute numbers or rates of growth.

8. The term "labour force" is often used as a general description for a group of people of a particular age class. This term does not signify that all these people approve of the idea of work and are actively engaged in developing the country's agriculture, industry or services. The system in vogue many years ago was for the women to do most of the work and for the men to act as the warriors. This is understandable in a part of the world where the writ of a particular chief ran as far as his own warriors could enforce it and where there was no general government and no general law and order. Since marauding warrior groups were quite common, it was essential for the warriors to remain almost permanently on guard; and, for this reason, the men from the age of about 16 to 30 years or beyond were the permanent army and only after they became older did they take on the position of elders. It can well be imagined that because of the pestilences, famines, droughts and also tribal warfare, the number of elders was relatively small and the number of warriors was not as great as the number of male children.

9. The women in this society were the group which carried out the majority of the work, while the children, prior to educational systems, were involved in looking after the herds of cattle, goats and sheep, or helping the women in the development of the small farms and plots of land. In the main, it was the male children who were engaged in herding sheep and goats, while the girls helped with the digging and planting, weeding etc., of the plots of land and with collecting firewood and water for the family's convenience and existence.

10. In recent times, the adult male has become the migrant labourer and the percentage

[4] W. A. Lewis, *Economic Development with Unlimited Supplies of Labour: Readings in Economic Development* (Wadsworth, 1963).

[5] Now the independent State of Zambia.

of dependants to the resident labour force has risen even higher than before. The adult male group represents only about 20 per cent of the total population; and large numbers of men, resident in the exchange sector, are engaged in earning wages either on plantations or in industrial establishments. The size of the adult male labour force engaged in peasant agriculture therefore depends greatly on the relative attraction of leisure or growing cash crops, as against the wage rates in industry or on the plantation. The advantages reaped by the exchange sector from the existence of the subsistence sector are that wages for labour can be lower than would be required for a worker who must rely entirely on his wage for the support of his family, and cash crop prices can be lower than where peasant farmers have to rely entirely on the income from his crops to buy his food. Peasant farmers who grow their own food maintain a minimum standard of living from subsistence activities, which allows part of the cash crop returns to be diverted to savings, usually through government taxation, and these savings are invested in public capital projects. The requirements of such farmers for capital for their own activities are small, since families include many dependants who can help on the land. Subsistence farming depends almost entirely on labour. In the industrial and plantation sectors, the absence of a family in the environment of the worker reduces the demand for social overheads, since only bed-space accommodation has to be provided to house the migrant worker. Yudelman emphasized the short-run advantages of an elastic supply of labour, available to be utilized without providing the social overheads of schools, housing, hospitals etc. for the whole family.[6] The lower costs when the subsistence sector is large outweigh the disadvantages of a migrant labour force. A greater supply of capital can be achieved where the basic subsistence of workers and particularly of their families can be found mainly from sources other than their cash wages.

11. The large number of children in the population means that although they may produce some goods and services, their consumption is greater than their output. As stated earlier, the children had their own tasks in traditional society, but now many attend school. Since the woman has a large domestic task in obtaining water from distant streams and preparing food, as well as in bearing and rearing children, the time she has available for agricultural activities is limited.

12. In many African countries, the rural areas are not flat, but sloping, and the cultivation is on the slopes of hills and by the side of valleys. With a torrential rainfall, followed by winds and dry seasons, and a further cycle of torrential rainfall, soil erosion becomes a problem, particularly where a large number of cattle, sheep and goats are maintained for prestige purposes. All these factors have resulted in a need to prevent soil erosion by terracing and other systems. Terracing can only be undertaken at certain seasons of the year, since in tropical climes it is not possible to carry out farming throughout the entire year. These and other conservation measures place heavy burdens on depleted labour forces.

13. The recent increase in the rate of population growth in Africa has not caused a population pressure problem so much as it has enlarged the proportion of children in the total population. The improvements in the health of the children through preventative medicines, i.e., vaccinations etc., has further increased the proportion of children to the adult working force since the greatest effect on mortality is in the younger age groups. Furthermore, the growth of population has reduced the extensive method of farming and brought about continuous cropping of the land, requiring rotation of crops, and needing manpower and capital at a time when labour is being attracted into other sectors.

14. An attempt to examine the relationship of the labour force to economic development was made in a paper included in the proceedings of the International Population Conference held in New York in 1961.[7] This paper emphasized the sparse population in East Africa and, by means of a descriptive labour balance sheet, showed that any expanded economic development plan would require a larger labour force and more capital equipment. The problem was not one of putting to work unemployed labour, but of making the best use of a relatively scarce resource.

15. The movement away from a society which is self-sufficient with regard to food and habitation without recourse to the exchange sector, signifies that capital will be required for many new investments in roads and other forms of transport, urban and industrial centres, power and other infrastructure projects

[6] M. Yudelman, *A note on the economics of African development in Southern Rhodesia with special reference to agriculture* (1960).

[7] C. J. Martin, "The relationship of the labour force in East Africa to economic development", *Proceedings of International Population Conference,* New York, 1961 (London, 1963).

associated with market economies. Manpower at this stage becomes scarcer, since a requirement for such development is an improved agriculture sector, with a reorganization of subsistence farming. But there remains a legacy of the subsistence sector in the attitudes of the labour force. Higher wages do not give automatically greater output. The development of schooling and training depletes the supply of agricultural labour, while those who have attended school often do not wish to work in agriculture or in rural areas. There are unemployed, but there are plenty of vacancies. This apparent contradiction is owing to the ability of the supposed unemployed to live on a low standard by depending for food and shelter on relatives. Labour linked to the subsistence sector, but working in other areas, can provide a surplus and capital can be created. Later, however, the demands for increased consumption and for housing will reduce this surplus. The attraction of urban life also reduces the surplus by bringing into the urban centres families previously living in rural areas. This influx results finally in an increase in wage rates.

16. The problem which now faces these countries is the organization of labour for the most efficient use of resources and the development of surpluses. This can best be accomplished in the early stages of development either by having only male labour and not families living in urban areas, or by taxes or levies on the agricultural cash crops produced by peasant farmers. The improvement of agricultural systems should then allow for a surplus of manpower and food, both of which could be used in the development of the economy, preferably in rural areas where there is little demand for expensive social overheads. The migrant labourer, in the town or on a plantation, and his family, which stays behind in the tribal areas, both have a part to play in the formation of capital, as do the peasant farmers whose export or other cash crops provide a greater return than might be needed to persuade them to produce such crops. But the changeover to a cash economy results in the economic advantages of the subsistence sector becoming less and finally being of minor importance. However, valuable capital investments have resulted from the support given by the subsistence sector to the capitalist sector when the population pyramid consisted mainly of children.

The demographic aspects of capital formation. Differences between urban and rural populations

ASHOK MITRA

1. The preoccupation with problems of capital formation in current economic thinking has led to a very welcome rediscovery of the classical postulates. Many of these postulates have acute relevance to the issues of today, for while the scale of the problem of economic growth has altered tremendously in the last two centuries, its basic nature has not.

2. One of the earliest classical models develops the theme that in the beginning there was no accumulation, but only consumption; in the later formulations too, it is the withering away of the propensity to accumulate which constitutes the core of the problem. The "rude state of society" in Adam Smith's schema is a model of zero accumulation: labour is employed on land; what labour produces, comes back to it as wages and is consumed to the full; since the use of capital is yet unknown, there is no capital formation; production is essentially for subsistence. The concept of zero accumulation reappears in the Ricardian stationary state: the rate of profit has already dwindled to insignificance; there is, therefore, no inclination towards additional capital formation and further economic expansion. In between lies compressed the entire history of capitalist development: of the appropriation of land; of the emergence of technology; of the division of labour and the economies of scale; of falling marginal productivity of land; and of rising rent and money wages bill. With the rate of profit gradually slumping down to zero, there is no impulse left in the system to continue with net positive accumulation. Capital formation is nil, and the economy slides back to the level of subsistence.

3. This is then the remarkable message of classical political economy: the beginning and the end are alike; the economy starts with zero savings and returns to the same position. This repetition of the theme between the beginning and the end is perhaps the most significant aspect of the classical view of the problem of economic growth.

4. One may say that, in this classical mould, the beginning is pastoral and rural, and the end is urban and industrial. While one begins with subsistence and returns to it, no development would have occurred at all if, in pastoral societies, individuals had not tired of subsistence and begun the process of accumulation. It is partly in the nature of given technology that rural societies lack investible funds; but it is also partly owing to the fact that some of the motivations for economic growth are missing in such closed societies. As soon as knowledge and mobility spread, capital formation and capitalist development ensue.

5. Those early pastoral days are gone; but, for the vast mass of the developing countries, the problem of coaxing savings from rural populations remains. With the emergence of stray urban-industrial pockets amid what are otherwise overwhelmingly rural-agricultural complexes, gradual perfection of knowledge and mobility has, in fact, made the problem much more complicated. In the classical formulation, there is usually a time lag between the advancement of technology and the growth of consumption, permitting the demands of the former to be met by progressively rising levels of accumulation. This opportunity is, however, no longer available to developing economies. Technology is still near-primitive, but the rising expectations of living standards have already overtaken large segments of the rural population. At the other end, even if capital formation in the urban belts has not yet quite reached the nadir of the stationary state, there are scarcely any surplus funds available for intersectoral transfer. Also, precisely because agricultural technology still lags behind while the demand for agricultural output—raw materials as well as food-grains—expands continuously, pressure on land keeps on mounting. Since productivity of land, in the absence of technological progress, is generally low, the tendency is to concentrate on better quality lands as much as is possible. Over a period of time, it thus happens that per capita productivity of land is evened out over the entire countryside—superior lands carrying a higher load of labour and inferior lands carrying a correspondingly smaller load.

6. The operational significance of such a state of affairs is clear: lands with relatively larger potential for generating surplus are unable to do so, while inferior lands are incapable of doing so. Moreover, per capita productivity being about the same among all types of land, there is scarcely any reason why the superior lands should attract more capital than the inferior ones. In the circumstances, it is not surprising that scarce capital funds get spread over good and bad lands rather indiscriminately, with unfortunate consequences on the social rate of return.

7. It is here that rural-urban differentials in demographic trends need to be taken into account. In most developing economies, the rate of population growth gross of migration in the rural areas exceeds the corresponding urban rate. Among factors explaining this phenomenon is the obvious one of the lower average of rural per capita incomes: the rate of births in a *milieu* of low incomes, other things remaining the same, is usually much higher than in an environment where incomes are considerably higher. The other important contributing factor is the time lag between different kinds of social measures affecting rural populations. While health and sanitation activities, which immediately cut down the death rate, reach the countryside in the fairly early stages of the development process, the results of policies and measures for population control, demanding, as they do, a certain minimum quantity of receptivity on the part of the rural population, percolate into the villages very slowly.

8. One could, of course, argue that whatever might be the respective natural growth rates in rural and urban areas, there is a tendency for the net rates of growth to be evened out through outflow of rural populations into urban belts. While this might be happening in some developing countries in Africa and Latin America, in several Asian countries, including India, Indonesia and Pakistan, the weight of the residual rural population in the aggregate would continue to be so preponderant that the magnitude of the problem of rural capital formation would scarcely be affected. Also, the capital expenditure for maintaining a person in a non-rural environment is much higher than what would be called for in a village setting. In a discussion of the consequences of differing rates of urban and rural population growth, this aspect of the social cost of migration can, therefore, scarcely be ignored.

9. The coexistence of relatively affluent urban concentrations and nearly subsistent rural sectors poses several policy problems regarding capital formation. Even without land reforms, the distribution of incomes among fractile household groups in the rural areas is likely to be much narrower than in the corresponding urban households. This itself will affect the aggregate savings function of the community. Where this phenomenon is accompanied by a higher rate of population growth in the villages, it means that, for a typical rural household, the proportion that can be saved out of income will tend to be still smaller.

10. Implications of such a constellation of facts are awkward. In several developing countries, between 40 to 50 per cent of the national output originates in the villages. Income is more evenly distributed in the villages, per capita income is very much less in agriculture and allied pursuits, the rate of population growth is generally higher for rural households and production is extremely labour-inelastic. In these circumstances, it becomes extremely difficult to organize an adequate savings effort. Taking any cross-section of these countries, it can be shown that own-account rural savings form an insignificant proportion of national income, and the bulk of rural capital formation takes place on the basis of the transfer of resources, through government intervention, from the other sectors of the economy. More specifically, taxation in rural areas, as a proportion of total rural income, barely exceeds 2 or 3 per cent.

11. This impasse has to be broken. A major breakthrough in economic development for most of such countries hinges on introducing improved techniques and inputs in agriculture; capital accumulation in agriculture is thus a basic task. Heretofore, the task has either been neglected or met marginally through net lending operations by other sectors. But, where the agricultural-rural sector dominates the economy in terms of the relative weight of value added, such lending activities cause strain on these other sectors and hold back their own internal development. Economic literature in recent years has contained repeated references to the possibilities of accelerated capital formation in the rural sector through organized transfer of wage-goods; the practical achievements so far have been meagre.

12. It is thus necessary to evolve a set of criteria for deciding upon the optimum level of rural capital formation, and to act upon them. Since per capita income levels are lower and the structure of income distribution is less skewed in the villages, compared with the urban areas, the rate of rural savings should obviously be lower than the corresponding

urban rate. If the per capita income level is twice as much in towns and cities as it is in the villages, it may not be fair to insist on a level of savings in the villages which is more than, for example, 33⅓ per cent of the rate of urban savings, provided the aim is to combine the objective of capital accumulation with the principle of equalizing the burden of real sacrifice between different income classes. A 20 per cent rate of savings in the urban areas would thus call for a rate of savings of the order of 6⅔ per cent out of rural incomes. Depending upon what proportion of national income is made up of village output, the aggregate level of savings in the country would then be somewhere within this range. If agriculture constitutes exactly 50 per cent of the economy, aggregate savings under these assumptions would be of the order of 14 per cent of national income and so on.

13. But there is a serious drawback in taking a purely normative view of the matter, based on the notion of equalizing the urban-rural burdens of sacrifice. After all, if a closed subsistence economy is to develop, the whole of capital formation has to emerge from within, and there can be no question of applying a norm of relative sacrifice. If the rural-urban per capita income differential is of the order of 2:1, and the rural sector happens to constitute 90 per cent of the economy, a rigid application of the equalization-of-sacrifice principle might mean that actual capital accumulation in the rural areas does not even compensate for the increase in population. What is, therefore, more desirable is a minimum goal of capital formation linked to the rate of population growth.

14. To elaborate on this point one may consider the case of India. There urban growth of population is currently estimated at 2.7 per cent and rural growth at 2.0 per cent per annum; just to maintain existing per capita income levels in the two respective sectors, it would be necessary—on the hypothesis of a uniform capital-output ratio of the order of 3:1—to invest roughly 8 per cent of urban income and 6 per cent of rural income each year, any economic growth over and beyond this, of course, calling for greater savings. It is certainly true that the Indian rural population, on its own, is not accumulating even this 6 per cent out of income.

15. One can generalize the point that, as a preliminary target, the magnitude of rural savings must be such that the annual growth of rural population is taken care of and income standards are maintained. If population grows at 3 per cent per annum in the countryside, then it ought to be the charge of the entire rural sector to garner savings equivalent to 9 per cent of rural income (in case the capital-output ratio is 3:1). In a way, this is a modest goal to set, for the rate of exploitation that took place in feudal societies was certainly very much higher.

16. At the next stage, it is only fair that the rural populations are asked to share a part of the burden of the capital cost of whatever urban migration takes place annually. It should be possible to make an approximate estimate of the transfer cost per unit of the rural population and to charge the computed total cost as levy on the residual rural population. The character of the levy may be determined by the particular circumstances prevailing in a country, but the desirability of introducing such a charge should not be seriously questioned.

17. Given the demonstration effects of higher living standards in proximate urban pockets, it is extremely unlikely that accumulation among rural populations on a voluntary basis can make much headway in the developing countries. The State obviously will have to play a more than peripheral role in the matter. The adoption of universal adult suffrage in many of these countries, giving rural populations a very large say in political decision-making, does not make it easy for the State to adopt policies for forced accumulation. But there is no other road to economic development.

Influence of economic cycles on the movement of population

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[*Translated from Russian*]

I. INTRODUCTION

1. An analysis of the influence of economic cycles on the natural movement of population in the countries of western Europe from the second half of the nineteenth century to the beginning of the Second World War leads us to the conclusion that the operation of the capitalist law of population was a dominant feature of this period.

2. The first stage in the development of capitalist production was marked by a rapid increase in the labour force, which, together with the rapidity of population replacement, stimulated a high birth rate among the proletariat. However, under the influence of a slowing down in the rates of growth of variable capital, the population replacement rates began to decline at the beginning of the 1870's. The less widespread use of child labour and the increasing proportion of women in the labour force resulted in a fall in birth rates. The relative prosperity of the people in the metropolitan countries was achieved at the expense of the colonial peoples, whose situation as a result became worse. Because of the close contact between the European countries and their high degree of interdependence, the fluctuations in European birth rates tended to follow a general pattern.

3. During this period, the cyclical character of capitalist production changed gradually. The law of population explains the dependence of demographic processes on the expansion and contraction of the labour force in accordance with the changing phases of the industrial cycle. The ups and downs of the industrial cycle bring about an increase in relative over-population and represent one of the most powerful factors in population replacement. During the crisis and depression phase, the economic hardships of many sections of the population became severe and exerted a negative influence on population growth. The longer this phase lasted, the more telling were its baneful effects on the process of population replacement. The movement of population in the countries of western Europe reflected all the social contradictions which emerge in periods of industrial crisis and depression. An analysis of statistical material covering a period of ninety years leads to the conclusion that the changing phases of the industrial cycle predetermine the corresponding cyclical fluctuations in nuptiality, fertility, mortality and natural increase. Furthermore, the relationship between the length of the prosperity and recovery phase and the length of the crisis and depression phase affected not only the cyclical fluctuations in population but also the general direction of the population dynamics.

4. The earlier periods of crisis and the accompanying depressions lasted for approximately two to three years. They dealt a cruel blow to the population of the industrial countries, bringing in their train a decline in marriages and births and a rise in deaths. After each crisis, a protracted phase of recovery and prosperity set in. The wounds inflicted by the crisis then healed over, and the process of population replacement rose to a peak up to the time of the next crisis. Matters continued in this way as long as each prosperity phase was two to three times longer than each crisis and depression phase. At the end of the 1870's the industrial cycle became distorted as the crisis and depression phase began to lengthen at the cost of the recovery and prosperity phase. It is this development which explains the change in direction of the population dynamics and, in particular, the sharp decline in the birth rate which occurred in the western European countries at this period. This statement has a firm basis in fact, for when the crisis and depression phase continues for any considerable length of time, the result is a severe economic and moral shock. The movement of population in the period between the First and Second World Wars provides ample evidence of this. The positive effects of the recovery phase after the First World War were counteracted by the burdensome legacy of that war in the form of a chronic under-utilization of industrial capacity and large-scale unemployment. The post-war compensatory rise in the population replace-

ment rates was soon nullified, and a downward trend set in. The economic crisis of 1929 and an unusual kind of depression accelerated this decline, and only after the end of the crisis was there some slackening in its pace. With the 1937-1938 recession and the outbreak in 1939 of the Second World War, the people of the European countries were subjected to further severe trials.

5. The effect of the changing phases of the economic cycle on demographic processes is not easy to define. The source of the difficulty is that demographic processes are affected not only by cyclical but also by other social and economic factors. What is needed is a careful analysis of how the trends of natural population movement differ from class to class, but, unfortunately, the available statistics are by no means always adequate for this task. Thus, in analysing the effect of the economic cycle on population movement, it has often been necessary to rely on general population data. As the effects of crises and depressions are felt by the vast majority of the population, the best course in many cases is to take the general population trends into account.

6. Attention will now be given to the influence of the economic cycle on nuptiality, fertility, mortality and natural increase.

II. Influence of economic cycles on marriage rates

7. It was over 140 years ago that Charles Fourier expressed the view that it was just as important to analyse marriages as to analyse births and deaths. At the beginning of the nineteenth century, marriage problems were matters of considerable interest in sociology and philosophy. Scientific statistics, first used in connexion with life tables, were enthusiastically applied to research on marriage questions. Although many studies of nuptiality based on an analysis of statistical data made their appearance, they unfortunately dealt hardly at all with the social factors. Thus, Adolph Kettle, as the result of a lengthy consideration of marriage, was unable to do more than come to the following trivial conclusion: "Among the facts relating to man, there is not one where free will manifests itself as clearly as in marriage. This is one of the most important events in life, and man solves it with great circumspection". Kettle states that the number of marriages remains almost stationary from year to year, and he adds that "here there is something mysterious, something that we cannot comprehend". However, literally a few lines further on he notes "a strange correlation between the number of marriages and the price of bread ..."—a discovery which, incidentally, was made by Ausmilch. Kettle's idea was taken up by B. Weiss, who reinforced it with an analysis of reliable statistical data. Soon afterwards, Hector Denis discovered a no less surprising correlation between the number of marriages and the price of coal.

8. According to Mayo-Smith, a gradual rise in the number of marriages is a sign of economic well-being and confidence in the future. G. Mayer undertook a detailed analysis of marriage statistics and came to the conclusion that the marriage rate was influenced by economic developments. He pointed out that with the rise of industrialization, the influence on marriage of the price of bread tended to recede and the question of obtaining steady and well-paid work came to the fore. He unfortunately did not undertake to analyse the latter relationship. With an application deserving of a better cause, he demonstrated that single men preferred to marry young women, that widowers desire to remarry and that widows are forced to wait a long time before remarrying and thus run a high risk of dying beforehand. Research of a more serious kind was carried out in this field by English statisticians. For example, Bowley pointed out that fluctuations in the marriage rate coincided with the fluctuations in exports. Ogle affirmed that in the period 1839-1888 there were only five years when marriage trends and export trends in England differed from one another. The marriage and family problem was a subject of great interest to Karl Marx, and it was his intention to prepare a special study on this question.

9. The period of industrial capital, when women began to enter the labour market, brought about a change in family life. The family as a unit of production gave way to the enterprise, and this in turn brought about a loosening of family ties. The essence of the family was nevertheless preserved even though its existence depended upon the method of production. In capitalist society, monetary considerations have become a component part of contemporary marriage. According to Bloch, the proportion of marriages in which monetary considerations are a major factor is as high as 75 per cent. In 1937, 166 young Frenchmen chose as their life partners women who were sixty years of age or over.

10. The average age at marriage tends to be directly proportional to property status. Thus, according to data compiled by Rubin and Westergaard, the range of fluctuation in the average age at marriage among persons in a particular status group is six years; according

to the results of some other surveys, it is about seven years.

11. An analysis of the influence which the changing phases of the economic cycle exert on the marriage rate in England shows that the marriage rate is on the average higher during the recovery phase than during the crisis and depression phase. The correlation coefficient between the unemployment and the marriage rate, as computed for each economic cycle, amounted to a maximum of — 0.8 and in some cycles to — 0.96.

12. An analysis of nuptiality in Germany produced similar results. The influence of economic cycles on marriage rates was more pronounced in the larger towns than in the smaller ones. At the time of the 1929 crisis, marriage rates in the larger towns of Germany declined by 17 per cent, but in towns of less than 30,000 inhabitants, by only 11 per cent. The decline in marriage rates during the crisis and depression phase ranged from a low of 1.5 per cent to a high of 33 per cent.

III. Influence of economic cycles on birth rates

13. Crises and depressions have reacted unfavourably on birth rates and fertility, but owing to various circumstances, their influence is not easy to trace. The worsening of economic conditions in the initial year of the crisis leads to a decline in the number of conceptions, and this should logically be reflected in a lower birth rate in the following year. Statistics, however, show that a decline in the birth rate often occurs even in the first year of the crisis. The following, for example, are the birth rates for pre-crisis and crisis years in France:

Crisis year	*Birth rate in pre-crisis year*	*In crisis year*
1857	26.3	25.9
1867	26.4	26.2
1882	24.9	24.8
1890	23.0	21.8
1900	21.8	21.3
1907	20.5	19.7

14. It is thus apparent that in these cases the birth rate declined in the first year of the crisis. Although there is some interference here with natural processes through the artificial termination of pregnancy, the lack of accurate statistics on abortion makes it difficult to determine the role of this factor. Some authorities (see in particular the data compiled by S. Hamburger, A. Niemeyer and others) say that in some countries the number of abortions at least equals the number of actual births.

15. According to the data of the Kiel statisticians, the number of abortions bears a close relationship to the number of unemployed (see the work entitled "International strike against the unborn"). The prevalence of abortion is undoubtedly a powerful influence in reducing the number of births in the actual crisis year.

16. The decline in births began around the end of the 1870's and continued up to the beginning of the Second World War. The general downward trend in the birth rate made the fluctuations due to cyclical influences harder to detect.

17. There are different views on the cause of the decline in the birth rate. Wolf, for example, relates the fall in the birth rate in France to the rise in literacy. The view, moreover, that culture is a factor in bringing down the birth rate is widely held.

18. The well-known French demographer J. Bertillon attributed the decline in the birth rate in France to the laws of heredity. Other demographers, such for example as Guyot, have said that the causes of the decline in births were psychological and moral.

19. An important cause of the decline in births is the increasing number of gainfully employed women. According to K. Kautsky, "the history of human fertility is the history of female toil". Statistics show that there has been a sharp increase in the proportion of gainfully employed women of the ages in which fertility is greatest (from twenty to forty years). For example, in Germany the number of gainfully employed women aged twenty to forty years almost doubled between 1907 and 1925.

20. The development of capitalist production has been accompanied by a declining birth rate among the working class in both absolute and relative terms. Thus, while in the nineteenth century the ratio of births among the proletariat to births among the *bourgeoisie* was 5:2, it is today only 4:3. The relative decline in births has been especially noticeable in the families of workers employed in the more important branches of industry, such as the metal and metal-working industries. There has also been a striking decline in birth rates among non-manual workers.

21. Considerable influence on the declining birth rate is also exerted by derivative factors such as the widespread use of contraceptives, an increase in prostitution and a greater prevalence of nervous disorders. The dynamics of derivative factors depends on the dynamics of social factors. Thus, the onset of an economic

crisis is accompanied by a sharp increase in the number of persons suffering from nervous disorders. It is apparent from a classification of the states of the United States of America by mortality from nervous disorders that there is a functional relationship between the level of nervous disorders and the birth rate.

22. The distortion of the economic cycle seems to have been one of the main reasons for the downward trend of births in the 1870's. In the ten-year cyclical periods of that time, the crisis and depression phase was beginning to last for six to seven years. The long depressions imposed severe economic and moral hardships on the people, and the short prosperity phase which followed them could not check the powerful momentum of the decline in births. In England, France and other countries, the rate of this decline sharply accelerated in the crisis and depression phase. The following example shows how the birth rate in England varied according to the phases of the economic cycle.

	First cycle: 1849-1858	*Second cycle: 1859-1869*	*Third cycle: 1870-1879*
Recovery phase ...	+ 0.23	+ 0.27	+ 0.14
Depression and crisis phase	— 0.35	— 0.23	— 0.60

23. The decline in the birth rate during the long depression phase reached the point where even the Malthusians, becoming alarmed at the apparent "success" of their propaganda, felt compelled to beat a retreat. A similar situation was observed in the subsequent economic cycles. It is thus apparent that the changing phases of the economic cycle had a strong influence on the birth rate.

IV. Economic cycles and mortality

24. In demographic science the study of mortality has always been given maximum attention. In the first place, mortality statistics achieved a certain standard of reliability earlier than did other kinds of demographic statistics. In the second place, the analysis of mortality soon acquired practical importance in actuarial calculations relating to life insurance and annuities. For the purposes of this paper, the general death rate is used even though authorities agree that for a thorough study of mortality, general death rates, which in English are appropriately called "crude" rates, are inadequate. It is preferable to use age-specific and standardized mortality rates. As, however, a study of the effect of the changing phases of the economic cycle on mortality involves the comparison of data for adjacent years in a single country, it is obvious that an insignificant change in the age structure will not have any short-term effect on the death rate. As far as we are concerned, the crude death rate has more serious drawbacks. In the first place, an economic crisis affects the mortality of the different population groups in different ways. In the second place, the decline in the birth rate which occurs in a period of economic crisis tends, other things being equal, to make the crude death rate lower than it otherwise would be. The decline in mortality from the early 1870's onward was due to an improvement in urban sanitary conditions, a decrease in infant mortality and the progress of medicine. At the beginning of this period, the decline in mortality was greatest among young persons and middle-aged persons, but in the twentieth century the rate of decline in infant mortality was several times greater than that for the older age-groups. The decline in mortality was more noticeable in urban than in rural areas; for example, during the years from 1876 to 1902, infant mortality declined by 34 per cent in Berlin but by only 6 per cent in the countryside. Furthermore, infant mortality among illegitimate children was almost twice as high as among legitimate children.

25. The decline in mortality which began after the First World War was slowed by the effects of the 1929 economic depression.

26. The effect of the changing phases of the economic cycle on mortality will now be examined in greater detail. The French economist, Clément Juglar, studying the dynamics of mortality in different countries, discovered that the highest mortality rates coincide with the years of economic crisis, and the lowest mortality rates with the post-crisis year. It is a fact that mortality in the initial crisis year is higher than mortality in the immediately preceding year. Thus, during the period 1857-1929, the average rise in the death rate in the crisis year amounted to +0.9 in England, +1.2 in Germany, +0.6 in France and so on for other countries. The maximum rise in the crisis year was +1.2 for Germany, +2.4 for England and +2.1 for France. The effect of economic crises in driving up the infant mortality rate is quite apparent. For example, in France during the period 1857-1890, infant mortality in the crisis years increased on the average by 9.5 per cent by comparison with the pre-crisis year; the mean infant mortality rate in the crisis and depression phase exceeded the corresponding rate in the prosperity phase by 6.4 per cent. The influence of economic factors on suicide is especially obvious. The following figures show the relationship, in Germany during the period

1913 to 1932, between the percentages of unemployment and the number of suicides in particular years.

Percentage of unemployment among trade-union members	*Number of suicides per 10,000 males*
1 to 5	2.7
5 to 10	3.4
10 to 20	3.7
Above 20	4.2

27. It is to be noted that in the twentieth century the progress of medicine has mitigated the direct effect of economic crises on the crude death rate.

V. Economic cycles and natural increase

28. The economic cycle also exerts a noticeable influence on natural population growth. For example, in France the decline in the rate of natural increase in the crisis and depression years resulted, according to our calculations, in a population loss of about 300,000 persons in the 1850-1859 economic cycle and of about 500,000 in the 1888-1895 cycle. The following table shows how population growth in England was influenced by the changing phases of the economic cycle during the forty-year period from 1869 to 1909.

Phases of the economic cycle [a]	*Years*	*Mean rate of natural increase*
A	1869-1877	14.4
B	1878-1879	14.0
A	1880-1881	14.4
B	1882-1887	13.6
A	1888-1889	13.0
B	1890-1895	11.7
A	1896-1899	11.9
B	1900-1903	11.8
A	1904-1906	11.8
B	1907-1909	11.4

[a] A = recovery phase; B = crisis and depression phase.

29. A comparison between natural population growth and the level of unemployment in England reveals the interesting fact that in all the economic cycles between 1850 and 1914 the mean annual rate of increase declined to a noticeable degree whenever the level of unemployment exceeded 7 per cent.

VI. Influence of the 1929 crisis on population movement

30. The industrial crisis of 1929, which was the most serious in the history of western Europe and was further aggravated by an acute agricultural crisis, resulted in an increase in unemployment and a substantial decline in family income. The inroads which it made on national wealth exceeded those of the First World War. It was only at the Paris Statistical Conference of 1937 that a modest attempt was made to determine its influence on population movement.

31. The birth rate of the western European countries declined during the crisis and depression period by 25-30 per cent, owing mainly to a decrease in fertility among the older age groups. The results of statistical research make it possible to formulate a law of "diminishing fertility" that is valid in a period of crisis and depression—viz, the decline in fertility accelerates in direct proportion to the age attained by the woman. Cases of the disintegration of family life became more frequent. The age structure of the population "deteriorated" at a sharply faster pace as the rate of decline among the younger age groups accelerated and the proportion of older persons grew. The rate at which the population was "aging" had almost doubled by comparison with the period of the First World War. The "deterioration" of the age structure was particularly rapid in the larger towns. The centre of gravity of the age pyramid moved steadily higher, and according to the laws of physics the pyramidal structure itself was becoming unstable. The rate of decline in mortality became stationary or slowed down, as is apparent from an analysis of death rates exclusive of infant mortality. The levelling-off of mortality and the transition from a declining to a stabilized death rate were discussed at the time in articles by the Soviet demographers A. Y. Boyarsky and P. I. Kurkin. During this same period there was also a decline in the expectation of life at the older ages. The rate of population growth in the 1929 crisis and depression period declined by almost half.

32. The Second World War inflicted untold losses on the population of the world. According to our calculations, the losses of civilian population as the result of barbaric extermination and economic deprivation greatly surpassed the military casualties attributable to the actual hostilities. After the Second World War, a compensatory increase in population occurred, and medical advances brought about a further reduction in death rates. However, the cyclical

character of capitalist production and the economic crises which periodically wrack the capitalist world will in time exert their effect on demographic processes. These questions are nevertheless outside the scope of the historical period considered in this paper.

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33. The analysis of the influence of economic cycles on the natural movement of population in the countries of western Europe from the second half of the nineteenth century to the beginning of the Second World War demonstrates the indisputable influence which the changing phases of the economic cycle exert on nuptiality, fertility, mortality and natural population growth. This analysis refutes the views of those demographers who regard population as a self-regulating biological phenomenon. The most convincing evidence that this is not so is the sensitive reaction of the various average and relative demographic indicators to the fluctuations of the economic barometer.

Population growth, capital formation and economic growth in the Middle East

YUSIF A. SAYIGH

I

1. There is little that is firmly known about any of the components of the title—even the region designated as "the Middle East" is defined differently by different writers.[1] However, by being flexible in the delineation of the region and tolerant regarding the use of approximations, one can investigate the relationships between the three elements with a certain degree of confidence.

2. The relationships are two-directional—the rates of population growth influencing the volume and composition of capital formation and the level and trend of economic growth, and the level of economic growth influencing capital formation and population growth.

3. One may examine the relationships through four questions:

(*a*) What has been the course of population growth during the postwar period?

(*b*) What have been the size and pattern of capital formation?

(*c*) How has capital formation influenced population and economic growth?

(*d*) How has economic growth acted on population growth and capital formation?

II

4. Although most of the region's countries have had complete population censuses, not enough reliable censuses have been taken to establish the rates of population growth satisfactorily. Where base population has been determined, improvement in the registration of births and deaths will permit, in a few years, a feeling of confidence about these rates. Currently, they are no better than "estimates of questionable reliability"[2] for all the Arab countries, as well as for Iran and Turkey.

5. The rates spread from 1.0 to 3.6 per cent per annum, but cluster within the narrower range of 2.1 to 3.0 per cent, for Algeria, Jordan, Lebanon, Morocco, the Sudan, Syria, Turkey and the United Arab Republic. Like those of most other developing countries in the world, these rates reflect the drop in crude death rates (primarily in infant mortality rates) along with steadily high birth rates.[3] They are more the result of improvement in hygiene and in preventive and curative medicine in the advanced world, than of development within the region itself.

6. These rates of population growth seem to apply to the urban as well as to the rural community. The frequency of very large families in the city is no smaller than in the village. It is plausible to expect urban parents to desire education for their children more strongly than rural parents, since educational opportunities are wider in the city, the urban population is more dynamic and the demonstration factor is stronger. Against this argument, which would lead towards smaller families in the cities, there is the view of children as a productive agent, as earning hands, which must be more persuasive in the city of today than in the village with its shrinking acreage per family.

7. These statements are speculative. But one is on firmer ground when stating that the higher-income or better-educated groups generally have smaller families. However, there is insufficient information to justify the inference that the size of the family is merely, or even mainly, a reflection of the poverty of the parents and of their desire to have more earning hands to help them. The association between poverty and large size of family, which has enough factual evidence in the Middle East to support it, must then be explained in terms of several factors, some of which go beyond the purely economic.

8. The rates of population growth are, admittedly, high. How does their level affect capital formation? It can be argued that a drop, say, of 1 per cent in the rate of population

[1] The term is used here to include all Arab countries, plus Cyprus, Iran, Israel and Turkey. Not all the statements apply to the whole regions; most apply to the whole Arab world.

[2] United Nations, *Statistical Yearbook 1963* (United Nations publication, Sales No.: 64.XVII.1), note to table 2.

[3] Joan Robinson describes this process for the developing countries at large as "... importing a modernized death-rate into regions where a primitive birth-rate still obtains...". *Economic Philosophy* (Pelican edition, 1964), p. 94.

growth cannot have a sensational effect on development and welfare. Such a drop would mean the availability of a low national product for a population growing just a little less rapidly. The reallocation of the national product would not noticeably affect capital formation in the following accounting period even if the 1 per cent were all saved—a large "if" indeed. For instance, in the United Arab Republic, the availability for investment and consumption of the current gross national product of LE 1,700 million for a population growing at 1.6 per cent, instead of the current 2.6 per cent, would be a very desirable thing, but not a major factor in the development of the country, when investment has reached some LE 300 million per annum.

9. But the capital formation aspect of a 1 per cent drop in the rate of population growth is more significant. Assuming a capital output ratio of 4 : 1, which is not an unreasonable ratio where labour productivity is not high and where there is still sizable investment in infrastructure, the economic growth equivalent of the 1 per cent difference in population growth means a 4 per cent difference in capital formation. This difference would be significant even though capital formation averages some 15 per cent of national product per annum for the region.

10. Unfortunately, however, such a booster to capital formation is not easy to achieve. One has, therefore, to concentrate on two other measures of greater immediacy than the drop in population growth rates—in fact, one must be braced for constant, if not rising, rates in the next generation or so. The two measures are the raising of capital formation through increased savings and increased foreign aid, and the raising of labour productivity through improvement in population quality and attitudes.

11. Skepticism is the standard reaction to the suggestion that increased domestic savings are possible, on the grounds that poverty is so great in the region (except in the Gulf area, in Israel and in Lebanon) that it would be both callous and impractical to ask for a further tightening of belts. The fact remains, however, that further saving is possible among high-income groups, particularly under stable political conditions and in a climate of entrepreneurial confidence. Furthermore, a wiser use of savings is also possible.

12. The fact that the region has been diverting some 15 per cent of its national product on the average to capital formation,[4] which is much higher than the 10 per cent associated with the Rostovian "take-off", is attributable to four major factors. These are the initial availability, after the Second World War, of large foreign assets; the presence in several of the countries of highly marketable primary products in large quantities; foreign economic aid in different forms, from which a small number of the region's countries have benefited noticeably; and the determination of almost all the region's Governments to invest in overhead capital at a fast pace.

13. More capital formation could be achieved with the help of the last three factors. Revenue from petroleum is of particular significance. Apart from serving the development needs of the petroleum-producing countries, this revenue could be put to better regional use, as the Kuwait Fund for Arab Economic Development has ably demonstrated. But the Kuwait Fund has only used 12 per cent of its loanable resources thus far. Furthermore, these resources, huge as they are for one organization (KD 300 million), must be spread thinly if they are to be available to all needy Arab countries.[5]

14. Foreign aid can supplement local savings and Arab aid. So far, foreign aid to the Arab world had not been substantial—Turkey alone has received more aid since the Second World War than all the Mashreq countries combined, while Israel, a high-income country, received in unilateral transfers and capital flows over $5,300 million till the end of 1963, or four times as much as the Arab Mashreq countries.

15. There is obvious scope here for aid towards capital formation, and it would achieve more than an unlikely drop in population growth rates. For the Arab countries alone, foreign aid of some $800 million annually (out of, say, $1,000 million set for the whole Middle East), plus, say, $200 million from the petroleum-producing region, would represent, at current levels, roughly 8 per cent of the aggregate gross domestic product of aid-needing countries (that is, excluding Abu Chabi, Bahrain, Chubai, Iraq, Kuwait, Libya, Qatar, Saudi Arabia and Sharja). Again, assuming an

[4] Data on capital formation are available in United Nations references only for Cyprus, Israel, Morocco, the Sudan and Syria. Government sources and private studies provide information on Algeria, Iran, Iraq, Jordan, Tunisia, Turkey and the United Arab Arab Republic.

[5] Expansion in the export of the region's other major products and the stabilization of prices would permit trade to feature more importantly as a source of development financing, as the developing countries in general argued at the recent United Nations Trade and Development Conference in Geneva.

over-all capital-output ratio of 4:1, this volume of capital formation would produce 2 per cent of economic growth. Alone, this factor could almost entirely compensate for population growth. It remains to be said that the size of such aid is not unreasonably onerous for the advanced countries of the world. Nor would it be unreasonably high for the investment absorptive capacity of the receiving countries.

16. The last factor, the determination to develop, can be seen even through the fog of political confusion prevailing in some parts of the region. The high rates of capital formation achieved are remarkable by current standards anywhere. Not only are the rates high, but the pattern is sensible. Examination of this pattern reveals that there has been a large degree of similarity in the direction of public investments: to transport and communications, irrigation and water development, education and public health, agriculture, housing and industry—more or less in that order. Private savings have gone into housing and construction, followed by industry, agriculture, transport and general services.

17. The size and pattern of capital formation have influenced both the quality of population and the rate of economic growth. The large public investment in infrastructure has raised literacy levels and improved health conditions and has helped in the diversification and improvement of skills. However, the rate of economic growth has not been as high as it would have been had investment in infrastructure been largely achieved at an earlier stage. But this should not be a cause for undue concern, since the next round of public investment can contain a proportionately larger component of directly productive projects, and private investment can become more fruitful, precisely because the post-war round has concentrated heavily on social and economic overhead capital.

18. The rates of economic growth can be found in, or computed from United Nations publications for all the independent countries in the Middle East except Yemen. However, in some cases, the figures are no better than intelligent guesses, and inferences from them have to be made with caution. For Morocco, Syria and Tunisia, per capita gross domestic product (at factor cost in current United States dollars) remained substantially unchanged between 1953 and 1962. But the per capita rate of growth exceeded the rate of population growth —comfortably, in some instances—in Algeria, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Saudi Arabia, Turkey and the United Arab Republic.

19. How has economic growth acted on population growth and capital formation? Occurring, as it does, in the second half of the twentieth century, economic growth in the Middle East has meant an improvement in the levels of living beyond what would have been possible a century or two ago. This is so because of the greater availability today of cheap goods and services within popular reach, the demonstration effect accentuated by the mass media of communication and the social and political pressures which make it possible for income to rise even faster than productivity. To this extent, economic growth has contributed to the speeding up of population growth. And to the extent that productive units have been set up for the satisfaction of a growing and more diversified demand, capital formation has been influenced further through economic growth via population growth.

20. The fact, however, that economic growth carries within itself the seed of dangerously high population growth for some time to come does not lead to the advocacy of the "iron law of wages" as a regulator of size of population. On the contrary, it indicates how urgent it is for the region to pass through the transitional "explosive" stage as soon as possible, so that the better economic conditions and the greater educational achievements of today may make the regulation of population growth likelier in the next stage. It also indicates how education can make improvement in population quality compensate for size.

III

21. Population growth is not likely to be contained soon in the Middle East. Increasing capital formation from domestic savings has limited possibilities. Foreign aid can supplement capital formation effectively only if the advanced countries expand their aid programmes substantially. Hope for speedy economic growth must therefore be mainly pinned to the human factor and to the quality of government.

22. Improvement in the spread and quality of education, and in professional and vocational training, is the surest generator of growth in productivity. The maturity and determination of political leadership and the competence of the civil service will ensure the establishment of infrastructure and the emergence of the external economies that flow from it, as well as creating the atmosphere which imparts confidence to entrepreneurial elements and strengthening the will to develop.

23. Appropriate changes in these directions make possible a larger production out of a given capital stock and increase society's ability to

absorb new investment. Furthermore, a developing, better-educated population will begin to plan family size more sensibly. But there are close limits in the short run to the absorptive capacity of a society for new ideas and institutions and for political changes. Even if all these are ultimately in the interest of growth and progress, the danger remains that if much too much is attempted, too little will be achieved. Society must necessarily plan the doses of change carefully, depending all the time on more and better education and training to absorb more change. Given dynamic and enlightened Governments with a sense of responsibility, as some Middle Eastern Governments are, the stage will be set for education to play the leading role in development. With a greater emphasis on education, capital formation will be more fruitful and population pressure less menacing.

Population growth and economic development in Latin America

VÍCTOR L. URQUIDI

[*Translated from Spanish*]

1. The purpose of this paper is to explore some of the relationships between population growth and economic development in the light of present or prospective conditioning factors in Latin America. To do this, some historical facts will be cited, but attention will be focused particularly on recent structural changes and their projections.

2. The population of Latin America seems to have fallen in absolute terms during the sixteenth and seventeenth centuries and then to have grown very slowly until the end of the nineteenth century.[1] It is estimated that during the second half of the last century the annual rate of population growth was only 1.3 per cent, which was far below that for North America (2.3 per cent) but well above that for the rest of the world (0.6 per cent). Nevertheless, during the decade 1920-1930, the annual population growth rate for Latin America was 1.8 per cent as compared with 1.4 per cent for North America and 1 per cent for the rest of the world.[2] Since then, the population of Latin America has been expanding at an increasing rate, which exceeds that of any other region. Projections for the next thirty-five years, in accordance with the medium assumption in United Nations computations, suggest an annual growth rate of not less than 2.7 per cent as compared with 1 per cent to 1.2 per cent for North America and about 2 per cent for the rest of the world.[3] According to the latest estimates published by the Economic Commission for Latin America, in which account is taken of recent adjustments in the figures for various countries made on the basis of studies carried out by the technical staff of the Latin American Demographic Centre, the annual growth rate since 1960 is already 2.8 per cent and is projected at 2.9 per cent up to 1980 when the total population will reach the figure of 363.6 million as compared with 205.9 million in 1960.[4]

3. The population of Latin America thus exhibits extremely pronounced growth trends that have no precedent in history and no parallel in any other region of the world. They are the result of the rapid decline in mortality and the lack of any appreciable decrease in the high fertility rates. The projections suggest only a moderate fall in fertility rates and a continuing decline in mortality.[5] Furthermore, both factors will contribute to the continued rise in the proportion of young persons in the population (under fifteen years of age) and, consequently, to an increase in the ratio of economically inactive to economically active population. In Latin America, the proportion of rural population and of population engaged in agricultural activities has fallen considerably in the last thirty years. In view of the character-

[1] Kingsley Davis, "The place of Latin America in world demographic history," *Proceedings of the Fortieth Conference of the Milbank Memorial Fund* (Demography in Latin America) (New York, April 1964), pp. 19-53. The author draws on the work of S. F. Cook, W. Borah, L. B. Simpson, G. Kubler, J. J. Parsons, J. H. Rowe, G. W. Roberts, J. Janer and A. M. Carr-Saunders, all of whom are cited in his article.

[2] *Ibid.*

[3] *Ibid.*

[4] United Nations, Economic Commission for Latin America, *Statistical Bulletin for Latin America*, vol. I, No. 1, tables 1 and 3, Santiago, Chile, March 1964. The ECLA estimate of the total population for 1960 coincides with that given by Kingsley Davis (see foot-note 1), but the 1980 projection exceeds by 15 million (4.3 per cent) the United Nations projection referred to by Davis. ECLA has also made retrospective adjustments and computed a lower absolute population between 1925 and 1960 (5 per cent lower in 1930).

[5] The projected populations of Argentina, Bolivia, Chile, Cuba and Uruguay, which in 1960 represented 20 per cent of the total, show signs of less rapid growth as the result either of a fall in the birth rate or of a less intense decline in mortality during the period under consideration. See, in addition to the source cited in foot-note 4, the comparison by groups of countries made by Alfred Sauvy, "La population des pays d'Amérique Latine; vue générale sur leur état et leur croissance," *Population*, No. 1 (Paris, Institut national d'études démographiques), January-March 1963, pp. 49-64. See also Davis, op. cit. Sauvy's study is based partly on calculations which were later modified by ECLA. According to the ECLA projections (loc. cit.), the population of these five countries will increase between 1960 and 1980 at an annual rate of 1.9 per cent while that of the remaining fifteen countries will increase at the extraordinary rate of 3.1 per cent.

istics of modern economic development, and especially of the industrialization process, this trend is likely to continue.

4. The demographic outlook in Latin America poses economic and social problems of which, as regards their scope and nature, the Latin American countries themselves have had no experience. The experience of other countries in different technological, cultural and institutional circumstances or at a different stage of development may be of only limited value. Nevertheless, certain consequences of rapid population growth can be identified. They are common to the majority of under-developed countries and, naturally, become apparent as soon as the possibility of accelerating the pace of economic development is considered. [6]

5. In the first place, it is generally accepted that the rate of population growth now being experienced by Latin America demands a greater investment effort in order that the economically active population may have the capital resources necessary for increasing the per capita national product. Any attempt, moreover, to increase the product more rapidly will mean a correspondingly greater investment effort to provide the additional capital required for each member of the economically active population. Secondly, accelerated population growth results over a long period in an increase in the proportion of population below working age. This, in turn, obliges the community to devote a larger proportion of resources to investments which are not directly or immediately productive (education, health and welfare, urban improvements, housing) and to provide current government and private services which reduce the capacity for new investment. Thirdly, the structural problems inherent in an under-developed economy, especially rural over-population in areas of very low technological capacity, are aggravated, and migration from rural to urban areas is intensified and contributes to urban under-employment. Fourthly, as a consequence of the foregoing, the rate of industrialization must be increased in order to absorb the internal migration, the natural increase of the urban population and the reservoir of under-employed population. In other words, in an under-developed country, the higher rate of population growth resulting from high fertility and falling mortality makes it far more difficult to carry out a development programme aimed at achieving a rise in the level of living fairly quickly.

6. In the case of Latin America past experience has been very different from what is encountered today. During the second half of the nineteenth century the economy of most Latin American countries expanded under the influence of European and North American demand for primary commodities. At a time when it was possible to satisfy the rapidly growing external demand without greatly altering the internal structure of the Latin American countries and almost always with the help of foreign capital and even of immigration, no factors were present which might cause population trends to be noticed or might significantly modify them. Population growth, as already stated, was slow, and the economy developed through certain sectors favoured by external demand but often cut off from the rest of the economy. Neither social demands nor cultural levels required that any great proportion of resources should be devoted to less productive investment. Moreover, because of the low level of industrial activity and small demand for services, there was little natural incentive to migration from rural to urban areas. Despite important cyclical fluctuations in which structural imbalances became increasingly apparent (e.g., in Brazil, Argentina and Mexico), per capita income, at least in the principal countries, probably rose in the long term, even though at a rather moderate rate. The average annual rate of increase in Brazil, Argentina and Mexico may have been around 1 to 1.5 per cent until about the First World War. [7]

7. After 1920 this picture began to change perceptibly. At a time when population growth was becoming more rapid, changes in the structure of international demand were beginning to affect many Latin American commodities unfavourably. The world trade crisis of the 'thirties, the adverse change in the terms of trade after the Second World War and the often great disparity between supply and demand in the most recent period have com-

[6] See Ansley J. Coale and Edgar M. Hoover, *Population Growth and Economic Development in Low-Income Countries: a case study of India's prospects*, Princeton University Press, 1958. This remarkable study shows that even in two countries, such as India and Mexico, with considerably different economies, the consequences of a change in the fertility rate are rather similar. Also of interest are the replies from the Governments of various under-developed countries to a United Nations questionnaire: see *Inquiry among governments on problems resulting from the interaction of economic development and population changes* (United Nations document E/3895, 18 May 1964, chap. III-A).

[7] Based on Celso Furtado, *Formación económica del Brasil*, pp. 156-157 and 240-241, Mexico, Fondo de Cultura Económica, 1963; Aldo Ferrer, *La economía argentina*, p. 144, Mexico, Fondo de Cultura Económica, 1963; and, with respect to Mexico, data as yet unpublished of the Seminar on the Modern History of Mexico, held at the Colegio de Mexico.

pelled Latin America, in general, to make substantial changes in its productive structure and to reorient the development of its resources towards domestic instead of foreign markets. In this process industrialization has played an outstanding role. Although achieved perhaps only at great cost, it has made it possible to absorb part of the population increase, to introduce new techniques and to create a broader base for national and regional economic integration. At the same time the process of urbanization has contributed to the expansion of educational services, this being one positive aspect of internal migration.

8. Faced with the need to make this enormous effort at industrialization in adverse conditions and with little assistance in the way of foreign capital, the Latin American countries have had at the same time to pay greater attention to the social, educational, housing and improved urban facilities required by contemporary society. From this point of view, the large volume of rural-urban migration has merely intensified the need for capital. As a result, it has been impossible to keep abreast of current needs, and in some cases ground has even been lost; desirable standards of quality are hard to achieve.

9. At the time when population growth was slow, the structural changes implicit in economic development were less urgent, and it could be argued that market forces, through the interplay of the prices of products and factors, were adequate to bring about the necessary adjustments, though not in an entirely efficient manner. Agriculture improved and communications were opened up. A slow process of industrialization, which was confined to a few consumer goods, caused productivity to rise, provided new outlets for technology and capital and absorbed surplus manpower. When, however, the pace of population growth quickened, market forces and the corresponding price movements ceased to be effective in bringing about the necessary structural changes. This explains why many rural sectors and some industrial urban sectors suffered a loss of capital or were unable to absorb capital and technology quickly enough to raise their productivity.

10. One of the characteristics of Latin America today is the existence side by side of sectors of very high productivity and sectors of low productivity, and the transition from one to the other is hampered by institutional and social obstacles that are not easily overcome. For example, in earlier times it could be argued that land reform was less urgent because yields per hectare could be raised in lands of high or potentially high productivity whether the units were large or small. Today, however, with an expanding population, subsistence farming has spread to such an extent—frequently in marginal areas of low productive potential—that the transformation of agriculture and a rise in rural living standards are inconceivable unless substantial reforms are carried out in the system of land tenure, the organization of agricultural production, the system of marketing, rural education etc. These are all social and institutional phenomena which do not come about simply through the operation of market forces.

11. Similarly, industrial development no longer depends, as before, solely on such factors as the suitability of local conditions for the production of particular goods or low labour costs which make it possible to compete directly with similar imported articles. The industrialization of Latin America today is determined largely by balance-of-payments difficulties, which in turn result from the unfavourable conditions in foreign markets and modern patterns of consumption. Industrialization thus requires protectionist measures and direct incentives, including the construction of State industrial enterprises, all of which relegates the operation of market forces and the profit motive to the background. Up to twenty or thirty years ago, population growth had little effect on industrialization policy, but the present rapid pace of population growth has provided a fresh argument in favour of industrialization, namely, the need to absorb the expanding population of working age in more productive occupations even though at a higher social cost.

12. A review of the process of education and cultural improvement makes it obvious that in the past, even with little effort on the part of the State, educational facilities tended to expand, with a consequent improvement in the general level of technical skills. Admittedly, the lack of interaction between rural and urban areas and the low level of industrialization concealed the wide gap between urban and rural education, but this at least prevented excessive pressure on the educational system. The present picture and future outlook are quite different. The pressure—resulting from the rapid decline in mortality over the past fifteen to twenty years—for an expansion of educational facilities has revealed the inadequacy of those facilities as regards both quantity and quality and their almost total absence in rural areas. Industrialization requires better trained workers and highly skilled technical staff. The present population pressure has accentuated the difficulties in the field of education, and the reforms that

will be needed are likely to be as radical as land reform in the case of agriculture.

13. Another example is to be found in housing needs. So long as population growth was slow and migration to the towns not very significant, the shortage of housing as regards both quantity and quality was not too noticeable, and the normal operation of the price system was more or less adequate to the situation. A large part of housing, namely, rural housing, was in any case outside the price system, and urban housing was built in response to ordinary incentives. With more rapid population growth and the consequent increase in the number and size of families—all this being accompanied by a growing influx of persons with low purchasing power into the towns—the price system proved inadequate to stimulate the necessary construction of housing. In addition, there was wide-scale deterioration in the housing situation as the result of changes in the internal structure of towns and the effects of inflation coupled with rent controls. To an increasing extent, the satisfaction of housing needs in Latin America has been left to the government sector or has at least depended on substantial subsidies to the private sector. Despite the major housing construction programmes of recent years, it has not been possible to reduce the accumulated deficit in urban centres and has been barely possible to cope with the normal increase in demand. Thus, the high rate of population growth, which in many cities of Latin America is 5 to 7 per cent per annum, points to the need for important institutional and technological reforms in the field of housing.

14. It is generally argued that development planning in Latin America should be based on the need: to make more effective use of resources; to stimulate the expansion and technological improvement of import-substitution activities which will lessen the traditional dependence on foreign trade; and to meet basic social needs which the market economy would not normally satisfy. On the other hand, institutional and social reforms, as in the case of agriculture and education, are usually based on considerations of social justice and only partly on the prospects of obtaining long-term economic results. The population expansion, the scope of which is only now beginning to be realized, has not so far been a determining factor in such changes. There can be no doubt, however, that unless population trends can be significantly altered, they will assume first-rank importance and necessitate a more intense search for solutions.

15. To return now to the topic of this paper, namely, the relationship between population growth and the investment effort which it makes necessary, it can be said that all the foregoing considerations give further emphasis to the need, first, to increase Latin America's domestic savings and investment capacity, and, secondly, to achieve the greatest possible economy in the use of capital and a more intensive use of manpower per unit of capital. At the present time, the fixed gross investment in Latin America does not yet exceed 15-16 per cent of the gross national product, the average product-capital coefficient is 0.40-0.45, and the marginal net product-capital ratio is also high (0.40-0.44).[8] It is thus apparent that with external conditions in its favour—and these could be improved to some extent by international negotiations—Latin America might be able to make the additional effort that is required and thereby achieve a considerable improvement in output.

16. Demographers tend to take a pessimistic view of the situation. In particular, they continue to lend support to a population/natural resources ratio which seems unsuited to a modern economic structure. It is obvious, however, that the future level of living in Latin America will not depend on that ratio (in so far as it has any significance) but rather on the ability of the Latin American countries to integrate their industrial structure with the aid either of their own or of imported natural resources. This can be done only if there is some possibility of increasing exports, of both primary commodities and manufactured goods, to the rest of the world, and if the process of import substitution can be carried forward on a broader and more efficient scale. This means that any system of import substitution must include capital goods and must be able, through regional integration, to take advantage of the savings resulting from mass production. Furthermore, taking Latin America as a whole, there are great reserves of agricultural resources and potential productivity which, through regional economic integration, can be utilized for the benefit of the region. Also, to the extent necessary, and provided that greater impetus is given to industrialization and also to the export of manufactures, part of the demand for food-stuffs could be met by importants from the temperate regions of the northern hemisphere where productivity and other agricultural conditions, coupled with income elasticities of falling demand, are tending to create

[8] ECLA, *The economic development of Latin America in the post-war period*, document E/CN.12/659/Rev.1, pp. 17 and 32-33.

permanent surpluses. Variations in the pattern of consumer demand in the industrial countries have resulted in a very marked decline in the proportion of income spent on food and, in the case of many products, a fall in per capita consumption in absolute terms. The same thing is happening in less developed areas, such as Latin America, under the impetus of the gradual rise in incomes and the cultural changes consequent upon migration from rural to urban areas. This will, to some extent, relieve the pressure of population on marginal and subsistence farming.

17. Demographers seem also to have considerable reservations about the practical results of scientific and technological progress in relation to agricultural output and even to other fields of activity. However, provided that the institutional and social obstacles, which are still very evident in Latin America, can be overcome, there is no reason why great technological advances should not be possible or why they should not be expected to result in a greater productivity of capital which, in turn, would lead to an increase in the amount of capital per person of working age and in productivity per person employed.

18. It is also claimed that rapid population growth, as in Latin America, tends to reduce the proportion of gross product, at any level, devoted to saving,[9] owing to the inevitable consequences of a high rate of population growth on consumption. This trend, if it does occur, can be mitigated by a policy of redistribution of expenditure under which, especially with the aid of taxation, the increase in consumption by persons with high incomes will be curbed, and the excess consumption will be transformed into saving in the hands of the government sector, where it can be used for productive investment. It must be admitted, however, that the fundamental problem of any developing economy, which is to raise its average savings capacity, will remain, and the solution of this problem is not made easier by a high rate of population growth.

19. In any consideration of the long-term future of the Latin American economy, the availability of cheaper means of international transport must not be overlooked. It is likely that there will be seasonal or temporary migration or even longer-term migration to regions of North America and Europe having high levels of living. This is already foreshadowed by the migratory movements from Mexico and Puerto Rico to the United States and from Jamaica to Great Britain and Canada and by somewhat similar movements of population from Spain, Italy and Greece to northern and central Europe. Latin America's development effort will certainly obtain some relief from the effects of population pressures to the extent that emigration continues to North America and even to European countries with a high level of demand for services.

20. The foregoing considerations, together with the justifiable optimism inherent in them as regards the effects of technology, the possibility of raising the productivity of capital and labour, the influence of taxation on the propensity to save and the likelihood of long-term migration of certain sectors of the Latin American population, do not, of course, invalidate the argument that the economic development of Latin America and the consequent raising of living standards would be faster and more viable if the foreseeable rate of population growth, and fertility rates in particular, were lower than what present projections indicate.[10] Future inquiries on differential fertility and other aspects of the problem will provide the first reliable data for a revision, if necessary, of present population projections. Family-planning policies, which daily appear more necessary, will represent a further step in the same direction. In the meantime, for the purposes of economic development programming in Latin America, the population growth rates referred to above should be regarded as parameters. Although necessarily recognizing the relative permanence of these parameters, we must not succumb to the "demographic fatalism" currently found among many writers and institutions, since there is reason to believe that the interaction of technology and social institutional changes will bring about an increase in the productivity of capital sufficient to overcome the initial population pressures. This will depend, of course, on an increase in the rate of investment and on international co-operation in the fields of foreign trade and long-term financing.

[9] For example, Coale and Hoover, op. cit., p. 246, in connexion with India.

[10] Cf. Coale and Hoover, op. cit., *passim*.

Meeting A.10

DEMOGRAPHIC ASPECTS OF ECONOMIC GROWTH

PAPERS

Demographic aspects of economic growth: the case of Togo

F. N'SOUGAN AGBLEMAGNON

[*Translated from French*]

1. The problem facing the developing countries springs from the paradoxical fact that, on the one hand, their population, or their demographic potential, is the basis of their wealth, a pre-condition of their development and its motive force, while, on the other hand, their demographic growth actually slows development to some extent. This is what we propose to show in the case of an African country, Togo, which illustrates how purely demographic factors can decisively affect development policy. To this end, we have to present:

(*a*) The dynamics of population;

(*b*) The dynamics of production;

(*c*) A tentative sociological interpretation of this data.

2. Any study of the demographic situation of the developing countries comes up against familiar problems: the lack of scientific material, the fact that no proper surveys have been made and the difficulty of assessing the size of the population and making precise measurements of the various indicators for its development. However, we now have a certain amount of material from Togo which provides the information and documentation on which this article is based. (General census of the population of Togo, 1958-1960; demographic survey, 1961; economic inventories, 1958-1959, 1962-1963; demographic studies of the Kabré region, 1957; expert studies and reports; economic accounts of the Crédit du Togo, 1960; economic accounts of Togo, 1956, 1957, 1958 (B.C.E.A.O.); the Saxe report; sociological surveys; development plans etc.)

3. For technical reasons we shall use only the period 1950-1960 as the framework for our analysis, a period which not only witnessed the transition from a colonial economy to an economy of independence but which, in demographic terms, marks a definite leap forward, since the population increased from 1 million to 1.5 million. Whatever errors may have been made in estimates before 1950, there has definitely been a very large population increase. According to the demographic survey of 1961, Togo has a crude birth rate of 55 per 1000, a crude death rate of 29 per 1000, an annual growth rate of 2.6 per cent and an infant mortality rate of 121 per 1000.

4. These rates, which are similar to those found in many other developing countries, are indicative of the great difficulties involved in the economic integration of this additional population. On 1 January 1964, the total population of Togo, which has an area of 56,000 square kilometres, was estimated at 1,586,000.

5. We should now ask to what extent Togo's economy is prepared to absorb this additional population and to deal with the problems of development. What are the dynamics of the Togolese economy during the period 1950-1960? What is the relation between production and population growth? Several recent reports have stressed three main imbalances in the Togolese economy:

(*a*) "An imbalance between the export sector and the consumption sector";

(*b*) "An imbalance between the southern and northern regions";

(*c*) "An imbalance between the public and private sectors".

6. Not only did consumption advance much more rapidly than production during the period under consideration but capital investment remained very low. In 1958, with a gross national

output of CFA francs 23,640 million, only 1,970 million were invested in capital goods. Moreover, action must be taken to close the gap in development between the wealthier southern region and the poorer northern region, which would require a substantial capital investment.

7. The imbalance between the public and private sectors is indicative of a classical situation. Independence has been accompanied by a significant increase in the number of government employees and in the costs of government. The administration seems to be the industry which is absorbing the entire educated labour force; this situation is made worse by the fact that the educated section of the population (including the lowest group, which can merely read and write) tends to look down on agricultural and manual work to some extent and to regard agriculture as a backward and almost "shameful" pursuit. Almost the entire national budget is absorbed by the costs of government.

8. Strictly speaking, it is still the agricultural sector alone which can be said to produce anything. However, the export trade is based on a few commodities: coffee, cocoa, copra, almonds and palm-oil; hence the fragility and vulnerability of an economy and an export industry which is totally dependent on world prices and sensitive to the slightest economic fluctuations. That is why, quite rightly, the various projects now in preparation are emphasizing the diversification of culture. However, the real potential of agriculture, which is the primary sector of the Togolese economy, is dependent on the quality of the soil, the total area cultivated, the yield of the soil, and methods of cultivation. There is a striking inequality in the regional distribution of agricultural resources. Production could rise significantly if new techniques were introduced, such as the use of manure, which so far has been widespread only in the Kabré region. In that connexion, the exploitation of phosphate deposits is opening up new prospects. The inadequacy of the country's livestock resources is also striking, particularly in the South. In 1961, livestock in Togo was distributed as follows:

Cattle	145,011
Sheep and goats	802,313
Donkeys and horses	2,268
Pigs	177,005
Poultry	1,090,505

9. Togolese agriculture, however, has not exhausted its resources and its potential. Half of the land is still unexploited, and only one tenth of the country is actually cultivated each year. Action is therefore necessary both in quantitative and in qualitative terms.

10. The problem is not simply that of enumerating a growing population; we must examine the advantages and the related problems or costs for the country concerned.

(a) *The advantages of population growth.* It will not be sufficient merely to take quantitative action to lift Togolese agriculture out of its ancient ruts; steps must also be taken to organize the system of marketing. Very often the Togolese farmer does not feel that he is being supported on the question of prices; he becomes discouraged and does not believe in the improvements which are suggested to him. Only a sound marketing policy can act as a psychological incentive to modernize. Here, as elsewhere, low population density and low purchasing power come up against a rapid rise in consumption and are obstacles which freeze agricultural production. Not only will external sources of financing have to be sought (FAC, bilateral agreements, international organizations etc.), but a portion of local investment will have to be diverted towards agriculture instead of being almost exclusively used for housing and building. This process might make the youth of the country stay on the land and, at the same time, reduce the pressure on the overloaded public sector. This situation is particularly striking when we look at the transition from a colonial budget to an independence budget. Togo's general budget for the year 1961 showed an income of CFA francs 3,037 million, while expenditure was CFA francs 3,327 million as against CFA francs 2,814 million for 1960, representing an increase of more than 17 per cent;

(b) *The costs of population growth.* Population growth means that new facilities, such as schools, hospitals and housing, have to be created for the additional population; similarly, land has to be cleared, factories have to be built and transportation has to be provided. All this calls for a huge volume of both public and private investment. However, the word "investment" does not appear under the heading "Expenditure" for the year 1962, while CFA francs 2,542 million out of 3,535 million, or more than two thirds of all expenditures, is allocated for the operation of Government ministries. The inadequacy of the effort being made is quite obvious, for only CFA francs 142 million is allocated to agriculture—the country's main resource. Investment is almost non-existent. Thus, of the gross national expenditure of CFA francs 27,180 million in 1958, only 1,970 million was allocated to "capital goods and stocks". The costs of population growth are

particularly great in the field of education. If there is to be a continued rise in enrolment rates, more than 10,000 additional children will have to be enrolled in primary school each year. In order to "enrol all children aged 10, present educational facilities would have to be tripled". With the information at present available, we cannot say with any precision how much this operation would cost.

Interpretation

11. We should now ask what sociological conclusions we can draw from these facts concerning Togo. We must note, to begin with, that the demographic effects of economic growth first show themselves in terms of balance. In the case of "successful" growth, we can observe various kinds of demographic effects in the population as a whole provided that the effects of economic growth are harmonized and properly distributed throughout all segments of the population. Thus, we can gain some useful information from the birth rate, the distribution of the population by professional groups etc. To a large extent, this growth has a beneficial effect on the level of living if it is spread over the population as a whole.

12. In the developing countries, however, the positive effects of economic growth can be seen only in the privileged social groups. They are the ones who really benefit fully from the initial growth of these countries, while the great mass of the population, the people on the land and the urban sub-proletariat, find themselves increasingly downgraded. Therefore, in developing countries, and in Togo in particular, demographic factors seem rather to aggravate a situation which is already precarious.

13. We should now comment on some elements of economic balance. While in certain older countries the number of available jobs may exceed the active population despite a high standard of living (as is the case in France, where foreign labour has to be employed in some sectors), in the developing countries there is a large pool of unemployed persons. Moreover, in an ideally balanced economic-demographic situation, or at least in the balanced situation which some developed countries are now approaching, the demographic curve just meets the curve of general economic growth, while in the developing countries, and in Togo in particular, the demographic curve encloses the economic development curve. This disparity is increasing and will be made even greater by factors that will be mentioned below.

14. First, there is the break-up of the traditional demographic balance. Whatever the economic conditions of traditional society in black Africa may have been, it is certain that even before colonization, in the days of the slave trade and coastal forts, the economy of Togo, which was wholly agricultural and based on food crops, was highly precarious. With colonization, improvements in sanitation led to a stabilization of the demographic process and increased the demographic potential, while at the same time they accentuated the imbalance between production and population. In fact, the means of production have remained, with a few exceptions, those of the traditional society.

15. Hence, the main problem for Togo is to achieve a new balance. But what is to be its nature? First of all, the transition must be made from an economy based primarily on food crops to a highly industrialized economy, and this calls for certain conditions which are not always present as matters now stand. Secondly, an effort must be made to ensure that the growth rates of needs and of production coincide; unfortunately, there is also a very large gap in this area which is difficult to close. The most striking paradox here is the fact that there is a labour surplus in a country which is inadequately developed.

16. It is also remarkable that this labour force is poorly distributed throughout the various economic sectors and that, to a large extent, the rather monolithic economy is based on only a few commodities.

17. However, even more than the concentration of the population in the agricultural sector, its low level of vocational training is a factor which hampers development. The lack of available employment in non-agricultural sectors and the inadequate development of the agricultural sector itself give rise to an acute problem of unemployment in Togo, and this makes for further deterioration in social conditions which are already bad enough; this is clear, for example, from a survey which we made of unemployed young people in a labour camp at Tsevié. Sometimes, seasonal or regional migration in the northern or southern region helps to overcome or correct the inequality of natural conditions, but it is not always enough to restore a real balance.

18. This already precarious situation has been made worse by political migration, such as the repatriation which became necessary following certain expulsions from neighbouring African territories. In 1958, at the very moment when the Government was drawing up a development programme to be implemented after

independence was gained, Togo had to take in 5,000 refugees from the Ivory Coast; in 1961, 3,000 immigrants came from Ghana, fleeing imprisonment or political persecution, and 400 refugees later arrived from the Congo (Brazzaville). This was a heavy influx for a small country like Togo to absorb. However, what was most noteworthy was the special attitude of these refugees, who not only swelled the ranks of the unemployed but came with quite specific demands. Many of them had had stable jobs abroad, often with good salaries, and hence could not find employment which, even if not as remunerative as their previous positions, could at least console them for the losses they had incurred. This represented, even though in a general sense, a significant element of instability.

19. We must also say something about urban centres, which can be a force for growth, but which can sometimes also impede development. To the extent that the town, as the repository of all the modern machinery of growth, seems to be a focus of attraction, it absorbs many of the elements of development, so that at the present stage the countryside is just a poor relation. The necessary balance will have to be one in which development plans organize national life with due regard for the rural areas. These development plans themselves should not only be part of a long-term policy but should also be modified fairly frequently to meet changing needs.

20. The demographic aspects of economic growth now compel us to ask the fundamental question: what are the prerequisites for real economic growth? Efforts should first be directed towards the natural factors. In that context, the soil surveys recently carried out with the help of the United Nations Special Fund are a first step and will make it possible to draw up agricultural development plans in full knowledge of the facts. It is, however, impossible to overemphasize the primary role of the human factor in any kind of development policy and the constant need to bring the various sectors into line with each other. In a word, one should seek to adapt man to production and production to man rather than to increase the volume of production. This can only be done if some of the structural obstacles in the traditional society are first overcome. In addition, the utmost attention should be given to the effect of purely circumstantial factors on methods of obtaining the technical potential (capital, trained personnel) required for this undertaking. For all this to be fruitful, however, it must be part of a necessary change in attitudes and be accompanied by vocational and civic training. In this context, education in the widest sense of the word seems to be the best investment for Togo at the present time.

Natural increase in population and economic development in Morocco

ALBERT ASSOULINE

[*Translated from French*]

1. The development problems of the Moroccan economy are not unusual; like most of the countries of the developing world, Morocco is experiencing a very large population increase owing to a substantial reduction in the death rate and the maintenance of a high birth rate. It is difficult for the rate of growth of production to keep up with the rate of population increase, not only to ensure an increase in per capita income but simply to maintain the established level of living. The serious imbalance between population trends and production growth has already had some distressing effects. If real economic progress is to be achieved, population trends cannot be considered immune to planned intervention by man. In Morocco the possibility of long-term widespread prosperity seems to be largely dependent on the adoption of a vigorous birth control policy.

1. POPULATION TRENDS

2. As there is no civil registry, strictly accurate population data are not available in Morocco; however, a comparison of the results of the various censuses and counts which have been taken and a sample survey made in 1962 enable us, after making many corrections, to obtain a fairly sound approximation of the principal features of the population.

3. At the present time, the population of Morocco is nearly 13 million. It is estimated that during the last decade the population has increased at a mean annual rate of thirty per thousand, arrived at by deducting a death rate of about twenty per thousand from the mean birth rate of fifty per thousand.

4. The rate of population increase, while very high, has probably not reached its peak. The death rate, and particularly infant mortality which is still very high (an average of 18 per cent), may decline considerably in the years to come. The people, both in urban and in rural areas, are now extremely anxious to secure medical attention. A numerical indicator of their determination to do so was furnished by a recent survey on family budgets: the coefficient of elasticity of expenditures for medical care in relation to total expenditures was 1.85 in the towns and 2.15 in the countryside; it is the largest coefficient next to the coefficient concerning expenditures for transport. Moreover, the country's independence has established very favourable psychological conditions for the rapid development of health habits and acceptance of medical care. The Government is supporting this trend by organizing mass medical facilities and taking more vigorous action in those regions of the country which have long been at a disadvantage. Medical care is free in Morocco. Since 1955 the annual expenditures of the Ministry of Public Health have more than tripled. Of course, a number of factors are restricting medical progress: the scarcity of doctors outside the large urban centres is one of the most serious obstacles; however, there is a great amount of technical assistance in this field, and furthermore preventive care, which at the present time is the most effective way to improve the health of the people, may be provided by para-medical personnel, whom Morocco has been able to train fairly rapidly. Thus, unless there are stringent reductions of funds, medical advances can be widely disseminated with moderate means.

5. It is difficult to say how quickly the death rate may decline. In the opinion of many demographers, it might drop below 15 per thousand rather rapidly; after it reaches this plateau, its further development will probably be more dependent on general economic and social progress.

6. On the other hand, there is at present no noticeable sign of any decline in the birth rate. A recent survey shows that urbanization is not yet a decisive factor in the behaviour of married couples; the birth rate is still about the same in the towns as it is in the countryside. Except for a small number of educated young people, there is no sign as yet of an effective intention to limit births. The marriage rate is still very high and people continue to marry at a very early age; 55 per cent of the women between fifteen and twenty are married, while by the age

of thirty, almost all the women have married. Among men celibacy is very rare. Marriages are fertile; contraception and abortion are not practised. The gross reproduction rate is estimated at approximately 3.5. Cultural and religious traditions regarding birth are still firmly entrenched and preserve a social and psychological climate which favours a high birth rate. Morocco, unlike certain other Moslem countries, has not yet tackled this problem, which still has strong religious overtones and may well be exploited for purposes of political demagogy.

7. The various studies which have been made so far indicate that natural population movement, in the years to come, will show a rise in the annual rate of increase. The population of Morocco may double in less than twenty years.

8. Such a trend cannot fail to arouse concern. Alarming signs of an imbalance between population and capacity to make economic progress are already encountered in all sectors of economic life. The effects of this imbalance may be seen most directly in the standstill, if not decline, in mean per capita production and therefore in the average level of living, the dwindling of opportunities for savings, and the intensification of structural unemployment and underemployment.

2. The imbalance between production and population

9. The economic development during the 1954-1962 period, as the following table indicates, was marked by a virtual standstill in gross national income, a rather rapid rise in consumption, and a sharp decline in investment.

Index of volume (base 100 = 1960)	*1954*	*1956*	*1958*	*1960*	*1962*
Population	82	88	94	100	106
Gross national product.	100	98	101	100	105
Consumption	89	88	93	100	109
Investment	152	111	98	100	107

Source: National Accounts Bureau.

10. The decline in the average level of living, which occurs when the rise in gross national product is substantially slower than the rise in population, has been mitigated in the towns at least on the surface by the extensive Moroccanization of posts since independence, owing to which a greater amount of the income of the modern economy was distributed to nationals. The deterioration in the production/population ratio is none the less real. The decline in investment is still more disturbing; the national investment rate dropped from 15 per cent in 1954 to only 9 per cent in 1962; the principal reason for the decline in investments was the sudden cessation of the flow of foreign capital and a stoppage of the expansion of the modern economy—which had been stimulated mainly by foreigners—when Morocco regained its independence. The inevitable decline in available savings which are used for consumption when the level of living tends to fall must also not be overlooked. The propensity to consume, already strong because of the low levels of per capita income (about $150 per year), is strengthened by the considerable unemployment and underemployment. Family solidarity, an extremely vital factor in Morocco, ensures a wide natural distribution of workers' incomes.

11. Unfortunately, no systematic study of the employment situation in Morocco has yet been made. Different statistical approaches to the problem provide estimates of 20 to 30 per cent for the present unemployment rate of men of working age (between fifteen and sixty-five years) in the towns; the proportion of employed women in the towns is barely 15 per cent. There is a traditional opposition to town women working, but this attitude is fading away. The desire to raise the level of living and the pressure of necessity are growing stronger, and female unemployment is a heavy burden on the labour market. In the countryside, the idea of unemployment and underemployment is rather complex. Under the traditional way of life, all persons of working age have an occupation which varies in intensity with the agricultural seasons; the only concrete manifestation of unemployment is immediately felt in the towns through the rural exodus. It is estimated that 50 per cent of the recent increase in urban population is accounted for by rural migrants. The computation of underemployment in agriculture is based on a theoretical estimate, comparing the number of work days required for farming taking into account the given state of technology and the number of available work days; in Morocco the rate of agricultural underemployment estimated in this way is 40 to 45 per cent.

12. In general, less than 50 per cent of the persons of working age may be said to support the whole population. Statistics on employment opportunities created during the past decade are not available, but it is almost certain that unemployment and underemployment have increased; in order to meet the population increase alone, almost 100,000 new jobs must be created each year. If the investment required for the creation of one permanent and pro-

fitable job is estimated at $4,000 (a rather optimistic average), $440 million would have to be invested annually in order to prevent a worsening of the employment situation. Yet the annual gross investment has averaged only $200 million in recent years. Such estimates are undoubtedly schematic, but they help to bring out the problem of employment in the present population context and to indicate the funds necessary for its solution.

13. We cannot describe in detail all the many forms of economic imbalance which are caused by the population explosion. It seems increasingly clear that the economic progress which should enable Morocco to raise its levels of living and to catch up with the advanced countries is contingent on the race between the rate of population increase and the rate of growth of production. Unfortunately, at the present time, production is not winning the race. The foundations are being laid for the renewal of Moroccan society. The building of the political and legal groundwork, the training of men, and the carrying out of essential structural reforms can be accelerated, but these are not things that can be done on the spur of the moment. During the necessary period of preparation, it is extremely difficult to obtain high and continued production growth rates; people's conduct and their instinctive reactions are bound to be hesitant, so long as the machinery linking human effort with capital formation is not firmly established in practice. Hence, the problems raised by a very sharp population increase are particularly acute. Morocco needs a respite to remake itself into a completely modern country capable of ensuring the general well-being of its people. The purpose of the present efforts being not so much to improve the level of living immediately as to secure conditions of genuine prosperity and to bequeath to the rising generation, which will be better educated, an economy free of the principal burdens now slowing down its development, we must also make sure that the leaders of tomorrow are not confronted with the terrible obstacles represented by relative over-population.

14. For the sake of the future, a bold birth control policy must be adopted in Morocco.

Economic progress, investment and population growth in the developing countries

FRANÇOIS BENKO

[Translated from French]

1. For the past fifteen years or so it has been feared that the extraordinary population growth in the poor countries would outstrip economic development. This fear was expressed in many studies. Moreover, many statesmen still approach advancement in the developing areas as if it were a change to be hoped for and initiated, and not a process already under way. Yet various United Nations reports had dealt with the subject[1] in a more sophisticated way as early as 1961, although the population of the developing countries had increased, not at the rate of 1.25 per cent, as had been predicted, but at the rate of approximately 2 per cent.

2. While it is obvious, in simple arithmetic, that if a product (or income) is divided among a greater number of persons, each of them will receive a smaller share, the universal increase in per capita national incomes is also an established fact, particularly in the 1950-1959 period, despite the population explosion.

3. The annexed table shows variations in per capita national income from 1950 to 1959 in all the poor countries whose indices or rates are included in the Statistical Yearbooks for 1960 and 1962 and in the United Nations *World Economic Survey 1961*. These countries accounted for more than 1,600 million of the approximately 1,950 million people in the developing world in 1959. During the period under examination, per capita national income rose in all of those countries, except Argentina, Cambodia, Paraguay and Syria. With the exception of these four countries (with a total of about 31 million inhabitants), where per capita national income declined, and of Pakistan and Ceylon, where the annual increase was only 0.9 per cent, the growth rate was nowhere less than 1 per cent per annum. However rapid the population growth in certain countries, it was generally outstripped by the still greater rapidity of the economic advance. In a number of cases—and not the least important ones—the rate of increase in per capita national income reached 3 per cent and in some instances much more.

4. Various additional indicators—for example, food consumption or increase in the use of certain consumers' durable goods (radios, bicycles etc.)—generally confirm the fact of economic gains. Of course, allowance must be made for statistical errors, but observers today recognize that there has been a universal advance, although the less optimistic estimate its mean rate at only 1 per cent per year (excluding mainland China).[2] So low a rate might not satisfy the legitimate demands of the poor nations, but it should be enough to show that total national income was increasing more rapidly than population.

5. The advance, even if estimated conservatively at 1 per cent per year, is not in line with the forecasts of capital needs which have been made by the developing countries for the past fifteen years. According to the usual models based on the correlation of economic and demographic variables, the gains that were obtained should have required much larger investments than those actually made in the developing countries during 1950-1959.

6. In 1951 an excellent study prepared under United Nations auspices by a group of eminent experts gave an estimate of the capital required by the developing areas annually to raise their per capita national income by 2 per cent a year. While it described the natural and social obstacles to development and while its estimates were to some extent empirical, the study also formulated some general propositions, such as: in a population increasing at an annual rate of 1 per cent, 2 to 5 per cent of the national income must be invested in order to maintain per capita national income at its

[1] United Nations, *Report on the World Social Situation 1961* (United Nations publication, Sales No.: 61.IV.4), pp. 25-27; and United Nations, *World Economic Survey 1961* (United Nations publication, Sales No.: 62.II.C.1).

[2] For example, Joseph M. Jones, *Does overpopulation mean poverty?* (Washington, Center for International Economic Growth, 1962), p. 30.

existing level; the amount of capital required to employ one person in non-agricultural work may be estimated at $2,500. In addition, the study provided valuable information concerning the populations of various areas (in 1949), their national income, domestic savings etc.; it also estimated, with some reservations, the absolute amount of capital needed.[3]

7. From a model based on the figures given in the study, one may calculate the investment capital deemed to be necessary for real growth during the 1950-1959 period. According to the model, an investment (initial, base year 1949) of $10,700 million annually would have been required to ensure an annual increase of 1 per cent in per capita national income for the total population of the developing world (excluding mainland China), growing at the annual rate of 2 per cent. With domestic savings estimated at $4,600 million, the industrialized countries would have had to furnish $6,100 million annually. The actual contribution of those countries, however, was only $3,500 million annually from 1950 to 1955.[4] At the close of this period, the developing areas—whose population and per capita incomes had increased (1,250 million persons, excluding China)—should, according to the model, have invested $14,400 million annually in order to maintain the rate of increase of per capita national income in their growing population. The whole burden of the additional requirements should have been borne by foreign contributions (because domestic savings had not increased during the period under examination).[5] Consequently, according to the estimates derived from the model, the industrialized countries should have made an annual contribution of $9,800 million. But the nominal annual contribution averaged only $7,700 million from 1956 to 1959,[6] and Paul G. Hoffman, Managing Director of the United Nations Special Fund, has demonstrated that only a part of this amount—$4,000 million—was for investment purposes.[7]

8. The application of the model to mainland China would lead to the absurd conclusion that $33,000 million would have had to be invested there annually in order to obtain the advance recorded.

9. The United Nations *Report on the World Social Situation 1961,* in dealing with needs for capital, does not give absolute amounts. Instead, it gives the bases used by economists to calculate those needs; these bases implicitly include the capital coefficient as a variable. The estimates rest on the assumption that the coefficient is 4 or 5. It could be—and in fact it is—different. The tacit admission that the capital coefficient is a variable changes the model from a mathematical formula to sheer tautology.[8]

10. R. Bicanic, after expounding his interesting theory, remarks in passing that the developing countries are carrying out at one time the three revolutions which the industrialized nations accomplished successively; the burden is onerous, and foreign aid a necessity.[9] In reality, while progress in the developing world certainly requires foreign capital, it requires less than had been thought, and furthermore the global marginal coefficient of capital is not more than 3, whereas it was 6 and more in the industrialized countries when they were making their strenuous effort to attain the threshold of economic growth.

11. Undoubtedly the theories and models for forecasting investment needs must be broadened to make them applicable to the developing countries. Correlations extrapolated on the basis of the past, which quickly become outmoded, are of limited usefulness as indices. The models designed in and for the industrialized countries should take into account many internal and external factors which affect national income in the countries of the developing world. In many of these countries, for example, the slow or rapid disappearance of physical and social obstacles is an important factor in increasing productivity.

[3] United Nations, *Measures for the economic development of under-developed countries* (United Nations Publication, Sales No.: 51.II.B.2), pp. 47, 76 and 77.

[4] Organization for Economic Co-operation and Development, *Moyens financiers mis à la disposition des pays en voie de développement économique* (Paris, 1961), p. 10.

[5] United Nations, *World Economic Survey 1960* (United Nations Publication, Sales No.: 61.II.C.1), cited by Paul G. Hoffman *et al., World without want* (Chicago, Encyclopedia Britannica, 1962), p. 35, reprint.

[6] Organization for Economic Co-operation and Development, *Moyens financiers mis à la disposition des pays en voie de développement économique* (Paris, 1961), p. 10.

[7] Paul G. Hoffman, *One Hundred Countries, 1¼ Billion People* (Washington, Committee for International Economic Growth, 1960), pp. 24-29.

[8] United Nations, *Report on the World Social Situation 1961* (United Nations publication, Sales No.: 61.IV.4), pp. 24-29.

[9] Rudolf Bicanic, "The threshold of economic growth", *Kyklos,* XV (1962), pp. 25 and 26.

Table 1. Rate of population growth and rate of increase in per capita national income in the developing countries [a]

Per capita national income by country	Mean annual population growth (per cent)		Mean annual increase in per capita national income (per cent)	
	1953-1958 [b] (1) †	1958-1961 [b] (2) ‡	1950-1959 [b] (3) §	1958-1961 [b] (4) ‡
Under $100				
Burma	1.0	2.1	4.5	2.3
Cambodia	—	3.8	—1.0 ‡	—
China (mainland)	2.7 *	2.4	12.1 *	—
Congo (Leopoldville)	2.2	2.4	2.9	—
India	1.3 [c]	2.2	2.1 [c]	2.0
Indonesia	1.9	2.3	1.5	—
Nigeria	1.9	1.9	1.5	—
Pakistan	1.4	2.1	0.9	2.0
Republic of Korea	1.0	2.9	3.1 *	0.7
Thailand	1.9	3.0	3.1	1.0
$100 to $200				
Algeria	1.8	1.9	4.7	—
Brazil	2.4	3.6	3.6	3.0
Ceylon	2.5	2.7	0.9	4.0
China (Taiwan)	3.6	3.7	4.4	3.5
Ecuador	2.9	3.2	2.1 *	1.3
El Salvador	3.5	3.6	1.6 *	—
Guatemala	3.0	3.1	1.7	1.0
Honduras	3.3	3.0	2.2	2.0
Morocco	1.8	2.8	1.2	—3.6
Paraguay	2.3	2.4	—1.6 ‡	—4.8
Peru	2.5	2.0	1.5	—
Philippines	2.5	3.3	3.1	1.0
Rhodesia and Nyasaland	2.7	2.4	3.5	2.6
Syria	1.9	4.8	—1.0	—2.4
Tunisia	1.2	1.7	1.7 *	—
Over $200				
Argentina	1.9	1.7	—1.0	0.0
Chile	2.5	2.4	1.1	—1.5
Colombia	2.2	2.2	2.2	4.0
Jamaica	1.9	1.6	4.4 ‡	—
Mexico	2.9	3.1	2.8	1.5
Panama	2.9	2.7	1.6	—
Puerto Rico	1.0	1.6	4.3	6.4
Trinidad and Tobago	3.1	2.9	6.6 ‡	—
Venezuela	3.0 [d]	3.3 [d]	5.0 [d]	1.0 [d]

SOURCES: * United Nations, *World Economic Survey, 1961*, op. cit.
† United Nations, *Statistical Yearbook, 1959* (United Nations publication, Sales No.: 59.XVII.1) (for all figures in column (1) not followed by asterisk).
‡ United Nations, *Statistical Yearbook, 1962* (United Nations publication, Sales No.: 63.XVII.1).
§ United Nations, Statistical Yearbook, 1960 (United Nations publication, Sales No.: 61.XVII.1) (for all figures in column (3) not followed by asterisk or double dagger).

[a] All the developing countries for which variations of per capita national income are given in the sources mentioned above appear in the table. Rates which do not cover at least the years 1958-1960 have been excluded from column (4).

[b] Complete period, or maximum period given in the source.

[c] In view of the results of the 1961 Indian census, the rate of 1.9 per cent would probably be more accurate for population growth and the rate of 1.5 per cent for increase in per capita national income.

[d] In view of the results of the 1961 Venezuelan census, the rate of 3.6 per cent would be more accurate for population growth and the rate of approximately 4.5 per cent for increase in per capita national income (1950-1959).

The impact of changes in the employment structure on the rate of economic growth, illustrated by post-war trends in Europe

JERZY BERENT

1. As the value of output per employed person ("labour productivity") differs usually significantly between economic sectors, a movement of labour from one sector to another may have a bearing on the rate of economic growth. This theoretical consideration has obvious practical implications for a country undergoing the process of industrialization, since the latter is usually associated with a shift of population and manpower from agriculture—in which the average and the marginal productivity of labour is low, sometimes very low—to the more productive sectors of the economy such as industry, construction or transport.

2. The production functions, conventionally employed for measuring the contribution to growth of various factors (labour, capital etc.), tend as a rule to assume, explicitly or implicitly, a homogeneous structure of employment (and for this matter, of output), ignoring thus the impact of structural changes.

3. In these pages an attempt is made to isolate the effect, and to evaluate—at least approximately—the impact of changes in the sector distribution of employment. The exercise is carried out for a selection of countries representing various stages of economic development and various economic systems, and the time reference is, broadly, a post-war decade.[1]

THE METHOD

4. An increase in total output (O) over time can be expressed as a function of an increase in labour size (L) and "the remainder", referred to usually as "labour productivity" $\left(\frac{O}{L}\right)$

$$\frac{O(t)}{O(o)} = \frac{L(t)}{L(o)} \times \frac{O(t)}{L(t)} : \frac{O(o)}{L(o)}$$

Now, labour productivity at a point of time can be looked upon as a sum of sectoral productivities weighted by the share of labour in the sectors (Si), where $Si = \frac{Li}{L}$.

The index of labour productivity at time (t) becomes then:

$$\frac{P(t)}{P(o)} = \frac{\Sigma Pi(t) \cdot Si(t)}{\Sigma Pi(o) \cdot Si(o)}$$

This index can be written as a product of two indices:

$$\frac{P(t)}{P(o)} = \frac{\Sigma Pi(t) \cdot Si(o)}{\Sigma Pi(o) \cdot Si(o)} \times \frac{\Sigma Pi(t) \cdot Si(t)}{\Sigma Pi(t) \cdot Si(o)}$$

The first expression on the right-hand side of the equation represents a "standardized index of labour productivity", indicating a change in total productivity on the assumption of unchanged composition of the labour force, whereas the second term represents an index of sectoral changes in employment weighted by sectoral productivities at the end year, and may be referred to as an "index of structural change in employment". It will be observed that since the index of over-all (i.e., non-standardized) labour productivity is usually available, either of the other two indices can be obtained as a residual, depending on the availability of statistical data. It will also not escape the notice of a demographer that the technique used here for separating the influence of the changing composition of employment is quite frequently used in population analysis, for instance for evaluating the impact of differences in age structure when comparing general fertility rates of two (or more) populations.

5. Before proceeding with the analysis proper, a word is still necessary on the definition of output used in this study. As is well known, eastern European countries adhere to the Marxist concept of national income, which is restricted in principle to the "material" output of goods and services, and excludes the non-material elements of "non-productive" services such as health, education, government administration, banking, finance and defence.[2] For the sake of maintaining comparability between eastern and western experiences, there is thus a good case for considering, for western coun-

[1] See also United Nations, *Some factors in economic growth in Europe during the 1950's* (United Nations publication, Sales No.: 64.II.E.1).

[2] Passenger transport and some trade activities are also by definition "non-productive" but are usually included for practical reasons.

tries also, only the material part of output, and only those economic sectors which employ "productive" labour. But it may also be argued with some justice that, apart from the reasons of statistical expediency, the purpose of this study is better served if it excludes those sectors of the economy for which the meaning of labour productivity is equivocal and ambiguous, and most of the non-productive services belong to this category. The definition of output that has therefore been accepted here is restricted to five large economic sectors: agriculture, industry (including manufacturing, mining, gas and electricity), building construction, trade and transport. Changes in the structure of labour refer to movements between these five sectors.

6. The country coverage in the appended tabulations has been a function of availability of statistics. The requirements included: (*a*) trends in output by sectors of origin at constant prices over a post-war decade or so; (*b*) labour force broken down by economic sectors at two points of time; (*c*) value of output by sector of origin in around 1960 (at current prices). Such data have been collected for twenty-two countries, including three developing countries outside Europe—Chile, Pakistan and Venezuela. Apart from these and the United States, all other countries are in Europe.

The results

7. The impact of changes in the structure of employment on the rate of growth of total output is clearly a function of two variables: the extent to which the shifts of employment affect sectors differing with regard to average labour productivity, and the extent to which these sectoral labour productivities differ. The impact will also be the greater, the more systematic is the movement of labour from the low to the high productivity sectors: the possibility cannot be excluded that some offsetting movements take place, particularly when a large number of sectors is considered.

8. Changes in the structure of productive labour force are shown in table 1, from which the following deductions can be made: (*a*) in the most industrialized and urbanized countries such as Belgium, the United Kingdom, and the United States, decline in the share of labour employed in agriculture was small, and resulted in an increased share of trade rather than industry, confirming thus the well-known proposition of rapid expansion of tertiary activities at the higher stage of economic development; (*b*) considering the area as a whole, the drop in the weight of agriculture was considerably higher in eastern than in western Europe, and was reflected in these countries in the expansion of industrial labour, both in relative and in absolute terms; (*c*) among some less developed southern European countries (Greece, Turkey) and at least two out of three underdeveloped countries outside Europe (Chile and Pakistan), the share of agriculture declined relatively little—partly, no doubt, on account of a rapid growth of population and labour supply in the countryside; (*d*) a generalization can perhaps be made that greater shifts occurred among countries which find themselves at the post-take-off stage of economic development—such as Austria, Italy or Norway in western Europe, and Czechoslovakia and Hungary in eastern Europe—than among those at earlier stages of economic growth (such as Bulgaria, Greece, Pakistan, Turkey, and Yugoslavia).

9. Sectoral labour productivities, defined as value added per worker and employee, are shown in table 2 in the form of deviations from those encountered in industry. The comparison most relevant for our purpose is that between agriculture and industry, and it can immediately be seen that the gap in the labour productivities of those two sectors varies greatly between countries. In at least two countries—the United Kingdom and the Netherlands—the labour productivity in agriculture was somewhat higher than in industry. At the other extreme we find Yugoslavia and Bulgaria, whose industrial productivity exceeded that in agriculture five to six times. In general, this gap is extremely wide in the centrally planned economies.

10. It goes without saying that a part of the observed differences is "statistical". Definitions of employment—particularly in agriculture—differ between countries; and this probably explains the large differences found between some developing countries. On the other hand, it is well known that the value of agricultural output is somewhat underpriced in the national accounts of the centrally planned economies in relation to industry, and that therefore the observed gap in the respective labour productivities is exaggerated.[3] This explanation amounts to saying that a part of the increase in national income in these countries is "statistical", i.e., that this increase would have been somewhat smaller had the industry-agriculture price relatives been more rational.

11. Generalizations are more difficult to make for other sectors. In the developing coun-

[3] See, for instance, "A note on some aspects of national accounting methodology in eastern Europe and the Soviet Union", United Nations, *Economic Bulletin for Europe*, vol. 11, No. 3 (1959).

tries outside eastern Europe both trade and transport seem to be more productive than industry; in some countries considerably so. Transport fares better than industry also in several western European countries, but among the centrally planned economies both trade and transport have on the whole considerably lower labour productivity than industry.

12. The combined effects of structural changes and productivity differences on the rate of economic growth are shown in tables 3 and 4. Table 3 shows the rates of growth of total output, labour, standardized labour productivity and of the indicator of structural shift in employment, whereas table 4 provides the results of calculation of the relative weights of these factors according to the formula developed in the introductory pages to this paper.

13. It will be seen that in some countries (Belgium, Chile, Greece, and the United Kingdom) contribution of the structural change to over-all growth was negative, whereas in several others (Ireland, the Netherlands, and the United States) it was virtually insignificant. In Greece, the explanation lies in the increased share of agricultural employment over the period 1951-1961, whereas in the United Kingdom and Chile the small decline in the share of agriculture has resulted in an increased weight of transport and/or trade rather than industry. In the other western European countries, shifts in employment were responsible for around 15-20 per cent growth of output. This has been an important contribution—in most cases more important than that of sheer labour size. On the other hand, the results are inconclusive for the three under-developed countries. The case of Chile has already been discussed. In Pakistan, employment statistics show a very small drop in the agricultural sector. In Venezuela, the share of agriculture declined quite markedly but the productive differentials between industry and agriculture were rather small.

14. The impact of structural change was on the whole markedly higher in eastern than in western Europe, covering, in the former, a range from 12 per cent contribution in the Soviet Union, to as much as 37 per cent in Yugoslavia. Moreover, as in these countries, the rates of growth of output were considerably higher than in western Europe. The indices of structural change have also been of a different order of magnitude—amounting to as much as the equivalent of a 1-2.5 per cent rate of growth per annum.

Table 1. Changes in structure of "productive" labour force in selected countries

Country	*Year*	*Total*	*Percentages*				
			Agriculture	*Industry*	*Construction*	*Trade*	*Transport*
Austria	1951	100.0	39.3	43.9		10.5	6.4
	1961	100.0	26.9	55.0		10.9	7.1
Belgium	1950	100.0	13.9	50.7	8.0	17.9	9.5
	1960	100.0	10.0	51.9	9.5	19.4	9.3
Bulgaria	1949	100.0	83.1	9.8	2.9	4.2	
	1960	100.0	71.4	17.4	4.1	7.2	
Chile	1952	100.0	40.5	33.1	6.5	13.9	5.9
	1960	100.0	38.4	31.3	9.8	13.3	7.1
Czechoslovakia	1950	100.0	43.7	34.0	7.1	9.4	5.8
	1962	100.0	27.2	45.8	10.0	9.7	7.4
France	1955	100.0	32.9	36.7	9.2	14.7	6.5
	1961	100.0	26.9	38.7	10.5	16.9	7.0
Greece	1951	100.0	60.1	20.9	3.3	9.7	6.1
	1961	100.0	63.7	17.0	5.4	8.6	5.2
Hungary	1949	100.0	61.9	24.4	2.7	6.2	4.7
	1961	100.0	45.0	33.1	7.3	7.4	7.1
Ireland	1951	100.0	50.0	29.1		20.9	
	1960	100.0	46.5	29.8		23.7	
Italy	1954	100.0 [a]	54.8	45.2		..	..
	1961	100.0 [a]	42.2	57.8		..	..
Netherlands	1950	100.0	18.4	53.4		19.2	9.0
	1961	100.0	13.2	55.9		21.5	9.4
Norway	1950	100.0	36.1	30.8	9.4	12.6	11.2
	1961	100.0	26.9	33.1	10.2	16.2	13.6

Table 1. Changes in structure of "productive" labour force in selected countries (*concluded*)

Country	Year	Total	Percentages				
			Agriculture	Industry	Construction	Trade	Transport
Pakistan	1951	100.0	84.9	7.1	0.7	5.7	1.5
	1961	100.0	82.4	9.1	1.3	5.4	1.9
Poland	1950	100.0	63.8	21.2	4.7	5.9	4.3
	1960	100.0	55.4	26.7	5.8	6.4	5.6
Portugal	1950	100.0	58.3	29.1		8.4	4.0
	1960	100.0	51.6	34.3		9.6	4.4
Spain	1950	100.0 [a]	66.6	26.8	6.6	..	..
	1960	100.0 [a]	57.0	33.5	9.5	..	..
Turkey	1955	100.0	85.9	7.3	1.8	3.2	1.7
	1960	100.0	83.6	8.4	2.5	3.5	2.1
USSR	1950	100.0	56.6	25.0	4.1	6.9	7.3
	1959	100.0	46.1	29.7	6.6	8.4	9.2
United Kingdom	1951	100.0	6.9	57.2	8.3	17.5	10.1
	1961	100.0	5.5	55.0	9.0	21.3	9.2
United States of America	1950	100.0	17.7	37.0	7.5	29.9	7.9
	1960	100.0	12.8	37.1	8.7	34.2	7.2
Venezuela	1950	100.0 [b]	65.9	20.7	8.5	..	4.9
	1961	100.0 [b]	56.2	26.6	9.3	..	7.8
Yugoslavia	1952	100.0	82.7	9.4	2.9	2.4	2.5
	1961	100.0	70.5	17.0	5.0	4.4	3.0

SOURCES: Organisation de coopération et de développement économique, *Manpower Statistics, 1950-1962* (1963); International Labour Organisation, *Yearbooks of Labour Statistics;* United Nations, *Some factors in economic growth in Europe during the 1950's* (United Nations publication, Sales No.: 64.II.E.1), appendix tables; United Nations, *Yearbook of National Accounts Statistics* (United Nations publication, Sales No.: 64.XVII.4); *National Statistics, 1963.*

[a] Excluding trade and transport.

[b] Excluding trade.

Table 2. Sectoral labour productivity in selected countries

Index numbers: industry = 100

Country	Year	Industry	Construction	Agriculture	Trade	Transport
Austria	1961	100	48	90	104	
Belgium	1960	100	31	84	39	97
Bulgaria	1962	100	70	18	81	
Chile	1960	100	25	31	240	84
Czechoslovakia	1962	100	66	31	40	37
France	1961	100	53	35	68	77
Greece	1961	100	83	37	106	117
Hungary	1960	100	91	30	33	36
Ireland	1960	100		58	62	
Italy	1961	100		55	..	..
Netherlands	1961	100		102	74	123
Norway	1961	100	55	41	82	134
Pakistan	1961	100	139	40	108	120
Poland	1960	100	90	26	91	58
Portugal	1960	100		36	59	101
Spain	1960	100	87	58	..	..
Turkey	1960	100	173	39	216	306
USSR	1960	100	87	26	79	32
United Kingdom	1961	100	92	116	81	108
United States of America	1960	100	54	44	57	107
Venezuela	1961	100	267	74	..	301
Yugoslavia	1961	100	65	15	103	88

SOURCES: Organisation de coopération et de développement économique, *Manpower Statistics, 1950-1962* (1963); International Labour Organisation, *Yearbooks of Labour Statistics;* United Nations, *Some factors in economic growth in Europe during the 1950's* (United Nations publication, Sales No.: 64.II.E.1), appendix tables; United Nations, *Yearbook of National Accounts Statistics* (United Nations publication, Sales No.: 64.XVII.4); *National Statistics, 1963.*

Table 3. Trends in (material) output and its components
Index numbers: base year = 100

Country	*Period covered*	*Output*	*Labour force* [a]	*Standardized labour productivity*	*Structural change*
Austria	1951-1961	173.5	103.8	154.9	107.9
Belgium	1950-1960	139.4	97.3	145.5	98.5
Bulgaria	1949-1960	275.0	114.8	185.8	128.9
Chile	1952-1960	125.6	105.5	122.0	97.6
Czechoslovakia	1950-1962	224.7	107.2	180.7	116.0
France	1955-1961	129.5	98.7	126.5	103.7
Greece	1951-1961	190.4	134.9	148.2	95.2
Hungary	1949-1960	225.0	117.4	161.5	118.7
Ireland	1951-1960	118.8	85.0	139.0	100.6
Italy	1954-1961	158.5	109.8	134.2	107.6
Netherlands	1950-1961	169.4	111.6	152.7	99.4
Norway	1950-1961	150.1	100.6	139.7	106.8
Pakistan	1951-1961	144.4	136.4	101.8	104.0
Poland	1950-1960	208.0	107.2	174.6	111.1
Portugal	1950-1960	162.5	104.1	146.6	106.5
Spain	1950-1960	165.3	106.5	147.4	105.3
Turkey	1955-1960	133.1	106.2	125.3	105.9
Union of Soviet Socialist Republics	1950-1959	247.1	115.6	191.4	111.7
United Kingdom	1951-1961	131.6	104.4	127.5	98.9
United States of America	1950-1960	132.7	107.1	123.4	100.4
Venezuela	1950-1961	181.9	128.6	129.8	108.9
Yugoslavia	1952-1961	223.0	103.9	159.6	134.5

SOURCES: Organisation de coopération et de développement économique, *Manpower Statistics, 1950-1962* (1963); International Labour Organisation, *Yearbooks of Labour Statistics;* United Nations, *Some factors in economic growth in Europe during the 1950's* (United Nations publication, Sales No.: 64.II.E.1), appendix tables; United Nations, *Yearbook of National Accounts Statistics* (United Nations publication, Sales No.: 64.XVII.4); *National Statistics, 1963.*

[a] Material sphere of production.

Table 4 follows on page 54

Table 4. Relative contributions of factors to growth of output (material product)

Country	Period covered	Percentages [a]		Standardized labour productivity	Structural change
		Output	Labour force		
Austria	1951-1961	100	7	79	14
Belgium	1950-1960	100	—8	113	—5
Bulgaria	1949-1960	100	14	61	25
Chile	1952-1960	100	23	87	—10
Czechoslovakia	1950-1962	100	9	73	18
France	1955-1961	100	—5	91	14
Greece	1951-1961	100	46	61	—7
Hungary	1949-1960	100	20	59	21
Ireland	1951-1960	100	—94	191	3
Italy	1954-1961	100	20	64	16
Netherlands	1950-1961	100	21	80	—1
Norway	1950-1961	100	1	82	16
Pakistan	1951-1961	100	84	5	11
Poland	1950-1960	100	9	76	15
Portugal	1950-1960	100	8	79	13
Spain	1950-1960	100	13	77	10
Turkey	1955-1960	100	21	79	20
Union of Soviet Socialist Republics	1950-1959	100	16	72	12
United Kingdom	1951-1961	100	16	91	—6
United States of America	1950-1960	100	24	74	2
Venezuela	1950-1961	100	42	44	14
Yugoslavia	1949-1961	100	5	58	37

SOURCES: Organisation de coopération et de développement économique, *Manpower Statistics, 1950-1962* (1963); International Labour Organisation, *Yearbooks of Labour Statistics;* United Nations, *Some factors in economic growth in Europe during the 1950's* (United Nations publication, Sales No.: 64.II.E.1), appendix tables; United Nations, *Yearbook of National Accounts Statistics* (United Nations publication, Sales No.: 64.XVII.4); *National Statistics, 1963.*

[a] Calculated on the basis of logarithms of growth rates of the components shown in table 3.

Foreign workers and economic growth in Switzerland

WILHELM BICKEL

1. In the course of a rapid economic expansion beginning at the end of the 'forties, a steady inflow of foreign labour into Switzerland has taken place. Increasing from year to year, it has by now led to the presence of an enormous number of foreign workers in this country. Owing to a very slow rate of increase of indigenous manpower, for a long time no administrative difficulties were placed in the way of this development; it was, on the contrary, stimulated by direct and indirect recruitment of workers abroad by *entrepreneurs* and trade associations, and by treaties with other countries regarding the wages and working conditions of the foreign workers. The main recruitment area of these foreign workers was Italy and, beyond Italy, the whole Mediterranean. From Germany and other neighbouring countries, large contingents of workers also moved into Switzerland.

2. The extent of the increase of foreign labour during the last fifteen years is shown in table 1, which gives the number of foreign workers in Switzerland with a temporary labour permit, but without a permanent residence permit, since 1949. Of the 721,000 foreign workers registered on August 1, 1964, 474,000 were Italian, 82,000 Spanish, 79,000 German, 28,000 Austrian, 24,000 French, and 34,000 of other nationalities.

3. In order to judge the economic significance of these figures, it is necessary to compare them with the total economically active population. Although the actual number of foreign workers is even larger in Germany than in Switzerland, amounting to about a million, their percentage of the total economically active population is far greater in Switzerland, whose resident population is only about a tenth of Germany's. At the census of 1 December 1960, the total population of Switzerland numbered 5,429,000, of whom 2,512,000 were actively engaged in gainful occupations. Of the latter, 2,091,000 were Swiss, 71,000 were foreigners with a permanent residence permit, and 350,000 were foreigners with a temporary labour permit only. The two categories of foreigners amounted to 16.7 per cent of the total economically active population.

4. It must, however, be taken into consideration that the census figures do not include the so-called "frontaliers" (i.e., foreigners working in Switzerland, but living across the border in a neighboring country). The imported labour force, moreover, is subject to considerable seasonal fluctuations, and the date of the census lies near the minimum, which is the end of January. If we take the "frontaliers" and seasonal workers into account, making adjustments to equate the latter with year-round labour, we arrive at a total year-round labour force in 1960 of about 520,000, or about 20 per cent of the total economically active population. Since then, the number of foreign workers has increased considerably, so that in 1964, about a quarter of the total economically active population of Switzerland consisted of foreigners. If the foreigners residing permanently in Switzerland are added to the Swiss (giving, perhaps, a clearer picture of the situation), the number of foreign workers with a temporary labour permit still makes up only 22 per cent of the total economically active population in 1964. This quota, by the way, varies greatly in different industries and occupations, a point to which we shall return later on. It is obvious that such a high percentage of foreign workers, who shift considerably to and fro, and who have no roots in this country, raises a number of serious economic and social questions.

5. As stated above, the inflow of large contingents of foreign workers was, at first, almost universally welcomed as a factor of prosperity. The *entrepreneurs*, in particular, claimed that the additional supply of manpower prevented an inflationary increase of wages and strengthened the competitive position of Swiss export in the world market. In order to support this contention, they pointed out that the cost of living rose more slowly in Switzerland than in most other European countries. Since, however, the rapid economic growth of the 'fifties has changed into an excessive strain on the productive capacity of the country, with a strong inflationary increase of the price level, the effects of the large inflow of foreign workers on the economic development of the country

have been judged much more critically, and serious disadvantages are now ascribed to the unlimited increase of the foreign labour force. This led finally to legal restrictions on the admission of foreign workers in 1963, which resulted in a slowing up of the yearly increase, as compared to 1960-1962.

6. The former appraisal of the employment of foreign labour must, indeed, be questioned. Apart from non-economic considerations, it is particularly necessary to take into consideration the long-run effects of the present high number of foreign workers on the Swiss economy. Leaving aside the social and political aspects of the problem, I shall now examine some economic consequences of the high number of foreign workers:

(*a*) The national product of a country will grow more rapidly if new workers are continually added to the labour force than it will if this is not the case. The permanent inflow of foreign workers has, therefore, accelerated the growth of the Swiss economy. Correlation of the yearly rate of increase of the gross national product at constant prices, as shown in table 2, with the yearly percentage increase of the number of foreign workers (February to February) over the fifteen years 1949-1963, gives a fairly high coefficient of 0.76. This, however, tells us nothing about the causal relation. Economic expansion was brought about by a rapid increase of exports; employment of additional foreign labor answered the demand pull. On the other hand, the growing demand could not have been met without increased employment. The high rate of the increase of the gross national product at constant prices in the years 1959-1963, averaging over 6 per cent, would not have been possible without additional manpower;

(*b*) It must not be overlooked that the foreign workers were consumers, as well as producers. Gross national product rose only 3.8 per cent per annum from 1958 to 1963. If economic growth had been somewhat slower without the foreign workers, per capita income would not have declined to the same extent as the total income. Nevertheless, the fact remains that the foreign workers accelerated the growth of the national product, by which all classes of the population profited in some measure. On the other hand, I cannot see why the increase of the labour force, taken by itself, should necessarily have had any inflationary effects;

(*c*) More complex are the effects of the inflow of foreign workers on the relation of the yield of capital to real wages. Without the foreign workers, the relation of capital to labour would be higher, and the marginal efficiency of capital would also be higher. This again means a higher yield of capital and, therefore, presumably a higher level of investments at a given rate of interest, which will be advantageous to economic growth as long as savings are sufficient to finance investments. If this is no longer the case, the high propensity to invest will lead to rising prices, if investments are not reduced by increasing the rate of interest. For reasons which cannot be explored in this paper, the Swiss National Bank has, until recently, kept the rate of interest as low as possible; investments have expanded rapidly and exceeded savings. The high level of investments is shown by the fact that in 1962 and 1963, total investments amounted to as much as 30 per cent of the gross national product. Without the foreign workers, the yield of capital would be lower, and investments would be smaller. It can be said that the additional employment of foreign workers has had an inflationary effect;

(*d*) If the yield of capital is higher, real wages are lower than they would be if foreign workers had not been admitted. This does not imply that the real wages of Swiss workers are lower. On principle, foreign workers are paid at the same rate as the Swiss for the same job; but a comparatively large proportion of foreign workers are unskilled, finding employment only in less well-paid branches of industry, such as agriculture, forestry, building, construction, building materials, textiles, clothing, catering, etc., while the Swiss workers move to more qualified and better paid jobs. In some of the above-mentioned areas, the foreign workers today far outnumber the Swiss;

(*e*) On the other hand, an inflationary rise in nominal wages may have been somewhat retarded by the additional employment of foreign workers. It has been at least contended that without the possibility of importing foreign labour, the disequilibrium of the labour market would have been greater than it has actually been, leading to a rise in wages at an earlier stage of economic development. Against this argument, it may be said that the relative ease with which foreign labour can be obtained has encouraged the demand for it. Higher labour costs would probably have induced employers to replace manpower by machines, and thus counteract demands for higher wages;

(*f*) This leads us to a further point. In judging the effect of additional foreign labour under (*a*), no account was taken of possible alteration in the structure and productivity of industry. In theory, an expansion of production by the addition of labour (which leads to a fuller utilization of the productive capacity of

enterprises) will reduce costs per unit of production and raise the productivity of labour. In reality, certain drawbacks become more and more apparent. It is likely that without the additional labour force, a more rigorous concentration and selection of enterprises would have taken place in structurally weak industries. The comparative cheapness of labour, and later on, a lasting high demand for all goods, made it possible for marginal enterprises (which would otherwise have been eliminated) to survive. Thus, the workers had no incentive to move to more productive branches of industry. In addition, many enterprises, whose profits would have warranted a rationalization of production, preferred widening capital to deepening capital, as long as a sufficient number of workers was available. Then, too, as more and more of the foreign workers came from economically less developed countries, their efficiency deteriorated. All this has probably caused a slowing down of the normal increase of productivity, and has caused at least some industries to fall behind the technical progress made in other countries. For Swiss industry, which must rely for its position in the world market on excellent workmanship and high quality goods, this may prove a serious matter in the long run, if no efforts are made to remedy the situation;

(*g*) No exact answer can be given to the question of how the inflow of foreign workers has affected the balance of payments. On one hand, the expansion of production has increased exports, but on the other hand, higher imports have been necessary to maintain output. A large expenditure on current account is the amount of remittances sent by the foreign workers to their home countries. Remittances for 1963 are estimated to be about 1,100 million francs. Some of this money may, however, contribute to the increased demand abroad for Swiss goods. Taken all in all, the net effect of the vast number of foreign workers on the current account of the balance of payments may be assumed to be adverse. This factor, however, has only become greater in the last few years, and it has been offset by large autonomous capital imports;

(*h*) A final drawback is that the Swiss economy has become dangerously dependent on foreign labour. It was thought, at first, that foreign workers would form a useful "cushion" in case of a recession, when the superfluous workers could then simply be sent home. This process would, however, be far more difficult than it appeared at first glance. An increasing number of foreign workers have now worked in Switzerland for so many years that they are entitled to permanent residence permits for themselves and their families, who have followed them from abroad, or who have been founded by marriage in Switzerland. Apart from this, some occupations today are carried out almost entirely by foreigners. Their sudden dismissal in a time of recession would aggravate unemployment, instead of relieving it among the Swiss, at least until reorganization had taken place. Even now, the wholesale exodus of Italians wishing to spend Christmas at home seriously disrupts production in some branches of industry for several weeks. It will be many years before foreign workers can be dispensed with. Only assimilation of part of the workers and a gradual reduction of the remainder of them by a labour-saving rationalization of industry can be envisaged as a realistic policy.

(*Tables 1 and 2 follow on page 58*)

Table 1. Foreign workers subject to compulsory registration (having a labour permit, but not a permanent residence permit)

Years	At 1 February in each year				At 1 August in each year			
	Seasonal workers	Non-seasonal workers	Frontaliers [a]	Total	Seasonal workers	Non-seasonal workers	Frontaliers [a]	Total
1949	—	—	11,580	106,076	—	—	—	—
1950	—	—	8,504	90,112	—	—	—	—
1951	—	—	10,044	95,393	—	—	—	—
1952	—	—	16,614	132,282	—	—	—	—
1953	—	—	15,931	139,379	—	—	—	—
1954	—	—	18,527	149,987	—	—	—	—
1955	—	—	22,804	166,210	—	—	30,292	271,149
1956	13,320	152,702	28,512	194,534	108,092	181,100	36,873	326,065
1957	19,703	184,428	32,853	236,984	120,641	215,368	41,088	377,097
1958	18,156	207,023	36,393	261,572	105,099	220,735	37,557	363,391
1959	21,624	198,891	30,279	250,794	114,056	215,809	34,913	364,778
1960	27,428	214,285	33,578	275,291	139,538	256,519	39,419	435,476
1961	37,174	275,086	36,681	348,941	173,459	332,364	42,489	548,312
1962	51,565	355,249	38,796	445,610	194,110	405,713	44,883	644,706
1963	52,634	415,241	44,537	512,412	201,348	441,765	46,900	690,013
1964	61,694	439,657	44,893	546,244	206,305	465,366	49,230	720,901

[a] Foreigners working in Switzerland, but living across the border in neighbouring countries.

Table 2. Gross national product at constant prices (1958)

Years	Gross national product		Increase over previous year (in percentages)	
	Total Mil. Frs.	Per head francs	Total	Per head
1948	22,480	4,906	—	—
1949	21,685	4,673	—3.5	—4.7
1950	23,245	4,952	7.2	6.0
1951	25,130	5,292	8.1	6.9
1952	25,330	5,261	0.8	—0.6
1953	26,465	5,425	4.5	3.1
1954	27,955	5,672	5.6	4.6
1955	29,445	5,913	5.3	4.2
1956	31,215	6,187	6.0	4.6
1957	32,105	6,263	2.9	1.2
1958	31,520	6,063	—1.2	—3.2
1959	33,795	6,426	7.2	6.0
1960	35,760	6,669	5.8	3.8
1961	38,380	6,983	7.3	4.7
1962	40,320	7,124	5.1	2.0
1963	42,220	7,317	4.7	2.7

The first stages of economic growth

COLIN CLARK

1. The earliest stages of economic growth are part of the subject matter of the anthropologist or archæologist, not of the economist. Our remote ancestors (and people still living in some parts of the world today) have obtained their food by hunting wild animals, by fishing, and by the gathering of some seeds and roots. The principal characteristic of this form of living is the very large area required to support each person, which has been estimated at 140 km² in cold climates; it is only under the most favourable climate and circumstances that it can fall as low as 10 km². Among such peoples, the mere difficulty of travelling on foot over large distances prevents the assembly of any but very small groups, except on a few rare occasions when a run of fish, or a harvest of seeds or nuts, makes a large assembly possible. It was in a few areas with exceptionally favourable food supply, such as the banks of the salmon rivers of the North Pacific, Sauer[1] suggests, where life in permanent villages first became possible; and with it the beginnings of civilization, and of an exchange economy.

2. Of the million years or so now claimed by palæontologists for the duration of the human race on this earth, by far the greatest part has been passed under these conditions of primitive hunting economy (this has also been the order of society resuscitated by the few survivors in some areas which have been depopulated by persistent warfare). But agriculture originated in a past more distant than used to be supposed. Radiocarbon dating, which has put a powerful new weapon in the hands of archæologists,[2] shows that the oldest known agriculture in the world was that practised around natural springs watering a hot arid area near Jericho, dating back to about 7000 B.C., considerably antedating the beginnings of Egyptian agriculture at about 4500 B.C.

3. It is not clear whether the domestication of animals preceded or succeeded the simpler forms of agriculture. But between them they certainly made it possible for populations to live at greater density. The simplest form of agricultural and pastoral settlement reduced space requirements to about 1 km² per head.[3]

4. Even so, Cipolla points out that the largest neolithic village found anywhere had only 300-400 inhabitants, i.e., at 1 km²/person, farmed and grazed land must have extended for an average radius of a little over 10 kilometres; and this is probably quite as far as the inhabitants would have been able to walk to work.

5. Even this degree of civilization was probably not attained without considerable effort. Nougier[4] estimated that the whole population of palæolithic France was only 10,000, averaging 55 km²/person. Mesolithic Britain[5] probably had a population of 3,000-4,000 only, with 65 km²/person. Although it is difficult to say precisely when it happened, a time must have come when rising population density in western Europe left an average of only 10 km²/person. The land was clearly becoming over-populated. No doubt population restriction was then demanded as an urgent necessity; and the alternatives of migration to the uninhabited lands in Scandinavia and Scotland, or of introducing the arts of agriculture, already known in Babylonia and Egypt, were considered and declared impracticable. Eventually, as we know, but who knows with how much reluctance, our ancestors had to shake off their conservatism, abandon the hunting and fishing way of life to which they were so deeply attached, and live more arduous and demanding lives as farmers.

6. Under quite different circumstances, the territory now constituting the United States and Canada, at the beginning of the sixteenth century, was supporting a population of about

[1] Sauer, *Geographical Review* (January 1947).

[2] C. M. Cipolla, *The Economic History of World Population* (Penguin Books, 1962) summarizes the available evidence.

[3] Even under arctic conditions, density need not be very much greater. Andreev and Savkina (*International Grassland Conference*, Reading, 1960) have shown that a reindeer requires only 0.6-1 km² of tundra grazing; and the number of reindeer required per person (with some fish available as supplementary food) should not be very high.

[4] L. R. Nougier, "Essai sur le peuplement préhistorique de la France", *Population*, No. 2 (1954).

[5] Graham Clark, *Archæology and Society* (Barnes and Noble, 1961), and Fleure, *Geographical Review* (October 1945).

1 million [6] on an area of 17 million km² (which included, however, substantial areas of tundra and desert). They too, it is clear, were finding it impossible to continue living by hunting and fishing alone, and were beginning to practise the cultivation of maize, the knowledge of which had spread northwards from Mexico.

7. On many subsequent occasions in human history, increasing pressure of population has been the only force strong enough to compel men to change their way of life and to make better use of their land, and later to turn to development of industrial and commercial civilizations, capable of producing great wealth in a limited area, part of which is exchangeable for agricultural products from less densely populated areas.

8. The best method of demarcating the stages of growth in agriculture is that of De Vries, who values (at the exchange value in the local market) all agricultural and livestock production in terms of the grain most commonly consumed in the district. (To restate all products in terms of their calorific equivalent, as is sometimes proposed, would be altogether to miss the importance of some products as suppliers of protein, and of others such as textile fibres, which have no calorie values as food at all.) This grain equivalent of all agricultural output is then expressed per head of the whole population—men, women and children. When the figure stands at 300 kilogrammes grain equivalent per person per year or less, the people are very close to subsistence level, in the literal meaning of the phrase, of minimum physiological requirements. (These words are often used emotively in connection with quite different situations.)

9. As production per head rises above this subsistence level, most of the increased production is at first consumed by the producers. But this stage does not last for very long. After all, subsistence cultivators have other urgent needs besides food, for clothing, building materials, medicines etc. By the time productivity per head has reached 400 units, a substantial amount of agricultural produce is found to be being exchanged for these industrial products.

10. Those who live in economically advanced countries do not always realise that these primitive forms of agriculture are carried out laboriously, on small areas, with hand-hoes. (Even spades are only practicable for people who can afford boots.) De Vries estimates that the cultivator can only afford draught animals to lighten his labour (and enable him to cultivate a substantially larger area) when his productivity has reached 500 units. These draught animals may spend much of the year in an under-nourished condition, living on such pasture, straw and husks which happen to be available; but in the season when they are required to work hard, they have to be fed on grain, competing with human beings for the limited supplies available.

11. In India, nevertheless, plough oxen are kept by cultivators whose productivity is considerably below 500 units. This is due not only to religious convictions, but also to the economic considerations that, in most of India, the rainy season in which cultivation is possible is so short that hand-hoe cultivation would be impracticable, and the cultivator must therefore use draught oxen, however poor he is.

12. Draught animals (and also dairy cows) can obtain a large proportion of their sustenance from grazing, and from other foods inedible by man. The pig and the hen, on the other hand, must live almost entirely on cereals or roots, and so are direct competitors with man for food. De Vries estimates that it is not until productivity has reached 750 units that pigs and poultry can be kept—they are also the first animals to be dispensed with when there is a shortage of grain. From this level, agricultural productivity can go on rising steadily, and without any further sharp distinguishing stages, to the most advanced levels, until eventually productivity may be measured not in hundreds of kilogrammes, but literally in hundreds of tons of grain-equivalent per head per year.

13. The most primitive form of agriculture is "cut and burn", whereby an area of naturally growing forest or scrub is cut and burned, and seed planted among the ashes. Each plot is only cultivated for a year or two, until the fertility has run down and the weeds get a hold, and then fresh land is cleared. Except on good volcanic soils, this method calls for a cycle of nearly twenty years before the land can be recultivated. Land requirements per head therefore remain high, though of course not nearly so high as for a hunting and fishing economy. This kind of agriculture is still generally prevalent in "Black Africa" (i.e., between South Africa and the Sahara), in which area, Gourou has estimated, only one thirtieth of the potentially cultivable land is cultivated in any one year. Gourou shows that the use of this method is not due to lack of knowledge of the techniques of intensive agriculture, which is indeed practised in certain isolated areas in Africa, but to preference for a less laborious type of agriculture. Eventually, increasing population density in certain areas (South-eastern Nigeria,

[6] Landry, *Traité de démographie* (Paris, Payot, 1949).

for example) forces the adoption of sedentary, intensive agriculture.

14. It appears that even the poorest communities have to devote about 15 per cent of their available manpower (whether through the specialization of certain workers, or part-time work by agriculturalists) to providing for their most urgent non-agricultural needs, clothing, shelter, and also government. As agricultural productivity rises, some part of the increased product will be directly consumed by the producers; some will be exchanged to feed an increasing number of non-agricultural workers, at increasing standards of consumption; some —it must not be forgotten—will have to be exported, to exchange for the numerous goods not locally producible. A relationship discovered by the present writer and M. R. Haswell [7] shows that the proportion of the labour force engaged in non-agricultural activities rises from this minimum of 15 per cent in proportion to the logarithm of the productivity [8] per head of the agricultural population.

15. Both contemporary and historical evidence indicates however that in countries with an inadequate transport system (e.g., modern Thailand, or 18th century France) a fairly high level of agricultural productivity may nevertheless be accompanied by an amount of industrial employment less than expected. If the agriculturalist can transport his produce to market only at a very high cost, he then does without some of the industrial goods which he might otherwise have consumed; and eats more instead.

16. Apart, however, from the availability of transport to the market, or of a supply of exchangeable goods there, remarkable differences are found in the amount of food consumed at given levels of real income, suggesting that there may be "demonstration effects" encouraging the consumption of food, as of other commodities, particularly in causing urban families to consume more than rural at the same level of real income per head. The abstemiousness of the Japanese, among whom the wealthy eat mainly rice and vegetables, as do the poor, has been an important factor in enabling a given food supply to feed a larger industrial population, and thus accelerating economic growth, in comparison with other countries.

17. The developing countries need a great increase in the volume of their international trade. The volume of imports required by a country (however strenuous the efforts made to restrict them) grows at about the seven-tenths power of the rate of growth of real national product; so the 5 per cent per annum growth of real national product aimed at by many countries will necessitate planning for an increase in imports of about 3½ per cent per annum, and of exports at the same rate, or more, if the terms of trade continue to move against them. This need has been almost entirely neglected by economists in preparing plans for the developing countries, or for the advanced countries, whose import plans are indeed generally designed positively to injure the trade of the developing countries.

18. With a relationship of this nature, relative dependence on international trade is greatest for the smallest countries. The smaller the country, the narrower the proportion of its requirements which it can produce, at any given stage of economic growth. A reduction in the relative dependence on international trade comes about as the real national product becomes larger, whether this increase is due to increased productivity, population growth, or the joining together of economies in customs unions.

[7] C. Clark and M. R. Haswell, *Economics of Subsistence Agriculture* (Macmillan, 1964), p. 179.

[8] Where countries produce exportable minerals, forest products or manufactures, these directly substitute for the agricultural products which would otherwise have had to be exported in order to purchase imports, and should therefore be added to agricultural product.

Economic growth and the working population in France since 1950

JEAN FOURASTIÉ

[*Translated from French*]

1. France, like a number of other nations, has made very rapid economic gains since the last war, in sharp contrast not only to the static condition in which mankind remained for thousands of years, but also to the relative slowness of what has none the less been called the industrial "revolution".

2. Since 1872 French industrial output has increased eightfold, which means that it has doubled three times. The first time this process took thirty years (from 1872 to 1902); the second, fifty years (from 1902 to 1952); and the third, ten years (from 1952 to 1962). It now seems likely that the output will double yet again by 1972.

3. For the gross national product as a whole, the Institut de science économique appliquée (Institute of Applied Economics) (ISEA, Paris) has published the following conjectures whose orders of magnitude appear acceptable.

Table 1. French gross national product and annual rates of growth (1865-1959)

Year	*Millions of francs 1905-1913*	*Rate of growth (mean annual geometric rate)*
1865-1874	22,765	1.4
1875-1884	25,264	1.0
1885-1894	28,638	1.3
1895-1904	33,174	1.5
1905-1914	38,035	1.4
1920-1924	40,000	0.4
1925-1934	53,500	4.0
1935-1938	49,240	1.2
1946-1949	46,890	0.5
1950-1954	63,970	6.4
1955-1959	80,130	4.6

SOURCE: Series of studies on the French economy, made and published under the direction of I. Marczewski, *Cahiers de l'Institut de science économique appliquée* (ISEA), series D, Nos. 1 and 7 (Paris).

The same source gives, for recent years, the following rates of growth:

Table 2. Annual rates of growth of gross domestic output (1949-1964)

Year	*Annual rate of growth*
1949-1950	7.9
1950-1951	6.4
1951-1952	2.3
1952-1953	3.1
1953-1954	5.4
1954-1955	6.0
1955-1956	5.2
1956-1957	6.4
1957-1958	1.8
1958-1959	2.5
1959-1960	6.3
1960-1961	4.5
1961-1962	6.3
1962-1963	4.7
1964-1965	4.5[a]

[a] Estimate.

4. The economic growth has been accompanied by profound changes in employment of the working population. The following table gives a striking picture of these changes:

Table 3. Distribution of the French working population among the three classic sectors

Year	*Agriculture*	*Industry*	*Tertiary*	*Total*
1856.....	7,300,000	4,400,000	2,500,000	14,200,000
1946.....	7,500,000	6,200,000	6,700,000	20,400,000
1954[a].....	6,400,000	6,800,000	6,900,000	20,100,000
1954[b].....	5,200,000	6,800,000	6,900,000	18,900,000
1962.....	4,000,000	7,300,000	7,700,000	19,000,000

SOURCE: Study made under the direction of Jean Fourastié, "Migrations professionnelles. Données statistiques sur leur évolution en divers pays", *Cahiers de travaux et documents*, No. 31 (Paris, Institut national d'études démographiques, 1957), p. 149, and National Institute of Statistics and Economic Studies (INSEE), *Recensement 1962, résultats du sondage au vingtième* (Paris, 1964).

[a] Figure comparable to the preceding figures.

[b] Figure comparable to the one following.

5. Thus, non-agricultural manpower in sixteen years (from 1946 to 1962) increased by more than 2 million persons (a rise of about 15 per cent), while agriculture lost at least as many in absolute figures and therefore many more in relative terms (a drop of about 35 per cent).

6. We have a reasonably clear understanding today of the connexion between economic and technical progress, and also between social and economic progress. In particular, the idea that greater labour productivity and higher levels of living go hand in hand has become established doctrine.

7. For France specifically we now have, thanks to the efforts of our colleagues of the Institut national de la statistique et des études économiques (National Institute of Statistics and Economic Studies) (INSEE), a series of measurements covering the 1959-1964 period which establish beyond doubt the actuality and the wide scope of this phenomenon.

8. L. A. Vincent, by grouping a great number of data, has produced very long-term measurements of French national productivity. He gives benchmark data for the years 1896, 1913, 1924, 1938, 1949 and 1962[1] for twenty-one important sectors of the economy; he also gives annual figures for total national productivity from 1949 to 1962.

9. On the assumption that the country regained the productivity level of 1939 precisely in 1949, the figures for the growth of the net hourly productivity of French labour ("net" here means that the computation was made by deducting the amortization of the investments used and also the products imported from abroad) are the following:

Table 4. Net hourly labour productivity in France
(1950 = 100)

Year	*Index of productivity*
1939.....	94
1949.....	95
1950.....	*100*
1952.....	107
1954.....	115
1956.....	123
1958.....	129
1960.....	140
1962.....	148
1964.....	155[a]

[a] Approximately.

10. The hourly productivity of French labour, therefore, was 1.6 to 1.7 times greater in 1964 than before the war.

11. In the same period of time the mean hourly wages of unskilled workers in French industry (provincial towns) rose from 5.95 old francs to 3.15 new francs. In order to determine purchasing power, these wages must be compared with the price index.

[1] L. A. Vincent, *Population active, production et productivité dans 21 branches de l'économie française (1896-1962)* (Paris, National Institute of Statistics and Economic Studies, June 1964), mimeographed pamphlet.

Table 5. Purchasing power of the mean hourly wage of unskilled workers

Year	*Total mean hourly wage*	*Monetary wage index*	*Cost of living*	*Purchasing power*
1939.....	5.95 Fr.	6.4	59.1	100.3
1949.....	74	79.6	90.9	87.6
1950.....	93	*100.0*	*100.0*	*100.0*
1952.....	134	144.1	130.1	110.8
1954.....	148	159.1	128.4	123.9
1956.....	175	188.2	135.1	139.3
1958.....	210	225.8	160.2	140.9
1960.....	2.35 N.F.	252.7	172.6	146.4
1962.....	2.72	292.5	186.0	157.2
1964.....	3.15	338.7	200.4	169.0

12. Comparison of the last columns of the two preceding tables shows that the increase in the purchasing power of the hourly wage, since 1950, has paralleled—and even markedly exceeded—the growth of productivity. This is satisfactory from the standpoint of both theory and practice.

13. However, the extensive investigations of the Centre de recherches et de documentation sur la consommation (Consumption Research and Documentation Centre) (CREDOC) probably give both the most precise and the most detailed picture of the level of living.[2]

14. These studies measure from year to year in constant francs (in 1956 prices) actual consumption by individuals. The following indices, with the same starting point (1950 = 100) as our preceding indices, are the result.

Table 6. Indices of the physical volume of per capita consumption

Year	*Food*	*Other consumption*	*Total consumption*
1950.....	100	100	100
1952.....	106	114	110
1954.....	117	125	121
1956.....	125	146	136
1958.....	130	158	145
1960.....	140	171	157
1962.....	—	—	172
1963.....	—	—	179

15. As may be seen, non-food consumption is increasing much more rapidly than other forms of consumption—a phenomenon characteristic of rich populations. In 1964 the average Frenchman spent only 38 per cent of his annual budget for food. However (and such examples could be multiplied), he consumed 75 kg of meat per capita annually, compared with 53 kg in 1948-1950 and 20 kg in 1850; and 31 kg of sugar, compared with 23 kg in 1948-1950, 12 kg in 1900, and 2.3 kg in 1830.

16. Thus, not only is consumption growing, but its pattern is changing. Such structural changes are measured by elasticity cœfficients as well as by budgetary cœfficients.

17. In 1965 the share of the average budget devoted to food will probably not be more than 34 per cent, as against 39 per cent in 1962 and 49 per cent in 1950. On the other hand, the share of the item "Health and care" will rise to almost 11 per cent (compared with 9 and 6), and the share of the item "Transport and communications", which includes the purchase and use of motor vehicles, will reach almost 9 per cent, as against 8 and 5.

18. It is clear that these structural changes in consumption must entail parallel changes in the pattern of production. The latter changes can be effected only by shifts in employment, and therefore by changes in the structure of the working population.

19. However, changes in consumption are not the only cause of occupational mobility. Occupational movements result from two factors, of which consumption is one, the other being production efficiency. Production is not the direct result of employment; it is the product of employment and labour productivity, that is, $P = Ep$.

20. The super-abundant recent measurements of productivity made by engineers, accountants and statisticians have disclosed two important facts:

(*a*) Enormous gains have been recorded in the past fifty or 100 years in certain sectors of the economy; for example, the man-hours re-

[2] Centre de recherches et de documentation sur la consommation, "La consommation", *Annales du centre de recherches et de documentation sur la consommation*, no. 5 (Paris, 1958).

quired to provide ten lumens of light were reduced from 300 in 1750 to one in 1950;

(*b*) These advances, however, vary greatly from one field of production to another and also from one epoch to another. From 1820 to 1950 almost no progress was made with regard to the time required for a haircut or for the production of a quintal of tobacco or a pair of hand-sewn leather gloves.

21. The definition of productivity, that is, productivity $= \frac{\text{production}}{\text{employment}}$ (1), is the same equation as the one in paragraph 19, employment $\times$ productivity $=$ production (2).

22. However, production is meant to be consumed. Consequently, for production to be adjusted to consumption, the following must apply: employment $= \frac{\text{consumption}}{\text{productivity}}$ (3).

23. This fundamental equation explains the movement of employment for the past 100 years and, in particular, the depopulation of the countryside.

24. Peoples whose agricultural technology is at a low level are obliged to devote almost all their manpower to agriculture, and yet are underfed. However, as technology develops, primary consumption first increases and then tends to level off. Employment must then decrease.

25. In the typical tertiary sector, on the contrary, consumer demand outstrips technical progress: employment therefore increases steadily.

26. In the secondary sector, there comes a time when the results of (substantial) technical progress are sufficient to satisfy consumer demand, although that demand grows considerably.

27. The distribution of working persons in those three sectors (in percentages of the total) therefore changes continually.

28. Obviously, however, this tripartite typology (primary, secondary, tertiary) is intended only as a very rough description of a complex set of facts. To analyse the facts correctly, industries or occupations must be grouped not in three sectors merely but in at least two or three hundred. Such an analysis is beyond the physical resources of contemporary statisticians and economists; for that reason, the classifications now in use have seventy, twenty-one, seven, and at the minimum three groups.

29. The important consideration is that the schema described above is applicable regardless of exactly how the working population is divided and sub-divided. Employment in a given industry, whether that industry is defined broadly or not, is always the quotient of the physical volume of the consumption supported by the industry divided by the productivity of the labour of production. The equation $E = \frac{C}{p}$ reflects both the broad lines and the detail of structural changes in the working population.

30. In the period of concentrated technical progress which characterizes the present economic history of our countries, the two terms C and p vary greatly. Employment, and employment alone, makes adjustment possible, first, by variations in weekly or annual work time, and next by variation in the number of persons employed.

31. From 1954 to 1962 there were marked fluctuations in the number of persons employed in most occupations. Table 3 above showed the movements in the tripartite division; table 7 below, taken from a statistical study with forty-one heads, gives a more precise idea of the movements and their scope. Table 8 shows the naturally strong effects of these changes of occupation on social and employment status.

Table 7. Movement of working population, by occupation, 1954-1962

Occupations with declining manpower	*Percentage of change 1962/1954*	*Occupations with expanding manpower*	*Percentage of change 1962/1954*
Agriculture, forestry	—25.1	Work in undertakings	+ 53.5
Apparel and fabric working	—18.9	Petroleum and fuels	+ 46.2
Hides and leather	—18.6	Banking and insurance	+ 31.0
Textile industries	—18.0	Government agencies, administration, army	+ 28.2
Mining	—16.5	Metal production and conversion	+ 22.5
Domestic service	—12.9	Services to the public	+ 21.8
Fishing	—8.1	Construction and public works	+ 19.2

Table 7. Movement of working population, by occupation, 1954-1962 (*concluded*)

Occupations with declining manpower	*Percentage of change 1962/1954*	*Occupations with expanding manpower*	*Percentage of change 1962/1954*
Wood and furniture	—3.8	Printing industries, press, publishing	+ 18.9
		Chemical industries	+ 15.4
For information:		Paper and cardboard	+ 14.5
Proportion of the total working population distributed by economic activity	+ 0.6	Glass, ceramics, building materials	+ 11.9
		Trade	+ 9.1
		Transport	+ 2.8
		Foods industries	+ 2.1

SOURCE: National Institute of Statistics and Economic Studies, "Population active par catégorie d'activités économiques", *Bulletin hebdomadaire de statistique*, No. 781 (Paris, 8 June 1963).

Table 8. Movement of the working population by social status categories

Social status categories with declining manpower	*Percentage of change 1962/1954*	*Social status categories with expanding manpower*	*Percentage of change 1962/1954*
Agricultural labourers	—28.6	Liberal professions and managerial staff	+ 37.4
Farm operators	—24.1	Executive staff	+ 34.0
Employers in industry and trade	—13.2	Non-manual workers	+ 16.8
For information:		"Other categories" (artists, clergy, police and army)	+ 15.3
Proportion of the total working population distributed by social status categories	—0.1	Manual workers	+ 8.2
		Service staff	+ 2.4

SOURCE: National Institute of Statistics and Economic Studies, "Population active par catégorie socio-professionnelle et statut", *Bulletin hebdomadaire de statistique*, No. 823 (Paris, 4 April 1964).

32. Tables 7 and 8 show clearly a great dissimilarity in the development of the separate branches within each of the three classical sectors. Their movement is only the resultant of components which are very different in scope and often even contrary in direction.

33. For example, in the French classification with forty-one heads, the third sector is composed of eighteen heads; of these, five show a loss of manpower from 1954 to 1962. Of course, one is the head "Incorrectly designated trades", which declined primarily because of improvements in the census. The other four are: "Hotels and bars" (— 5.3 per cent); "Commercial and industrial middlemen" (— 5.4 per cent); "Stationary shows" (— 17.1 per cent); and "Domestic service" (— 12.9 per cent). The decline under the last head results not from a decrease in the demand for services but from unwillingness to supply them; if it were not for substantial immigration, the decline in this sector would be even sharper. The other decreases are, however, explained by a drop in consumption (the decrease in employment in bars exceeds the increase in the case of hotels). These decreases in manpower total 120,000, including 75,000 workers in domestic service, while the increases under the thirteen other heads grouped in the third sector exceed 900,000. Aside from domestic service, which is a special situation, the three branches in the third sector in which the number of workers has decreased have lost only 45,000 persons. On the other hand, "Non-household services" alone gained 270,000 persons, and the various "Government agencies" gained 460,000 persons.

34. Detailed analysis of these movements of manpower shows that they are responsive to elasticity of consumption and to rapid gains in productivity. [3]

[3] For a more detailed analysis, see J.-P. Courthéoux, *Contribution à une critique expérimentale de la théorie des trois secteurs* (Paris, study of the Centre de recherche d'urbanisme, 1963-1964 session). Mr. Courthéoux concludes: "The criterion of consumption confirms the existence of the sectors but raises the problem of their delimitation."

Demographic approach to the problems of social and economic development in Africa

ADENOLA A. IGUN

I. INTRODUCTION

1. Economic development is usually regarded as the application of extra capital and materials, by a constant number of people (labour), to accelerate the production of additional goods and services, for higher standards of living. Very little consideration has been given to population beyond the provision of labour because it is not appreciated that population can increase at rates which can upset, if not defeat, the whole arithmetic of development; also, that the process of development itself can stimulate steeper population increases. The problems of economic and social development are, therefore, not just the balancing of natural resources against labour and capital; they involve more and are largely of capital, of periods of time and, especially, of relationships between varying rates of changes in human number and institutions—all mutually responsive, in the use of natural resources. Experiences in Puerto Rico and East Africa have brought out quite convincingly that any plan which ignores population as a vital factor in any development scheme is almost certain to fail. [1]

II. DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF AFRICA

2. Apart from vast heterogeneity in social and economic conditions, one cannot lay claim to an exhaustive knowledge of Africa owing to the paucity and the doubtful accuracy of extant data. All the data used here are illustrative rather than diagnostic; they reveal only the manifest parts of African characteristics and problems; however, it is believed that in spite of differences, knowledge gained in some parts will, with necessary modification and adaptation, help in meeting the problems of particular countries.

3. Handicapped by technological limitations, with little industry and commerce except the family type of business organization, African economy is almost completely agrarian; in addition, restrictive social customs and land tenure system have culminated, as shown in table 1, in:

(*a*) Low productivity in practically all economic activities;

(*b*) Low employment capacity in industry and commerce because of the limited scope of non-agricultural production; [2]

(*c*) Over-crowding in agriculture as land is called upon to support increasing population on progressively fragmented farms; [3]

(*d*) Low levels of income culminating in low indigenous capital; [4]

(*e*) An agricultural system mostly for subsistence and some for export. [5]

III. DEMOGRAPHIC CHARACTERISTICS

4. Table 2 reveals the demographic characteristics of selected African countries. Until 1960, most parts of Africa had never been adequately enumerated. Vital statistics and migration data are lacking. Recent censuses in Ghana, Morocco, and Nigeria indicate that previous official estimates were low. The rate of growth of African populations seems to exceed 2 per cent, well above that for industrialized countries. Spatially, distribution is irregular; some areas are virtually uninhabited while others are densely populated. The forests of Equatorial Africa and the high table-lands of southern Sahara are practically uninhabited while the coastal zones of North and West Africa and the banks of the lakes of East Africa are densely populated. Some West African countries have areas of over 500 persons per square mile on the coast with very sparsely populated zones

[1] United Nations, *Land reform: Defects in Agrarian Structure as Obstacles to Economic Development* (United Nations publication, Sales No.: 51.II.B.3).

[2] United Nations, *Maintenance of Full Employment* (United Nations publication, Sales No.: 49.II.A.2).

[3] P. T. Bauer and B. S. Yamey, *The Economics of Under-developed Countries* (Cambridge University Press, 1957), pp. 113-116.

[4] Daryll Forde and Richard Scott, *The Native Economics of Nigeria*, Vol. I (London, Faber and Faber Ltd., 1946).

[5] *Ibid.*, pp. 1-188.

in the north to bring average density down to levels ranging between 25 per square mile in the Ivory Coast and about 100 in Nigeria. In Tanganyika 63 per cent of the population lives on 10 per cent of the land while about 66 per cent of the country is practically uninhabited. [6]

5. Though the majority of the active population is engaged in agriculture, foodstuffs constitute the major item of average family budget, [7] yet the average daily per capita supply of calories is low and grossly deficient especially in animal protein. [8] All African populations are young and the proportion of children in the pre-working ages is high in comparison with those of industrialized countries. According to estimated percentages in three functional age groups (below 15, 15-49, and 50 plus), the "dependent" age groups constitute about 49 to 53 per cent in Africa compared with 36 per cent to 38 per cent in industrialized countries such as the United States and Canada. [9] The mean birth and death rates during 1955-1959 were approximately 46 and 27 per thousand compared with the corresponding rates of 25 and about 8 for the same industrialized countries, and the Union of Soviet Socialist Republics. [10]

6. Demographically, Africa is characterized by:

(*a*) Low population density;

(*b*) Rapid population increase owing to high fertility and decreasing mortality;

(*c*) High dependency burden;

(*d*) High illiteracy and lack of technical skill;

(*e*) High rural-urban migration;

(*f*) High nutrition deficiency.

IV. Demographic considerations in plans for economic development

7. From the economic and the demographic pictures painted, the cardinal problems of economic development in Africa are:

(*a*) To create employment opportunities for surplus labour outside of agriculture;

(*b*) To increase production faster and at a rate higher than the rate of population growth;

(*c*) To reduce population growth by reducing fertility.

Plans for economic development must, therefore, be formulated in two perspectives: the short-term and the long-term. The short-term perspective will deal with the urgent necessity for creating job opportunities for surplus or under-employed labour, slowing down the rate of rural-urban migration, and providing necessary goods and services for a higher standard of living at a rate higher than population growth. The long-term perspective entails finding methods of reducing the rate of population growth so that gains in economic growth are not eaten up by excessive population growth. The importance of capital and natural resources in economic development is not underrated; rather, the fact that human beings (labour) constitute the means and the ends of productive efforts is being emphasized: also that Africa must develop along and in her own *milieu*.

V. Agrarian reforms and improvements

8. About 75 per cent of African population is employed in agriculture; because of various restrictive practices, productivity is low. Urgent agrarian reforms to raise productivity and provide remunerative employment can be achieved through:

(*a*) Improvement in systems of land tenure to facilitate larger agricultural holdings;

(*b*) Improvement in methods of cultivation through the introduction of simple but better mechanical implements and methods:

(*c*) Introduction of higher and better yield crops;

(*d*) Introduction of cheap fertilizers to raise yields;

(*e*) Introduction of better storage system and facilities to prevent waste and retain the quality of farm products;

(*f*) Introduction of better methods of distribution of agricultural products.

VI. Employment through the expansion of existing industries and creation of small scale industries

9. The expansion of existing industries does not require the injection of large capital, especially for scarce entrepreneurial, managerial, and technical skills usually imported at very high costs. The extension of a bed industry, by making the bed springs locally, will offer more employment without requiring as much capital

[6] International Labour Organisation, *International Labour Review* (Geneva, December 1961), pp. 498-514.

[7] Nigeria Federal Office of Statistics, *Urban Consumer Survey in Nigeria* (Lagos, 1959).

[8] His Majesty's Stationery Office, *Nutrition in the Colonial Empire*, Cmd. 6050 (London, 1939), pp. 29-44.

[9] United Nations, *World Population Trends 1920-1947* (United Nations publication, Sales No.: 49.XIII. 3), p. 15.

[10] United Nations, *Demographic Yearbook 1960* (United Nations publication, Sales No.: 61.XIII.1).

for establishing a new one. Several existing industries can be expanded and made more efficient, thereby creating more employment opportunities.

10. Lack of job opportunities outside of agriculture is worsened by the fact that most of the unemployed lack skills for other jobs; rural poverty is also the greatest force creating rural-urban migration. [11] To create employment, to attract school-leavers to agriculture and reduce rural-urban migration, rural areas should be made more attractive through the establishment of small but labour intensive industries which relate to local products.

VII. Reduction of unemployment and creation of skilled manpower through formal education, use of the armed services and public works

11. Programmes for manpower development and training and their effective utilization constitute major problems. [12] Although formal education has been stimulated and constitutes between 40 to 50 per cent of total annual investments by all Governments, [13] the programmes are not oriented towards the provision of skilled workers. It is imperative, therefore, that technical and scientific education be encouraged. Least considered but very important and ready means of reducing unemployment and providing the training of skill are the Armed Services and the Public Works. Their utilization will serve three important objectives:

(*a*) Alleviate pressure of unemployment by offering employment to school-leavers;

(*b*) Harness the educational background of school-leavers towards the creation of scarce basic skills;

(*c*) Reduce rural-urban migration, channel the energy and ambition of youth to creative purposes, thereby reducing delinquency, social and political unrest.

VIII. Improvement of health and standards of nutrition

12. The improvement of health, through improved medical and health services, merits greater consideration. Poor health in Africa is mostly due to qualitative malnutrition; through increased production and education in the use of local products, nutritional standards can be improved. This consideration demands a new concept of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity", [14] and suggests an all embracing programme starting with general sanitation through all other stages to scientific nutrition.

IX. Redistribution of population

13. The existing pattern of spatial distribution indicates some correlation between density and stage of economic development. Increase in density in areas of sparse settlements may generate increase in economic development; by changing the direction, it may reduce rural-urban migration. [15] This consideration implies that efforts will be made to reduce language barriers, improve communication facilities, and create the necessary social and political atmosphere in which freedom, order, and human dignity can flourish.

X. Reduction of fertility to decelerate population growth

14. Apart from the urgent necessity to feed and create employment opportunities, the cardinal problem is to prevent excessive population increase from eating up gains made in development so that standard of living can rise at rates commensurate with the desire and efforts of the people. With an annual rate of 2.75 per cent to 4 per cent every year, population will double between 17 to 25 years—that is, within a generation. Africa should, at least, double her productive and employment capacities. Further, when it is realized that is the impact of social and economic changes on population growth which presents major obstacles to modernization and economic growth, the major problem is the understanding of the dynamics of population growth so that wise policies, aimed at decelerating these increases, may be formulated and executed.

15. Rooted in Western experience, most economists believed that accelerated industrialization alone will provide the answer. Experience in Puerto Rico has revealed that, in addition, it involves a dynamic combination of economic improvement, internal and external redistribution of population, and a change towards the desired end in reproductive be-

[11] International Labour Organisation, *Why Labour Leaves the Land: a comparative study of the Movement of Labour out of agriculture* (Geneva, 1960).

[12] National Manpower Board, *Manpower Situation in Nigeria* (Lagos, Federal Ministry of Information, 1963).

[13] Government of Western Nigeria, *Western Nigeria Development Plan 1962-1968* (Ibadan, Government Printer, 1962), p. 48.

[14] World Health Organization, *Preamble* (New York, 22 July 1946), p. 3.

[15] Daryll Forde and Richard Scott, op. cit., pp. 109-111, 212-215.

haviour.[16] But human fertility is not readily susceptible to superimposed economic changes which affect only the externals of life and leave the motives—opportunities, hopes, fears, beliefs, customs—all of which condition the organization and structure of society, untouched. And these are the important dynamic factors which influence fertility.[17]

XI. Fertility control

16. Outside of wars, famines etc. various restrictive practices have been used to reduce fertility. Except sterilization, the effects of all methods vary according to the economic, social and cultural factors which affect segments of society and particular countries; ironically, it is in the sector which needs reduction most that they are least effective. Therefore, for all under-developed countries, the first consideration is to understand the dynamics of reproduction in order to know how to reduce fertility. The most important prerequisite is the acquisition of sufficient knowledge of population trends through adequate census and vital statistics systems; then definitive field studies and researches into the motives, attitudes, and institutions which affect fertility.

XII. Conclusions

17. With characteristic agrarian economy, little industrialization, and Malthusian population problems, social and economic development in Africa need not be approached from purely economic angle alone; it should be tackled from the demographic as well. Demographically, the problems of economic development in Africa can be greatly simplified if, through improvement in health, the vitality and productive power of the people could be raised; if the population can be judiciously redistributed to reduce pressures, increase agricultural holding and make its cultivation more remunerative; and if deliberate efforts can be made to decelerate and control population growth. Much time can be saved, and hardship can be obviated during the transitional period through long-range plans in the social and demographic fields to learn, isolate, and direct the course of the factors influencing population growth to the desired end. The complexity of the problems emphasises and demonstrates the need for an integrated inter-disciplinary approach; also that a wise policy in the field of human welfare is not segmented by the artificial boundaries of intellectual disciplines.

[16] Kingsley Davis, *Puerto Rico's Population Problem* (New York, Milbank Memorial Fund, 1948), pp. 60-65.

[17] Frank W. Notestein, "Summary of Demographic Background Problems of Undeveloped Areas", *Milbank Memorial Fund Quarterly*, vol. XXVI, No. 3 (1948), pp. 9-12.

Table 1. Africa, selected countries: economic characteristics

Country	*1960 population (in thousands)*	*Total land area (1,000 km²)*	*Density*	*Density per square kilometer of cultivable land area* [b]	*Area under cultivation as percentage of land area* [b]	*Percentage of active population in agriculture* [b]	*Cultivated land per head of active population in agriculture hectares* [b]	*Per capita income (£)*
Nigeria	34,296 [a]	878 [a]	39	157	23.6	74	0.9	25-29 [b]
Ethiopia	21,800 [a]	1,184 [a]	18	190	9.7	n.a.	n.a.	n.a.
Ghana	6,691 [b]	238 [b]	28	126	22.3	68	1.2	56 [d]
Kenya	6,551 [a]	583 [a]	11	386	3.0	n.a.	n.a.	26 [d]
Tanganyika	9,238 [a]	937 [a]	10	99	10.6	9	11.2	16 [d]
United Arab Republic (Egypt)	26,080 [b]	1,000 [b]	26	1,016	2.6	64	0.2	27 [c]
India	432,567 [a]	3,263 [a]	123	269	49.3	71	0.5	22 [a]
United Kingdom	52,539 [b]	244 [b]	215	716	30.4	10	1.4	323 [d]
United States of America	179,323 [a]	9,363 [a]	19	97	20.1	12	8.6	350 [c]
Argentina	19,940 [b]	278 [b]	7	67	10.8	25	6.0	75 [c]

[a] United Nations, *Demographic Yearbook 1960* (United Nations publication, Sales No. 61.XIII.1).

[b] Food and Agriculture Organization, *Production Yearbook*, vol. XV, 1961 (Rome, 1962).

[c] *The Annals of the American Academy of Political and Social Science* (March 1950).

[d] Nigeria, National Economic Council, *Economic Survey of Nigeria 1959* (Lagos, 19?).

n.a. = not available.

Table 2. Africa, selected countries: demographic characteristics

Country	Population (in thousands)[a]	Land area (1,000 km²)[a]	Density[a]	Dependent age groups (percentage)			Literacy	Average daily intake		Annual rate of population increase[a]
				0-14	50 and over	Total		Calories	Percentage from animal proteins	
Nigeria	34,296	878	39	44[b]	8[b]	52[b]	12[b]	2,400[e]	8.0[e]	2.5
Ethiopia	21,800	1,184	18	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	—
Ghana	6,691	238	28	45[c]	9[c]	54[c]	27[c]	n.a.	n.a.	4.9
Kenya	6,551	583	11	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2.3
Tanganyika	9,238	937	10	44	13.2	57.2	n.a.	n.a.	n.a.	1.8
United Arab Republic (Egypt)	26,080	1,000	26	42.8[a]	13[a]	55.8[a]	—	2,340[f]	8.0[f]	2.4
Argentina	19,940	278	7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2.2
India	432,567	3,263	123	37[a]	12[a]	49[a]	n.a.	1,640[f]	7.0[f]	1.3
United Kingdom	52,539	244	215	—	—	39[d]	n.a.	3,060[f]	34.0[f]	0.4
United States of America	179,323	9,363	19	—	—	38[d]	n.a.	3,120[f]	41.0[f]	1.6

[a] *Demographic Yearbook 1960* (United Nations publication, Sales No.: 61.XIII.1).

[b] Nigeria, Department of Statistics, *Population Census of Nigeria, 1952-53* (Lagos, 195?).

[c] Ghana, Census Office, *Population Census of Ghana, 1960* (Accra, 1962).

[d] *World Population Trends, 1920-1947* (United Nations publication, Sales No.: 49.XIII.3).

[e] His Majesty's Stationery Office, *Nutrition in the Colonial Empire*, Cmd. 6050 (London, 1939).

[f] Political and Economic Planning, World Population and Resources (Political and Planning, 1955).

n.a. = not available.

Economic development and population growth in Latin America

JOSÉ ANTONIO MAYOBRE

1. Analysis of the economic role of population growth in Latin America has been impeded by the confrontation of two extreme positions: (*a*) that regional economic gains are being swallowed up by the rapidity of population increase and that a drastic reduction in birth rates is a pre-condition for development; (*b*) that present rates of population growth need cause no concern because of the low regional density of population and the feasibility of rates of economic growth much higher than the present. Nevertheless, the outlines are beginning to emerge of a position taking into account the real complexity of the relationships and the practicability of alternative lines of public policy.

2. A simple comparison of the rates of population growth and of income growth in the region might seem to justify the first position. The regional population is now growing by about 2.9 per cent annually, a rate that has slowly risen in recent years and that has probably not yet reached its peak. Regional real income grew by 4.8 per cent annually in 1950-1955, by 4.3 per cent in 1955-1960, and by 3.5 per cent in 1960-1963, with the annual per capita gain thus declining from 1.9 per cent in the earlier period to 0.6 per cent in the later.[1] If the population of Latin America were to grow at the rate of Western Europe (0.8 per cent), and if the cumulative rate of income growth were to be kept at the 1950-1955 level, the region could double its per capita income in 17 years, or in half the time needed if population were to continue to grow at the present rate. If one assumes a constant relationship between capital invested and output, the Latin American countries would need, simply to maintain their present income levels, to invest a proportion of that income 3.5 times greater than the proportion needed by the Western European countries to accomplish the same purpose.

3. Such calculations, however, do not take us very far. No causal relationship has been demonstrated between the high rates of population growth and the declining rates of income growth that now preoccupy economists and political leaders. The downward trend can be attributed partly to structural difficulties in the economies and the societies and partly to unsatisfactory international trade relationships, factors that have been explored in a number of studies made by the Economic Commission for Latin America.[2] At the same time, one finds that some countries with rates of population growth well above the regional average, such as Mexico and Venezuela, are also in the lead in rates of increase in per capita income, while other countries with moderate or low rates of population increase have made only small gains or none in income during the past decade.

4. There are also more positive reasons for refusing to view the rate of population increase as simply a figure to be subtracted from the rate of income growth. The small size of the internal markets and the consequent limitations on possibilities for expansion of industries producing for such markets, constitute one of the more fundamental development problems of the region. Larger populations should, ideally, mean more consumers and more varied opportunities for production. A predominantly youthful and expanding labour force should, ideally, be more mobile and more adaptable to changing occupational demands than a labour force that is older and more stable in numbers.

5. The conclusion seems justified that a reduction in the rate of population increase would not, in itself, stimulate economic development and that policies intended to bring about such a reduction cannot profitably be regarded as the key to a solution of Latin America's developmental problems. At the same time, a closer look at the specific characteristics of regional population growth suggests that some reduction in the rate might facilitate development and reduce the dimensions of certain

[1] Economic Commission for Latin America, *Economic Survey of Latin America, 1963* (United Nations publication, Sales No.: 65.II.G.1), table I.

[2] *Towards a Dynamic Development Policy for Latin America* (United Nations publication, Sales No.: 64.II.G.4) and *The Economic Development of Latin America in the Post-War Period* (United Nations publication, Sales No.: 64.II.G.6).

alarming by-products of the unbalanced and uncontrolled processes of economic growth and social change that are now under way.

6. The economic case for the desirability of continued population expansion assumes that the whole of the population increment can be absorbed into national economic life as producers and consumers. Most countries of the region are far from accomplishing this at present, and there are reasons to fear that even the carrying out of the indispensable structural reforms and the attainment of more satisfactory rates of investment will not automatically lead to the absorption of the whole of the increment. Even substantial increase in per capita income is likely to leave unaffected at the lowest levels of income and productivity such "marginal" groups as the cultivators of dwarf holdings of exhausted land; the landless rural workers dependent on seasonal employment; and the underemployed masses living by unskilled casual labour, petty commerce, home industries etc., in the cities.

7. The ready availability of techniques for mechanization and modernization of industry and agriculture indicates that high rates of growth in production need not be accompanied by proportional increases in employment. Plausible arguments have been made for policies that would counteract the present trend toward wholesale imitation of the technological innovations of the highly industrialized countries in which capital is relatively plentiful and labour scarce. Agricultural and industrial techniques that would spread employment more widely and be more sparing of capital might, under carefully defined conditions, be preferable as well as practicable, but circumstances common to most of the region at present—including the growing complexity of legislation for the protection of workers—dispose employers to move away from labour-intensive methods. In more general terms, the introduction of modern techniques, in accordance with a coherent strategy, is indispensable for the attainment of high levels of productivity; the objective of spreading employment cannot be pursued beyond a certain point without endangering the central objective of accelerated development.

8. The very high over-all rates of population growth imply that any lag in the expansion of employment can result in an uncontrollable growth in the numbers within the underemployed marginal population and a widening gap between it and the population within the modern economy.[3] The marginal population is becoming increasingly mobile geographically. While the growth of low-income settlements on the periphery of the large cities constitutes the most notorious manifestation of this mobility there are indications that any local economic expansion is likely to be followed by an influx of unskilled labour numerically in excess of the new employment opportunities and poorly qualified to take advantage of them, with a resulting formation of shantytowns and proliferation of low-productivity makeshift ways of livelihood. The mobility of the marginal population is, up to a point, a desirable response to economic change, but it presents multiple problems of infrastructural investment, education and training, building up of new forms of social organization, and channels for participation in national life, for which effective solutions have not yet been found.

9. The youthful age-structures associated with very high rates of population growth mean that the ratio of population in ages of dependency to the population of working age is very high, and that the demands for investments in education and other services for children and youth are very heavy. (In Latin America, only 56 per cent of the population falls within the "productive" age group between 15 and 64 years, compared to 65 per cent in Western Europe.) These often-described difficulties are not in themselves insuperable, but they add weight to the arguments for the preferability of lower rates of increase. In relation to the various marginal groups, moreover, high rates of reproduction constitute particularly serious handicaps. Among the small cultivators such rates insure a continual sub-division of holdings, a process that has ominous implications for present land reform programmes involving the creation of family farms. Among landless rural workers and urban marginal workers, the family is deprived of any capacity to save, raise its level of living above subsistence, or bring up its children in ways that would enable them to escape from the condition of marginality. As the families become more mobile and reach their own adaptation to the version of urban life offered by the peripheral settlements, there are indications that they resort increasingly to socially objectionable expedients to relieve themselves of the burden —illegal abortions, abandonment of children,

[3] The rapid increase in the dimensions of this problem at the higher rates of population increase are set forth statistically in *Geographic distribution of the population of Latin America and regional development priorities*, Economic Bulletin for Latin America, VII, 1, 51-63 (1963).

desertion of the family by the father. The stirrings of public interest in population policies now visible in the region seem to owe more to a widening awareness of such social consequences of high fertility in rapidly urbanizing low-income groups than to acceptance of the more general theses on the dangers of over-rapid population increase. A gradual entry by public as well as voluntary agencies into programmes of family planning and studies of population problems is probable long before any consensus is reached on large-scale action.

10. Meanwhile, the more judicious advocates of policies intended to influence rates of population growth do not deny that the majority of the Latin American countries can benefit from populations larger than the present, and do not expect or want the populations to become stationary in the foreseeable future. For the short-term, it seems sufficient to agree that moderate rates of increase (say 2 per cent annually) would be more advantageous than the unprecedentedly high rates (2.5 to 3.5 per cent) that have been reached by most countries of the region. As to the longer term, it is probably not very fruitful, at present, to speculate on the eventual optimum population sizes for the Latin American countries. Changes in technology and use of natural resources present too many unpredictable factors. Whatever the optimum may be, however, it is obvious that if the countries approach it with populations continuing to grow at nearly 3 per cent annually, the momentum can carry them rapidly into extremes of population density that we can hardly conceive to be supportable.

11. Even if one assumes the desirability of a slowing down of rates of increase, it is not realistic to expect the kinds of measures that would be needed to bring about a really significant reduction of birth rates to be adopted in the near future. Political support for such measures has not yet appeared, and even if the relevant programmes were to receive governmental endorsement, the social characteristics of the population insure that progress would be slow, particularly among the rural masses. The prerequisites in terms of popular responsiveness to governmental initiatives and traditional acceptance of limitations on fertility that made such a programme rapidly effective in Japan do not exist in Latin America. At best, public programmes might be expected to have a slowly increasing influence on birth rates over a period of ten or twenty years, and to reinforce the spontaneous changes in attitudes towards family size that have been in other regions associated with rising incomes and urbanization. This limitation does not negate the potential importance of such programmes, but it means that they need not be taken account in medium-term development plans or forecasts of per capita income. The political leaders and planners in Latin America cannot expect lower rates of increase to ease their immediate quest for more effective programmes for the acceleration of economic and social development.

12. As indicated above, wider support for studies of population problems and for local action and greater public flexibility in weighing the policy alternatives can be expected. For a regional institution such as the Economic Commission for Latin America the present period should be one of clarification of issues and encouragement of public discussion rather than one of advocacy or rejection of specific population measures as components of national development policies. In this direction, our continuing close co-operation in population research with the Latin American Demographic Centre (CELADE) is of great value. The comparative studies of fertility and attitudes toward fertility now being carried out by CELADE represent a particularly important contribution to the kind of information that is needed for fruitful discussion of policies.

13. The above considerations have focussed upon the economic and social implications of high rates of growth of population, but it must be kept in mind that the population policies potentially important for the development of Latin America are not limited to measures intended to influence rates of growth. A search is also under way for means of channeling the geographical and occupational redistribution of the population along lines more conducive to healthy development. Techniques of regional planning are needed that will counteract the excessive concentration of population and economic growth in a few great cities and promote the formation of national networks of cities and towns with differing sizes and complementary functions, able to offer productive employment to the labour force not needed in the older agricultural regions. Methods of opening up the huge internal regions now in process of settlement must be found that will be less wasteful of human and natural resources. For the immediate future, the possibilities for effective public policies seem a good deal more favourable in these areas than in relation to rates of population growth.

Demographic processes and their relationship to the processes of social and economic progress in the Soviet Republics of Central Asia

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[*Translated from Russian*]

1. The Uzbek, Kirghiz, Tadzhik and Turkmen republics of Central Asia comprise an area of 1,279,300 square kilometres, representing 5.7 per cent of the total area of the Union of Soviet Socialist Republics. At the beginning of 1964, the population of these republics was 16,459,000, or 7.3 per cent of the total for the Union of Soviet Socialist Republics. The population of the individual republics was as follows: Uzbek Soviet Socialist Republic—9,818,000; Kirghiz Soviet Socialist Republic—2,492,000; Tadzhik Soviet Socialist Republic—2,346,000; and Turkmen Soviet Socialist Republic—1,803,000. Up to the October Revolution of 1917, Central Asia was one of the backward and oppressed regions of Tsarist Russia. Almost the entire population was engaged in agriculture—the Uzbeks and Tadzhiks in the growing of crops, and the Kirghizians and Turkmenians in semi-nomadic livestock rearing. Industry was represented by a small number of undertakings operating on a semi-craft basis. These were small in size and were engaged mainly in the primary processing of agricultural products. No effort of any kind was made to explore the local natural resources. The cultural level of the people of Central Asia was very low. According to the only population census of Tsarist Russia, taken in 1897, the illiteracy rate of the population of the Central Asian regions between the ages 9-49 years was as follows: Uzbek Soviet Socialist Republic—96.4 per cent; Kirghiz Soviet Socialist Republic—96.9 per cent; Tadzhik Soviet Socialist Republic—97.7 per cent; and Turkmen Soviet Socialist Republic—92.2 per cent.

2. After the October Revolution, the centuries of backwardness in Central Asia were overcome within what from the historical point of view was a short time. In the Soviet Republics that were established there, a modern highly developed industrial structure and large-scale mechanized agriculture were introduced. Today, Central Asia is a country endowed with diversified heavy and light industry and mixed agriculture. From 1913 to 1963, the volume of industrial production increased by 29 times in the Central Asian republics as a whole, and by 24 times in the Uzbek Soviet Socialist Republic, 82 times in the Kirghiz Soviet Socialist Republic, 49 times in the Tadzhik Soviet Socialist Republic and 26 times in the Turkmen Soviet Socialist Republic. Coal production in the territory of the Central Asian republics amounted to 158,000 tons in 1913 and to 9 million tons in 1962; petroleum production for the corresponding periods was 152,000 and 9 million tons, the latter figure being almost as high as the output in 1913 for the entire territory of Tsarist Russia that became part of the Union of Soviet Socialist Republics. Electric power generated amounted to about 6 million kWh in 1913, as against 11.186 million kWh in 1962. In the Uzbek Soviet Socialist Republic, electricity output in 1962 was 7,500 million kWh. This means that in this republic 6.2 times as much electricity is now being produced in one day as was produced before the Revolution in one year. On a per capita basis, more than six times as much electricity is produced in Uzbekistan as in Turkey. During the years of socialist construction, agriculture in the Central Asian republics has been completely transformed. It has become diversified and highly productive and exhibits a high degree of technology. The collective and State farms of the Central Asian republics now have more than 140,000 tractors (15 h.p. and over) and are highly mechanized in many other ways. Central Asia is the main source of the Soviet Union's raw cotton (nine tenths of the Union of Soviet Socialist Republics output) and of its sugar-beet, tobacco, medicinal poppy and fibre crops, its grain, its high-quality livestock products (for example, Astrakhan) and so on.

3. The social and economic changes which have taken place in the Central Asian republics during the years of the Soviet régime have been reflected in changes in the size and structure of the population of these republics. The rates of population growth in the republics of

Central Asia are considerably higher than those for the Union of Soviet Socialist Republics as a whole. In 1913, the population of the Central Asian republics was 7.3 million; by the beginning of 1964, it had already reached 16.5 million. The population of Soviet Central Asia has thus more than doubled in the last fifty years, whereas the population of the Union of Soviet Socialist Republics as a whole has increased 1.4 times in the same period. In the period between the censuses of 1926 and 1939, the mean annual rate of population increase in Central Asia was higher than in the Union of Soviet Socialist Republics as a whole. This was due both to the high annual rate of natural increase and to a large influx of young and middle-aged persons from other areas. The annual rate of increase in these republics has subsequently slackened.

4. The birth rate in Central Asia is now 24 per cent less than it was in the pre-revolutionary period, whereas the death rate has decreased by 4.8 times since then. As a result, the rate of natural increase has risen by 1.5 times. The high rate of natural increase in Central Asia is not solely the result of the high birth rate which has long been characteristic of the population there and which is due in some measure to early marriages and to a tradition of large families; it results mainly from the sharp reduction in general mortality, and more particularly in infant mortality. During the years of the Soviet régime, such mass communicable diseases as smallpox, cholera, the plague, relapsing fever and typhus, which were formerly prevalent in the republics of Central Asia, have been eradicated. The lower death rates are a result of the higher general and cultural level of the population and of the vastly expanded medical services. In 1913, the number of hospital beds per 10,000 persons in the republics of Central Asia was less than two, but in 1962 it was eighty-two, or in other words forty-three times greater. In 1913, the ratio of physicians (exclusive of dentists) to population was 0.3 to 10,000; in 1962 it was 14.9 to 10,000, or fifty times greater. There are now more physicians in the republics of Central Asia than there were in the whole of Tsarist Russia in 1913. The ratio of physicians to population in this region is greater than in the United States of America, the United Kingdom, France, Italy and Japan and is several times greater than in Turkey, Iran and Pakistan.

5. In addition to the high rate of natural increase, the population of the Central Asian republics is experiencing a considerable growth as the result of migration to the region. The rapid expansion of industry, transport and construction has been accompanied by an influx of population from other regions of the Union of Soviet Socialist Republics. Apart from the persons who are native to the region, the population of Central Asia includes Russians, Tartars, Ukrainians, Azerbaijanians and other nationalities. The workers of all the various nationalities who have settled in the republics of Central Asia live together in a spirit of friendship and fraternal mutual aid—as is characteristic, moreover, of all the other Soviet republics. The influx of population into Central Asia from other regions was especially heavy in the first two decades after the Soviet régime was established. The reason for this was that, before the Revolution, the local inhabitants were for the most part illiterate and would have been unable to achieve the rapid economic development of their region without the fraternal aid of persons of other nationalities. In later years, and especially after the Second World War, the flow of population to Central Asia diminished as local manpower resources became adequate to meet the needs of new construction, industry, agriculture, cultural services and so on.

6. The growth of the urban population in the republics of Central Asia has been particularly rapid. From 1913 to 1963, the urban population increased by 4.4 times as against a more than twofold increase in the total population during the same period. Although in the Union of Soviet Socialist Republics as a whole the rural population declined between 1913 and 1963 by 17.6 per cent, in Central Asia it not only did not decline but actually rose by 74.6 per cent. The increase in urban population was due both to the growth of the older towns and to the establishment of new ones. In 1926, there were eighty-five towns in the republics of Central Asia, but even by the 1959 census the number had risen to 266, this being a more than threefold increase. The greatest increase in urban population occurred in the new towns, especially the new industrial or administrative centres, and in the older towns in which large industrial undertakings were established or which became very important administrative centres. By comparison with the pre-war year of 1939, the population of a number of the older towns (Frunze, Fergana, Tashkent, Andizhan, Leninabad and others) had doubled or more than doubled by the year 1964. During the same period, the population of the new towns (Chirchik, Begovat, Nebitdag, Dushanbe, Nukus and so on) tripled or even quadrupled. In the pre-revolutionary period, only

the town of Tashkent had more than 100,000 inhabitants; today there are already eight such towns—Tashkent, Samarkand, Kokand, Andizhan, Namangan, Dushanbe, Ashkhabad and Frunze. The population of a number of even very recent towns approaches or substantially exceeds 50,000; these include Angren, Almalyk, Chirchik, Begovat, Nukus and Yangiyul. Tashkent, the centre of the central Asian economic region, had a population of 1,061,000 at the beginning of 1964, as against 156,000 according to the census of 1897. During the years of the Soviet régime, Tashkent has become a large industrial centre. Not only has there been a considerable expansion of the previously existing small undertakings in the food industry and in various branches of light industry, but new branches of heavy industry have also been established there. The latter include the manufacture of agricultural and textile machinery, the chemical industry and the electrical and energy producing industries. Tashkent is also the scientific, cultural and educational centre of Central Asia. In 1914, there was only one specialized intermediate school there with an enrolment of eighty-six students. Today this town has sixteen higher educational establishments with an enrolment of 82,000, twenty-six technical schools with an enrolment of 32,000 and more than 200 ordinary schools with an enrolment of 180,000. In 1920, the first higher educational establishment in Central Asia was established at Tashkent, namely, the V. I. Lenin State University of Central Asia. Today there are more than seventy scientific institutions in the town, including the Academy of Sciences of the Uzbek Soviet Socialist Republic, the Uzbek Academy of Agricultural Sciences and the Institute of Nuclear Physics. The rapid growth in the number of urban settlements and in their population is not due solely to the vigorous development of industry and transport in the Central Asian republics and to the related establishment of new towns and of urban-type settlements in the neighbourhood of mines, new factories, power plants, railway stations and so on—e.g., Angren, Nebitdag, Chirchik, Begovat and Nurek. It is also due to the rapid cultural development of these formerly outlying areas of Tsarist Russia and to the establishment there of a large number of scientific, educational, cultural, training and other institutions which has led to the creation of a number of entirely new political and cultural centres such as Dushanbe, Nukus and Khorog.

7. During the years of the Soviet régime, the sex structure of the population of the Central Asian republics has undergone a subtantial change. In the pre-revolutionary period and during the first decades after the Soviet régime came to power, the sex structure of the population in this region differed from the sex structure of the population in most of the other regions of the country by reason of the considerable predominance of males. In 1926, the proportion of males in the population of Central Asia was 53 per cent and of females 47 per cent, whereas in the Union of Soviet Socialist Republics as a whole, males accounted for 48 per cent and females for 52 per cent of the population. The sex structure of the population of these republics had changed only slightly by 1939—males representing 52 per cent and females 48 per cent. Males predominated not only in the urban but also in the rural population, and not only among the new arrivals but also among the indigenous population. In the past, this situation was explained not only by the fact that most of the persons coming to Central Asia were single males in search of work, but also by the benighted status of the Moslem women, by the premature aging and early death that resulted from this and by the higher mortality among girls than among boys, the latter being given better care. By 1959, the sex structure of the population of the Central Asian republics had changed in the direction of a higher proportion of females. The figures then were 52 per cent females and 48 per cent males, as against an average for the entire Union of Soviet Socialist Republics of 55 per cent females and 45 per cent males. The increase in the proportion of females was due not only to the heavy casualties among males in the war of 1941-1945—although this was, of course, of paramount importance—but also to the sharp drop in the death rate for girls and women. The reasons for this reduction in the female death rate were the rise in the general and cultural level of the population, the complete liberation of the Moslem women from feudal, ancestral and religious servitude, the radical improvement of medical services, the intensification of maternal and child welfare measures (development of a network of maternal and child health clinics, maternity homes, day nurseries, kindergartens and infant-feeding centres, the provision of holidays and allowances for mothers, and so on) and an extraordinary improvement in the level of education and prestige of the women of the East. Women have increasingly been brought into the process of production. Just in the twenty-year period from 1939 to 1959, the proportion of women in the labour force of the Central Asian republics rose by 6 per cent (from 38 to 44 per cent), this being slightly higher than the increase for the Union of Soviet

Socialist Republics as a whole (from 43 to 48 per cent). The proportion of women among non-manual workers rose even higher, namely from 24 to 42 per cent—an increase of 18 per cent. By granting the women of the East—who formerly lived a secluded life devoted almost exclusively to household tasks—equal rights in all spheres with men, the Soviet State made it possible for them to attend school and to be employed in factories, institutions, schools, hospitals, the theatre and so on. Women were granted the right, on an equal footing with men, to occupy positions of leadership and to be elected to the highest organs of State administration. Today, many occupations in the economic and cultural spheres which were formerly regarded in Central Asia as being "masculine" have become almost completely feminine. This is true of the textile and clothing industries, communications, medicine, office work and such occupations as teacher, librarian, laboratory assistant, draughtsman, statistician, cashier, proof-reader and many others.

8. The age structure of the population of the Central Asian republics, by contrast with that of the population of the Union of Soviet Socialist Republics as a whole, exhibits a younger mean age and a higher proportion of children. This has great importance as regards the provision from the local labour force of the manpower needed for the increasingly more rapid economic and cultural development of these republics. Even in the pre-war period (1939), somewhat over half of the population of Central Asia consisted of persons of working age (males—16 to 59 years of age, females—16 to 54 years of age), 38 per cent of children and adolescents (from 38 per cent in Uzbekistan to 41 per cent in Tadzhikistan) and about 9 per cent of persons beyond working age. The proportion of children in Central Asia under ten years of age in 1939 was 24.3 per cent and thus exceeded the percentage represented by this group in the Union of Soviet Socialist Republics as a whole (22.8 per cent). The proportion of working-age population was somewhat lower than the average of 53.6 per cent for the entire country. In the post-war period, the proportion of children under ten years of age in the population of Central Asia increased even further owing, on the one hand, to a sharply higher birth rate and a reduction in infant mortality and, on the other hand, to a decrease in the proportion of persons of working age—especially in the 35-45 year age group—as a result of the war. In the period 1939-1959, the number of children in the Central Asian republics rose by 61 per cent, and the total population of Central Asia, by 30 per cent. In the Union of Soviet Socialist Republics as a whole, the number of children increased in this period by only 9.5 per cent. According to the 1959 census figures, the working-age population comprised 50 per cent of the total population in the republics of Central Asia, or 3 per cent less than before the war. Children and adolescents accounted for 39 per cent, or almost the same percentage as before the war. The proportion of children under ten years of age, as already mentioned, rose considerably by comparison with 1939, but the proportion of children aged 10 to 15 years decreased in consequence of the lower birth rates during the war years. The proportion of persons beyond working age amounted to 11 per cent. The higher percentage for the latter by comparison with 1939 is explained partly by the fact that the population in this age group suffered less from the war than did the working-age population and partly by the lower mortality even among persons of advanced age.

9. The occupational structure of the population of the Central Asian republics has undergone considerable change. The rise in the number of industrial undertakings and construction projects and the mechanization of agriculture have resulted in high growth rates in the number of skilled workers and of engineering and technical personnel. Also, the increased numbers of medical and scientific establishments and organizations, of institutes, of general and technical schools, of libraries and of other cultural and educational establishments have resulted in an increase in the number of physicians and other medical personnel, teachers, scientific workers, instructors, librarians and other non-manual workers, especially among the indigenous population. Thus, from 1926 to 1959, the number of chemists in Central Asia increased by 62 times (Union of Soviet Socialist Republics average—9 times); power-plant workers, 34 times (Union of Soviet Socialist Republics, 14 times); metal workers and metallurgists, 13 times (Union of Soviet Socialist Republics, 9 times); vehicle drivers, 316 times (Union of Soviet Socialist Republics, 176 times); scientific workers, 49 times (Union of Soviet Socialist Republics, 23 times); engineers, 41 times (Union of Soviet Socialist Republics, 25 times); teachers, 21 times (Union of Soviet Socialist Republics, 6 times); medical personnel, 19 times (Union of Soviet Socialist Republics, 8.6 times); and persons engaged in literary and cultural pursuits, 7 times (Union of Soviet Socialist Republics, 4.4 times). The occupational structure of the population of the

Central Asian republics is steadily approaching that of the Soviet Union as a whole, and the proportion of the Central Asian population engaged in scientific, educational and artistic occupations is even somewhat higher than the average for the Union of Soviet Socialist Republics as a whole. It must be remembered that industrialization and the cultural revolution in Central Asia had to start with virtually nothing, for up to 1926 the skilled workers and specialists and the non-manual workers could be numbered by the dozen or even by individuals. According to the 1959 census, there were in the republics of Central Asia in that year almost 29,000 engineers, 17,000 scientific workers, 84,000 medical workers, more than 145,000 teachers and hundreds of thousands of skilled workers and technicians.

10. The national delimitation of the multinational territory of Central Asia in 1924, the establishment of Union republics and autonomous republics, the new socialist relationships and the close economic and cultural contacts between the various peoples of Central Asia were all contributing factors, not only in hastening the emergence of their individual national characteristics and talents but also in fostering their mutual enrichment through a sharing in the material and spiritual values that had long been part of the way of life of the various peoples of Central Asia and of those of other nationalities coming there from other parts of the Soviet Union. During the years of the Soviet régime, new socialist nations were formed in Central Asia through the consolidation of numerous tribal groups. There thus came into being an Uzbek, a Tadzhik, a Turkmen, a Kirghiz and a Karakalpak nation, each with its own national language in written as well as spoken form and its own literature and arts, and each using the language of its people in education, official documents, the Press, radio broadcasts and so on. Each of these new nations brought from its midst great writers, artists, musicians, actors and scholars whose reputations extend far beyond the borders of their own countries. For example, in 1963 the scientific workers in the republics of Central Asia included 5,800 Uzbeks, 1,200 Tadzhiks, 985 Turkmenians, 817 Kirghizians and 196 Karakalpaks. In 1962, 1,205 books were published in the Uzbek language, 446 in Tadzhik, 425 in Kirghiz and 420 in Turkmen.

At the same time, as a result of the close contacts (at school and at work) between persons of different nationalities, a fusion of the various local peoples in Central Asia is proceeding at a rapid pace and is further intensified by the large number of mixed marriages. This is especially true of the smaller ethnic groups living in the territory of each of the republics of Central Asia who have adopted the language and customs of the dominant people. These peoples are being gradually assimilated into the dominant group (for example, the Dzhemshids, Beludzhis and Kurds with the Turkmenians; the Yagnob and Pamirian peoples with the Tadzhiks; and the Kypchaks, Kuramins and, to some extent, the Uigurs and the Dungans with the Uzbeks and the Tadzhiks). Also, they can now usually speak several languages (their mother tongue, the language of the republic where they live, and Russian). Russian, the official language of the entire Soviet Union, is steadily gaining ground in the republics of Central Asia. Members of the local nationalities as well as of the various nationalities who have migrated to Central Asia now know Russian and quite often even regard it as their mother tongue. This is true of a large number of the Ukrainians, Byelorussians, Moldavians, Mordvinians, Chuvashes and persons of other nationalities who are now living in Central Asia. According to the 1959 census, there were 2,240,000 Russians in Central Asia, but 2,661,000 of the persons living there considered Russian to be their mother tongue. Actually, the majority of inhabitants of Central Asia have a knowledge of Russian. This applies especially to the urban population and to that part of the rural population consisting of students, young persons and middle-aged persons (more particularly the middle-aged men). A command of Russian and of the principal national languages of the republics is of great assistance in bringing the people of the republics of Central Asia into contact with each other, in furthering the work of the schools and of medical, trade and other State and public organizations and in organizing collective endeavours comprising persons of different nationalities (student bodies, theatrical companies, teams of workers and so on). One consequence of the close contacts between people of different nationalities has been the penetration of the same "All-Union" elements into the life and economy of all the Central Asian peoples. The inhabitants of Central Asia, especially the young and middle-aged persons living in the towns and larger settlements, now wear more or less the same kind of ready-made clothing and footwear that is fashionable among the urban population; they furnish their homes in more or less the same way; and they eat more or less the same foods, including processed foods. The indigenous inhabitants of Central Asia have adopted the more progressive production methods of the Russian and other new-

comers and are beginning to follow their example by introducing more comfortable living facilities (European-type houses, furniture and so on). During the years of the Soviet régime, they have acquired new productive skills and mastered occupations, particularly in industry, that were formerly unknown to them. At the same time, they have gradually succeeded in freeing themselves from backward traditions and customs. They have been greatly helped in all this by the central regions of the Union of Soviet Socialist Republics, where the local youth went to be trained and from where skilled workers came. The various peoples draw on and profit by each other's experience, skills and traditions. Some of these national skills and traditions that have been developed over the centuries are relied upon even today because they offer the best means of utilizing local resources and of taking full advantage of the natural and economic conditions peculiar to the Central Asian region. National traditions have been preserved in agriculture, in the planning and construction of settlements, in the layout of farms and so on. Among customs adopted from the former nomads are those relating to the selection of pastureland suited to the various seasons and to the various types of livestock and those relating to grazing and herding methods, the construction of livestock enclosures, the digging of wells and the building of reservoirs. Customs adopted from the traditionally sedentary population include those relating to the arrangement of fields, the building of irrigation ditches and irrigation tunnels, the cultivation of warm-climate crops etc.

11. The social and economic progress of the republics of Central Asia is especially evident in the changes that have occurred in the cultural level of the local population. As regards literacy, the progress made by the Central Asian republics has surpassed that of most of the other Soviet republics. Whereas in 1926 the proportion of literate persons among the population aged 9-49 years ranged from 16.5 per cent in the Kirghiz Soviet Socialist Republic to 3.8 per cent in the Tadzhik Soviet Socialist Republic (Union of Soviet Socialist Republics average—56.6 per cent), the corresponding figures in 1959 were: Uzbekistan—98.1 per cent; Kirghizia—98.0 per cent; Tadzhikistan —96.2 per cent; and Turkmenistan—95.4 per cent (Union of Soviet Socialist Republics average—98.5 per cent). During the years of the Soviet régime, the number of persons with an intermediate or higher education has steadily risen, especially among the local population. Thus, from 1939 to 1959 the number of persons having such an education increased as follows: among the Uzbeks in the Uzbek Soviet Socialist Republic by 13 times, among the Kirghizians in the Kirghiz Soviet Socialist Republic by 21 times, among the Tadzhiks in the Tadzhik Soviet Socialist Republic by 18 times, and among the Turkmenians in the Turkmen Soviet Socialist Republic by 17 times (average for the entire population of the Union of Soviet Socialist Republics—3.4 times). The high rates of increase in the number of persons with an intermediate or higher education are a direct result of the high rates of increase in school enrolment. From 1914 to 1963, the number of students in schools providing a general education rose in the Union of Soviet Socialist Republics as a whole by 4.6 times, but in the republics of Central Asia by 109 times—from 32,000 to 3,491,000. The rise in the enrolment of the upper classes was even greater, the number of students in the fifth to eleventh classes in Central Asia increasing during the same period by 322 times—from 5,000 to 1,707,000 (average for the Union of Soviet Socialist Republics as a whole—by 40 times). In Tadzhikistan there were no students at all above the fourth class before the Revolution, whereas today the number of such students is 213,000. Up to 1920, there was not one institution of higher learning in any of the Central Asian republics, but today there are universities and other institutions of higher learning in each of these republics, the total enrolment being 205,000. Rapid growth has also been characteristic of other branches of culture. Before the Revolution, there were no public libraries in the Central Asian republics at all, and even by 1927 there were only 258 of them. By 1962, however, their number had increased by more than 26 times in comparison with 1927 (Union of Soviet Socialist Republics average—5 times), and the number of books in public libraries had increased by 72 times. The number of theatres has increased from one in 1913 to 41, i.e., by 41 times (in the Union of Soviet Socialist Republics as a whole, by almost 3 times). The number of club-houses, of which there were none before the Revolution, has increased by 8 times since 1927, i.e., from 709 to 5,543, as against almost 4 times for the Union of Soviet Socialist Republics as a whole. In 1913, the total press run of books published in the territory of Central Asia was 118,000, as against 37,500,000 in 1963. The average circulation of newspapers rose during the same period from 50,000 to 3 million, so that there is now one newspaper per five persons or, to put it differently, one newspaper per three adults. Furthermore, by far the greatest part of these

books and newspapers are published in the local languages.

12. The experience of the Soviet republics of Central Asia shows that when formerly backward countries are able to proceed along the road of independent economic development, the growth of material wealth can and inevitably will outstrip the growth of population. The experience of these republics shows how beneficial the socialist road of development has been for them. There have now been established in the republics of Central Asia all the conditions that are necessary to ensure that an abundance of consumer goods can be provided in the near future.

The difficulties of rapid population growth in an under-populated country. An example: Senegal

AMADOU LAMINE N'DIAYE

[Translated from French]

I. DEMOGRAPHIC CONDITIONS

1. According to the survey made in the period 1960-1961, the population at that time totalled 3,109,840, of whom 3,048,140 were Senegalese.

2. Despite the progress achieved, the quality of the figures is still not entirely satisfactory, especially as regards age in rural areas. The figures are as follows:

Table 1

Age group	*Males*	*Females*
0-4 years old	825,500	289,240
5-9	244,920	230,580
10-14	135,540	114,780
15-19	102,520	129,300
20-24	101,740	139,980
25-29	119,166	161,440
30-39	190,260	203,820
40-49	139,360	125,040
50-59	93,620	73,000
60-69	51,220	41,660
70-79	26,120	27,040
80 and older	12,020	13,280
TOTAL	1,498,980	1,549,160

3. There is, between the ages of 15 and 19, a certain narrowing of the pyramid which is observed in almost all population surveys made in French-speaking Africa. Infant mortality increased during the Second World War, owing to the shortage of medicaments. The particularly small number of girls in the 10-14 age group should perhaps be attributed to errors of observation concerning age, since the number of males appears to be correct.

4. In any event, the population is young; 42 per cent are under 15 years of age and only 6 per cent are over 60, as compared to approximately 18 per cent who are 60 years and over in France.

II. GEOGRAPHICAL DISTRIBUTION

5. The population density is 16 persons per square kilometre—an average of little significance which conceals large deviations, the density varying from 2.5 for eastern Senegal to 807 for Cap Vert.

6. The country is sparsely populated in view of the employment opportunities that its natural resources have to offer; 50 per cent of the population lives in 16 per cent of the territory.

7. In some areas of the groundnut-growing region, the density is more than 50 persons per square kilometre. By contrast, there are great empty spaces where only a few nomads roam.

8. The distribution in the period 1960-1961, by size of agglomeration, was as follows:

Table 2

Size	*Number*	*Population*	*Percentage*
Dakar	1	336,580	11.0
Towns with 20,000-100,000 inhabitants	6	288,420	9.4
Towns with 10,000-20,000 inhabitants	4	52,120	1.7
Urban population	11	677,120	22.2
Rural population (towns with less than 10,000 inhabitants)	11	2,371,020	77.7
TOTAL POPULATION	—	3,048,140	100.0

9. Thus, a very large majority of the population is rural, but internal migration is directed towards the urban centres and adjacent areas.

III. Rate of increase and forecasts

10. The 1960-1961 survey estimated the birth rate at 43.3 per 1,000 and the death rate at 16.7 per 1,000, representing a rate of annual increase of 2.7 per cent, or a doubling of the population in about twenty-six years. However, a vital statistics survey (of one year's duration) in a rural area showed that the rate of natural increase had been somewhat over-estimated. The rate should be between 2 and 2.5 per cent.

11. The high infant mortality is due to poor hygiene and to the mothers' lack of education. Indeed, poor health conditions are the principal cause at all ages. While the food situation is not satisfactory, it is not the major factor of mortality.

12. On the basis of the foregoing, the population should develop as follows:

Table 3

	Rate of annual increase				
	Assumption: 2 per cent			*Assumption: 2.5 per cent*	
Years	*1 July 1960* [a]	*1 July 1964*	*1 July 1969*	*1 July 1964*	*1 July 1969*
6-14	653,000	707,000	780,000	721,000	815,000
18	30,000	—	35,900	—	37,500
20-59	1,285,500	1,391,500	1,536,300	1,418,900	1,605,000
TOTAL POPULATION	2,971,200	3,216,400	3,551,000	3,279,800	3,709,700

[a] The pyramid as at 1 July 1960 is not as observed; the observed figures have had to be adjusted.

13. According to the assumption made, the school-age population (ages 6-14) will increase by an average of between 14,600 and 18,800 annually, and the number of men of working age by an average of between 14,700 and 18,800.

14. There is every reason to expect a substantial decline in mortality.

15. As regards the birth rate, there is no evidence of the acceptance of birth control. The population is deeply attached to traditional values. Children are regarded as something of intrinsic value which there can be no question of preventing.

16. In short, this is an under-populated country whose population is destined to expand rapidly.

IV. Essential economic facts

17. Such rapid growth and economic backwardness both necessitate large investments. The following are the essential economic facts.

18. It was possible to prepare national accounts for 1956 and 1959 in accordance with the international model.

Table 4

	1956	*1959*
	(Thousands of millions of francs CFA)	
Gross domestic production	84.0	120.2
Wages paid by Government	15.0	19.9
Net income of the factors of production paid from abroad	10.6	10.1
GROSS NATIONAL PRODUCT	109.6	150.8
Consumption by households	67.6	94.1
Consumption by Government	25.0	31.1
Gross investments	10.2	17.0
Transfer abroad	6.8	8.6
GROSS NATIONAL EXPENDITURE	109.6	150.8

Table 4 (*continued*)

	1956	1959
	(Thousands of millions of francs CFA)	
Gross national product (at market prices)	109.6	150.8
Product of amortizations	8.0	12.0
NET NATIONAL PRODUCT (at market prices)	101.6	138.8
Product of indirect taxes	14.2	21.7
NATIONAL INCOME	87.4	117.1
Wages	12.5	20.5
Remuneration paid by Government	15.0	19.9
Income from entrepreneurship and property, and other income	59.9	76.8
NATIONAL INCOME	87.4	117.1

19. Thus, between 1956 and 1959, the national income in terms of money increased by 34 per cent, or 26 per cent per capita, taking an average rate of growth of 2 per cent annually; but this is in terms of money.

20. Agriculture accounted for only a little more than one third of the gross domestic product in 1963; services formed one half, and industry a little more than one sixth. This high proportion of services confirms the fact that the international model for accounts is not suitable for measuring economic development in a developing country.

21. The gross domestic income (gross domestic product less indirect taxes) is known up to 1963, at constant prices. Assuming that the population increased at the rate of 2.3 per cent annually, the figures are as follows:

Table 5

	1956	1957	1958	1959	1960	1961	1962	1963
Gross domestic income (in thousands of millions)	102.5	113.5	117.3	120.7	125.0	129.7	136.6	131.7
Population in thousands	2,835	2,900	2,970	3,040	3,110	3,190	3,260	3,335
Per capita income:								
In thousands of francs	36.2	39.2	39.5	39.6	40.2	40.6	41.9	39.5
Base 100 in 1956	100	108.3	109.1	109.4	111.0	112.1	115.7	109.1

22. The rate of increase of per capita income averaged 1.25 per cent annually, even though 1963 was a bad year.

23. This figure, however, is substantially below the target of the plan for the period 1961-1964, which specified an annual increase of 5 per cent in per capita income. In United States dollars, the annual per capita income in 1962 was $180, which is a modest figure.

24. The miscalculation of the national income brings us to a direct consideration of food production.

25. Excluding groundnuts, which are grown exclusively for export, agricultural surpluses available for sale represent almost 50 per cent of the output. Yet the country is not self-sufficient in food. Although food production apparently rose by 14 per cent between 1959 and 1963, cereals to the value of 3,000 million francs had to be imported in 1962 and 5,000 million francs' worth in 1963.

26. Daily per capita food consumption expanded in 1955 from 2,300 calories to 2,900 calories, which is an adequate ration given the high proportion of young people. This average, however, is spread over a very wide range and conceals the quantitative deficiencies in some regions or social classes. In addition, this ration is badly balanced, being poor in animal protides and vitamins. Meat production, in particular, is inadequate outside the urban areas.

V. ECONOMIC DEVELOPMENT PROSPECTS

27. In order simply to maintain the level of living, the rate of annual increase of the national income would have to be more than 2.5

per cent. If the level of living is to rise as rapidly as it has in the developed countries, production would have to increase by 8 per cent annually, and that was the figure set in the plan. Only when that rate has been exceeded shall we be able to speak of diminishing underdevelopment in economic terms.

28. Such an increase would require large investments and intensive organization of the peasant masses.

29. There is a tremendous potential for increasing agricultural output; cultivated land covers only 11 per cent of the total land area and is normally very poorly worked.

30. The first requirement, however, will be to change certain peasant customs. Methods calling for a certain amount of know-how will have to be superimposed on a long-standing tradition.

31. One of the first customs that will have to be changed is agricultural nomadism, which is dangerously conducive to erosion. If farming operations were stabilized, agricultural soils could be created, and they are an essential basis for modern production and a modern agricultural economy. Even without such stabilization, there will be no danger of famine, but economic development will be jeopardized. Stabilization of this kind requires large-scale investment.

32. The method of stock-raising is also wasteful; the cattle population is 1,816,000, or an average of 0.6 per inhabitant. This is a higher figure than the French average (0.4), although France consumes twice as much meat as Senegal. In addition, the milk deficit increases every year.

33. These animals represent, as it were, non-income-producing capital. The imposition of a direct tax on older cattle and the creation of artificial pasture are all that would be needed to raise the production of meat and milk.

34. The very scale on which such waste occurs gives some idea of the amount of progress that is possible. The fact that, because of the lack of trained personnel, such progress depends not so much on the input of capital as on technique, brings us to the question of education.

VI. Education

35. From 1958 to 1963, the number of pupils increased from 80,393 to 172,751 at the primary level and from 5,105 to 15,156 at the secondary level. There was also a great advance in technical and higher education. Yet, in the case of primary education, the rate of enrolment is low—47.2 per cent for boys and 23.5 for girls in 1963. The shortage of teachers is serious (an average of forty-six pupils per teacher).

36. In order to reach the target recommended at Addis Ababa in 1961 (71 per cent enrolment), 9,500 classrooms would have to be built and 10,000 teachers trained, that is, 1,000 per year from 1960 to 1969.

37. Since each primary-school child costs 25,000 francs (African Financial Community), this outlay, for the primary level alone, would amount to almost 3 per cent of the annual national income, which is beyond Senegal's means.

VII. Investments for employment

38. The number of men of working age will rise from 718,800 in 1964 to 812,900 in 1969, representing an increase of 94,100 in five years. Assuming the amount of investment per person to be 1 million francs (AFC), the annual cost is 19,000 million francs (AFC). In 1963, however, total investments of every kind amounted to only 14,590 million francs (AFC), and this gives some idea of the size of the economic shortfall, which is even greater if the decline in private investments since 1960 is taken into account.

VIII. Review and conclusion

39. Senegal offers a typical example of a country which is under-populated and which is nevertheless experiencing great difficulties as a result of its population growth.

40. From the static point of view, the importance of a larger population, or of greater density, is apparent, provided there is less redundant transport, better division of labour, better distribution of overhead expenses among a larger number of people etc.

41. From the dynamic point of view, however, the transition from under-population to a nationally more advantageous population requires large investments.

42. This paradox is at the heart of the problem, which is common to many African countries. While it is impossible to speak of an optimum level of population, it might be possible to speak of optimum growth from the economic standpoint. At present, however, in the absence of any birth control, it is the economy which has to be adapted to population growth.

43. In view of the advantage which would result from more rapid population growth, it

may be assumed that the national interest rate on investments (the quotient of the increase in the national income achieved through an investment divided by the cost of the investment in question) is high.

44. Nevertheless, an input of capital, however desirable it may be, would not solve the problem, owing to the lack of technicians and skilled men in all occupations. Very high priority must therefore be given not only to technical assistance, but to the training of nationals for the various activities.

45. Having reached this point, we must deplore the serious gaps in the national accounting, which is imperfect even for the developed countries and very ill-adapted to the situation of the developing countries.

(*a*) It does not provide any information on the economic return from manpower training or, in other words, on what is undoubtedly the most productive investment of all;

(*b*) By adding together 100 francs in services (and even public services) and 100 francs in critical products, especially food-stuffs, it may lead to erroneous conclusions concerning development.

Influence of social and economic factors on demographic characteristics

V. E. OVSIENKO

[*Translated from Russian*]

1. One of the most important tasks of scientific research in the field of demography is to study the relationship between population changes and economic and social development.

2. The relatively rapid growth of the population of a number of countries and of the population of the world as a whole is a phenomenon whose causes and effects call for thorough study. The attempts being made to "plan" or regulate population growth, family size etc., have raised a number of questions, particularly with regard to whether planning is possible and with regard to the extent to which progress in various social spheres and demographic processes are interconnected and interdependent. In view of the intensive world-wide discussion of population growth and the related demographic and social problems, these questions are now a primary concern of scientists.

3. In the course of this discussion, many incorrect assessments have been made and there has been an obvious attempt to inflate and exaggerate the present increase in population and its effects on social and economic development. Population growth is described as "problem No. 2" after that of general disarmament and the prevention of thermo-nuclear war. It is regarded as looming darkly over mankind and fraught with the most serious consequences —famine, war and the very destruction of the human race. The present level of natality is being likened to the eruption of a volcano with all its attendant consequences. The view is held that so long as the population continues to increase at the present rate there can be little hope for peace and international order.

4. It is said to be a general rule that population growth checks the development of productive forces and impedes economic progress. It is even held that mankind is unable to feed itself, to say nothing of satisfying its other needs, since economic development cannot keep pace with population growth. This is said to be particularly true in the case of the developing countries.

5. From all this the conclusion is drawn that the most effective means of extricating ourselves from this situation, the principal measure towards which all efforts should be directed, is to reduce the birth rate by artificial means. Thus, a purely biological approach is taken to the problem. It is held that by reducing the birth rate through the use of artificial methods all the economic and social problems facing the developing countries can be solved and those countries can be given decisive aid in overcoming all obstacles to progress and to the elimination of the poverty and hunger from which two-thirds of mankind are estimated to be suffering at the present time.

6. If we are to grasp the essence of the problem and arrive at a correct solution, we must first of all make an objective, scientifically correct evaluation of demographic processes and determine their main features and the manner in which they are related to social and economic conditions.

7. It must be stated that these questions have not yet received sufficient study, although we already possess considerable data from which certain general conclusions can be drawn.

I. THE SOCIO-ECONOMIC BASIS OF DEMOGRAPHIC PROCESSES

8. Although ways of life differ, all people are linked together. In producing material and spiritual goods, they enter into certain production relationships and into various legal relationships and family and other ties. They engage in social labour in various spheres, pursue various occupations, have varying levels of material well-being etc. In course of time, people's living conditions undergo economic and social changes. These are sometimes fundamental changes which completely transform the economic and social order, altering conditions in various countries and changing their appearance: capitalist countries turn into socialist ones, colonial and dependent countries become free, sovereign States, backward agrarian coun-

tries are transformed into advanced industrial ones etc.

9. Can all these social and economic factors and changes fail to exert an influence on demographic processes?

10. Obviously, they cannot. All population processes and their statistical characteristics, without exception, are dependent in certain ways on socio-economic factors and undergo various changes as a result of the operation of those factors. Furthermore, socio-economic factors are as a general rule the fundamental, original cause of changes in demographic indicators. Two important conclusions can be drawn from this fact: (*a*) an explanation of any given demographic process should be sought above all in the social and economic conditions in which it is occurring; (*b*) by modifying social and economic factors, by bringing about socio-economic transformations, it is possible to accomplish the desired changes in population trends and population indicators.

11. The birth rate and the death rate, changes in the size of the population, marriages and divorces, the social composition and sex and age distribution of the population, employment and the level of material well-being, literacy and educational levels, suicide and crime, life expectancy—all these phenomena undergo changes and fluctuate in an upward or downward direction in accordance with the changes occurring in the socio-economic environment.

12. Perhaps it will be objected, however, that the birth of a child is after all a purely biological occurrence in which no social or economic factors are involved. And, to be sure, the biological nature of an individual birth cannot be denied. Just as an individual person does not constitute a society and is, if viewed apart from society, merely a single biological unit, a single birth is, taken by itself, merely a biological occurrence. However, just as people, taken collectively, constitute a society whose life and development are governed by social laws, births, taken as a collective process of reproduction of the population—what we refer to as natality—become a social phenomenon which is essentially subject to social rather than biological laws.

13. The interrelationships between various social and economic factors, and between this entire set of factors and various demographic characteristics, are complex and varied. It is essential to subject them to thorough, comprehensive examination and to determine their nature and the nature and extent of their influence upon one another.

14. In the light of what I have said, it should be clear that this paper is not in any sense intended to deal exhaustively with the problem formulated in the title. It deals specifically with the interrelationship between a very limited number of demographic characteristics and socio-economic factors and with the influence of the latter on the former.

II. Population growth and the influence of socio-economic factors upon it

15. Population growth varies from one region or country to another in accordance with the given country's level of economic and cultural development and with the interaction of a great many factors such as national traditions, religious beliefs, geographical and climatic conditions, and the sex and age distribution of the population.

16. At the present time, the economically less developed countries are experiencing the greatest increase in population. It is these countries—the African and Latin American countries and most of the countries of Asia—that are largely accounting for the increase in the world's population. Their birth rate continues to be high at a time when their death rate is declining. The rate of population growth in these countries gives rise to "alarm" and to the terrifying conclusions which, as we have mentioned above, are often drawn from these facts.

17. No one is frightened by the demographic situation in the economically highly developed countries, particularly the highly industrialized countries, and the rate of their population growth is not usually regarded as very high or as likely to have serious consequences of any kind. This is particularly true of the countries of Europe and North America. However, it is an historical fact that these countries, too, once had a very high birth rate and a higher rate of population growth than they do today. In the United States, for example, the birth rate during the nineteenth century was higher than 50 per thousand (in 1871, it amounted to 55.1 per thousand), while in Russia it was roughly the same. Then, as these countries developed economically—and, in particular, industrially—and experienced the cultural and social changes associated with that development, the birth rate gradually declined.

18. Two questions arise in this connexion. (*a*) Is it only the countries of North America and Europe that have this capacity to achieve intensive economic development and an accompanying reduction in the rate of population growth, while that way is barred to the countries that are now under-developed? (*b*) What

was the nature of the process of economic development and decline in the rate of natural population growth? What was cause, and what was effect? Did the economy develop because of the decline in population growth resulting from a drop in the birth rate, or did population growth decline as a result of economic development?

19. The first question must be answered in the negative. There is no reason to believe that the process which occurred in the countries of North America and Europe cannot be repeated in the newly developing countries. It will, of course, be different in some specific ways, but it will follow essentially the same pattern.

20. The second question can also be answered without any great difficulty. Economic development in conjunction with a simultaneous rise in the cultural level of the population and other social changes brought about a decline in fertility.

21. The 2-3 per cent by which the population of the less developed countries increases each year is said to be a relatively high rate which not only retards those countries' economic development but actually makes it impossible. It is said that even the substantial economic aid afforded them by other countries and by international organizations is used entirely for the purpose of feeding the additional population rather than to promote economic development. The less developed countries are therefore strongly urged to take prompt, effective action to reduce their birth rate. It is even suggested that assistance to them should be halted until they achieve such a reduction. It is contended that their populations must be brought into line with their economic potential and that a drop in the birth rate will ensure accelerated economic development.

22. An increase in population naturally confronts Governments with the need to provide more people with food, clothing, housing, schools, medical care, jobs, etc., and thus creates new problems. What must be done to deal with this situation? It seems to us that it is not population size which must be brought into line with the economy but, on the contrary, the economy and the level of production which must be brought into line with population size, the rate of population growth and the people's needs. Furthermore, it can be done. A reduction in the birth rate cannot by itself promote an increase in production.

23. Let us cite some data for the Soviet Union:

Changes in industrial production and in the birth rate in the Union of Soviet Socialist Republics, 1913-1963

	1913	*1928*	*1937*	*1940*	*1950*	*1955*	*1960*	*1961*	*1962*	*1963*
Industrial production (1913 = 100 per cent).....	100	132	588	769	1,332	2,463	4,032	4,399	4,825	5,231
Birth rate per thousand	47.0	44.3	38.7	31.3	26.7	25.7	24.9	23.8	22.4	21.3
Birth rate (1913 = 100 per cent).....	100.0	94.3	82.3	66.6	56.8	54.7	53.0	50.6	47.7	45.3

24. These data show clearly that, in the Union of Soviet Socialist Republics, the period from 1913 to 1963 was characterized by a continuing decline in the birth rate and a steady, rapid increase in industrial production. During that period, the birth rate declined by a factor of 2.2, while the volume of industrial production increased by a factor of 52. Can anyone seriously maintain that this gigantic, unprecedented increase in industrial production in the Union of Soviet Socialist Republics after the socialist revolution was a result of a reduction in the birth rate rather than of the profound economic and social transformations which had occurred in the country? Moreover, this process was accompanied by an increase of more than 67 million in the population, which rose from 159.2 million in 1913 to 226.3 million by the end of 1963.

25. In examining the data on Soviet economic development, it must be borne in mind that in 1913 Russia was fifty to one hundred years behind the most highly industrialized capitalist countries. In the countries of Western Europe and North America, the industrialization process took fifty to eighty years, while the Union of Soviet Socialist Republics achieved industrialization in twelve to thirteen years. Furthermore, it did so entirely by mobilizing its own internal resources, with no help from outside. The imperialist countries not only did not aid the Soviet Union in carrying out industrialization but, on the contrary, tried

in every way to frustrate and hamper its efforts in that direction. As you are aware, all the other socialist countries are, like the Soviet Union, developing their economies at a much faster rate than the non-socialist countries. And in their case, too, it is not in any sense being accomplished through a reduction in the birth rate.

26. There is every reason to believe that, as the less developed countries develop economically, their birth rate, death rate and rate of natural population growth will be influenced by the same factors that have influenced and are continuing to influence those indicators in the economically advanced countries. Furthermore, those factors will operate more rapidly and intensively in the developing countries because of the fact that those countries are in a position to make use of the extensive experience gained by other countries in economic and cultural development and to obtain assistance from the advanced countries. General and complete disarmament would be of the utmost importance as a means of providing funds to finance the social and economic development of the developing countries.

27. There is incontrovertible factual evidence to show that it is possible for the economy to develop (and, indeed, at a very rapid rate) at the same time that the population is increasing. The pace of economic development can and must be many times faster than that of population growth. This is demonstrated by the record of economic development in the socialist countries, and in particular by the Soviet Union's nearly fifty years of experience in that regard. Over a period of forty-six years (1918-1963), industrial production in the Union of Soviet Socialist Republics increased at an average annual rate of 10 per cent, and during the last ten years of that period (1954-1963) at the rate of 10.5 per cent, which was nearly six times the rate of population growth. The rate of population growth has lagged behind the rate of increase in national income to roughly the same extent. It is a general law in the development of human society that the pace of economic development is more rapid than that of population growth. Throughout history, the economy has developed more rapidly than the population. If that had not been so and if economic development had lagged behind population growth, human society would have been unable to achieve its present level of progress and the human race would long since have died out. One has only to compare present-day living conditions and the present state of science and technology with the way they were in the remote era when Malthus put forward his "theory" about the impossibility of keeping pace with population growth in order to see the utter absurdity of that notion.

III. The influence of socio-economic factors on the birth rate

28. As a mass social phenomenon, natality—its level at any given time and the changes in that level—is influenced by many economic and social factors. Let us turn our attention to a few of them.

29. The course of human development and the facts of the present-day world show that the relationship between economic development and natality is an inverse one. Where do we today find the highest birth rate? We find it in the less developed countries, i.e., in those countries which are both economically and culturally backward. On the other hand, in the advanced, relatively wealthy countries, with a higher cultural level, this indicator is much lower. For example, the birth rate is less than half as high in the United States as in Guinea, Mali, the Sudan, Costa Rica, El Salvador, Guatemala and Tunisia.

30. Poverty, crowded housing conditions, a low cultural level, illiteracy, the absence of rights for women, and high infant mortality are very closely bound up with a high birth rate. The elimination of all these unfavourable conditions leads to a substantial decline in the birth rate.

31. Industrialization, with the accompanying increase in the urban population, is one of the factors making for a decline in the birth rate. It is a well-known fact that the birth rate is usually lower in urban than in rural localities. Hence, the relative increase in the urban population and decrease in the rural population which accompanies economic progress leads inevitably to a decline in the birth rate. Following are the relevant data for the Union of Soviet Socialist Republics:

Relationship between the growth of the urban population and the birth rate in the Union of Soviet Socialist Republics

	1913	*1937*	*1939*	*1950*	*1955*	*1960*	*1962*	*1963*
Urban population as a percentage of the total	18	28	32	39	44	49	51	52
Birth rate (per thousand)	47.0	38.7	36.5	26.7	25.7	24.9	22.4	21.3

32. Of course, this decline in the birth rate cannot be attributed solely to the increase in the urban population, for a number of other factors are also at work. However, these data definitely show a correlation between the increase in the urban population and the decline in the birth rate.

33. Increased material well-being and the accompanying rise in the cultural level of the population are also important factors in reducing the birth rate. The elimination of illiteracy and raising of the educational and cultural level of the population not only promote national progress but, at the same time, serve to reduce the birth rate. It is a well-known fact that professional workers tend to have a smaller number of children.

34. The following interesting data on the influence of education on fertility, which are based on the findings of the Puerto Rican census of 1950, serve to illustrate this point:

Educational level of mothers (number of years of school completed)

	No education	*Primary school*			*Secondary school*		*College: 1 year or more*
		1-3 years	*4-7 years*	*8 years*	*1-3 years*	*4 years*	
Average number of children of mothers 45 years of age and older.....	6.5	5.6	5.0	3.6	3.2	2.3	1.8

35. Following are data for the Soviet Union on the distribution of families of non-manual workers, manual workers and collective farmers by number of children (the data are based on the results of sample budget surveys for June 1962):

	Non-manual workers (percentages)	*Industrial workers (percentages)*	*Collective farmers (percentages)*
Families with children up to 16 years of age	100	100	100
Families with:			
One child	50	46	40
Two children	41	39	32
Three children	8	12	19
Four or more children.....	1	3	9

36. The level of education is higher for non-manual workers than for manual workers and is higher for manual workers than for collective farmers. The number of families with two or more children is in inverse proportion to the level of education.

37. The granting of equal social rights to women and the employment of women in socially useful labour are also very important factors influencing fertility. Comparison of the fertility rates for women employed outside the home and those not so employed demonstrates convincingly that employment is a factor which inversely influences the birth rate, i.e., causes it to decline.

38. We are not opposed to producing contraceptive devices and supplying them to people who wish to use them, but we are opposed to the use of compulsion in this regard. In particular, we are opposed to extreme methods of reducing the birth rate, such as sterilization, which robs human beings of their dignity, has significant physiological and psychological effects on them, deprives them of their full worth and interferes with the full development of their personality.

IV. The influence of social and economic factors on the death rate and life expectancy

39. The death rate and life expectancy are among the demographic indicators which are highly sensitive to changes in many social and economic factors. Raising of the level of material well-being and culture, government efforts to make medical care accessible to the population, expenditure on the construction and maintenance of medical institutions and on the extensive training of medical personnel—all

these factors ultimately affect the death rate and life expectancy. In pre-revolutionary Russia, where the great mass of the working population was at a low level of material well-being and culture and was poorly provided with medical care, the death rate was very high and life expectancy was extremely low. In 1913, for example, the over-all death rate was 30.2 per thousand, while average life expectancy in pre-revolutionary Russia was only 32 years.

40. After the socialist revolution of 1917, the new social and economic conditions created in the Union of Soviet Socialist Republics produced an unprecedentedly rapid decline in the death rate. Average life expectancy more than doubled, amounting to 70 years in 1960-1961. Following are some data on the death rate in the Union of Soviet Socialist Republics as compared with that in other highly advanced countries:

Deaths per 1,000 inhabitants

	1911-1913	*1940*	*1952*	*1958*	*1961*	*1963*
Union of Soviet Socialist Republics	30.2 [1]	18.1	8.4	7.2	7.2	7.2
United States	13.2 [2]	10.8	9.6	9.5	9.3	9.6
United Kingdom	14.2	14.4	11.4	11.7	12.0	12.1
France	19.0	18.9	12.4	11.0	10.8	11.7

[1] 1913.
[2] 1915.

41. As will be seen from the table, the death rate in Russia at the beginning of the twentieth century was more than twice as high as in the United States and the United Kingdom, whereas by the early 1950's the death rate in the Union of Soviet Socialist Republics was already substantially lower than in the United States, the United Kingdom and France.

42. These varying degrees of success in reducing the death rate obviously cannot be explained in terms of biological laws or of the racial characteristics of the countries concerned. It is social and economic transformations that account for the difference. Year by year, there has been improvement in the Soviet people's living conditions, level of culture, medical care, working conditions and recreational facilities, and this has been responsible for the decline in the death rate.

43. The Union of Soviet Socialist Republics has been particularly successful in reducing infant mortality, which declined from 269 per thousand in 1913 to 30.9 per thousand in 1963. There has also been substantial improvement in the physical development of children.

44. It is known that raising the cultural level of the population does a great deal to reduce the death rate and, in particular, that raising the cultural level of mothers helps greatly to reduce infant mortality. Thus, the following comprehensive figures for Russia show how infant mortality at various ages depended upon the percentage of literacy among mothers in various provinces (the fifty provinces of European Russia):

Groups of provinces by percentage of literacy among women	*Deaths per thousand children up to five years of age, 1887-1896 (20 per cent or more = 1)*
20 per cent or more	1.00
13-20 per cent	1.16
8-13 per cent	1.23
Under 7 per cent	1.32

45. The cultural revolution which has taken place in our country has, of course, had beneficial effects. In pre-revolutionary Russia (according to the figures for the 1897 census), only 28.4 per cent of the population between the ages of nine and forty-nine was literate; the figure was only 16.6 per cent for women and even lower—12.5 per cent—for women living in rural areas. Among the Central Asian peoples, which were brutally exploited by the Tsarist regime, the female population was almost entirely illiterate. In what is now the Tadzhik Soviet Socialist Republic, only 0.3 per cent of all women were literate, in the Kirghiz Soviet Socialist Republic 0.8 per cent and in the Uzbek Soviet Socialist Republic 1.2 per cent. The Soviet Union today has essentially achieved universal literacy.

46. According to the figures for the Russian census of 1897 and the Soviet census of 1959, the proportion of the population having more

than a primary education was 61 per thousand in urban areas and 3 per thousand in rural areas in 1897 and 441 per thousand in urban areas and 249 per thousand in rural areas in 1959. The number of persons with a secondary and higher education has risen sharply during the period of Soviet rule. This has inevitably helped to reduce the death rate as a whole and infant mortality in particular.

47. Thus, we regard mass demographic processes as basically socio-economic in nature and subject to social laws.

48. As human society continues to develop, people will be even more successful in bringing nature's laws under control and skilfully using them for the good of mankind. They will achieve ever greater success in raising man's life expectancy, which is likely to show a substantial increase in the period just ahead. When that happens, it will not be a gift of nature but the result of tremendous economic, social and scientific progress and a great achievement of human intelligence. Nor is there any doubt that human society will find means of maintaining the production of material goods at a constant level which will ensure abundance for all members of society. As far as the growth rate of the world's population is concerned, it will unquestionably decline.

Manpower planning and economic growth with special reference to less developed countries

V. K. R. V. Rao

1. Economic growth is a complex affair that involves many factors, some passive, others active, some interdependent, others autonomous, and some controllable and predictable while others are "acts of God" and therefore neither controllable nor predictable. Then again, economic growth is only a means to an end which is social welfare with the result that attention has to be paid not only to material goods and the services ancillary thereto but also to educational, health and other services which go into direct consumption. Outputs are thus in terms of both goods and services which are either capital or intermediate or final in character. In turn, these outputs involve inputs which take the form of both commodities and services. Input of services is just another way of describing manpower utilisation and hence the relevance of manpower planning in the strategy for economic growth.

2. The problem of manpower planning is not peculiar only to less developed countries but is also found in the developed countries, especially in these days of rapid technical progress and the widening influence of automation in many economic sectors. But it is more urgent in the case of less developed countries, for without the provision of manpower inputs of adequate magnitude, relevant quality and appropriate timing, economic growth does not get a chance to get going. In a less developed country, there is need not only for increasing current output but also bringing about bigger increases in future outputs. While the former may be dealt with by import of technical know-how and foreign manpower, even this is limited in scope for both economic and political reasons; the latter cannot be solved without resort to some kind of planning for obtaining domestically the needed supplies and kinds of manpower. Manpower planning becomes a little less difficult when the less developed country is planning its economic growth rather than leaving it to the free play of natural economic forces. When a country goes in for economic planning, as, for example, India has done through its Five-year Plans, it means that we know in advance what goods and services we want to produce at the end of a given time span. While these targets are fixed for a five-year period, the planners are quite conscious of the fact that planning is continuous, that projects have gestation periods, and that the results achieved in any one plan period are in part the result of investments undertaken in a previous period, while part of the investments undertaken during a current plan period spill over into the succeeding Five-year Plan. That is why we have perspective planning for 15 or 20 or 25 years with Five-year Plans dovetailed into each other for achieving results spread over the entire period.

3. Given the targets, manpower planning takes the form of identifying the manpower outputs required in some detail in respect of the skills involved, the numbers needed, and their distribution over time. Then account has to be taken of the types of training required to produce the necessary skills, the number of institutions that have to be set up for the purpose, the time needed to set them up including buildings, equipment and personnel, and the time taken to train the staff needed for these institutions as also the time needed to set up institutions for training the personnel who have to man the former institutions. All this indicates the vital importance of the time element in manpower planning. Indeed, one may well apply to this field the analogy of consumption goods, and capital goods or final product, machinery for making it and machinery for making machinery that is so relevant in industrial planning. In turn, this means that manpower planning implies not only projections of demand and identification of the supplies needed but also careful assessment of the time span over which has to be spread the production of these supplies. Failure to take action in the field of supply far in advance of the emergence of the final demand will bring about imbalances in the equation of manpower and lead to bottlenecks, unemployment, and shortfalls in output. Perspective planning is thus

an integral part of the essence of manpower planning.

4. Two more points have to be made before I proceed to illustrate by Indian experience some of the problems involved in manpower planning; and they both relate to the training programmes that are formulated for producing the necessary skills. The first is in regard to the duration of training programmes. All training programmes need not be full scale and full time courses spread over a long period and aimed at imparting the total skill needed for the targeted production of goods and services. A good deal of the required skills can be acquired only after employment and familiarity with the job. It must also be remembered that knowledge is not static and that skills acquired through primary training programmes also suffer obsolescence, and need to be renewed and brought up to date. All this means that manpower training programmes must include not only full time courses but also part-time courses, sandwich courses, refresher courses, orientation courses, and in-service training. The other point to remember is that specialization also has its dangers. While specialized training is undoubtedly necessary for producing the different types and grades of skills, the nature of the advance that is taking place in scientific and technological knowledge is such that it involves both specialization and integration. Under the circumstances, full time educational training must lay stress on a strong base of fundamental knowledge and not overemphasize narrow specialization, leaving some room for specialization to be acquired by retraining, in-service training and other types of post-university training programmes.

5. In addition to the planning aspect of manpower in relation to projected needs as determined by developmental policy, it is also necessary for the less developed countries to make an attempt to utilize their vast resources of idle manpower, which constitute one of their principal developmental assets. Idle manpower, which includes both unemployed, underemployed, and disguisedly employed manpower, has long been recognised in the literature on economic development as a potential source of capital formation and economic growth; and various attempts have been made in less developed countries to tap this source, for the promotion of their economic growth. The principle here is to start from the assumption that as the living costs of idle manpower are already a charge on the nation's annual output, the social marginal cost involved in putting men to work is much less than would be the case in drawing out already employed labour and therefore gives viability in economic terms to labour intensive projects. If such labour intensive projects are directed at the creation of capital assets, then not only does idle manpower add to capital formation but also results in a permanent rise in the employment potential of the economy as well as a rise in productivity. While manpower planning for the utilization of idle manpower has to approach the problem from the side of supply rather than of demand as is the case with manpower planning proper, nevertheless it also constitutes a part of manpower planning in the case of the less developed countries.

6. We may now turn to Indian experience in the field of manpower planning. India, as is well known, has gone in for a planned development of her economy; and Five-year Plans are drawn up with targets of output and the investments required to achieve them. Thus the first three Five-year Plans had before them targets of overall economic growth of 12, 25 and 30 per cent, respectively, with investment outlays amounting to rupees 35,000 million, Rs 62,000 million and Rs 104,000 million, respectively, over the three plan periods. The Plans included not only targets of growth in commodity output, power, transport, and communication, but also in social services such as education and medical facilities, and institutional services such as agricultural extension and community development, cooperation, and local self-government. The first thirteen years of planning have seen a growth in national income of 58.5 per cent, while the indices of agricultural production, mineral output, manufacturing, and electricity have increased by 47, 82, 137 and 388 per cent, respectively. On the side of social and institutional services, the number of students at the school and college stages of education has increased by 150 per cent, and 200 per cent, respectively, that of admissions to technical institutions for craftsmen training by about 800 per cent, for engineering diplomas by 515 per cent, for engineering degrees by 395 per cent and for medical colleges by 210 per cent. The number of factory and mine workers has increased by 40 per cent; that of Government employees by 61 per cent (between 1956 and 1964). The anticipated results at the end of the Third Five-year Plan are naturally higher than the figures given above, while the targets under discussion for the Fourth Five-year Plan aim at a significant and in some cases even a spectacular stepping up of the rate of growth in the country's social and economic development.

7. All this necessarily involves a transformation of unskilled into skilled labour and the conversion of raw human material into the types and numbers needed for economic development. Targets of skilled manpower have had to be formulated and with it also the action programmes necessary for the realization of these manpower targets. The first attempt ever made in India to assess requirements of technical personnel over a given period and plan for the necessary training facilities was made by the Scientific Manpower Committee, shortly after independence, in 1947-1948. Subsequently, committees and working groups have been set up by the Planning Commission from time to time to consider the problems of technical, vocational, medical, educational and administrative personnel from the points of view of both supply and demand and formulate targets and programmes of development. Work has also been undertaken in this regard in the various concerned divisions of the Planning Commission, the Directorate of Manpower in the Central Ministry of Home Affairs, and in the Institute of Applied Manpower Research which functions under that Ministry. Manpower cells have also been set up in the State Governments to aid in the process. On the basis of all this material, manpower programmes are included in the Plans under different sectoral heads and necessary funds included in the Plan investment and the current outlays linked with the investment.

8. The targets for technical personnel are worked out on the basis of the requirements indicated by the proposed investment programmes. Norms are established linking up investment with technical personnel to the maximum possible extent on the basis of specific investment programmes and broken up into craftsmen, diploma holders and degree holders. To the total numbers thus arrived at has to be added a proportion for wastage and for replacement. This gives us the demand picture. Demand has to be matched with supply by translating into institutional terms the numbers to be catered for by expansion of existing institutions and by establishment of new institutions. The location of the new institutions in different parts of the country has also to be determined. Then comes the calculation of the numbers and types of equipment needed, construction required not only for housing the training programmes but also hostels for students and staff quarters. The number and types of teachers required for running these institutions has to be calculated and this has to include not only the numbers needed for the new and the expanded institutions but also a provision for replacement of those who either die or retire from their teaching and research positions. In turn, the training programme needed for producing these teachers has to be planned and that means the same kind of calculations all over again but this time in terms of teacher-training institutions, including their number, equipment, location, construction, and personnel. In some ways this is the most important exercise in manpower planning; and on the care with which it is done and the efficiency and timeliness of the administrative steps necessary to implement it will depend the success of manpower planning. In the case of social services like medicine and education, where the targets are determined on the basis of policy decisions, care has to be taken to see that the targets are within the bounds of feasibility in terms of the time taken to train the needed personnel, the numbers that are likely to be available for such training and the funds available for the purpose as also the physical supplies on which a part of the funds will have to be spent. Given the targets or the demand, matching it with supplies follows the same procedure as in the case of technical personnel needed for commodity production.

9. The following table gives details of the demand and supply projections for technical personnel during the plan periods:

Category	*Second Plan, 1956-1961*		*Third Plan, 1961-1966*		*Fourth Plan, 1966-1971*	
	Demand	*Supply*	*Demand*	*Supply*	*Demand*	*Supply*
Graduates	28,000	26,000	45,000	51,000	75,000	75,275
Diploma holders	54,000	32,000	80,000	80,000	120,000	117,500
Craftsmen	635,000	40,000 to 50,000 + 595,000 to 585,000	1,100,000	300,000 + 800,000	1,600,000	700,000 + 900,000

10. Manpower planning in the Plan was designed to produce the needed supplies of skills. The following table gives details of the action taken in this respect during the first three plan periods:

Year	Degree courses			Diploma courses		
	Number of institutions	Admission capacity	Turnout	Number of institutions	Admission capacity	Turnout
1950-1951 ...	49	4,120	2,200	86	5,900	2,480
1955-1956....	65	5,890	4,020	114	10,480	4,500
1960-1961....	100	13,804	5,700	196	25,801	8,000
1965-1966....	117	19,137	12,000	263	37,391	19,000

11. The emergency caused by the Chinese invasion in 1962 led to an increase in targets. Certain institutions were therefore selected for provision of larger admissions, duration of the course being simultaneously reduced for entrants with graduate qualifications in science. This is expected to lead to an increase in the intake of degree institutions to 23,130 and in diploma institutions to 47,546. Currently the Planning Commission has worked out the technical manpower requirements of the economy during the Fourth and Fifth Five-year Plans at 75,500 graduates and 151,100 diploma holders during the former and 127,000 graduates and 254,000 diploma holders in the latter. To meet these additional requirements, admission capacity for diploma courses is proposed to be increased from 50,700 in 1965-1966 to 68,000 in 1970-1971 and for degree courses from 27,200 in 1965-1966 to 38,900 in 1970-1971.

12. Institutional training provided was only for a turnout of 40,000 to 50,000, the rest being assumed to become available through other means, largely hereditary training and other training programmes in the private sector during the Second Plan. During the Third Plan, institutional training through the Industrial Training Institutes set up by the Labour Ministry was expected to produce a turnout of 300,000 craftsmen, the rest to be obtained through other means similar to those visualized during the Second Plan period. For the Fourth Plan, Industrial Training Institutes are expected to produce 700,000 craftsmen, the rest to be obtained by other means similar to those visualized during the Second and Third Plan periods. As for craftsmen requirements during the Fifth Plan, a part will be met by new admissions during the last years of the Fourth Plan while the rest will come from admissions during the Fifth Plan period as the duration of the training course is only from 18 months to two years.

13. Similar steps have been taken for providing the requisite supply of teachers, doctors, para-medical personnel, village level workers, panchayat secretaries, co-operative workers and other administrative personnel; the duration of courses varies from a full-time programme of five years to orientation and refresher courses lasting for a few weeks. In order to lessen the pressure on institutions, to give facilities to employed persons, and to increase the element of practical training, part-time courses, sandwich courses, and correspondence courses are being instituted in the fields of pedagogy, science, and technology and also in humanities.

14. It would be useful, however, to list some of the difficulties that had to be faced in working out these programmes. Thus there is the wastage caused by failures in examinations that leads to a larger investment in admissions than is justified by the turnout. One of the basic problems in manpower planning, therefore, is to increase the pass percentage without affecting academic standards. A second difficulty arises from short-falls and over-supplies that take place in sub-sector training personnel, as it is difficult to anticipate with precision demand and supplies of such personnel in detail; then again, the setting up of the needed training institutions in full operational efficiency takes more time than is usually allowed for in projections, staff shortages persist, and equipment is inadequate with the result that even when the institutions are established and begin producing technical personnel, the standards achieved are not wholly satisfactory. Salary scales and conditions of service also constitute an important factor in inducing the required supplies of teaching and research personnel for the institutions in question. Manpower planning has therefore to take into account the measures necessary to attract and retain the teaching personnel without which neither the primary training nor teacher

training can function with efficiency. There is also the problem of attracting the right type of students to take these courses and here hostel facilities, scholarships and other suitable incentives have to form a part of the implementing machinery for manpower schemes.

15. Finally, in a largely rural country like India, where there is a wide divergence in physical and social amenities between urban and rural areas, it is difficult to induce technical personnel to serve in the rural areas where they are badly needed; compulsion is no answer to this problem nor are appeals and exhortations. Some material inducements are needed to get the required distribution of technical personnel by rural and urban areas and this has to form an integral part of manpower planning in the less developed countries whose rural-urban problems are somewhat similar to ones in India. In spite of all these difficulties, however, it must be pointed out that manpower planning in India has, on the whole, been one of the successful features of Indian planning. By and large, short-falls in technical personnel have not hampered the implementation of India's vast investment programmes in the fields of irrigation, power, industry, transport, communication, and social development during the last three plan periods; nor are they likely to do so during the Fourth Plan period. This is the best proof that I can offer of both the relevance and the utility of manpower planning in the economic development of the less developed countries.

The demographic aspects of economic growth in Poland

KAZIMIERZ ROMANIUK

1. The most comprehensive picture of Poland's economic development in the post-war years is provided by the data concerning the national income. The year 1937 forms the basis of pre-war comparison, while 1947 provides the first complete data for the post-war years. (See tables 1 and 2 for the data on national income and consumption respectively.)

2. An examination of the income and consumption data shows that the national income of Poland in 1948 had reached the pre-war level of 1937, in 1961 fixed prices. This income almost doubled from 139,000 million zlotys in 1937 to 277,000 million zlotys by 1955, and more than tripled to 447,000 million zlotys by 1963. Similarly, income per capita was 4,000 zlotys in 1937, and reached the pre-war level again in 1947, one year before that of the total national income. By 1955, per capita national income had increased by 2.2 times the 1937 level to 10,100 zlotys, and by 1963 it had increased to 14,600 zlotys, a gain of 3.65 times the 1937 level.

3. Of the major sectors of the national economy, it is the industrial sector which exhibits the most dynamic growth: increasing its share of the national income from 30 per cent in 1937 to more than 50 per cent by 1963. Agriculture's share [1] of the national income dropped from 54 per cent in 1937 to 21 per cent in 1963. While the value of the industrial share of the national income increased from 40,000 million zlotys in 1937 to 226,000 million zlotys in 1963, that of agricultural products increased from 75,000 million zlotys to 93,000 million zlotys in the same period. The building trades showed an increase from 9,000 million zlotys to 40,000 million zlotys in the same period.

4. Observations of the utilization patterns of the national income also reveal significant transformations. The share of the national consumption out of the total income dropped from 88 per cent in 1937 to 74 per cent in 1963. Relatively large reduction took place in levels of household consumption out of personal incomes. Social consumption increased from 3.6 per cent to 8.5 per cent during the same period. The largest gains took place in the levels of accumulation (including both the outlay on durables, as well as reserves and stocks), which increased from 12 per cent to 25 per cent of the total national income.

5. The transformations in the national income described above are to a large degree conditioned by demographic phenomena. One of the factors influencing the national income is the change in the size and structure of the population. Within the last twenty years of the post-war period, the population of Poland has increased considerably. Major transformations have taken place in the structure of the population regarding sex, age, type of locality inhabited (urban or rural), as well as occupation. These changes are observed in table 3.

6. Immediately before the outbreak of the Second World War, the population of Poland (within the then boundaries) amounted to 35.1 million. The census of 14 February 1946 enumerated 23.9 million residents within the then territory of Poland. On January 1, 1965, the population had increased to 31.3 million. The twenty-year post-war period was also characterized by a high birth rate, as observed from table 4. In 1951, the birth rate was 31 per 1,000, and had dropped by 1963 to 19 per 1,000. During the period since 1937, the death rate has also been reduced from 14 per 1,000 in 1937 to 7.5 per 1,000 in 1963.

7. The natural growth rate has consistently remained on a high level. The two highest growth years were 1953 and 1955, when the rate of growth was 1.95 per 100. The year of 1955 was also the largest absolute increase in population, i.e., 532,000. The comparative rates for 1964 are 1.02 per 100 and 320,000 respectively.

8. Similarly, the marriage rate in Poland has fluctuated around 10 per 1,000. It is only in recent years that a decline has come about. Younger people are predominant among the newly marrieds, the median ages for males and

[1] Including forestry.

females being 25 and 22 years respectively. The highest fertility rates for women correspond to the 20-25 year age group. The decisions concerning marriage and children are an expression both of the biological vitality of the community and of their optimistic estimate of the present-day and future economic and political situation of the country. Since, however, the demographic investments, being a function of demographic dynamics, brought with them the danger of staggering the equilibrium to the detriment of development investments, the leaders of the State have come to the conclusion that it was indispensable, towards the end of the nineteen-fifties, to take decisions aimed at somewhat limiting the number of too early marriages and, as a consequence of that, also of a too early increase of the family. One of the expressions of the demographic policy with such aims is the statutory raising of the lower limit of the marriageable age, from eighteen to twenty-one years for men, and from sixteen to eighteen years for women. The effects of this policy can be seen in the decrease in the rate of marriages and births, lately recorded.

9. The development of industry and of the building trade, as well as that of the remaining non-agricultural branches of the national economy, has created a great demand for skilled manpower. In some periods and in some regions, an acute shortage of working hands has made its appearance. As a consequence of this, the demographic and social phenomenon which predominated in the period of the twenty years under discussion has become the shifting of the population from agriculture to trades other than agriculture, and consequently, from the villages to the cities and towns. As can be seen from table 3, the population which inhabits the countryside has remained, throughout the whole of the period under investigation, on a practically unchanged level. This means, in other words, that the entire increase of the population which lives in the countryside is systematically moving into the cities and towns.

10. A new category of the population, new at any rate as a major social and economic phenomenon, has become the so-called peasant-workers, who combine work in agriculture with a simultaneous employment outside agriculture, mostly in industry, the building trade, or else on the railways.

11. Table 5 contains information concerning the changes in the structure of Poland's population according to the fundamental branches of the national economy.

12. As compared with the pre-war period, the percentage of people who got their livelihood from work in industry has increased almost twofold, while the percentage of people who got their livelihood from work in the building trade has increased almost fivefold, within the period of the post-war twenty years. On the other hand, the percentage of people who got their livelihood from work in agriculture has decreased from 60 to 38 per cent. Another factor which deserves emphasizing is the increase in the activity rate for the economy as a whole. This activity rate has increased from 47 per cent in 1931 to 51 per cent in 1960.

13. The economic development of Poland has brought about a considerable increase of the percentage of women working for a living. One-half of all the women of reproductive age inhabiting the cities and towns were employed outside their homes in 1960. It has both social and economic consequences. The women's work for a living naturally, on the one hand, increases the production of both goods and services, while, on the other hand, it causes the absolute necessity of organizing a network of institutions which could take over the housework hitherto done by those women, first and foremost in so far as the care of children is concerned. Creches and kindergartens were set in operation. At the present moment, every tenth infant can be entrusted to a crèche, and every sixth child of pre-school age, to a nursery school. In the majority of schools, canteens for the young people are run in which meals are served. The majority of the schools also run extra sessions for over 1 million pupils, i.e., nearly 20 per cent of their total number. These institutions, on the one hand, make it possible for those women who are mothers to undertake work for a remuneration and, on the other hand, open to the women already employed possibilities of raising a family without the necessity of giving up work for a living outside the family home.

14. The social, economic and demographic developments were accompanied by a dynamic increase in the domains of education, science and culture. Illiteracy as a social problem has been liquidated. The system of full primary school includes all the children of school age. In the secondary school system, apart from the lyceums providing a general education, vocational schools of a wide variety of specializations have been widely expanded. In the domain of higher education, along with the traditional branches of learning, such as the humanities, the technical sciences have experienced a parti-

cularly intense development. As a consequence of that, it can be seen that the structure of Poland's population, as far as its education is concerned, has undergone a fundamental transformation. The percentage of persons with a secondary and higher education has increased, particularly where the technical specialities are concerned. Those persons who had achieved a primary education only also raise their professional qualifications, through a network of schools of vocational training and other special courses. If the outlay of labour and costs, connected with the developing of education and of the school system, may be treated as a peculiar kind of economico-demographic investment, then it must be stated that this type of investment has special priority in the People's Poland. An eloquent illustration of this fact is the implementation, within recent years, of the programme of school construction within the framework of the operation of building one thousand schools in honour of the one-thousandth anniversary of the existence of the Polish State.

15. The demographic prognoses show that by 1980 Poland's population will have exceeded 37 million. Within the short period of barely fifteen years we shall therefore have about 6 million new citizens; consequently, Poland's population will increase by 20 per cent over today's figure. Such an increase must be accompanied by new demographic investments in housing, schools, hospitals, additional jobs, principally in industry, and in those branches of the national economy which produce consumer goods to satisfy the increasing consumption needs etc.

16. Poland's demographic vigour is treated by the community, as a whole, as being a desirable phenomenon. The economic tasks which constitute a derivative of demographic phenomena compel the community to solve them in a manner as natural and obvious as the tasks which result from the nation's aspirations, which find their expression in striving to attain the greatest possible economic and cultural development.

Table 1. Production and national income in Poland

(1961 fixed prices)

Years	*National income*		*Net production*			
	Total (thousand-million zlotys)	*Per one inhabitant (thousand zlotys)*	*Industry*	*Building trade*	*Agriculture and forestry*	*Other branches*
				(thousand-million zlotys)		
1937	139	4.0	40	9	75	15
1947	104	4.4	35	5	48	16
1950	183	7.4	68	15	73	27
1955	277	10.1	121	25	78	53
1960	380	12.8	178	35	89	78
1963	447	14.6	226	40	93	88

SOURCES: Central Statistical Office, *Poland in Figures, 1944-1964*, p. 18 (Warsaw, 1964); Zienkowski, L., *Dochód narodowy Polski 1937-1960* (Poland's National Income), PWE (Warsaw, 1963).

Table 2. Distribution of national income in Poland

(1961 fixed prices)

Years	*Consumption of national income*				*Outlay on durable means (thousand-million zlotys)*	*Increase of reserves (thousand-million zlotys)*	*Accumulation (thousand-million zlotys)*
	Per one inhabitant (thousand zlotys)	*Consumption from personal income (thousand-million zlotys)*	*Socialized consumption (thousand-million zlotys)*	*Total (thousand-million zlotys)*			
1937	3.5	117	5	122	14	3	17
1947	3.6	79	8	87	11	6	17
1950	5.7	130	15	145	23	15	38
1955	7.7	191	22	218	42	22	64
1960	9.7	258	30	288	64	28	92
1963	10.8	294	39	333	82	32	114

SOURCES: Central Statistical Office, *Poland in Figures, 1944-1964* (Warsaw, 1964), p. 18; L. Zienkowski, *Dochód narodowy Polski 1937-1960* (Poland's National Income), PWE (Warsaw, 1963).

Table 3. Population of Poland, 1937-1963
(Millions)

Years	*Total*	*Men*	*Women*	*Urban population*	*Rural population*
1937.....	34.4	—	—	—	—
1946.....	23.9 [a]	10.9	13.0	7.4	16.2
1950.....	24.8	11.0	13.0	9.1	15.7
1955.....	27.3	13.1	14.2	11.9	15.4
1960.....	29.7	14.3	15.4	14.1	15.6
1963.....	30.7	14.9	15.8	15.0	15.7

SOURCE: Central Statistical Office, *Rocznik Statystyczny* (Statistical Yearbook) (Warszawa, 1964), pp. 13 and 14.
[a] According to 1946 census; in the division into urban and rural the residue of 0.3 million inhabitants is not included.

Table 4. Vital statistics, 1937-1963

Years	*Marriages* [a]	*Births*	*Deaths*	*Natural increase* [a]	*Demographic rates (per 1,000 population)*				*Infant mortality rate per 1,000*
					Marriages	*Births*	*Deaths*	*Natural increase*	
1936-1938.....	280	866	481	385	8.2	25.3	14.1	11.2	139
1947[b].....	—	—	—	—	—	26.2	11.3	14.9	—
1950	267	763	289	474	10.8	30.7	11.6	19.1	111
1955	259	794	262	532	9.5	29.1	9.6	19.5	82
1960	244	669	224	445	8.2	22.6	7.6	15.0	55
1963	220	584	230	354	7.2	19.0	7.5	11.5	49

SOURCE: Central Statistical Office, *Rocznik Statystyszny* (Statistical Yearbook) (Warszawa, 1964), p. 41.
[a] In thousands.
[b] Estimated data.

Table 5. Changes in the structure of Poland's population according to the main branches of national economy *

Years	*Total*	*Industry*	*Building trade*	*Agriculture and forestry*	*Transportation and communication*	*Trade*	*Education*	*Health service and social security*	*Other branches*	*Pensioned and others*
				Total population (thousands)						
1931.....	32,107	4,094	421	19,134	1,032	1,529	318	191	2,366	929
1950.....	25,008	5,138	1,181	11,598	1,268	1,328	547	290	2,270	1,000
1960.....	29,780	7,343	1,859	11,244	1,785	1,427	819	547	2,479	1,904
				Economically active population (thousands)						
1931.....	15,006	1,649	149	9,577	289	627	168	108	1,056	491
1950.....	13,175	2,328	519	7,016	469	644	308	170	951	771
1960.....	15,341	3,238	791	6,546	673	738	505	350	1,067	1,443
				Rates of economically active population						
1931.....	0.467	0.403	0.354	0.501	0.280	0.410	0.528	0.565	0.770	0.529
1950.....	0.527	0.453	0.439	0.605	0.370	0.485	0.563	0.586	0.419	0.771
1960.....	0.515	0.441	0.425	0.582	0.377	0.517	0.617	0.640	0.430	0.753

SOURCE: Central Statistical Office, *Rocznik Statystyczny 1964* (Statistical Yearbook 1964) (Warszawa, 1964), pp. 34, 35.
* Based on the 1931, 1950, 1960 censuses.

The cost of population growth under the Tunisian Development Plan (1962-1971)

MAHMOUD SEKLANI

[*Translated from French*]

I. EXPOSITION OF THE PROBLEM

1. *Definition and basic data.* The purpose is to estimate the average annual cost of the growth of the Tunisian population between 1961 and 1971. This cost will be reflected in investments to be made throughout the decade, since there must be dynamic links between any variation in the number and structure of the population and any variation in the level of living to be achieved. The simplest relation which it has so far proved possible to establish on a tentative basis is apparently the relation between any increase in the gross national product and any increase in the population, through the efforts which the working population can make in order to ensure at any time a continuous increase in production, whether or not such increase parallels the increase in population. From this standpoint, the cost of growth is the share of the national income which is used to ensure the same level of living for the additional population as that enjoyed by the former population.[1]

2. The figures used in this paper are those which were used for the ten-year forecasts of the Tunisian Development Plan for 1962-1971.[2] Although the population projections on which that plan was based have recently been modified in order to correct a degree of underestimation of the real natural growth,[3] the references in this paper are to those prepared originally in 1961. The consequences of this working assumption will be referred to later.

3. Reverting to the definition, this cost of growth will be broken down as follows: (*a*) the cost of educating the additional children between the ages of 0 and 20 (however, only some of the total number between the ages of 15 and 20 will be involved in this cost); (*b*) the cost of training the additional survivors up to 25 years of age, or even of higher ages (instruction and vocational training); (*c*) the cost of the investments necessitated by this growth in all sectors of economic and social activity (health, housing, agricultural production, creation of employment, industry etc.).

4. An explanation of the concepts applied and the methods adopted is outside the scope of this paper, which is concerned rather with actual computation[4] with a view to expressing this cost as a figure which would be simply an order of magnitude of the cost to be measured.

5. *The principal demographic and economic data.* The population of Tunisia will increase from 3,942,000 in 1961 to 4,724,000 in 1971. These forecasts are based on a continuing decline in the death rate and birth rate, giving a rate of natural growth of 2.1 per cent from 1957 to 1961, 1.9 per cent from 1962 to 1966, and 1.7 per cent from 1967 to 1971.

6. The resulting age structure would be as follows:

Age group	*1961*	*1971*
Up to 20	51.1	48.1
20-64	44.6	47.0
65 and over.....	4.3	4.9
TOTAL	100.0	100.0

7. The economic situation, as reflected in the national accounts for 1957-1958, reveals the importance of the primary sector, which alone accounts for 35.3 per cent of the gross national product (73 per cent of the male working population is agricultural). The ter-

[1] A. Sauvy, *De Malthus à Mao Tse Toung* (Paris, Denoël, 1959).

[2] Republic of Tunisia, Ministry of Planning and Finance, *Perspectives décennales du plan de développement de la Tunisie 1962-1971* (Tunis, 1962).

[3] These modifications, which appeared in a publication of the Statistical Department of the Ministry of Planning and Finance, *La population de la Tunisie* (Tunis, 1964), take into account an increase in the rate of natural growth which proved to be much larger than had been forecast in 1961. See Mahmoud Seklani, "La population de la Tunisie. Situation actuelle et perspectives jusqu'en 1985", *Population*, No. 3 (1961), pp. 473-504.

[4] See the annex for the assumptions used in computing the cost of educating children up to the age of 20.

tiary sector appears to be suffering from latent hypertrophy and accounts for 40.4 per cent of the gross national product. Thus, the secondary sector accounts for a relatively inadequate percentage. These are the demographic and economic conditions in which the gross national product increased by an average of 2.5 per cent from 1950 to 1959 while consumption increased by 3 per cent. The gap was bridged by imports at the expense of the balance of payments.

8. The development plan, leaving aside its policy aspect, set certain quantitative targets, of which the following are the principal ones of interest in the present context:

(*a*) A rate of annual increase of the gross national product of 6 per cent, in order to double the average per capita income by 1971;

(*b*) A rate of savings of 26 per cent of the gross national product by 1971;

(*c*) Full primary-school enrolment by 1966, full employment by 1971, and a cutback in the number of agricultural workers of more than 50 per cent.

II. Computation of the cost of growth

9. The following are the results of the computations based on the definitions of the cost and of the data set out in the ten-year forecasts:

Sector	*Cost of investment in dinars* [a]	
Cost of educating children, ages up to 20 years		15,740,000
Primary schooling	33,712,000	
Intermediate schooling	9,880,000	
Secondary schooling	18,780,000	
Higher schooling	9,300,000	
Agricultural schooling	1,900,000	
Vocational training	2,748,000	
Instruction and vocational training	76,300,000	76,300,000
Public health		4,065,000
Accommodation		112,500,000
Grain production	3,548,000	
Animal production	4,788,000	
Arboriculture	16,580,000	
Other crops	1,960,000	
Water resources	8,126,000	
Fisheries and stocking	3,655,000	
Agriculture and fisheries	38,655,000	38,655,000
Industries (including infra-structure and power)		38,680,000
Administration		3,100,000
TOTAL		289,040,000
Rounded to:		290,000,000

[a] 1 dinar = approximately 9 French francs or $1.80.

10. According to this summary table, the average cost of annual growth from 1961 to 1971 would be in the region of 29.0 million dinars. The average gross national product forecast for that period is 385 million dinars. This cost is therefore 7.3 per cent, broken down as follows:

	Per cent
(*a*) Education of additional children	0.4
(*b*) Cost of training the additional young people	2.1
(*c*) Demographic investments	4.8
	7.3

11. Although the cost shown above for educating children up to the time when they yield a return on the investment—an average of 0.4 per cent of the gross national product—appears to be an underestimate, the true figure would not be much higher. A. Sauvy quotes a cost of 6 per cent of the gross national product for educating children in France[5], and the annual increase in the French population is only 0.6 per cent. In order to sustain the comparison, the unit cost must be determined, since the percentage expressed depends on the

[5] A. Sauvy, op. cit., p. 119.

rate of natural growth, the average per capita income and the distribution of income within the population. The unit cost for a child educated in France, leaving aside variations in it since 1956, would be thirty times more than that of a child educated in Tunisia during the period 1961 to 1971. It is noteworthy that a comparison of the national incomes or of the average per capita incomes in the two countries would show almost the same ratio.

12. Thus, the part of the average aggregate annual investments absorbed by population growth is 31.5 per cent. Development will begin, in theory, beyond the amount thus allocated. Obviously, however, during the early years when the investments available have not yet reached the necessary level, population growth, the rate of which is almost steady, must absorb a larger part than 31.5 per cent. That is one of the reasons why it is impossible to achieve any substantial economic "take-off" in the early years of any economic and social planning, especially in the case of an underdeveloped country.

13. The estimate of the cost of growth thus arrived at is an underestimate, for several reasons. It would be more than 31.5 per cent of the available investments, because the average growth of the Tunisian population has proved to be about 2.6 per cent from 1962 to 1971.[6] In addition, no account has been taken of the cost of survival of persons over the age of 65. According to the ten-year forecasts, there would be an increase of 21,000 men from 1962 to 1971. While it is true that most of the persons over the age of 65 would continue to follow their traditional way of life, especially in the agricultural sector, and would "retire" only in exceptional cases, there is no doubt that increasing urbanization, social welfare and the "officialization" of many jobs are factors which would tend to increase the number of "retired" persons dependent on their adult descendants or on the public purse.

14. For both these reasons, the cost of growth should be raised by about one third. It would amount to 42 per cent of the average annual investment available. Thus, the share left over for development would be reduced accordingly. The average cost of growth would therefore be about 10 or 11 per cent of the average national income during the period 1962-1971.

[6] Republic of Tunisia, Ministry of Planning and Finance, *La population de la Tunisie* (Tunis, May 1964).

III. Some comments regarding the computation of the cost of growth

(*a*) Actually, the cost, as estimated above, is not the final cost of growth, since any cost in work/time units or production units, or even in monetary units, is a balance between expenditure and income. While it is possible to establish a figure for expenditure, it is not possible to do so for income. Nevertheless, there is an awareness of the main benefits of population growth[7] and of all its obvious correlations with the factors of development. In the case of Tunisia, population growth resulting from the decline in the death rate involves a considerable improvement in health and lengthens the expectation of life, and consequently the expectation of working life. It causes a change in the social and occupational structure which is conducive to productivity, and it reduces the overhead capital costs of towns and villages. Yet how can the cost of these benefits be measured? Moreover, it is also possible that the national interest rate (the ratio of the increase in the national income to investment) may sometimes be higher in the case of a growing population, at least for some sectors, than in the case of a stationary or declining population;

(*b*) However, the effects of these benefits on the final balance-sheet of growth are not always certain, since very high population growth apparently requires, as a matter of priority, large demographic investments which might, for a time, hinder the economic "take-off". If the investment effort even approaches the cost of growth, the population will tend to lapse into economic stagnation for a certain period;

(*c*) The cost of growth, by its very concept, covers assets of different kinds which overlap with one another in the services they render. The difficulty of distinguishing, at times, between economic investment and demographic investment has always been the subject of theoretical debate. A. Sauvy has provided the typical example of the construction of the school to meet a need of the population.[8] Similarly, an airfield runway built to provide an increasing volume of passengers with the same convenience as hitherto raises the same problem. Other no less significant examples of the limitations of the concept at the analysis stage can be cited. This difficulty is due to the fact that the demographic variate and the economic variate may at any time appear to be dependent in the case of some sectors and indepen-

[7] A. Sauvy, op. cit., p. 116.
[8] A. Sauvy, op. cit., p. 114.

dent in the case of others, at least over the short- and medium-term;

(*d*) The proportional relation between any increase in population and a corresponding increase in production, or in investments, is not valid in the case of all sectors. In the case of some sectors, it appears absurd and inapplicable. This is so, for instance, with respect to transport and communications, the merchant marine and harbour installations, afforestation, railway infrastructure, etc.; for in such sectors the cost of growth is a function of "leaps", and this function varies in "jerks". A number of kilometres of railway or road may "provide the same convenience" to the same growing population at two successive periods in time, without requiring any new investments, up to a certain limit. The same is true of a hospital, a telephone exchange, a secondary school etc. One or more auxiliary variates must therefore be used in seeking the dynamic relation between investments of this kind and population growth. Such variates may be the number of jobs, a consumer index to be determined, etc.[9] There may, however, be a continuing increase in investments if the growth covers a long period;

(*e*) As a corrollary of the nature of this function of the cost of growth, it is worthwhile, in the case of certain sectors where the need for investment does not follow the increase in population proportionally, to identify in terms of time the demographic and economic stage beyond which demographic investment is necessary. The theoretical exercise of defining the bounds beyond which action becomes necessary will at least serve as a guide for distributing investment among priority sectors. When no such exercise is carried out, the practical thing to do is to adjust to this function of "leaps" a continuous average function which applies to any increase in population as corresponding increase in cost. That is why the computation seems to be more accurate when it is expressed by an average over a fairly long period of time than when it is done by separate years;

(*f*) In the case of a stationary population, any investment can only be of an economic nature and it therefore raises the level of living. This example is theoretical in most cases. In the case of a real and growing population, different situations may arise according to its rate of growth and, in particular, its age structure. Any of the following situations, or intermediate situations, may be encountered:

(i) In a population with a low birth rate and a low death rate, the accentuated aging necessitates demographic investments which in some cases are large but are directed more towards old people;[10]

(ii) In a growing population with a constant birth rate and a constant death rate, demographic investments are necessitated not by the structure, which remains invariable, but by the absolute number of consumers of all ages;

(iii) In a population which is growing as the result of a high birth rate and a declining death rate—as is the case in most developing countries—demographic investments are necessitated both by the change in the age structure and by the change in the number of inhabitants. However, such investments are directed more towards the younger ages and are heavier because of the more rapid growth in the number of additional young people.

15. Despite the importance of theoretical studies and models in connexion with this subject, it would be interesting to have actual surveys of the situations in different countries. Comparisons between the different situations might make it possible to appreciate some variates of the problem and, in particular, the degree to which they are interdependent.

ANNEX

Computation of the cost of educating children up the age of 20

Lacking other adequate statistics, we have used the distribution of per capita income in 1961 and 1971.

The assumptions on which this computation is based are as follows:

(*a*) The number of dependent children after the age of 20 is equal to the number of children working before the age of 20;

(*b*) The distribution of per capita incomes of the additional population in the age groups up to 20 is the same as for the total population (absence of differential fertility according to income);

(*c*) We express unequal consumption according to the children's ages by applying to the per capita

[9] L. Tabah, "Le problème population-investissement-niveau de vie dans les pays sous-développés", *Le Tiers Monde, Cahiers de "Travaux et Documents"*, No. 39 (Paris, INED, 1961), pp. 227-288.

[10] A. Sauvy, "Demographic investments and economic investments", *International Population Conference, Vienna, 1959* (Vienna, International Union for the Scientific Study of Population, 1959).

incomes individual consumption coefficients of ½ for the age group up to 5 years, ⅔ for the group 6-9 years, ¾ for the group 10-14 years, and 1 for those over 15. These coefficients vary with income, during the period 1966-1971, by ⅔ for the age group up to 5 and ¾ for the group 6-14.

We shall thus have the following figures for the two five-year periods:

1961-1965			*1966-1971*		
Income in dinars	*Percentage of additional children by average income per class*	*Total cost of educating additional children*	*Income in dinars*	*Percentage of additional children by average income per class*	*Total cost of educating additional children*
10	37	554,087	50	37.5	2,350,500
25	20	752,500	60	30	2,255,700
40	16	962,400	70	12.5	993,800
60	8	721,200	85	6	646,000
80	5	599,500	97.5	2	237,790
150	14	3,133,250	169	12	2,529,410
$\bar{R}$ = 45 D.[a]	100	6,724,937	$\bar{R}$ = 73 D.[a]	100	9,013,200

[a] $\bar{R}$ = weighted average income.

Thus the annual average cost will, by and large, follow the doubling of per capita income. The total cost for 1961-1971 will therefore be 15,740,000 dinars.

Points of contact between the growth of population and the growth of national product

JOSEPH J. SPENGLER *

1. Although growth of population and growth of national product interact, changes in each being functionally related to changes in the other, it is difficult to sequester empirically the precise impact of either type of growth upon the other. For each mode of growth is subject to a variety of influences, any one of which may be swamped by the others. This paper is therefore divided into two parts; the first is essentially theoretical while the second touches upon the interaction of population growth and economic growth as manifest in the behaviour of empirical indicators.

I. THEORETICAL EXPOSITION

2. If we define points of contact in functional terms we may divide the connexions between growth of population and growth of national product into those which are direct and those which are indirect, being communicated through or with the assistance of intervening variables. For expository convenience we initially assume a constant rate of population growth under stable population conditions.

(a) *Direct points of contact*

(i) Growth of national product is directly though only partially dependent upon growth of population. We may indicate this direct functional connexion by writing:

$$O = f(P,V_i)$$

where O represents national product, P represents population, and V_i represents variables, changes in which produce or are associated with changes in O. Only those variables would be of concern here, however, which are sensitive to population change or condition its impact;

(ii) If we seek greater precision we may utilize a "national" production function to describe more fully the direct effects produced in O by population growth. Let

$$O = AL^aK^bu$$

where K represents "capital," or all agents of production co-operant with the employed labor force L, which we here assume to be a constant fraction of population P; u represents random disturbance when it is present; and A, a, and b are constants. Here a denotes the elasticity of output with respect to labor—the ratio of the percentage increase in O to the percentage increase in L producing this increase in O; and b correspondingly denotes the elasticity of output O with respect to K as here defined. The sum of the exponents a and b indicates the degree of returns to scale, whether decreasing, constant, or increasing—whether a given percentage increase in K and L is accompanied by a lesser, a corresponding, or a greater percentage increase in O. The value of a usually falls within a range of 0.5 and 0.8, with the actual value depending upon the type of economy under analysis;

(iii) In view of what has been said two inferences may be drawn. First, the rate of growth of national product usually depends directly in but limited measure upon that of population even under technologically constant conditions—thus with the labor force L growing at the same rate as the population, say 1.5 per cent per year, and with K growing 3 or 4 per cent per year, O might grow around 1.7-3.0 per cent per year, with roughly no more than 0.3-0.6 of this increase imputable to the increase in L. Secondly, it is because growth of national product depends upon many circumstances connected indirectly or not at all with population growth that the rate of growth of product, though variously conditioned by that of population, has exceeded the latter and thus permitted output per capita to rise;

(iv) Turning now to population growth we may say that it depends directly in but limited measure upon growth of national product. If the income elasticity of demand for children approximated unity and their cost of produc-

* I have drawn upon Simon Kuznets, "Quantitative aspects of the economic growth of nations," *Economic Development and Cultural Change*, supplements to vols. 5-13, 1957-1964, especially Nos. I, II, VI, and *Capital in the American Economy* (Princeton, 1961).

tion remained constant, one might expect a population to grow naturally at about the same rate as income, a constant fraction of which would be available for the support and rearing of children outside as well as within households. In reality, however, the living standards of families and their outlays upon children move upward with family income; in consequence the income elasticity of demand for children is pressed below unity and it may be pressed down even more if the composition of national product changes in ways conducive to additional increases in the current consumption requirements of households, some of which may further increase the "cost" of children. The degree to which this statement is valid depends, of course, upon the degree to which fertility is subject to effective control, a degree that often varies with "social class" and from country to country. While the flow of migrants into (out of) countries is more sensitive than natural increase to the movement of national product, the magnitude of net migration usually is too small, relative to that of natural increase, to affect the over-all rate of population growth significantly.

(b) *Indirect points of contact*

(i) Earlier we used the expression

$$O = f(P,V_i)$$

and indicated that some of the variables included under V_i might be sensitive to changes in P or condition their influence. For example, the effect of P upon O is conditioned by the number of manhours flowing from P, a number depending upon how many members of P work full time or part time. This number is variously conditioned by the rate of growth of P; for relatively more persons are of working age and free to work when this rate is relatively low than when it is relatively high; and yet how many of those of working age and disposed to work will be employed depends upon the aggregate demand for labor which may be more stimulated, at least within limits in developed economies, by a relatively high than by a relatively low rate of population growth. In short, the number of manhours supplied and utilized in an economy, while a function of P, is conditioned by factors affecting both the demand for labour and the degree of preference potential workers have for leisure;

(ii) The contributions of other determinants (included under V_i) of O and its rate of growth also tend to be conditioned by the rate of growth of P. The most important of these determinants is productivity increasing investment which assumes three complementary forms: investment in improvement of population quality, mainly through investment in education and health; investment in the cumulation and application of non-obsolete technical knowledge, much of which may be drawn from the world pool of knowledge; and investment in physical capital which reflects or incorporates prevailing technical knowledge. A relatively high as compared with a relatively low rate of growth of P tends to slow down the rate of growth of these three interrelated forms of investment; it makes for a higher ratio of students to adults and hence requires relatively more teaching personnel to supply a given level of education; it must absorb a relatively larger fraction of a nation's flow of goods and services to sustain a given level of investment per head, sometimes more than is forthcoming, given current limits on what a population can and will "save" and "invest" in technological progress and the cumulation of physical capital;

(iii) Increase in over-all population size and density may, within limits, give rise to so-called "increasing returns", while growth of population may increase an economy's flexibility; these two effects become manifest in heightened output per unit of input. When a population is larger rather than smaller it may, within limits set by the structure of technology and prices, permit greater division of labour. The extent of the market within which goods and services may be sold sets a further limit to the degree of division of labor that is optimal, a limit which, while somewhat positively associated with a nation's size of population, is much less extensible when international trade is restricted than when it is free and permits service of larger external markets and the acquisition of cheaper raw materials abroad. Population growth, as distinguished from non-growth, may make it easier to adjust an economy to changes in technology or in tastes; and it may render entrepreneurial expectations more favourable and hence more conducive to investment. There are, of course, limits to the extent to which further increase in population growth and size is desirable, limits which gradually emerge as a society's population presses harder upon those elements in its environment which are non-augmentable and not easily replaced by substitutes. In underdeveloped, capital-short economies, limits upon capacity to form or use investment may reinforce these natural-environmental limits to what constitutes a desirable population size. Of course, given international trade, modern arrangements for the assembly and use of information, and provisions for retraining workers and re-

converting productive facilities, it is possible to attain a high degree of flexibility even when the rate of population growth is negligible;

(iv) It was noted under 2 (*a*) (iii) above that the movement of families in social space, together with changes in the composition of output, might serve to increase or decrease the income elasticity of demand for children. Changes of this sort may also be accentuated by various changes concomitant with the changes in technology, industrial structure etc., that gave rise to increase in output *O* in the first place, or that diminish the utility or serviceability of children to their parents. In sum, a variety of correlated changes almost simultaneously contribute to increase in *O* and to increase or decrease in the incidence of other circumstances which affect fertility or mortality; whence the net effect of increase in *O* upon *P* varies in space and time.

3. *Change in rate of growth.*

(*a*) When the growth rates of *O* or *P* change, the effects of this change may be slow to assume final form; or, if the rates change erratically, as a result (say) of war or economic crises, echoes of these changes may be present, though in diminishing magnitude, for some decades;

(*b*) Suppose, for example, that both *O* and the stock of capital, having been stationary, begin to grow. Then the ratio of capital replacement (which had been equal to gross investment as well as to depreciation) to both conventional depreciation and gross investment begins to fall, though eventually to become constant, compatibly with the rate of growth and the life expectancy of physical capital. A parallel effect is produced by a rise in the rate of growth, while an inverse effect is produced by a fall in the rate of growth. These relationships indicate that if (say), as a result of the stimulus of increase in the rate of population growth, the rate of growth of investment and output rises, there is an initial period during which real net product exceeds nominal product, with the result that the difference may be temporarily used to cushion the increase in population growth;

(*c*) If fertility rises, with (say) age-specific mortality given, producing an increase in the rate of growth of *P*, the ratio of persons of working age to the population will fall, and with it potential productivity per capita, though this will begin to rise 17-20 years hence when the population of working age begins to increase, continuing to do so until it attains a relative size compatible with the new set of fertility rates. Whether growth of output immediately keeps pace with that of population turns on whether a sufficiently larger proportion of the population of working age enrols in the labour force, initially assisted perhaps by the behaviour of capital replacement as described in the preceding paragraph;

(*d*) Of greater importance is the triggering-off of the accelerator principle by changes in *P* and the resultant likely response of the output of durable goods. The total demand for durables consists of that for replacements plus that for additions to the stock of durables. Hence, if the rate of growth of *P* rises (falls) the requirement of additions is affected accordingly, with the result that, as a rule, and especially when an economy is operating near capacity, the total demand for durables changes faster, though in the same direction as the rate of population growth. Relationships epitomized in the accelerator principle accentuate problems which emerge in transitional periods when the rate of population growth is changing and before it has become relatively stable and the economy has become adjusted thereto.

II. Empirical exposition

4. Man's demographic experience smudges his demographic models though it seldom discredits them when they have been well conceived initially. Fertility and rate of population growth apparently are not closely associated with rate of growth of output, United Nations fertility studies suggest. For while fertility and per capita income are negatively correlated, this correlation practically disappears when countries are divided into high- and low-fertility countries, or high- and low-income countries. Mortality, while still sensitive to economic conditions, is less sensitive thereto than formerly.

5. During the past 50-100 years and subperiods thereof, Kuznets finds, rates of growth of population and total product have been positively associated in developed countries, with rank correlations ranging from +0.63 to +0.93. Correlations between rates of growth of total and per capita product were around +0.8. There was little correlation, however, between rates of growth of population and those of product per capita; coefficients though positive were generally too low to be significant, because the conditions making for population growth too infrequently made for much faster growth of national product.

6. These results, though they might be different for a larger sample of countries, reflect the fact that population growth is both an exo-

genous and an endogenous variable, much more susceptible of being outpaced by large than by small upward movements of output, and the further fact that growth, of product as well as of population, seldom proceeds at a relatively invariant rate but is subject to long swings in rate of growth. These swings, moreover, are accentuated when immigration contributes greatly to population growth (as happened in the United States) and when a country is underpopulated, rich in land and natural resources, and undergoing rapid economic growth.

7. Kuznets's studies suggest that long swings ranging from 20 to 50 years in duration characterize various aspects of an economy, among them population and labour force. For some countries long swings in rates of growth of product and population are positively associated, but not for all; the nature of the relationship appears to be subject to a variety of conditions. Moreover, the amplitude of movements of growth of per capita product tends to be much wider than that of rate of population growth, though improvement in the former may affect the latter.

8. In the United States, M. Abramovitz finds, population growth has been subject to long swings, with swings in the rate of growth of gross national product and the rate of growth of the labour force closely associated, and with capital formation (especially of population-oriented residential, utility, and related construction capital) moving upward (downward) in the wake of population upswings (downswings). These swings were often accentuated by swings in immigration. Trade-cycle behaviour has continued to reflect the impact of these swings which have not yet shown a strong tendency toward giving place to sustained and steady growth.

9. The net effect of changes in the rate of population growth upon the rate of growth of income remains complicated even when the impact of these changes upon capital composition and per capita income can be assessed: for rate of saving is quite imperfectly associated with level of per capita income, and the manner in which capital is used appears to be more important than its volume in affecting economic growth. In brief, empirical data reveal strong as well as variable deviations in the behaviour of population and output interaction from that usually postulated in simple, explanatory models.

Capital requirements of the developing countries: a comparison of estimates

LÉON TABAH

[*Translated from French*]

1. Over the past fifteen years, six estimates have been made of the developing countries' requirements of external capital: by the United Nations (1951), by the author of this paper in a collective work entitled *Le Tiers-Monde* (1956), by Millikan and Rostow (1959), by the General Agreement on Tariffs and Trade (GATT) (1959), by P. G. Hoffman (1960) and by P. N. Rosenstein-Rodan (1961).[1]

2. All these estimates give widely differing figures—from $2,500 million to $38,000 million a year—and we thought it would be worth while to find out the reasons for these disparities by discussing:

(*a*) *The purposes of the calculation.* Is the aim to calculate the social cost of development or, more simply, the capital capable of being absorbed according to the laws of profit?;

(*b*) *The different definitions of developing countries* in terms of per capita income, which in their turn affect the size of the population and the income to be increased; the earliest estimates include countries committed to Marxist ideology, while the most recent do not;

(*c*) *Assumptions about the rate of increase in per capita income* (1 per cent, 2 per cent or more?);

(*d*) *The national rate of return from investment* (or its reciprocal, the capital coefficient, defined as the ratio of investment to income growth). Ten years ago, this was generally assumed to be 0.25 or even less, but today the tendency is to postulate a much higher yield, although the reasons for this change are not always clearly explained. In point of fact, this question has a direct connexion with the definition of investment. Authors who adhere to a narrow definition tend to assume a higher yield than those who include expenditures of a social nature such as education;

(*e*) *The methods of calculation.* Some authors concentrate on the income to be expected from investment; others calculate the cost of transferring the rural population into industry;

(*f*) *Assumptions about the rate of domestic savings.* Some estimate this at 5 per cent of national income, others at 7 per cent. The relationship between income and saving needs to be taken into account, but usable data on this point have only just started to be collected;[2]

(*g*) *The demographic projections* for the next twenty years.

3. These calculations are based on abstract assumptions, not only because requirements and absorptive capacities vary from country to country but also because they ignore differences in the sensitiveness of the various sections to variations in the growth rate. Moreover, A. Sauvy and C. Clark rightly cautioned at the 1954 World Population Conference against the then widespread idea that all the problems of under-development can be analysed exclusively in terms of capital. Today all agree that financial accounting is not enough; a calculation must also be made, first, of requirements in equipment and manpower, and secondly, of results in terms of employment and wealth produced. However, it is equally reprehensible to go to the opposite extreme, as is often done today. While it is not only lack of capital which stifles development, the importance of capital cannot be denied; as Nurkse said, "a country is poor because it is poor". Besides, this attitude is very often merely a way of evading the issue of external aid. The estimation of global quantities is a necessary oper-

[1] United Nations, *Measures for the Economic Development of Under-Developed Countries* (United Nations publication, Sales No.: 51.II.B.2); L. Tabah, "Le problème population-investissement-niveau de vie dans les pays sous-développés", *Le Tiers Monde*, Travaux et documents, cahier no. 39 (Paris, Institut national d'études démographiques, 1956); M. F. Millikan and W. W. Rostow, *A proposal: key to an Effective Foreign Policy* (New York, 1956); General Agreement on Tariffs and Trade (GATT): *International Trade, 1959* (Geneva, 1960); P. G. Hoffman, *One hundred countries, one and one quarter billion people* (Washington, Judd & Detweiler, Inc., 1960); P. N. Rosenstein-Rodan, "International aid for underdeveloped countries", *The Review of Economics and Statistics*, vol. XLIII, No. 2 (Cambridge, 1961).

[2] United Nations, *World Economic Survey, 1960* (United Nations publication, Sales No.: 61.II.C.1), pp. 66-67.

ation, if only because it gives an idea of what is being done in comparison with what should have been done to attain certain objectives. No analysis is possible without some considerable simplification of the data. Moreover, calculations of this kind may be of a contingent rather than a normative character, indicating the possible evolution of the standard of living on the basis of the initial assumptions.

4. *Le Tiers-Monde.* Let us restate the reasoning we followed in the paper referred to, but this time in terms of continuous rather than discontinuous variables, for the sake of brevity. Let population, income and investments at time n be represented by P_n, R_n and I_n respectively. Let Φ be the rate of growth of per capita income, which is assumed to be invariable. This gives:

$$\frac{R_n}{P_n} = \frac{R_o}{P_o}\, e^{\phi n} \qquad (1)$$

Let λ be the national rate of return from investment, defined as the relationship between income growth and investment during the space of time dn. This is the reciprocal of the capital coefficient. If this rate is itself assumed to be invariable in time, we may write:

$$\lambda = \frac{dR_n}{I_n dn} \qquad (2)$$

We then derive R_n in relation to time n in equation (1):

$$\frac{dR_n}{dn} = \frac{R_o}{P_o}\, e^{\phi n} \left(\frac{dP_n}{dn} + \phi P_n\right) \qquad (3)$$

Combining equations (2) and (3), we obtain:

$$I_n = \frac{1}{\lambda}\, \frac{R_o}{P_o}\, e^{\phi n} \left(\frac{dP_n}{dn} + \phi P_n\right) \qquad (4)$$

If P_n is the rate of increase of the population during time dn, this last expression then becomes:

$$I_n = \frac{1}{\lambda}\, \frac{R_o}{P_o}\, P_n\, e^{\phi n}\, (P_n + \phi) \qquad (5)$$

5. By making $\Phi = 0$, we find the demographic investment, i.e., that needed to meet the population increase without changing the standard of living. This was the formula we used in *Le Tiers-Monde* to calculate investment I_n, on the basis of the following definitions and assumptions:

(*a*) So far as P_o and R_o are concerned, we agreed to define "under-developed" countries as those whose per capita income in 1949 was less than $100, and assumed that the average income in these countries in 1955 was $100. The total population of these countries was estimated at 1,600 million, or 64 per cent of the world population, including China (Mainland), Indochina, Korea and Cuba, since at the time when the study was made there was no reason not to include them. The United Nations calculation itself was based on a similar population figure, but assumed an average per capita income of only $63. Our estimates are therefore about 40 per cent higher than those, usually later, estimates which exclude countries committed to an ideology of which the Western world disapproves, and 37 per cent higher than the United Nations estimate, because of the difference in the average per capita incomes assumed;

(*b*) For P_n, i.e., the size of the populations after the instant zero, we used the following two projections from the growth models constructed by L. Henry and R. Pressat in the same work:

(i) A "belated and slow decline" in fertility (the net reproduction rate = 1 for generations born after $n = 50$);

(ii) An "immediate and slow decline" in fertility (the net reproduction rate = 1 for generations born after $n = 35$).

The expectation of life at birth, initially 44 years, rises gradually to 53 years up to $n = 25$ and to 60 years up to $n = 50$, in both projections. Initially, half the populations have birth and death rates of 45 per 1,000 and 20 per 1,000 while the other half have rates of 40 per 1,000 and 20 per 1,000, giving an average rate of increase of 2.25 per cent for all the populations. We realize today, after some ten years of observation, that these projections—and, indeed, almost all those made at the time—are somewhat behindhand so far as mortality is concerned, because public health has made much greater progress in ten years than we had anticipated for the next twenty-five years. The growth rates we predicted would be lower than those observed, had this error not been more than offset by a contrary one: the rate of increase forecast initially (2.25 per cent) is higher than the rate calculated for the decade 1950-1959—of the order of 1.9 per cent;

(*c*) For the national rate of return from investment, λ, we adopted the two figures 0.20 and 0.25. At the time, these figures were often quoted (C. Clark, R. Nurkse, S. Kuznets, H. Singer, W. A. Lewis, A. Sauvy, and United Nations). They even seem higher than the estimates which were made for the industrialized countries at their initial phase of

development. We know that this rate increased as the infra-structure was constructed, then decreased as the fruits of the earlier abstinence were reaped, and finally remain without any clear trend, but never rising above 0.30. For the under-developed countries, higher rates, sometimes as much as 0.30 or even 0.40, are generally assumed, although it is recognized that reliable estimates are difficult to make and that, by contrast with the industrialized countries, some factors would seem to suggest higher rates while others suggest the reverse, so that in the end, as was well shown by W. A. Lewis in his work *The Theory of Economic Growth,* any clear conclusion is difficult to come by. High rates often actually reflect narrow definitions of investment, which exclude, in addition to self-investment, expenditures having a generally positive effect on future efficiency—for example, expenditure on education. Moreover, recent estimates are based on short periods, whereas the effects of investment are felt over the long term, especially if we apply a broader definition giving its full importance to fixed social capital, which takes time to establish;

(*d*) Per capita income was assumed to increase by 2 per cent a year ($\Phi = 0.02$)—a target which is now universally agreed to be modest compared with the increase in the industrialized countries in the last decade, which was twice as large;

(*e*) Lastly, a rate of 5 per cent was adopted for domestic savings. Today this is regarded as a modest figure and, as will be seen, a rate of 7 per cent is often assumed.

6. If we choose from among our various assumptions that of an "immediate and slow decline" in fertility, and if we adopt a rate of 0.25 for λ, we obtain an initial figure of $38,600 million for external aid, a figure which increases rapidly under the combined influence of the growth of population and of per capita income, reaching $63,100 million after ten years.

7. *The United Nations report.* This is the much-discussed report of "five experts". It was the first in which this type of calculation was made and is now fifteen years old.

8. The definition of under-developed countries used is a broad one, including China, Korea and Viet-Nam, and thus embracing a total of 1,527 million inhabitants in 1949, with an average per capita income of $63. The rate of increase of this population is assumed to be 1.25 per cent a year—less than the rate of 1.9 per cent observed during the 1950's.

9. The method of calculation differs somewhat from that used in the five other estimates. It is estimated that a transfer out of agriculture to other sectors of 1 per cent of the total working population should permit an annual increase of 10 per cent in industrial output and of 1.5 per cent in national income. In addition, it is assumed that investment in agriculture representing 4 per cent of the national income will raise the yield of agriculture per acre by 2.5 per cent per annum over the next ten to twenty years, resulting in an increase of 1 per cent in national income. The report thus assumes a total increase of 2.5 per cent a year in national income. What is difficult to understand in it is how per capita income can rise by 2 per cent a year (so that $\Phi = 0.02$), while the population is assumed to grow at a rate of 1.25 per cent and income at a rate of 2.5 per cent.

10. The cost of transferring the agricultural population to non-agricultural employment is estimated at $2,500 per worker, i.e., $15,200 million, and the cost of investment in agriculture at $3,900 million—a total of $19,100 million. If from this sum we subtract domestic savings, estimated at 5.4 per cent of the national income (a figure very close to the one we adopted), we finally arrive at a figure for external requirements of $13,900 million.

11. It will be seen that the increase in per capita income ($\Phi = 0.02$) follows from the model and is not a working assumption, as in the other estimates. It should be pointed out that the cost of transferring workers to other employment is today estimated at more than $2,500; the figure of $4,000 is often mentioned, though it has not been substantiated by surveys or other types of research. If this figure had been used in the study, the other elements of the calculation being left unchanged, the capital requirement for the non-agricultural sector would have been 60 per cent higher, or $24,300 million, and the final figure, after the addition of investment in agriculture and the subtraction of domestic savings, would have been $23,000 million. For that matter, the authors of the study are well aware that their estimate is too low and admit themselves that it falls far short of the total cost of growth.

12. The national rate of return from investment λ which would appear to follow from this calculation is 0.164 (capital coefficient 6.13:1); the rate of growth of over-all income is 3.25 per cent a year ($\Phi = 0.02$, $p = 0.0125$), or $3,140 million. Comparing this income growth with investment ($19,100 million), we do indeed obtain $\lambda = 0.164$—a figure much lower than that used in the other estimates because of

the low level both of initial per capita income and of income growth.

13. *The GATT report.* The population of the under-developed countries is estimated at 1,217 million in 1960, with an average per capita income of $123. This population is assumed to increase at an annual rate of 2 per cent, and per capita income to increase at the rate of 3.2 per cent, reaching $162.4 at the end of 1969. The value thus assumed for Φ is 0.032, which is relatively ambitious compared with the United Nations target ($\Phi = 0.02$), our own ($\Phi = 0.02$), and, particularly, that of Rosenstein-Rodan (Φ ranges from 1.4 to 2.1 per cent), and the value assumed for p is 0.02, a rate slightly lower than that given by the latest United Nations projections, which are authoritative ($p = 0.0225$). The total rate of national income growth is therefore 0.052.

14. For the national rate of return from investment, two assumptions are used. Assumption (A): $\lambda = 0.33$; and assumption (B): $\lambda = 0.438$. These estimates are considerably more optimistic than the one which emerges from the United Nations study ($\lambda = 0.164$) or our own ($\lambda = 0.20$ and 0.25) and reflect the tendency we mentioned towards assuming higher values for λ than were used ten years ago.

15. Savings capacity is presumed to be 7 per cent of national income—a higher percentage than the one used in the United Nations report (5.4 per cent) or in our study (5 per cent), but the same as that adopted by Rosenstein-Rodan (6 to 9 per cent).

16. These assumptions give the following results:

Assumption (A): volume of necessary investment... $23,400 million in 1960 and $36,900 million in 1969
Assumption (B): volume of necessary investment... $17,900 million in 1960 and $28,300 million in 1969

Residual capital requirements:

Assumption (A): $12,900 million in 1960 and $12,700 million in 1969.
Assumption (B): $7,400 million in 1960 and $4,100 million in 1969.

17. *P. G. Hoffman.* The population of the non-Marxist under-developed countries is estimated at 1,250 million in 1960, with an average per capita income of $100. The target proposed in this study is to increase the annual growth of per capita income from 1 per cent in the 1950's to 2 per cent in the 1960's ($\Phi = 0.02$), with a resultant increase in per capita income from $100 to $125. It is estimated (but the method of calculation is not indicated) that this target could be attained with an investment of $70,000 million, i.e., an average of $7,000 million a year. This is $3,000 million more than was provided in external aid in the 1950's. To meet that additional $3,000 million, $1,000 million could be provided by means of internal financing, so that the additional international aid required would average $2,000 million a year.

18. Let us calculate the national rate of return from investment resulting from this study. Total income is to increase by 4 per cent a year, rising from $125,000 million to $185,000 million between 1960 and 1969. If we compare the $160,000 million increase in income with the required investment of $70,000 million, we obtain $\lambda = 0.86$ (corresponding to a capital coefficient in the neighbourhood of 1), which is exaggeratedly high. On the basis of a figure of the order of 0.33, the capital requirement would be two and a half times that envisaged ($18,000 million a year) and the additional aid more than six times greater ($13,000 million instead of $2,000 million).

19. *P. N. Rosenstein-Rodan.* This is the most recent study on the subject (1961). The population of the under-developed countries is 1,381 million in 1961, with a per capita income of $140. The originality of this work lies in the fact that for the first time calculations are made at the country level. The author has determined the rate of national income growth which each country is capable of absorbing (ranging from 2.8 per cent for Africa to 4.1 per cent for Asia), and on that basis makes assumptions, in the light of the United Nations population projections, about the national rate of return from investment (0.33 and 0.36), domestic savings capacity (ranging from 6 per cent for Africa to over 9 per cent for Latin America) and external aid requirements. Average per capita income according to these assumptions rises from $140 in 1961 to $153 in 1966, $170 in 1971 and $196 in 1976.

20. The results of the calculation are as follows: in the period 1961-1966, $5,000 million to $7,000 million will be needed, or $4,000 million to $3,000 million in aid and $1,000 million to $4,000 million in private investment.

21. *M. F. Millikan and W. W. Rostow.* The approach here is quite different from that adopted in the other studies. The purpose is

not to estimate requirements from a normative standpoint but to calculate the amount of capital which the under-developed countries could absorb productively. It is therefore hardly surprising, in view of these objectives and the methods of calculation used, that the results arrived at bear no relation to those of the other studies. The estimates range from $2,500 million to $3,500 million, i.e., an average of $2 per year per inhabitant.

22. *Conclusion.* The wide disparities between these different estimates are easy to explain. The earliest—the United Nations estimate and our own—give high figures compared with those of the most recent estimates because they cover a very large population (including China), and assume national rates of return from investment lower than those accepted today, and perhaps also relatively limited savings capacities. The reason why the United Nations estimate, despite these assumptions, is much lower than ours is that it is based on a slower rate of demographic increase (1.25 per cent instead of 2.25 per cent) and a lower initial per capita income ($63 as against $100). The most recent calculations seem to err in the opposite direction, even assuming by implication national rates of return from investment in the neighbourhood of unity. Indeed, some leave the realm of abstraction and normative concept in which the others have generally moved and calculate the capital capable of being absorbed according to the laws of profit. To venture an opinion, the assumptions used in the GATT report seem to us to be the closest to those we should be inclined to adopt today.

23. However, any new calculation made, for example on the basis of the latest United Nations demographic projections, should be preceded by research on the national rate of return from investment in the various regions, since this rate is at the core of the problem. Recent statistics, particularly those of the Organization for Economic Co-operation and Development (OECD) on the funds provided to the developing countries, should facilitate such research. We also need better knowledge of domestic savings capacities in the different regions by income group. Such information is now becoming available.[3] Lastly, we should consider to what extent the calculations can take into account differences in the purchasing power of the dollar in the various countries.

[3] United Nations, *World Economic Survey, 1960* (United Nations publication, Sales No.: 61.II.C.1).

Repercussions of the economic situation on demographic movements in Italy

G. TAGLIACARNE

[*Translated from French*]

I. MEASUREMENT OF ECONOMIC VARIATIONS: FROM "MIRACLE" TO RECESSION

1. A few figures will suffice to show the rapid deterioration of the economic situation which has taken place in Italy in recent years, and particularly in 1964. Growth of real national income over the preceding year:

	Per cent
1961	7.9
1962	6.2
1963	4.8
1964	2.7

Growth of industrial output over the preceding year:

	Per cent
1961	+ 10.4
1962	+ 9.6
1963	+ 8.8
1964	+ 0.4

Table 1. Number of unemployed workers and workers in part-time employment

Year	*Number of unemployed workers and young persons seeking their first jobs (thousands)*	*Workers in part-time employment (thousands)*
Average for the year		
1960	836	—
1961	710	—
1962	611	—
1963	504	348
1964	549	397
Month of January		
1963	802	380
1964	715	432
1965	834	865

2. We shall now consider whether the sudden passage from a period of prosperity which has been metaphorically called a "miracle" to a period of recession has affected the movement of some demographic phenomena.

II. EFFECTS ON NUPTIALITY

3. Nuptiality is one of the demographic phenomena which is normally sensitive to economic variations. When harvests are abundant, the economy prosperous, the level of employment high and salaries and career opportunities rising, marriages are easier. The contrary is the case when these factors are unfavourable. What has been the trend of the marriage rate in Italy during recent years?

4. The answer may be seen in the following figures, which show that the rate tended to be maintained at a high level, with gradual increases from 1960 to 1963 and a reduction in 1964.

Table 2. Frequency of marriages, 1960 to 1964

Year	*Number of marriages*	
	In absolute figures	*Per 1,000 inhabitants*
1960	387,683	7.6
1961	397,461	7.9
1962	406,370	8.0
1963	421,566	8.2
1964	418,912	8.0

5. These figures confirm what might have been anticipated, although the decline in the marriage rate in 1964 was very slight. It should be borne in mind, however, that the worsening of the economic situation did not become fully apparent until after the spring of 1964, and that planned marriages are rarely postponed except for serious and sudden reasons, such as mobilization in the event of war.

6. We studied the variations in nuptiality in 1964 by quarters to see whether the deterioration of the economic situation had an effect towards the end of the year, which might not

have appeared in the figures for the year as a whole. However, we found nothing of significance: the reduction in the number of marriages during the fourth quarter was very small.

7. In addition, we separated from the national figures the figures for the three large industrial centres (Milan, Turin, and Genoa) the "industrial triangle", where the decline in industrial activity reached fairly serious proportions, particularly in the later months of 1964; however, no substantial decline in the frequency of marriages could be found in those figures either.

Table 3. Number of marriages in the three cities of the industrial "triangle"

	Total for the year		
Year	*Number*	*Per 1,000 inhabitants*	*Fourth quarter*
1961	23,703	7.1	5,636
1962	25,136	7.3	5,939
1963	26,680	7.5	6,298
1964	26,625	7.4	5,857

8. These data may be interpreted in the following manner:

(*a*) Either considerations of sentiment prevail over economic reasons, or the latter take some time to become effective;

(*b*) People feel that the present economic recession will be only temporary.

III. The economic recession has had very little effect on emigration from Italy

9. Statistics of emigration from Italy and of internal migration are not accurate.

10. One available source is declarations of transfer of residence from Italy filed with the communal registry offices. These are known to be inaccurate for lack of information, since in most cases the emigrant wishes to maintain his residence in Italy, intending or hoping to return as soon as possible.

Table 4. Excess of registrations (repatriations) over applications for transfer abroad (emigrations), according to declarations filed with the registry offices

Year	*Number*
1958	— 41,922
1959	— 28,926
1960	— 7,041
1961	+ 11,833
1962	+ 38,275
1963	+ 51,759
1964	+ 43,410

11. This table shows first (1958-1960) an excess of emigrants and then an excess of repatriations, increasing until 1963; then, there is a slight decrease in repatriations in 1964. Periodic manpower surveys carried out by the Istituto Centrale di Statistica also confirm that there was no variation in emigration from Italy during the period of rising unemployment. They show that the number of persons emigrating temporarily to seek employment rose from 383,000 in January 1964 to 384,000 in January 1965.

12. These figures may be interpreted as follows: for the present, unemployed workers think or hope that the present recession is a temporary phase. They will consider emigrating abroad later if the depression should be prolonged or grow worse.

IV. Influence of the recession on internal migratory movements

13. While, as has been seen from the previous chapter, the deterioration of the economic situation did not affect (or has not yet affected) emigration from Italy (or the phenomenon has not yet been reflected in the available statistics), the figures relating to internal migratory movements, i.e., movements from one region of Italy to another, are very different. Here the repercussions are considerable, and the statistics, while incomplete, show well-defined trends. After a period in which there were large movements of workers from south to north, increasing gradually until 1963, 1964 saw a rapid "reflux" of migrants, especially recent migrants, to the regions of origin.

14. In 1961, the number of declarations of extra-communal change of residence filed with the communal registry offices was 1,594,711. In 1962, the figure rose to 1,607,013, in 1963 to 1,776,005 and in 1964 to 1,624,833. Thus there was an original trend towards increasing movement which reached a peak and then reversed itself.

15. The trend of internal migratory movement, as deduced from the information registered with the communal registry offices, is seen even more clearly when we study certain territorial areas, for example the three large industrial cities of the north (Milan, Turin and Genoa).

16. In 1961 there were large migratory movements (particularly from the Mezzogiorno and Veneto) to these three cities. The excess of residence applications (in-migrants) over applications for repatriation (out-migrants)

varied greatly, numbering 112,576 in 1961 and 84,900 in 1962, declining again to 62,052 in 1963, and almost disappearing, at a figure of only 2,642, in 1964. This trend was more marked in Milan, and even more so in Turin.

17. At Turin, the excess of in-migrants registrations—52,338 persons in 1961 and 37,326 in 1962—fell to 26,074 in 1963, and was succeeded by an excess of out-migrants in 1964—7,146 persons.

Table 5. Excess of natural movement and of internal migratory movement of the population resident in three large industrial cities of northern Italy for the years 1962, 1963 and 1964

Large cities	*Natural movement (live-born children less deaths) and internal migratory movement (registrations less applications for transfer)*					
	1962		*1963*		*1964*	
	Natural movement	*Internal migratory movement*	*Natural movement*	*Internal migratory movement*	*Natural movement*	*Internal migratory movement*
Turin	5,654	37,326	7,292	26,074	8,362	— 7,146
Milan	6,991	32,933	9,509	16,464	11,418	— 4,595
Genoa	1,037	16,430	2,117	19,514	2,189	14,383
TOTAL, three cities	13,682	86,689	18,918	62,052	21,969	2,642

SOURCES: ISTAT, "Population and administrative districts of the communes (1962 and 1963)", and *Monthly Statistical Bulletin* (March 1965).

18. The preceding table shows that up to 1963 the three large industrial cities of the north experienced a population increase due principally to arrivals of in-migrants, and to a small degree only to natural movement (excess of births over deaths). In 1964, the situation was reversed: the population increase in that year was due mainly to the excess of births, and to a small degree only to the excess of in-migrants.

19. If the figures are broken down by quarters we find that in the three cities considered the excess of out-migrants had not yet appeared by the first quarter of 1964, but rose steadily after the spring of that year.

20. Analysis of the most recent data clearly confirms the trend towards repatriation, i.e., the return of workers to the places of origin. More extensive statistics will not be available for such analysis for a few months. However, the January 1965 figures we have for the city of Turin would appear significant enough. During that month there were 2,526 in-migrants, a net loss of 1,833 persons. A large number of out-migrants (1,237) merely moved from the city itself to the greater Turin area, which comprises twenty-three contiguous communes; they apparently wish to hold themselves in readiness to resume residence in Turin as soon as the industrial situation improves. The other out-migrants returned to their own regions—the Mezzogiorno and Veneto, in particular. That is demonstrated by the following table, in which, for the sake of simplicity, only the regions showing large figures are included.

Table 6. Out-migrants from Turin in January 1965 according to region of destination and place of birth

Region of destination	*Total number*	*Returned to place of birth*	
		Number	*Percentage of total*
Communes of the greater Turin area (twenty-three communes contiguous to Turin)	1,237	—	—
Veneto	25	21	84.0
Campania	67	54	80.6
Apulia	166	153	92.2
Basilicata	30	24	80.0
Calabria	85	61	71.8
Sicily	76	65	85.5
Sardinia	54	44	81.5
TOTAL of above regions (excluding the greater Turin area)	503	422	83.9

21. Of 503 out-migrants leaving Turin (for the regions included in the table) in January 1965, 422 (or 84 per cent) were returning to their region of birth; it is probable that the difference between the two figures would be considerably smaller if the datum considered had been the region of origin at the time of migration to Turin rather than the region of birth.

22. The figures given for the large industrial cities indirectly show where the economic

depression was the most severe: Turin first, then Milan, and Genoa to a lesser degree. The reason is easy to understand: Turin is a centre of concentration of the manufacturing industry (automobiles), which was hit harder than other industries by the depression. Milan has a more varied range of industries; while Genoa, besides the fact that it has a remarkable variety of industrial sectors, is best able to "defend" itself thanks to the various activities connected with its great port, the largest in Italy.

Conclusion

23. Our study of the repercussions of the Italian economic situation in recent years on population movements suggests the following observations:

(*a*) To draw more reliable conclusions we need more detailed statistics, especially in respect of migratory movements. At any rate, only when later information—at least for 1965—is in hand will it be possible to complete the studies which we have attempted with the data now available;

(*b*) During the years of rapid economic development, nuptiality increased until reaching a peak in 1963; it then declined slightly in 1964. This decline is too small to be attributable with certainty to the very severe economic recession which took place in 1964, especially after the spring. Are we to conclude that the affections are little influenced by the economic situation, or that 1964 is still too early a year to reflect the effects of the depression?;

(*c*) The influence of the worsening economic situation on emigration from Italy has so far been very slight, and perhaps even nil. Unemployed workers confidently expect to obtain work in Italy very soon, and therefore do not seek work abroad;

(*d*) The repercussions of the unfavourable economic situation and of increased unemployment were soon seen in internal migratory movements. After a large flow of migrants from the south to the north, particularly to the highly industrialized areas, a rapid reverse movement occurred in 1964, i.e., a substantial return flow to the regions of origin;

(*e*) The persistence of an adequately high marriage rate in 1964 and the very few unemployed workers, if any, seeking employment abroad may be interpreted as an expression of optimism, i.e., as demonstrating that the present unfavourable situation is considered to be temporary and that there is a feeling or a hope, that the economic situation will be able to assume the favourable trend of past years, if not quite that of the "miracle" years.

The influence of industrialization and urbanization on the way of living of the peoples of Central Asia and Kazakhstan

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[*Translated from Russian*]

1. Before the October Revolution, the greatest part of the population of Central Asia and Kazakhstan, consisting of farmers and cattle-breeders, lived in densely populated oases in the steppes and deserts. The ancient cities of those regions had small populations.

2. During the first half of the nineteenth century, on the eve of Central Asia's annexation to Russia, the cities of that region were still typically feudal, both in appearance and in their social structure and general tenor of life.

3. After Central Asia's annexation to Russia, the feudal way of life in the cities began to change and the cities' role in the regional economy began to increase, even though the process remained within the framework of Tsarist colonial policy. The region was drawn into the economic life of the Russian Empire, and this brought about a great expansion of money-exchange relationships, the regulation of barter and the development of elements of capitalism. Owing to the influence of these factors, the population of various cities began to increase. Thus, Tashkent had approximately 156,000 inhabitants in 1897, while by 1913 the figure had risen to 272,000; in Kokand, the population increased from 81,000 to 119,000 during that period, while in Samarkand it rose from 55,000 to 100,000. A number of new Russian cities—military, administrative and trade centres (Pishpek, Skobelev, Verny, Perovsk etc.)—were built. At the same time, so-called "new" urban sections, inhabited largely by Russian military and administrative personnel, sprang up alongside many ancient cities (Tashkent, Samarkand, Bukhara, Khodzhent etc.). The "European" appearance of the new cities and their cultural level set them very much apart from the older, "native" cities.

4. The penetration of capitalism destroyed the ancient foundations of mediæval social life. This process was furthered not only by economic factors but also by the activities of part of the intelligentsia, which was aligned with the progressive elements in Russian society. Most important of all, however, was the emergence and growth of an urban working class. This process was held back by the slow pace of industrial development, but, even so, Russian workers gradually stimulated the formation of a working class among the local nationality groups.

5. The process of industrialization which followed the October Revolution brought about a further increase in the number of cities and in the size of their populations.

6. The Soviet Government gave special attention to the industrialization of the national regions, including Central Asia and Kazakhstan. These regions had virtually no industry, and the small factories engaged in the primary processing of raw materials—tanneries, cotton-cleaning factories, creameries etc.—had a level of technology not far removed from that of cottage industry. Handicraft production was still organized along guidelines. In terms of their status and level of development, industrial workers were virtually indistinguishable from the rural population, and most of them worked only seasonally.

7. Action was taken to ensure that capital investment in industry in the backward regions increased at a more rapid rate than that planned for the country as a whole. The necessary additional funds were provided out of national income under the State budget.

8. In addition to the reconstruction and expansion of the limited number of existing enterprises, a number of plants and factories were transferred from the central part of Russia in order to speed industrial development and create industrial centres in the Central Asian republics. In 1922, for example, a writing-paper factory and a cellulose plant were transferred to Turkestan; in 1925, a spinning mill was transferred to Turkmenia etc.

9. Extensive prospecting for natural resources got under way, and new industrial

centres were established right at the sources of raw materials—often in the steppes and deserts. Thus, Turkmenian industry was launched with the construction of a sulphur plant in 1928 in the middle of the Kara-Kum desert. During the same period, oil drilling was developed in western Turkmenia to the south of the Bolshoi Balkhan mountain, while in Kazakhstan mines and other enterprises were built in the Karaganda coal basin.

10. The further development of the socialist economy intensified and broadened the gradual processes of change in the living and working conditions of the peoples of Central Asia and Kazakhstan. Gross industrial production was twenty-four times as great in the Uzbek Soviet Socialist Republic in 1963 as it had been in 1913, twenty-six times as great in the Turkmen Soviet Socialist Republic, forty-nine times as great in the Tadzhik Soviet Socialist Republic, seventy-nine times as great in the Kazakh Soviet Socialist Republic, and eighty-one times as great in the Kirgiz Soviet Socialist Republic. Industry in these republics is extremely modern; it is characterized by highly developed specialization and is organized in the form of large enterprises and combines with skilled personnel. The extensive mineral resources have provided the basis for the establishment of integrated mining centres. Of primary importance are heavy industrial enterprises and the production of capital goods, including complex modern machinery and equipment. In 1963, Uzbekistan, Kirgizia, Tadzhikistan and Turkmenia produced 600-800 and more kWh of electric power per capita and the Kazakh Soviet Socialist Republic produced 1,309 kWh whereas per capita output in Turkey is approximately 132 kWh.

11. The rapid industrial growth of the Central Asian republics and Kazakhstan has given them an important place in the social division of labour. Their huge gas and hydroelectric resources are transforming them into one of the main regions for the siting of power installations. Large hydroelectric stations which will play a many-sided part in the development of electrification and irrigation are being built on the rivers Vakhsh, Naryn, Irtysh and others. A large metallurgical base of national scope is being established in Kazakhstan. Large chemical and oil-refining complexes are being built with a view to the utilization of Central Asia's extensive reserves of cheap natural and petroleum gas.

12. A rapid increase in the number of urban centres has been closely linked with the development of industry. Between 1926 and 1959, the number of such centres in the Central Asian republics and Kazakhstan more than tripled on the average (increasing from 46 to 101 in the Uzbek Soviet Socialist Republic, from 13 to 46 in the Tadzhik Soviet Socialist Republic, from 17 to 75 in the Turkmen Soviet Socialist Republic and from 9 to 44 in the Kirgiz Soviet Socialist Republic). In addition to the growth of existing cities and workers' settlements in these four republics of the Central Asian economic region, twenty-three new cities and 158 urban-type settlements had come into existence by 1959. In 1963, there were some 200 urban centres, including fifty-five cities, in the Kazakh Soviet Socialist Republic.

13. The period of the first five-year plans witnessed the appearance in Uzbekistan of the city of Chirchik, a power, chemical and engineering industry centre (89,000 inhabitants), and of Angren, the centre of the republic's coal industry (68,000 inhabitants). During the period of Soviet rule, the large industrial city of Karaganda (477,000 inhabitants) has emerged in the steppes of Kazakhstan. In the Kara-Kum desert in Turkmenia, a number of industrial centres have been established near the oil and gas fields, including Nebitdag, the beautiful city of the Turkmen oil workers in the foothills of the Balkhan mountains.

14. The old cities are rapidly expanding and changing, acquiring new sections which are distinguished from the pre-revolutionary parts of those cities by their layout and appearance and by the types of buildings erected. On the site of a tiny village has grown up the capital of the Tadzhik Soviet Socialist Republic, Dushanbe, whose population increased from 5,600 in 1926 to 298,000 by the end of 1963. Kyzyl-Kia and Sulyukta, which before the revolution had been wretched miners' settlements—collections of yurts, mud and clay huts and barracks—have been transformed into modern, well-built cities—centres of the coal industry of the Kirgiz Soviet Socialist Republic.

15. The large, modern city of Frunze (342,000 inhabitants), the present capital of Kirgizia, is impossible to recognize as the obscure little pre-revolutionary district town of Pishpek. Such large cities of pre-revolutionary Turkestan as Tashkent, Samarkand and Khodzhent, which were once divided into European and "native" sections, have also been drastically transformed.

16. These cities are undergoing complete reconstruction and replanning, in the process

of which the two sections are merging and gradually becoming indistinguishable in population structure, architecture, public services and way of life. Today, only a few old cities and villages, untouched by industrialization, or "native" sections of the old administrative cities retain their Central Asian appearance: in particular the houses with flat roofs and small inner courtyards separated from the street by high clay walls.

17. Two and three-storey houses which front on the street and have open courtyards and large paned windows are being built along the broad green streets of the new urban sections and industrial cities.

18. Cities are acquiring increasing importance in the life of the Central Asian Republics and Kazakhstan. Between 1913 and 1963, the urban population of the Uzbek Soviet Socialist Republic increased from 1,060,000 to 3,476,000, that of the Tadzhik Soviet Socialist Republic from 95,000 to 820,000, that of the Turkmen Soviet Socialist Republic from 117,000 to 874,000, that of the Kirgiz Soviet Socialist Republic from 106,000 to 936,000, and that of the Kazakh Soviet Socialist Republic from 541,000 to 5,313,000.

19. Between 1913 and 1963, the urban population of these republics showed an average increase of almost 500 per cent while the rural population increased by only 50 per cent. This produced a sharp change in the ratio between the urban and rural population. In 1913, for example, the urban population of Uzbekistan comprised 24 per cent of the total, while in 1963 the figure was 35 per cent. During the same period, the urban population increased from 9 to 35 per cent of the total in Tadzhikistan, from 11 to 48 per cent in Turkmenia, from 12 to 38 per cent in Kirgizia, and from 10 to 46 per cent in Kazakhstan.

20. Apart from natural growth, the factors causing the increase in the urban population were, first, the movement of a large number of rural inhabitants to urban centres in order to take employment in industry, construction, transport and other branches of economic activity or to pursue studies and, secondly, the transformation of a number of large rural population centres into cities and urban-type settlements as a result of the development of industry in them.

21. The increase in the urban population was brought about not only by an influx of rural inhabitants from the Central Asian republics but also by a heavy flow of population from other Soviet republics, particularly the Russian Soviet Federative Socialist Republic.

22. The structure of the urban population also underwent drastic changes. The industrialization of the country led to an increase in the number of manual workers and engineering and technical personnel, while the cultural gains increased the number of professional workers and students. The number of non-manual workers rose substantially as a result of the development of social and cultural institutions, public services and commercial enterprises.

23. The ethnic composition of the population of the new industrial cities is extremely complex. The inhabitants of Nebitdag, for example, belong to more than fifty different nationalities. However, this multinational composition has also come to be a characteristic of the older cities. Thus, according to the figures for the 1959 census, the inhabitants of Tashkent include representatives of more than 100 nationality groups, although the greatest number (some 80 per cent) are Uzbeks and Russians.

24. The growth of cities and of the urban population has been accompanied by a steady strengthening of ties between the cities and rural areas. The population has become incomparably more mobile than it was before the revolution. This has been furthered greatly by the development of transport and road-building, which has facilitated contact with other republics and peoples. All collective and State farms have their own motor-vehicle pools, and rural settlements are linked by bus lines with district centres and cities. New railway and air lines facilitate and strengthen contact with the entire country. Air transport has long been very much a part of life in this region.

25. Industrialization was accompanied by the socialist reconstruction of agriculture—the collectivization of the small, scattered farmsteads. The establishment of socialist enterprises—State and collective farms—created broad opportunities for the development of productive forces in agriculture.

26. The State took an important step towards eliminating the universal backwardness of the region by gradually changing over to a settled way of life those population groups (Kazakhs, Kirgizes, part of the Turkmen population etc.) which still led a nomadic or semi-nomadic existence.

27. The principal measures taken by the Soviet Government to encourage the nomadic population to adopt a settled way of life was to

provide the great bulk of these people with land, agricultural equipment and work animals, financial assistance and construction materials.

28. Industrialization opened the way for the comprehensive development of agriculture.

29. In agriculture as in industry, the Central Asian republics play an important part in the national division of labour; in particular, they are the country's main cotton-producing region. Kazakhstan plays a somewhat different role because of the vast areas under grain crops in the Tselinny region and the development of livestock-breeding.

30. The industrialization of the Central Asian republics opened the way for technological progress, and particularly mechanization, in agriculture. The large, diversified collective and State farms are provided with modern equipment; each farm has dozens of tractors and various types of agricultural machinery which ensure mechanization of ploughing, sowing, harvesting and other operations in the cultivation of cotton and other crops. Aircraft are used to combat agricultural pests, apply fertilizer and defoliate the cotton plants. Technological progress is also reflected in the expansion of electrification, the extensive introduction of chemical methods and the large-scale construction of irrigation works. Irrigation is the basis of agriculture in Central Asia and southern and central Kazakhstan.

31. The huge volume of irrigation construction and the opening up of hundreds of thousands of new tracts of land have been possible only because of the mechanization of earthwork. The high level of mechanization and increased labour productivity in agriculture have made it possible for a part of the rural population to move to the city without impairing the region's agricultural development, and especially the development of such a labour-intensive branch of agriculture as cotton-raising, which has shown a steady increase in gross production. Technological progress, the mechanization of agricultural processes and the general raising of agricultural standards make work less strenuous, but, at the same time, they require certain types of knowledge. Hundreds of thousands of mechanization specialists—operators of complex machinery, irrigation specialists etc.—have made their appearance from among the rural population.

32. The increased social resources of the collective farms are bringing about an improvement in material living conditions and a transformation of rural localities into modern settlements with all public services. Cities, such as Yangier in the Golodnaya steppe, are springing up in the midst of the large tracts of newly irrigated land. In many of the older agricultural areas, the improved irrigation network and land reapportionment have made it possible to move some collective farmers from small villages to large settlements, thus facilitating the provision of communal facilities and medical and other services.

33. Present-day rural settlements are very different from those which existed in the first years after collectivization. The central settlements of State farms are laid out, as nearly as possible, along the same lines as the new urban-type settlements. Their population is multinational and tends to be rather large (sometimes from 5,000 to 10,000 inhabitants). There is a greater range of different types of central collective-farm settlements, which vary in layout and appearance; the villages which sprang up in the older farming areas usually preserve their traditional over-all appearance despite changes in types of housing. The collective-farm settlements established in recent years on newly developed land in areas whose inhabitants had previously lived on individual farmsteads or led a semi-nomadic existence are laid out in a manner that resembles the State-farm settlements. Finally, mention should be made of the emergence at desert wells or in mountainous areas of livestock-breeding settlement bases, which have, in addition to housing, well-equipped farm buildings, winter sheds for cattle, cultural and communal facilities etc.

34. The reconstruction of existing collective-farm settlements and the construction of new ones is bringing about drastic changes in living conditions. In addition to well-equipped houses, schools, clubs, children's institutions and shops, buildings designed to provide various types of service are being put up in the settlements—public dining-rooms and tea rooms, bakeries, sewing shops, bath houses, barber shops etc. Where a settlement lacks greenery, it is provided; gardens and flower-beds are laid out, roads are planted with trees, and farm buildings are kept outside the limits of the settlement. Many collective farms have their own recreation centres, medical stations, hospitals and stadia. Nowadays, the settlement areas of State farms and progressive collective farms in the Central Asian republics and Kazakhstan differ but little from urban-type settlements. However, in many villages inhabited by collective farmers who engage in animal-breeding, yurts are still to be found alongside modern houses.

35. If one is to have a proper understanding of the processes of change in living conditions in this region, it is of the utmost importance to bear in mind that the economic progress, industrialization and resulting increase in agricultural production achieved over a period of many years in the Central Asian republics and Kazakhstan have brought about profound changes in the social structure of the population and its cultural level.

36. The main factor responsible for the changes in social structure has been the formation of a large force of manual and non-manual workers, part of which is drawn from the local nationality groups. Uzbekistan, for example, had more than 4.6 million workers by 1959, representing 57.1 per cent of the population (3,225,000 or 39.8 per cent of the population, were manual workers); a large number of these workers were from the local nationality groups. In 1959, Turkmenia had a total of 870,000 workers, representing 57.4 per cent of the population, of whom more than 558,000, or 36.8 per cent of the population, were manual workers.

37. The extensive mechanization of all production processes in modern enterprises and the need to operate complex machinery was an important factor in raising the cultural and technological level of the young working class in Central Asia and Kazakhstan. A force of engineering and technical workers came into being, much of it drawn from the local nationality groups.

38. There has been rapid expansion in the most highly skilled occupations and in the number of workers in the most important industrial job categories, since the creation of a skilled labour force and technical personnel has been one of the decisive factors in the economic development of these previously backward national republics. The number of manual and non-manual workers increased tenfold in Central Asia and Kazakhstan between 1926 and 1959, while there was only a sixfold increase for the Union of Soviet Socialist Republics as a whole. There was an even more striking rise in such job categories as vehicle and tractor drivers and combine operators, whose number increased 2.4 times as rapidly in Central Asia and Kazakhstan as in the Union of Soviet Socialist Republics as a whole between 1926 and 1959.

39. The changes in the social structure of the population of the Central Asian republics and Kazakhstan are clearly reflected in a substantial increase in the proportion of manual and non-manual workers as compared to collective farmers. According to the 1959 census, these two primary social groups comprised 57-58 per cent of the total population in each of three republics—the Uzbek Soviet Socialist Republic, the Kirgiz Soviet Socialist Republic and the Turkmen Soviet Socialist Republic; the figure was roughly 80 per cent in the Kazakh Soviet Socialist Republic, and it was only in the Tadzhik Soviet Socialist Republic that the proportion of collective farmers, which was 53.5 per cent, slightly exceeded that of manual and non-manual workers. It should be noted that the category "manual and non-manual workers" is not limited to urban inhabitants; in addition to production personnel in industry and workers employed in construction, transport, communications, trade and other economic activities, it includes a substantial number of rural workers employed on State farms and at subsidiary agricultural enterprises.

40. The rapid increase in professional personnel is shown by the following figures: in 1959, the number of engineering and technical workers, agronomists, livestock specialists and veterinary workers in the Union of Soviet Socialist Republics as a whole was eighteen times as great as it had been in 1926, while in Central Asia and Kazakhstan the figure was thirty-eight times as high. During the same period, the number of teachers and other cultural and educational workers increased more than sevenfold in the Union of Soviet Socialist Republics as a whole, while in Central Asia and Kazakhstan it rose by a factor of nineteen. The respective increases in medical personnel were by factors of nine and twenty-one. The number of scientific workers in the Union of Soviet Socialist Republics increased by a factor of twenty-three, while in the Central Asian republics and Kazakhstan, where there had been only 398 scientific workers in 1926, the number had grown to 26,500 by 1959, having increased by a factor of sixty-seven.

41. Ethnographic research reveals that tremendous social and cultural changes have taken place in the previously backward and poverty-stricken villages of the region; it has been found that the substantial differences in living conditions between the urban and rural populations are being gradually wiped out.

42. This process has been greatly furthered by the influence of urban culture, which in various ways has penetrated the life of the rural population.

43. The transition to a settled existence by formerly nomadic and semi-nomadic elements in the population immediately exposed them to

the influence of urban culture. Upon moving into the new settlements, into new, permanent homes which were different from their traditional yurts, former cattle-breeders changed their way of life in response to the new living conditions in which they found themselves.

44. During the first years of industrialization, urban influence was brought to the rural population by workers who had only recently taken jobs in industry and were still bound to the villages by family ties and, in addition, by students returning to their villages on vacation or upon completion of their studies. From them the rural inhabitants learned new ways of furnishing their homes, dressing, preparing food, etc.

45. The increased material well-being of the urban and rural population in the post-war period, the rise in the general level of culture and the increase in technical knowledge as a result of the mechanization of agricultural operations have bound urban and rural centres more closely together. Of great importance in narrowing the gap between urban and rural living conditions is the very fact of the industrial development and economic and technological progress achieved in the Central Asian republics and Kazakhstan. The electric power stations constructed in many parts of the region provide electricity which can be used not only for lighting purposes but also for household appliances. Electric irons, refrigerators, electric stoves etc. have become an inseparable part of life even in some areas situated far from the large industrial centres. The exploration and exploitation of the region's rich deposits of natural gas have greatly simplified the problem of heating in a number of Central Asian cities and settlements. Radio and, in recent years, television have become an increasingly important part of the lives of rural as well as urban inhabitants. Water pipes have been laid in the more advanced collective-farm and State-farm settlements.

46. However, less effective use would be made of the fruits of industrial development if the latter had not been accompanied by a rise in the general cultural level and technological literacy of the population. We have already referred to the thorough assimilation of technical knowledge by industrial workers. Today, agricultural work also calls for the acquisition of technical knowledge and habits. Education and production skills affect the collective farmer's entire way of life and his material and spiritual culture.

47. Rural professional workers have played an extremely important role in raising the cultural level of the rural population and changing its way of life, culture and habits. They are helping to alter the people's outlook on the world, breaking down their allegiance to the traditional culture and acting as bearers of urban culture. They are helping to introduce on an increasing scale in rural households various articles which once were to be found only in the more advanced urban culture; furniture and factory-made utensils are making their appearance, and books, newspapers and magazines are coming to have a prominent place in people's lives. Of no small importance in changing the life of the rural—and, indeed, the urban—population has been the development of the State system of retail outlets. The well-organized facilities for the sale of consumer goods—fabrics, ready-made clothing and footwear, food products etc.—are a factor in changing the region's way of life. Clothing, too, is changing under the influence of the urban population. National costumes are incorporating some of the elements of urban dress, while the latter is acquiring many national features.

48. Those settlements whose population is of mixed national composition have gone furthest in adopting urban culture. The inhabitants are in constant contact with one another at work and in a cultural sense, so that there is a process of interpenetration of the cultural traditions of the various nationality groups.

49. A major role is played by such cultural institutions as schools, libraries and clubs. Film presentations, amateur activities, and visits by performers from the city are tremendously influential in forming a new outlook on the world.

50. The whole way of life of the rural population is changing. The former attitude of reserve and passivity has disappeared, and there is increased interest in what is happening outside one's own village. Even people of the older generation have greatly broadened their horizons. The rural population is being drawn into the active social life of the entire country. Trips to the city, to another province or even to another republic are not an uncommon occurrence, as they were in the past.

51. Women now enjoy full rights as members of society. In rural areas, there are many female teachers, agronomists, doctors, and operators of complex agricultural machinery, and the result has been to raise the cultural level of the population.

52. The change in outlook and development of a new way of life are also reflected in the emergence of new customs and holiday ob-

servances and in the decline or complete disappearance of old ones.

53. The continued technological and industrial development of the Central Asian republics and Kazakhstan and the completion of the big construction projects envisaged in the State plans—the Takhiatas and Nurek thermal power stations, the Kara-Kum canal etc.—will hasten the eradication of the differences between urban and rural living conditions.

54. The elimination of social, economic and cultural differences between the city and the countryside will be one of the most important results of the building of communism.

SUMMARIES OF PAPERS

Population trends in the socialist countries

WILHELM BILLIG

There are great differences between the socialist countries as to growth of the population and its reproduction.

In the socialist countries of Europe, with the exception of Albania, there has been a clear tendency for a number of years back for the birth rate and the natural increase of the population to fall. The rate of this fall and the level of the birth rate varies from country to country. Here the type of reproduction is similar to that in the countries of western Europe. In Albania and in the socialist countries of Asia, particularly China, the opposite tendency is observed, namely, a very high, and somewhat increasing birth rate (in order of 40 per 1,000), while the natural increase exceeds 2 per cent a year. This type of reproduction is similar to that in the majority of the recent colonial and semi-colonial countries of Asia, Africa and South America, with their "demographic explosion".

The differences referred to also occur within particular countries, as for example in the Soviet Union between the Baltic and the Asiatic republics, in Czechoslovakia between Czech and Slovakia, and in Yugoslavia between Kossovo-Metochia and Slovenia or Chorvacja.

In all the socialist countries the death rate is falling rapidly and its level is fairly low. This is due to great advances in hygiene and the medical services, and improvement in the standard of living. It also reflects a more general tendency for the death rate to fall as the forces of production are developed and as mankind conquers nature.

The reasons for the different trends as regards the birth rate and the natural increase should be sought in the historically determined different stages of development in which the socialist revolution occurred in diverse countries and in which they are now building socialism, in different living conditions.

The fall of the birth rate and the natural increase in the European socialist countries is connected with the economic, social and cultural changes occurring in them, and especially with industrialization, which in most countries is connected with the collectivization of farming.

The growth of the population in the socialist countries confounds those theories according to which "expanded reproduction" and rapid population growth is the typical population trend under socialism. On the other hand, however, there are no grounds for regarding a fall in the birth rate and in the natural increase as a long-term trend, and as a concomitant of socialism. The post-war population increases in such countries as the United States, Canada, Australia, and New Zealand show the error of those who think that this trend is irreversible, and that the birth rate always falls with growing prosperity. The natural increase in the Soviet Union in the post-war years is also higher than it was in the 'thirties, although naturally the type of population reproduction is different.

Owing to the specific conditions of development in the socialist countries, no clear population trend is yet visible. It will emerge when the forces of nature are mastered to such an extent that the pressure of economic conditions will have no influence on family planning, and when people will have complete liberty to plan their families as they will.

The economic problem of the demographic explosion. Some general reflections

MOGENS BOSERUP

The purpose of this note is to contribute to a clearer identification of the essential economic problem of the demographic explosion in the developing countries. In particular, two rather frequent generalizations are taken up for critical examination, namely the statement according to which the economic problem of the demographic explosion is essentially that of feeding the increasing number of mouths, and, secondly, the statement according to which the problem is that of providing employment for a rapidly increasing number of people in working age.

It is suggested that both of these generalizations are unprecise ways of expression and that they have suggestive overtones which may lead to dubious recommendations for economic policy. The conclusion drawn is that it would be preferable to identify the economic danger of excessive population growth simply as that

of an insufficient supply of capital for economic growth, and that the more particular problems of job creation and of food production, to the extent that they exist, should be regarded as special manifestations of this underlying difficulty of providing sufficient saving to secure a reasonable increase of the stock of capital per head despite annual rates of population increase of 2½-3 per cent or more.

Demographic factors in connexion with planning economic development

B. I. Braginsky

While planning economic development one must comprehensively consider paramount demographic aspects. This is particularly important for developing countries where population increase has stepped up, and the rate of production growth and of national income being insufficient.

The main demographic aspects of economic development are: (*a*) changes in age structure, sex composition, natural movement of population, general dynamics of natality and mortality etc.; (*b*) mechanical movement of population—migration processes within the country, emigration and immigration etc; (*c*) changes in the employment structure of the able-bodied population and in the employment by branches and spheres of activities; (*d*) educational level of the population and proportion of trained specialists and specialists with higher and specialized secondary education. National composition of population should also be taken into account in the case of multinational states.

The main task of planning is to secure considerable regular and stable excess of rate of growth of public product and of national income over the rate of population growth. It is only subject to this condition that a less developed country will be able to reach the level of economically developed countries in a relatively short historical period.

Owing to the socialist system, the economy of the Soviet Union grows much faster than the population though the natural increase is fairly high. During the last twelve years national income was growing almost six times faster than the population. This figure was even higher during the first years of industrialization.

If we take the ratio of the national income growth outstripping the rate of population growth by four and not by six times as quite a feasible one for the developing countries we could see that the less-developed countries will be able to reach the present level of highly developed countries in some 25 years with the present high rate of population increase. But if the United Nations and economically developed countries assist developing countries, this period can be substantially shortened.

It should be taken into account in this connexion that the rapid process of urbanization, elimination of illiteracy, general cultural advance of the population, wider participation of women in public production will inevitably and logically lead to future reductions in the rate of natural increase of population.

Consideration of demographic factors is of special importance in the planning of production in the industries and in agriculture directly and closely connected with the consumption and also in working out programmes of cultural, educational, health and trade development, as well as development of services.

Some observations on the relationship between population increase and economic growth

Willem Brand

In this paper an effort is made to review recent thinking on the relationship between economic growth and demographic trends and on the effect of population increase on economic development. The author tries to show that the stage of development can explain the level of crude death rates only to a limited extent. Income variations do indeed account for differences in specific death rates between rich and poor nations, but mortality differentials between countries of a similar level of development need to be ascribed to cultural factors rather than to economic forces. Social or non-economic elements also appear more important than income per capita as such in explaining the large differences in fertility levels between developed and developing nations. Again, the variance in natality or marital fertility between countries at about the same level of development seems largely independent of the income level attained.

For the poor countries it is shown that the high rate of natural increase forms an impediment to their striving for higher living standards, as a large part of their limited savings or investment is needed to keep output per capita constant. The action taken by Governments in various countries to curtail the level of natality is seen as a sign of their realization that efforts made for the promotion of the economic and social well-being of their citizens tend to be nullified by present and future

expected population growth. For rich countries it is adduced that the spread in growth rates of the labour force cannot serve as a basis for explaining the variations in economic growth rates. It is further stated that there is no proof that a high level of fertility has a favourable effect on savings, investment or the spirit of innovation. For the world as a whole, it is felt that in view of the limitations of natural resources and space rather soon a balance between births and deaths is required. For the poor regions, an early spread of knowledge about family planning is considered necessary to enable them to diminish the gap between their levels of living and those of the rich nations. Though it is admitted that economic development and demographic trends are interwoven, the author is of the opinion that nothing is gained by trying to explain one set of phenomena by the other set. He believes that by realizing the complexity and independence of both, a better insight is gained of the interaction between population trends and economic variables.

On swings in demographic and economic growth

RICHARD A. EASTERLIN

Long swings of fifteen to twenty-five years' duration (Kuznets' cycles) occurred in the growth of output, capital, labour force, population, and households in the United States of America from the early 19th century down to the present. Before World War I the component of change principally responsible for the swings in population, labour force, and households was migration, both external and internal. In the swing since 1940 the dominant components of change have been, respectively, the birth rate, participation rates, and headship rates, although internal migration continued to play a part. Kuznets' cycles in demographic variables arose from those in economic factors, but, in turn, had an important feedback effect *via* a multiplier type process in the form of an urban development boom. The principal channel through which economic conditions influenced demographic events was the labour market; the main link *via* which the latter reacted on economic conditions was household formation. Because of major changes in labour supply conditions after World War I, the specific causal mechanism since 1940 differed from that in the earlier period, and this accounts for the significant role of new components in the demographic swings. Over the next decade the prospective labour supply situation will differ from both recent and earlier conditions, and is such as to raise doubts about the reoccurrence in this period of the earlier multiplier-type process *via* household formation.

The present state of knowledge permits one to venture only some speculative remarks on broader conceptual issues raised by the Kuznets' cycle—whether it is a statistical artifact, its relation to the business cycle and to the primary trend, and its possible existence in underdeveloped economies—for much more research is needed.

The effect of industrialization on population growth

EVA GARZOUZI

The study attempts to find out the extent to which the transition of a country from the agrarian to the industrialized stage can affect the rate of its population growth. More specifically, it is concerned with the great reliance placed by some of the developing nations on industrialization to solve the problem of excess population.

Realizing that it is difficult to isolate the influence of industrialization for adequate evaluation, it reviews briefly the historical experience of western Europe and Japan. It then draws a comparison between the conditions of the developing nations of today and those of the industrialized countries at the initiation of their economic development. In doing so, it enumerates the similarities and dissimilarities, technological, economic and social.

The paper concludes that the rate of population growth is only likely to show some decline when economic growth has become self-sustained over a period of time. This can be achieved when possibilities exist of increasing output, and when developing countries adapt modern techniques to their own conditions, by using labour intensive projects.

Modern Malthusianism and problems of social development of liberated countries

Y. N. GUZEVATY

Although scientific bankruptcy of the Malthusian theory was proved by the whole history of economic development of human society, a number of scientists and writers go on insisting that the patterns of social development are determined by demographic factors and not by the level of public production and the character

of relations of production. Their arguments are as a rule limited to references to the situation in the countries of Asia, Africa and Latin America where in spite of hard living conditions high birth-rate is still preserved. Denying the utmost importance of social and economic reforms and in particular of radical agrarian reforms and industrialization modern advocates of Malthusianism put forward measures of birth control as a remedy against all economic difficulties of the countries liberated of colonialism.

Recommendations of this sort cannot but disorient the people of young national states, because in fact their economic and cultural backwardness was a result of hard colonial exploitation and not of demographic factors. The legacy of this exploitation, i.e., starvation, poverty, diseases, and illiteracy etc., can only be eliminated upon the liquidation of colonialism by means of radical reforms in the field of economics, cultural and social relations. These reforms will also inevitably lead to important changes in demographic processes and in particular will create material and psychological preconditions for lowering the high birth-rate. The history of all highly industrialized countries, and particularly that of the Soviet Union, where, as is well known, the task of artificial checks on birth-rate never arose, shows that such lowering of birth-rate under the influence of economic and cultural development is quite natural.

It stands to reason that the birth-rate decreases under the influence of revolutionary changes in society much slower than the mortality rate does as a result of modern methods of health protection. Therefore, during the transition period, the population grows appreciably, creating additional difficulties for newly independent countries, which are short of capital.

During this period the "means of birth control" acquire certain meaning but, of course, not in the sense of some self-contained factor. They are acknowledged as a measure of spreading scientific information on hygiene of marriage in the general complex of wide-scale sanitary and hygienic propaganda among the population.

The wider the scale of economic and cultural development the more progressive the development of demographic processes towards stabilization of reproduction of the population, and consequently, the more feasible the possibility to accelerate them, if necessary, by means of birth control.

The United Arab Republic may be cited as an interesting example of favourable influence of social and economic reforms carried out by the Government on the condition of the working people. This example is the more striking since the country was invariably referred to in the works of modern Malthusians as a typical country suffering from all horrors of "absolute overpopulation".

The groundlessness of the Malthusian theories becomes even more evident from the example of the Soviet Central Asian republics, in which the high birth-rate and the high rate of population growth do not hamper economic and cultural development, but, on the contrary, stimulate it, because the need for a continuous improvement of the material and cultural standards of the population is one of the major factors promoting further growth of the productive forces and the volume of production. The rate of industrial growth in these republics is always higher than that of population increase.

Kossuth's views on the interrelation of economic growth and demographic factors in his lectures at London University

ROBERT HORVÁTH

This study presents Kossuth's ideas on the laws of development of the population from his university conferences in London during his stay in England in 1858-1859. The manuscript of these conferences—containing 207 pages in quarto, sometimes incomplete—notably gives a complete course of political economy, including the analysis of the population's principles.

The author finds it remarkable that Kossuth had exposed this question starting from the statistic method and envisioning the prospectives of the standard of living of the working class. In analysing and criticizing the ideas of Malthus and his contemporaries, Kossuth finds that so-called "preventative" obstacles to propagation cannot, alone, replace the positive obstacles, but it is only the growing well-being, together with a corresponding improvement of the standard of living and the public health, which can reverse this general trend of development.

Kossuth has not, then, associated the principle of population to the decreasing return of the earth, but to the general prospective of economic progress, known today under the name of the theory of economic growth. His thinking thus approaches less that of Mill than that of Marx and of Engels, without wishing even so to transform the capitalist régime into a socialist régime.

Population growth and economic development in ECAFE region

SOHANLAL NAGDA

The rapid growth of world population may be the cause of political and social conflicts. The present population of the world is estimated at 3,000 million, out of which the population of the Economic Council of Asia and the Far East region is 1,700 million. The rate of growth of population in the Economic Council of Asia and the Far East region during the last decade increased from 1.0 to 1.8 per cent, while that of the world increased from 1.0 to 1.7 per cent per annum.

The rate of economic growth of this region is not commensurate with increase in population. About one quarter of this region's population is still suffering from hunger. Primary sector contributes a major share to the gross domestic product. Food consumption forms a higher proportion of national expenditure. The increase in per capita production of food is insignificant in comparison to increasing population in the region.

The per capita gross domestic product of the Economic Council of Asia and the Far East region is distinctly lower than any other major region of the world. Economically active population of the region is below the level of industrialized countries of the West. The high birth rate and low death rate result in a high level of dependency. The higher dependency ratio affects adversely the savings and investment rate. The rate of economic development is very slow and the rapid increase in population nullifies our economic progress. The alternative before us is to step up the rate of economic growth and to coordinate the economic-demographic plans of the region.

Population and economic development in Spain

JOSÉ ROS-JIMENO

After outlining some preliminary ideas on the importance of the labour factor in economic development, the degree of preponderance of human resources over material wealth and the need to study the relationships between education and economic progress, the author explains how the population has grown and how income in Spain has risen since the beginning of the century.

From 1900 to 1960 the total population increased by 64 per cent and the economically active population by 77 per cent, but the ratio between the latter and the former is only slightly over 38 per cent. However, the breakdown of the economically active population by branches of production has changed radically. Since the beginning of the century it has fallen from 70 to 42 per cent in the primary sector, while in industry it has risen from 15 to 32 per cent and in the services sector from 15 to 27 per cent. Structural changes are due mainly to the exodus from rural areas which has been analysed according to the origin and destination of displaced workers and which has been studied more thoroughly in recent years in the light of internal migration statistics. Economic progress between 1906 and 1963 is reflected in three statistical series (on national income, over-all per capita income and per capita income of the economically active population); the second series shows that during this period real per capita income doubled.

The Economic Development Plan for the years 1964-1967 is aimed at raising the general level of living more rapidly by increasing the gross national product by 6 per cent per year. It is expected that 970,000 jobs will be created in industry and services, due account being taken of the natural growth in the economically active population and the displacement of agricultural workers. In this way, the percentage of the economically active population in the primary sector will fall to 35 per cent, while those in the secondary and tertiary sectors will rise to 36 per cent and 29 per cent respectively. In order to reduce regional disequilibrium, the authorities are creating poles of development and industrial promotion which may partially offset the present trends in internal migration. As a result, it is to be hoped that by 1967 a national income higher than 900,000 million pesetas and a per capita income of almost $500 will be achieved.

Social and economic development and demographic processes in European socialist countries

T. V. RYABUSHKIN

On the basis of vital statistics in European socialist countries the report outlines the decisive role of social and economic factors in demographic processes.

The rates of growth of national income and industrial productions in these countries is higher than the rate of growth of population. Quick improvement in standard of life of the population brought about decrease in mortality. Considerable rise in cultural level and demands of the population as well as large-scale intro-

duction of women into the sphere of public production resulted in a drop in the birth-rate. There are tendencies of levelling birth-rates in different countries. But a sharp and quick decrease in the rate of birth is not to be expected in near future. It is proved by the facts that the policy of artificial checks on birth-rate is not necessary to insure the required rise in the standard of life of the population and a speedy development of economy.

Changes in the social system and economic development resulted in radical changes in the social structure of the population and in the ratio between rural and urban population. Full employment of able-bodied population in the socialist countries has been assured. The share of industrial workers in the total employed population has gone up to one forth in former agricultural countries, and to 40 per cent in the countries like Czechoslovakia. Non-productive sector gains in importance.

The socialist countries have managed to solve the problem of balance between the economic development and the growth of the population without resorting to neo-Malthusian recommendations on the population problem.

Demographic changes in an industrial area and their social significance

G. A. Slesarev

This paper analyses the effect of some social factors on the reproduction rate of the population on the basis of sample survey data.

In Soviet years the type of the population reproduction in the Soviet Union has changed from the one characterized by a rapid succession of generations to the one based on low and continuously decreasing mortality, improved physical fitness and a relatively high birth rate. A sharp decline in the death rate has increased the survival rate and provided conditions for the conscious limitation of the number of children in a family. In conditions of low mortality the number of births to compensate for the possible death of children has sharply decreased.

The status of women in society, their employment and educational level are the most essential social factors in the demographic processes. It has been found that the fertility rate of gainfully employed women is much lower than that of housewives. A higher educational level also results in a conscious limitation of the number of children in a family.

An improvement in the labour conditions of working women has had an indirect bearing on the health and physical fitness of their children. The number of infants who have to be fed artificially has dropped sharply bringing down morbidity and increasing the survival rate among infants, because the type of feeding is the most important factor for the health of infants under one year of age. The living conditions of worker families have a similar effect. It has been found that improved housing conditions, better public and cultural services and an extension of the network of children's institutions increase the birth rate and decrease infant mortality.

Our studies of the influence of the size of income on the birth rate have not provided proof that the number of children decreases with an increase in the family income. In socialist society greater income creates certain prerequisites for an increase in the birth rate. On the other hand, the increasing material and cultural requirements of the spouses give rise to the opposite tendency. The socialist society is therefore threatened with neither depopulation nor overpopulation.

Recent trends in China's population policy

W. F. Wertheim

The overpopulation characteristic of rice-growing areas of Southern and Eastern Asia is due to the specific type of land use prevalent in that region. The excessive densities, however, could be contrasted with the nearly complete neglect of the slopes of mountains and hills.

During his first visit to China, in 1957, the present author got the impression that the Chinese leaders were mainly applying Pierre Gourou's device of more evenly distributing the population of China, mainly through reforestation and reclamation of the unused uplands and through industrial development. But during his second visit, in 1964, he could observe that China has reversed its policy: they are concentrating all their efforts now on increasing per acre yields in the areas which were already intensively cultivated, by expanding irrigation and by using part-mechanization, more in particular electrical pumps. By stepping up the number of harvests to be reaped from one field, they are creating an artificial demand for manpower, which is directed by the People's Commune to those activities which have to get priority if production is to be raised.

Industrial development is mainly directed now at assisting agriculture.

The trek to the towns has been severely restricted to keep the required manpower in the rural areas where labour is most in demand.

Though family planning is being propagated, "the economic solution" still occupies pride of place.

Thus the Chinese have provided an original contribution to the solution of the population problems typical of the irrigated rice-growing areas. But in a next stage, they may have to revert to more rapid industrial expansion and to greater efforts to reclaim the unused uplands.

Meeting A.6

DEMOGRAPHIC ASPECTS OF EDUCATIONAL DEVELOPMENT

PAPERS

Training and distribution of qualified personnel in the Soviet Union

Y. A. BZHILYANSKY

[*Translated from Russian*]

1. The progress of science and technology makes new and far-reaching demands on the level of training required of the labour force. Personnel are needed whose qualifications are based not only on a body of specific practical methods and skills acquired through observation and training but also on a body of active knowledge which encompasses the elements of the scientific learning acquired by mankind in all fields and more particularly the field that is directly relevant to a particular work process. Science continues to be the domain of a select group, even though much larger than formerly, of professionally-trained persons. As a matter of principle, however, every person participating in the work process must consciously apply the achievements of modern science to production and to community activities; he must be capable of giving creative expression to these achievements and of making his own contribution, in greater or lesser degree, to the further development of science and technology.

2. This, in our opinion, is the basis for the fundamentally new approach to the problem of occupational qualifications and the training of skilled workers. The essence of this new approach is, firstly, that the need for skilled workers exists on a mass scale and, secondly, that the level of occupational qualifications increasingly reflects the level of education, both general and specialized.

3. The solution of this problem is intimately bound up with social conditions, with whether all members of society have equal and sufficiently broad opportunities to obtain the right kind of education and to acquire the right kind of skills. The advantages of socialist society and the scientific and technological successes of that society in competition with the longer-established capitalist societies are closely related to the fact that under socialism such opportunities are made fully available to all. The key to solving the problem of the training and distribution of qualified personnel in the Union of Soviet Socialist Republics and the other socialist countries lies in the steady rise in the cultural and technological level of the masses and the provision of general and, on that basis, highly specialized training for them.

4. Just as the development of the socialist economy has been based on scientific planning, so too are the training, advanced training and distribution of qualified personnel organized on a planning basis. Among the items determined in the plans are the number and location of educational establishments; the total student capacity of such establishments and the capacity by branches and courses of study; and the distribution of specialists who have completed their training in intermediate or higher specialized educational establishments after full-time attendance there. The State also relies on plans in determining and disbursing the expenditure required for all the various forms of specialized training. All education in the Union of Soviet Socialist Republics, from elementary school to post-graduate study, is free. In 1964, the expenditure for education under the State budget amounted to 10,700 million roubles, or 11.7 per cent of the total budget expenditure. The State's budgetary expenditure on education in that year was almost five times greater than in the pre-war year of 1940.

5. Experience has shown that on the basis of planning it has been possible to comply fully and adequately with the demand for skilled manpower in all economic and cultural

branches of activity in all the Soviet republics and in all the economic regions of the country. The planned direction of the entire economy has made it possible at every stage of its development to achieve close co-ordination between, on the one hand, the current rate of supply and the long-term requirements in the various kinds of skilled manpower and, on the other hand, the sources from which and the manner in which the demand for skilled manpower is to be met.

6. One of the important questions in the systematic training and distribution of qualified personnel is how to reconcile the needs and interests of society with the needs and preferences of the individual. The choice of an occupation and the particular method of acquiring and improving skills is a matter to be decided by each citizen of the Union of Soviet Socialist Republics individually. Is it possible for this to lead to a wide difference between the demand for specialists of a particular kind and the number of persons desiring to become proficient in that speciality? In practice, this is not possible. The chance of this happening is eliminated through a system of widespread educational and publicity measures, of material incentives and of competitive selection of students for educational institutions from among elementary-school graduates with a good scholastic background and a demonstrated aptitude for the chosen field of work.

7. Every citizen of the Union of Soviet Socialist Republics is from childhood imbued with respect for every type of work that is beneficial to society. The appeals of the Soviet Government for people to learn a new trade and to go to new areas to work meet with a wide response especially among the youth. As these appeals always attract more volunteers than are needed, the authorities select those who are the best-trained. This was the case, for example, with the development of virgin and unused lands in Siberia and Kazakhstan (a total of 35.9 million hectares of such land was tilled throughout the country in the period 1954-1956), with the large-scale construction of new industrial centres in the eastern regions of the country and with the setting-up of a number of new chemical plants, to mention only a few instances. All the expenses incurred by a worker in learning a new trade and in moving to and settling in a new area are borne by the State.

8. The system for the training of skilled workers in the Union of Soviet Socialist Republics enables a citizen to improve his skills or to change his occupation or trade by attending an educational establishment or a series of courses on a full-time basis, by attending night-school or by taking correspondence courses. The acquisition of particular skills by a Soviet citizen depends on his desires, his diligence and his abilities. A system for the training of qualified personnel, which is financed by the State and provides numerous benefits for the trainees, makes it possible for every member of society to discover and fully develop his talents, his personal preferences and his interests.

9. A guiding principle in the systematic training of qualified personnel under the socialist system is that every citizen of the country who acquires or improves a skill is benefiting himself, his family and society as a whole.

10. According to the results of the two most recent censuses, the gainfully occupied population of the Union of Soviet Socialist Republics increased from 78.8 million in 1939 to 99.1 million in 1959, i.e., by 1.3 times. The number of persons having an intermediate or higher education per 1,000 gainfully occupied persons increased during this period by 3.5 times. In 1913, there were only 290,000 persons in Tsarist Russia who had a higher, an uncompleted higher or an intermediate specialized education, but by the beginning of 1963 the number of such persons in the Union of Soviet Socialist Republics had risen to 16.6 million. By the beginning of 1964, 50 per cent of all gainfully occupied persons had a higher or intermediate (general or specialized) education.

11. One of the principal and decisive tasks of socialist society in improving the skills of its citizens is to raise the level of training and education of the workers and peasants, who constitute the main and most massive social force both in production and in every aspect of community life.

12. In Tsarist Russia, there was approximately one illiterate worker for each literate worker, and four illiterate peasants for each literate peasant. By the beginning of 1964, about 44 per cent of the workers and 26 per cent of the members of collective farms in the Union of Soviet Socialist Republics had a higher or intermediate education. The further shortening of the working day and the considerable improvement in living conditions make it possible for a much wider segment of the population to obtain a higher or an intermediate specialized education.

13. As a result of the reorganization of the educational system of the Union of Soviet Socialist Republics in recent years, every gradu-

ate of an intermediate school is assured of an opportunity to acquire occupational skills. In practice, this eliminates any influx into industry of young workers who are unskilled.

14. At the present time, great importance is attached in the training of skilled workers to the training of young persons in vocational and technical schools and institutes. A large part of the enrollment of such educational establishments consists of graduates of the seven-year elementary schools or of students with an uncompleted intermediate education. About 3.6 million persons graduated from these establishments during the most recent five-year period (1958-1962), including 888,000 in the year 1962 alone.

15. Because of the rapid tempo of scientific and technological progress, there is a constant need to improve the skills of the workers who are already gainfully occupied. Only in this way can the workers effectively contribute to the process of production and thereby continuously enrich society and better their own living conditions. In the year 1962 alone, 7,376,000 persons were able to improve their skills through free training on the job or in educational establishments. This number was 4.5 times greater than that in the pre-war year of 1940 and 1.35 times greater than the yearly average for the period 1951-1960.

16. With the advance of science and technology, many professions and occupations become obsolete, and at the same time new work processes come into being which require a considerably higher level of skills for their proper performance. This means that substantial numbers of workers must be trained for other occupations. In the Union of Soviet Socialist Republics, this kind of training is also provided in a systematic way and is financed by the State. In the year 1962 alone, 3,154,000 persons were thus trained for new professions and occupations, either on the job or in educational establishments, this being 1.6 times greater than the number so trained in the pre-war year of 1940, and 13 per cent greater that the yearly average for the period 1951-1961. The relatively smaller increase in the number of persons receiving on-the-job training for new occupations, as compared with the number receiving training in order to improve their skills, is explained by the growing tendency for the former type of training to be provided outside working hours by specialized educational establishments that have night-courses or correspondence courses.

17. Although just before the Great October Revolution the country had 450 intermediate specialized and 105 higher educational establishments, in the 1962-1963 scholastic year it had 3,521 and 738 such establishments, respectively. During the same period, the enrolment in the intermediate specialized educational establishments increased by almost fifty times (from 54,000 to 2,688,000), and the enrolment in the higher educational establishments by more than twenty-three times (from 127,000 to 2,944,000). In pre-revolutionary Russia, night courses and correspondence courses were unknown, whereas in the 1962-1963 scholastic year, over half of the students enrolled in higher educational establishments (56 per cent) and in technical schools (51 per cent) were receiving their training in that way. Arrangements to combine training with active employment in industry involve not only night-courses and correspondence courses but also daytime courses. This is accomplished both by making provision in the educational system for increasingly greater participation in industrial employment by students and by giving preference in the selection of students for enrolment in higher educational establishments and technical schools to those who, other things being equal, have undergone a period of training in industry.

18. At the present time, all three forms of instruction—full-time day courses as well as correspondence courses and night-courses—are relied on for the training of specialists in all branches of economic and cultural activity. Daytime courses to the exclusion of all other kinds are provided only in a limited number of special fields (those requiring a knowledge of theoretical mathematics and physics). The training of specialists for industrial and service occupations is provided in large measure through night-courses, and the training of agricultural specialists is given mostly in the form of correspondence courses.

19. Within the framework of the system for the training of personnel, Soviet society lays great stress on the saturation of the economy with highly qualified specialists in the field of science and technology. In the 1961-1962 scholastic year, the number of students in higher educational establishments majoring in liberal arts courses had increased, by comparison with the 1950-1951 scholastic year, by 52 per cent, but the number majoring in engineering and agricultural subjects had increased by 229 per cent.

20. During the same period, the number of students in universities providing training for scientific and pedagogical professions increased by 129 per cent. The proportion of students

in higher educational establishments majoring in engineering and agricultural subjects rose during this ten-year period from 34 to 52 per cent. The liberal arts courses in which there was the greatest increase in specialist training were education, economics, health and art. In the higher educational establishments of the Union of Soviet Socialist Republics in the 1961-1962 scholastic year, there were for each student of law, thirty-two engineering and agricultural students, twelve education students and four medical students. In the intermediate specialized educational establishments, all training for specialists in the field of law was discontinued as from the 1956-1957 scholastic year. In the 1962-1963 scholastic year, the total student enrolment in the Union of Soviet Socialist Republics exceeded the comparable student enrolment in the United States of America by 30 per cent, and the number of engineers graduating in the Union of Soviet Socialist Republics was three times greater than the number graduating in the United States. These essential differences in the systems of training qualified personnel are a consequence of the basic advantages of the social system of the Union of Soviet Socialist Republics.

21. The training of scientific personnel in the Union of Soviet Socialist Republics is expanding on an ever-increasing scale. In the single ten-year period 1952-1962, the number of scientific workers rose by 2.9 times, amounting in 1962 to 524,500, of whom 120,700 held the academic degrees of doctor of science or candidate of science.

22. The number of graduate students in 1961 had increased, by comparison with the pre-war year of 1940, by almost three times, and the number of graduate students taking correspondence courses, by almost eight times. In 1962, 25,095 out of 61,809 graduate students were taking part-time courses. Graduate studies are pursued both in higher educational establishments and in various kinds of scientific-research institutes. It is characteristic of the current trend that the proportion of students being trained in such institutes is rapidly growing—from 22 per cent in 1940 to 41 per cent in 1962. This is evidence of how the scope of activities of the scientific institutes is expanding and how the training of scientists is being brought into closer contact with the actual solution of the current research problems with which these institutes are concerned.

23. The training of qualified personnel on the broad scale that now exists in the Union of Soviet Socialist Republics can only, of course, be achieved if certain conditions are present. Among the more important of these conditions are leisure or free time, without which any kind of part-time study would be impossible, and a level of well-being that makes it possible to use this time for purposes of study and the improvement of skills. In 1963, the average length of the working week for manual and non-manual workers in the Union of Soviet Socialist Republics was 39.4 hours. By comparison with the pre-revolutionary year of 1913, the working day in 1963 had been shortened by almost four hours in the coal industry and food industry, by three or more hours in the ferrous metal, tanning, fur-dressing and paper industries and by 1.5 to three hours in other industries. Approximately three quarters of the total time available to the workers of the Union of Soviet Socialist Republics is non-working time. The results of sample surveys have shown that at least 15 to 20 per cent of this time (two to three hours of every working day) is free time, that is, time devoted to study and the improvement of skills, self-education or recreation.

24. The reduction of working hours in the Union of Soviet Socialist Republics is accompanied by a rise in the real income of the workers. By comparison with pre-revolutionary levels, the real income of manual workers in 1963 had risen by 5.9 times, and the real income of peasants by more than seven times. The plans being made in our country for a further reduction in the working week and the continuing rapid improvement in living conditions are creating extremely favourable conditions for further expanding the training of qualified personnel.

25. Socialist society, being free from unemployment, ensures the full utilization of the entire gainfully occupied population and the efficient and complete utilization of qualified personnel. A decisive factor in the systematic distribution of qualified personnel among the various branches of the economy and among the various republics and economic regions is the systematic manner in which such training is organized in the particular industries and territories.

26. One of the important problems of population distribution that is being solved in the Union of Soviet Socialist Republics is the systematic accelerated growth of population in the eastern areas of the country, where there is an abundance of natural resources but the population density is low. In the period between the two most recent censuses (1939-1959), the population of the Union of Soviet Socialist Republics as a whole rose by 9.5 per cent.

However, in the Far East, it rose by 62 per cent, in the Kazakh Soviet Socialist Republic by 53 per cent, in Eastern Siberia by 36 per cent, in the republics of Central Asia by 30 per cent, in the Ural region by 35 per cent, and in Western Siberia by 28 per cent. The same trend was characteristic of the distribution of trained personnel. Whereas during this same period the number of persons with a higher or intermediate education increased in the Union of Soviet Socialist Republics as a whole, by 3.7 times, it rose in the Kirghiz Soviet Socialist Republic by 9.8 times, in the Tadzhik Soviet Socialist Republic by more than 10 times, in the Turkmen Soviet Socialist Republic by 6.6 times, and in the Kazakh Soviet Socialist Republic by more than 5 times. These figures give a clear idea of the progress made in eliminating the economic and cultural backwardness of the people of the formerly underdeveloped outlying areas of Tsarist Russia.

27. In 1939, the number of persons with a higher or intermediate education per 1,000 population was 83 in the Russian Soviet Federative Socialist Republic, 67 in the Urals, 54 in Western Siberia and 66 in Eastern Siberia. In 1959, the corresponding figures were 282 in the Russian Soviet Federative Socialist Republic, 258 in the Urals, 243 in Western Siberia, 249 in Eastern Siberia and 299 in the Far East.

28. A dominant factor in the steadily growing supply of trained personnel in the eastern regions of the country is the rapid expansion in the number and enrolment of the educational institutions being established there. In the territory of what is now Kazakhstan and the Soviet republics of Central Asia, there was up to the time of the October Revolution not even one higher educational establishment and only eight intermediate specialized educational establishments. In the 1961-1962 scholastic year, there were in these republics 75 higher educational establishments with an enrolment of 255,200 and 296 intermediate specialized educational establishments with an enrolment of 206,900. It is thus apparent that local training has been the principal and decisive means of supplying the highly qualified personnel needed by these areas. An important role is also still played by the personnel who are systematically sent to Siberia, Kazakhstan, Central Asia and the Far East from the western and central regions of the country.

29. The distribution of skilled industrial, construction, transport and communications workers and of farm-machine operators who have received some form of training is determined in the Union of Soviet Socialist Republics on the basis of where these workers reside. They may be transferred to other areas only if they are willing. For this reason the redistribution of workers and farm-machine operators among the different territories of the country and different branches of industry is effected on the basis of general appeals. This method, which has been warmly supported by the entire population and especially by the youth, provides a satisfactory solution to the problems of efficient manpower distribution. Its effectiveness is enhanced by the ordinary type of population migration, which is directed to the areas where the manpower need is greatest. In the branches of industry and the regions in question, the State endeavours to provide housing, cultural and other facilities at a faster pace than it does elsewhere.

30. Part-time students who graduate from higher and intermediate specialized educational establishments may also continue working in the undertaking where they are employed. If at the time of graduation no suitable work is available in that undertaking, or if they are unwilling or unable to look for suitable work in the area where they reside, they apply to one of the State committees for the distribution of young specialists, which is then required to offer them a choice of employment suited to their speciality and qualifications in some other part of the country.

31. The distribution of full-time students graduating from higher and intermediate specialized educational establishments is the responsibility of State committees composed of representatives of higher educational establishments, undertakings, planning bodies and students' organizations. The young specialists are assigned to specific areas only with their consent and are given an opportunity to familiarize themselves with these areas before they go there. An indispensable condition in this process is that there be a wide choice of assignments. A large proportion of the graduates of higher educational establishments and, even more so, of technical schools continue to work in the areas where they reside, for the geographical distribution of facilities for the training of qualified personnel is becoming increasingly responsive to local needs. At the same time, many specialists—and especially those who have studied in the long-established university centres, such as Moscow, Leningrad, Kiev, Kharkov and Tomsk, where the number of specialists being trained far exceeds the local demand—go to work in other parts of the country, particularly the eastern regions. The law prescribes that specialists who, after their

training, go elsewhere to live must be provided with comfortable living quarters; not only they, but also the members of their families accompanying them, must be given work suited to their skills. Both the government authorities and the central organizations of undertakings and institutions in the places where the young specialists go to work are anxious to create conditions that are highly agreeable to them so as to induce them to stay. As a result, a large proportion of the newcomers permanently settle in their new places of residence and do not express any desire to return to where they formerly lived.

32. The vastness and efficiency of the system for the training and distribution of trained personnel enables our country to co-operate actively with other peoples and countries in the training of skilled workers. The Union of Soviet Socialist Republics is thus cooperating in one way or another in this field with more than 100 States. The technical and economic might of the Union of Soviet Socialist Republics enables it to furnish extensive aid to other countries in the training of qualified specialists, and especially to those nations which have fairly recently started out on the road of independent political and economic development. The emissaries of those countries have come by the tens of thousands to study in the educational institutions, scientific institutes and industrial undertakings and on the collective farms of the Soviet Union. An international institute of higher learning, the Patrice Lumumba Peoples' Friendship University, was recently opened in the Union of Soviet Socialist Republics, and even by 1963, when it was still far from being fully developed, it already had an enrolment of more than 2,000 students pursuing an extremely wide range of courses.

33. The most important form of aid to other countries is the training of skilled workers in those countries themselves through on-the-job training in industry, transport and construction and through the construction there by the Soviet Union of educational institutions fitted out with laboratory and teaching equipment furnished by us. We are convinced that economic aid is really worthwhile only if it is free from all kinds of political conditions and only if it opens the way for the manufacture and export of goods produced by skilled workers drawn from the local population. This is why the Soviet citizens who go to other countries to help them in the construction and assembly of various kinds of facilities regard it as an indispensable part of their work to train qualified personnel who will be able to ensure the uninterrupted and efficient operation of these facilities by their own efforts.

34. International co-operation in the field of training can and must become an important means of strengthening the bonds of friendship between all peoples. The great success of our country in raising the cultural and educational level of the masses constitutes a firm basis for our ever-growing and ever more fruitful participation in such co-operation on behalf of the peace, independence and well-being of all peoples.

35. In the very first days after the victory of the October Revolution, V. I. Lenin, the founder and leader of the Soviet State, made the achievement of universal literacy a prime objective. This objective now having been attained in the Union of Soviet Socialist Republics, another objective differing only in quality is being pursued—the achievement of universal higher education by the Soviet people. Our country is building communism, a society in which there can be no unskilled work and no unskilled workers. Today, every fourth person in the Soviet Union is included in some form of training. This is the basis on which in the near future we shall successfully solve the task of universal higher education, the task of the formation of man in communist society.

The effect of educational improvement on fertility trends in Latin America

ROBERT O. CARLETON

1. Because of the meagre data available[1] on the current statistical relationship between education and fertility in Latin American countries, an essentially qualitative approach has been adopted in this paper. The literature on the decline of fertility in the countries of already reduced fertility is reviewed from a sociological point of view with an eye to specifying the functional significance of the important role almost universally assigned to education as a determinant in this decline. An attempt is then made to sketch the applicability of these relationships to future fertility trends in the social and economic context of late twentieth century Latin America.

2. It is a generally accepted hypothesis among workers in the field of fertility that many factors, rather than one single factor, such as education, are responsible for the historical decline in fertility. It has also been widely noted that these presumed causal factors are generally related to one another as well as to fertility. Sauvy, for instance, asserted that within the well-established general link between (economic) development and the limitation of family size, it was too difficult to determine the predominant factor, because they were too closely connected.[2] Du Bois maintained that no one factor, *per se,* is the most significant variable, but, rather, is access to something she calls the modernization complex, "... the modernization complex, the revolution of rising

[1] Aside from a fertility survey carried out by the Latin American Demographic Centre and others in Greater Santiago in 1959, the only direct evidence available on educational differentials refers to Puerto Rico. In the Santiago survey, the average number of children ever born to ever-married women aged 35 to 50 years, with at least four years of higher education, was found to be 46 per cent less than for women with no more than one year of primary education, i.e., 2.36 children *versus* 4.41. See Léon Tabah and Raúl Samuel, "Preliminary findings of a survey on fertility and attitudes toward family formation in Santiago, Chile", in *Research in Family Planning,* Clyde V. Kiser, ed. (Princeton, N.J., Princeton University Press, 1962), p. 200. Data from the 1950 Puerto Rican census on children ever born to all women, tabulated simultaneously by age, years of school completed and urban and rural residence, because of their greater detail, are cited here in preference to 1960 census data. See United States Department of Commerce, Bureau of the Census, *Fertility by Social and Economic Status for Puerto Rico: 1950,* Series PC-14, No. 21 (Washington, D.C., Government Printing Office [1954?]), table 2. Characteristics of the very clear pattern shown by these data are as follows: (*a*) differentials between the lowest and highest educational groups are very pronounced, and the differential stabilizes after age 25, beyond which women with at least some higher education consistently have about 75 per cent fewer children than women with no education at all; (*b*) these differentials are really educational differentials and not merely urban-rural differentials masked by the greater proportion of rural women (with their higher fertility) in the lower educational brackets, as the differentials are almost as great in the urban and rural zones taken separately as among all women, and in the case of both urban women and rural women with some higher education, fertility is about 70 per cent lower than for their counterparts without education; and (*c*) of potentially great significance is the finding that very little change in fertility is brought about either by the first seven years of education or by higher education. In most age groups about three quarters of the differential occurs in the transition from four to seven years of school to twelve years of completed schooling. To determine whether there exist educational fertility differentials in the nineteen countries for which direct evidence is not available, recourse was had to indirect evidence. If there is a negative correlation between a country's level of fertility and its level of education (that is to say, if the correlation exists between countries), there is some basis for supposing that this association is also found within countries. In figures prepared by the United Nations Economic Commission for Latin America, estimates of the crude birth rates for the period 1945-1950 were ranked alongside the percentage of the adult population with less than one year of completed schooling for the eighteen republics with population censuses taken around 1950. See Latin American Demographic Centre, "Análisis demográfico de la situación educativa en América Latina", document prepared for the Conference on Education and Economic and Social Development in Latin America (Conferencia sobre Educación y Desarrollo Económico y Social en América Latina), held in Santiago, Chile, in March 1962. From the rank orders, it can be clearly seen that the countries with lowest fertility have the smallest proportion of their population without education; and, conversely, the countries with the highest crude birth rates have a very high proportion of uneducated persons. However, several intermediate countries (Bolivia, Costa Rica and Paraguay) do not fit well into this pattern. It is difficult to say whether this might be owing to the crudeness of the fertility estimates, to the inappropriateness of the educational index selected, or to an essentially imperfect correlation.

[2] Alfred Sauvy, *Théorie générale de la population,* vol. II (Paris, 1954), p. 226.

expectations, economic development, and a political system that permits a more equitable distribution of goods are all intricately meshed . . .".[3]

3. In the analysis of past trends in fertility, it is often sufficient to identify the various relevant factors and merely to observe how complex is their interrelationship. The examination of the effect of these factors on future trends, however, requires that the interrelationships be more clearly specified. This is what Jaffe has done in considering future tendencies of fertility in Puerto Rico, when he noted, first, that the practice of family planning required: (*a*) that people be motivated to have fewer children; (*b*) that contraceptive material be at their disposal; and (*c*) that they have sufficient formal education to be able to use the material efficiently.[4] He noted further that "formal education, urban life and other factors combine with expanding economic opportunities" to produce "heightened aspirations", thus motivating people to limit the size of their families.[5]

4. In the perceptive functional analysis which he made of these series of factors, Jaffe was implicitly working with certain different kinds of interrelationships whose importance was such as to warrant formal development here. Three types of relations are distinguished:[6]

Type A: factors acting together to produce an interdependent, joint effect;

Type B: independent, but simultaneously acting, factors functionally interrelated either with each other or with a third factor in such a manner that the full presence of one of these factors is conditioned upon the presence of the other;

Type C: functionally unrelated factors acting to produce an independent, although simultaneous, effect.

5. The importance of this typology for a consideration of the future effect of a strengthening of any one factor—for example, education—should be made clear. Only if the interrelationship between education and other factors affecting fertility were of type C would it be practical to concentrate upon a programme of educational expansion with an expectation that the full effect of this factor upon fertility would be experienced. If education had a type A relationship with one or more other factors so that their effect was a joint one, then the effect of education would be experienced only if these other factors were also operating. Finally, if a type B relation prevailed between education and other factors, e.g., if a full-scale educational expansion were feasible only under conditions of concomitant urbanization and/or intensive economic development, then education could exert its independent effect to a limited extent only, unless these other factors were likewise present.[7]

6. Turning now to the series of factors taken from Jaffe, the first of these illustrates type A, since each of the factors—motivation, available contraceptive material and formal education—are interrelated in the sense that the presence of all three factors is required in order for the effect of any one to be produced. The effect which any one of these factors can have without the joint action of the other factors is very limited.[8] In terms of the categories of the social action framework—ends, means, norms and conditions—the changed motivations refer to the ends, the contraceptive materials to the means and the ignorance of illiterate persons to the conditions which formal education can overcome by converting into means. From this point of view, the three factors taken from Jaffe are seen as the necessary, but not the sufficient, condition for the practice of family planning. Norms must also prevail which permit the utilization of effective means; also, as will be seen below (paragraph 18), other conditions unfavourable to the practice of family planning may exist.

7. In the second series of factors mentioned by Jaffe, expanding economic opportunities

[3] Cora A. Du Bois, "Socio-cultural aspects of population growth", in *Human Fertility and Population Problems*, Roy O. Greep, ed. (Cambridge, Mass., 1963), pp. 258-260.

[4] A. J. Jaffe, *People, Jobs and Economic Development* (Clencoe, Ill., Free Press, 1959), p. 11.

[5] *Ibid.*, p. 10.

[6] The typology presented here does not pretend to be exhaustive. In the first place, it refers only to relations between pairs of factors. If more factors were included, the number of different types possible would multiply according to the number of possible different combinations of each factor with every other factor. New cases would also result from making a distinction among related factors according to whether or not one or both of them were replaceable by functionally equivalent factors.

[7] It should be borne in mind that these cases are limiting types. In actual fact, a hard and fast distinction often cannot be made between functionally related and functionally unrelated factors; frequently, the distinction will be largely a matter of degree. Similarly, the distinction between independent and joint effect will often be arbitrary, since factors can have an effect that is partly joint and partly independent, and the proportion with which it is the one or the other may vary.

[8] The discussion is necessarily over-simplified because of limitations of space. To the extent that motivation is very high, other methods of birth control, such as abortion and deferred marriage, are possible. Furthermore, with some of the newer control devices, the requirement of formal education is much less important.

appear to be a necessary condition for the heightening of aspirations. Its effect, whether paired with education or with urban life, is largely a joint one and consequently falls into type A. Educational improvements, for example, cannot be expected to influence greatly the level of effective aspirations (aspirations, that is, which people make serious efforts to achieve) unless expanding economic opportunities make it possible for higher aspirations to be realistically entertained.

8. The other two factors in this series—education and urban life—conveniently serve to illustrate the difference between type B and type C. The independent effect of these factors is demonstrated by evidence cited by Jaffe[9] and indicating that in Puerto Rico more education is associated with lower fertility even among rural women. Whether the relation is type B or type C, therefore, depends upon whether their simultaneous operation (historically observed in the case of the countries that have already achieved reduced fertility) is to be considered functionally necessary (type B) or merely chance (type C). Although urbanization is sometimes said to be progressing more rapidly than economic development and educational expansion in the developing countries, there are important reasons for believing that, as Jaffe pointed out, neither education nor urbanization can ordinarily proceed very far without prior development of the economic base. Besides, the large difference between urban and rural costs of education make it extremely probable that substantial educational progress is contingent upon progress in urbanization.

9. Thus far what has been considered are two series of factors presented by Jaffe as being decisive for the future course of fertility in a developing country like Puerto Rico. His method of analysis has also been formalized above. The interest here, unlike that of Jaffe, has been the effect of one single factor, education. By way of summing up, it may be said that the role of education alone in these two series of factors must be negligible. If education is an important factor in producing the heightened aspirations which motivate smaller family size, other factors—some having a type B relationship with education (urban life) and some a type A relationship (expanding economic opportunities)—are necessary conditions for education to have more than a very modest effect on aspirations. Furthermore, motivation alone is not sufficient; factors other than education must be in operation if any change in fertility patterns is to be expected.

[9] Jaffe, op. cit., p. 181 *et seq.*

10. In accordance with the exclusive concern of this paper with the effect of education, a survey was made of the literature on the historical decline of fertility in the countries of reduced fertility, in order to learn how the effect of education has been visualized by various writers and investigators. A surprisingly large number of different kinds of effects were discovered. Although these relations—as is generally the case with the determinants of fertility—are all stated in the form of largely unverified hypotheses, the usefulness of considering each of these factors with respect to its place in the interrelationship typology used in this paper, in order to assess better their possible effect on future fertility trends, seems apparent. All together, ten different hypothetical effects relating education to fertility are specified. All except the last three affect motivations and, therefore, refer to the category of "ends" in the social action framework.

11. The remaining pages of this paper consist of a listing of the effects, followed by an exploratory and necessarily very sketchy discussion of the typological relation of each of these to other (non-educational) factors affecting fertility:

Education affecting the ends of social action:

- (*a*) Education as stimulant of social mobility aspirations;
- (*b*) Education as social mobility channel;
- (*c*) Education as stimulant of consumer aspirations;
- (*d*) Education as stimulant of puericulture;
- (*e*) Differential class values in education;
- (*f*) Cost of education to parents as discourager of large family practices;
- (*g*) Religious (Catholic) education with high value on large family goal;

Education affecting the norms of social action:

- (*h*) Religious (Catholic) education instilling norms against use of contraceptives;

Education bearing on conditions obstructing family size ends:

- (*i*) Education converting condition of ignorant minds into means capable of using contraceptives effectively;
- (*j*) Education, by making husband and wife articulate, converting condition of pluralistic ignorance into means of sharing ends.

12. Item (*i*) on the list is identical with the third factor in Jaffe's first series of factors; its interrelationship with other factors has already been indicated. Likewise, it may be supposed that items (*a*) and (*c*)—education as a stimulant of social mobility aspirations and of consumer aspirations correspond to Jaffe's

"heightened aspirations". Although these two kinds of aspirations may often fuse together, they have had very different histories in the first countries to industrialize, where the attraction of consumer goods was of secondary importance in motivating thrifty, ascetic, capital-amassing *entrepreneurs* and would-be *entrepreneurs.*

13. Item (*b*), education as a channel for social mobility, is mentioned more in the literature on social stratification than in that on fertility. It belongs in Jaffe's second series of factors, alongside of expanding economic opportunities, in that it gives a touch of realism to the aspirations that parents may formulate for their children in response to their exposure to urban life and to their own usually lesser education. Like item (*a*), it belongs mostly in type A, since effective aspirations are not likely to be generated by educational opportunities unless accompanied by the more indispensable factor, expanding economic opportunities.[10]

14. Item (*d*), puericulture, to use the expression popularized by Sauvy,[11] refers to the change in attitude from "quantity" to "quality" in the raising of children. While formal education undoubtedly is a necessary condition for the development of a flourishing puericulture, as it enables parents to understand the potentialities of their children and provides them with an important means of assistance in the cultivation of these potentialities, at least two other apparent functional prerequisites having a joint type A relationship with education can be distinguished: (*a*) a dynamic economy in which the skills of tradition and of experience become rapidly outmoded so that a premium is placed upon youth; and (*b*) a family structure in which the responsibility for raising children is clearly specified instead of being diffusely located in the extended family (as is so common in Latin America). Educational improvement by itself is not likely to have a great effect on fertility in this respect.

15. Item (*e*), differential class education, is adopted from Sauvy,[12] who observes that the beginning of the historical decline of fertility —at least in France—was associated with such characteristics as class and was largely non-economic in motivation, being prompted by such considerations as the desire for a *taille svelte* and the avoidance of long and painful deliveries. If upper- and middle-class values in Latin America currently favour controlled fertility,[13] then an expanded educational programme with a largely middle-class orientation could apparently have some effect on fertility motivations, independently of structural changes in the economy. This independent effect is in the main irrealizable, however, because of the type B functional interrelationship between economic development and the financing of any substantial expansion of educational facilities.

16. The cost of education to parents, item (*f*), along with other factors (e.g., non-farm residence and legislation against child labour) which make children an economic burden instead of an asset, has been widely mentioned as one of the factors responsible for reduced fertility in modern societies. In this respect, educational improvements, like other measures which penalize parents with large families, would tend to induce family planning motivations among those social classes which would be most likely to have something in terms of which, at least, they could be penalized. The extension of education in the developing countries, however, generally requires that this penalization be mitigated by such measures as free or partially subsidized tuition, transportation, lunches etc. The expensiveness of this kind of educational programme underscores once again the type B functional interrelationship between large-scale educational expansion and an expanding economic base.

17. Since the decline of fertility in southern (Catholic) Europe after the Second World War, less importance is attributed to the high fertility values and norms instilled by Catholic religious education as noted in items (*g*) and (*h*). This tendency is undoubtedly reinforced by changes in attitude manifested at the Ecumenical Council. None the less, of the three high fertility regions of the world (Africa, Asia and Latin America), Latin America is one in which the role of the Catholic Church cannot be safely ignored. One must at least raise the question whether "educational improvement" refers exclusively to secular education or assumes an equal expansion of secular and Catholic educational facilities. The possible effect of an expansion of Catholic education is a difficult area in which to hypothesize. The post-war experience of southern Europe, however, suggests that economic and social development do not provide a very fertile ground for the cultivation of traditional Catholic values

[10] One would hypothesize to find lower fertility among the cases represented by the exodus of highly-trained specialists and experts from Latin America and by the frustrated white-collar aspirations in India of people educated for such positions, of which the supply is far smaller than the demand. But they comprise too tiny a fraction of the total population to have any effect on over-all fertility trends.

[11] Sauvy, op. cit., p. 123.

[12] *Ibid.*, p. 122.

[13] To what extent this is the case is a matter for empirical investigation country by country.

and norms with respect to fertility. For this reason, these items are tentatively classified as having a joint inverse type A relationship with economic development.

18. Item (*i*), the effect of education in overcoming the condition of inability to use contraceptives effectively, has already been discussed. It was stated above (paragraph 6) that other conditions unfavourable to the practice of family planning may exist. One such is item (*j*), the condition of pluralistic ignorance observed by Stycos,[14] who found that many husbands and wives, in his sample in Puerto Rico of couples with little education, really wanted to have fewer children, but were prevented from taking action because of the mistaken belief that the other spouse would be strongly opposed. Couples were not in the practice of discussing their views on such a delicate matter, presumably because their lack of education rendered them inarticulate. The implication of this finding is that educational improvement would overcome this condition by improving communication between husband and wife. In order to evaluate the importance of the finding, one would need to know: (*a*) whether the process of economic development and other related factors had already advanced far enough in Puerto Rico by the early 1950's to have brought about a modification in fertility motivations (type A relationship between education and economic development); or (*b*) whether feelings and taboos relating to sexual potency are universally strong in developing countries, with the consequence that pluralistic ignorance is a general condition because no one dares to speak his mind (and often even think it) on the subject (type B functional relationship between educational expansion and economic development).

[14] J. Mayone Stycos, *The Family and Fertility in Puerto Rico* (New York, 1955), chap. VI.

Conclusion

19. The principal conclusion to be drawn is that none of the various ways in which education can affect fertility is completely independent of progress in economic development (type C). Some of the effects are type A (act jointly with economic development), and others are type B (economic development required for the financing of any sizable programme of educational improvement). With respect to effects falling into type B, it must be pointed out that structural economic changes are not in themselves required. A possible alternative is an accelerated programme of educational expansion (completely neglecting economic development for the moment) financed by foreign funds and sponsored, for example, by the United Nations Educational, Scientific and Cultural Organization.

Effect of education on fertility

KUMUDINI DANDEKAR

1. In discussing the cost benefits of education, a distinction is often made, in the literature on the economics of education, between direct benefits to individuals, owing to education, in money terms and the non-marketable benefits to the individuals, as well as to the local society. These latter seem to include the new outlook, the freedom from tradition, the willingness to analyse institutions, the values and patterns of behaviour, and the growth of rationalism that come with education. It is with this new outlook that education seems to have an effect on fertility. It is very difficult to attribute the changes in fertility to one or a few specific countable factors, there being a whole complex of factors that may have an effect on the extent of fertility. Education has been found recently to be an important factor in affecting economic development and because of this it is associated with all the factors that go with economic development, e.g., urbanization etc. With the tools currently available, it may not always be possible to determine the precise contribution of each of these in affecting fertility. In the present paper, in discussing the effect of education on fertility, no account is taken of any other factors.

2. With regard to the effect of education on fertility, it is intended to scrutinize two kinds of data. The first kind includes data regarding educational levels and fertility for forty-nine countries of the world. These are analysed in the first half of the paper. In the latter half of the paper, relevant data from individual countries are set out to find the effect of education on fertility. In order to obtain the relationship between education and fertility, it was necessary to select an index of measurement of education and fertility. Education need not necessarily mean just school or college education. It may cover a wider field of technology, innovation etc. The number of years of schooling is a good index of education, but the years of schooling are not standardized and the data are not available. Hence, it was decided to take three indices for education, as given below, data for which are available from the *World Education Survey*:

(*a*) Primary enrolment ratio as in 1950-1954;

(*b*) Primary enrolment ratio as in 1930-1934;

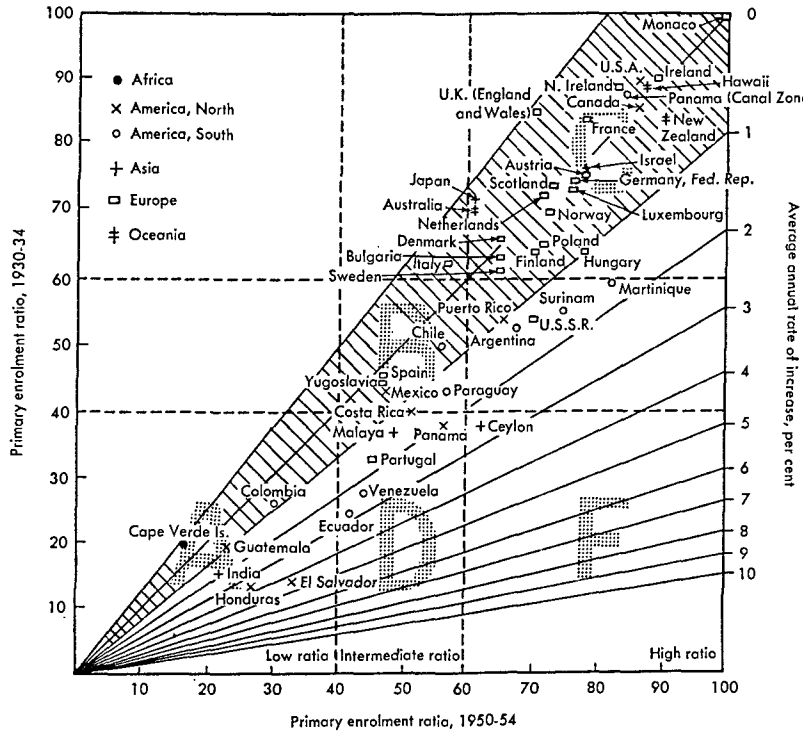
(*c*) Secondary enrolment ratio as in 1950-1954.

3. In presenting these data for various countries in the *World Education Survey*, the authors have made the data as comparable as possible. For studying the correlation between education and fertility, it was believed that the three indices mentioned above were not of equal merit. If the primary enrolment ratio as in 1950-1954 was used as an index of education to examine its effect on fertility in 1950-1954, the level of literacy attained was comparatively too recent to show any effect on fertility. In fact, the literacy level in any country had to attain some maturity before it could show its effect on fertility, and it was worth while finding the time lag necessary so that the effect could be detected. One way to find out the lag was to analyse the data for individual countries where the fertility of different cohorts of women defined by their age could be examined along with their level of literacy. This kind of analysis demanded data for cohorts of women of different ages regarding their level of education and their rates of fertility. These were not often available. Further, even when they were available, they were likely to be for countries that had attained a high level of economic development in the remote past, so that their applicability for countries currently on the way to economic development was limited. Hence, two other indices of education, namely, the secondary enrolment ratio as in 1950-1954 and the primary enrolment ratio as in 1930-1934, were used, as these were supposed to allow for the maturity of educational level attained. The secondary enrolment ratio was obtained by relating the total secondary enrolment to the population of age group 15-19 years. It was expected that the enrolment in secondary education was related to the enrolment in elementary or primary education and would go on increasing even after attainment of the maximum level in primary education and hence could be used as a better index. The other index used was the primary enrolment ratio of 1930-1934, to be correlated with the fertility index of 1950-

1954. The relevant data could be collected for forty-nine countries.

4. As for the index of fertility, the crude live birth rates, approximately for the years 1950-1954, as obtained from the *Demographic Yearbook, 1960,* were taken. For countries that had under-registration of births of a known order, the data were corrected. Countries that were known to have under-registration, but for which the order of under-registration was not known even approximately or was not estimated, were dropped. That is why it was possible to deal with only forty-nine countries. It is not the contention, however, that these forty-nine countries do not have any under-registration. However, the data for them do not seem to have gross errors. Linear regression lines were fitted for the three indices of education to find their effect on the crude live birth rate of 1950-1954. The values of the correlation coefficients were found to be respectively —0.51, —0.64 and —0.62 for the primary enrolment ratio in 1950-1954, the secondary enrolment ratio as in 1950-1954 and the primary enrolment ratio in 1930-1934 with the fertility rate in 1950-1954. The values of correlation coefficients show that the use of indices of education, making allowance for maturity of education, probably bring out the correlation between education and fertility in a better manner. If all the three indices were taken together to determine the multiple correlation between education and fertility, the correlation coefficient was found to be —0.67. The multiple correlation between the birth rate in 1950-1954 with the primary enrolment in 1930-1934, the percentage increase in the primary enrolment during 1930-1934 to 1950-1954 and the enrolment in secondary education during 1950-1954 had a value of —0.79.

5. A graphical presentation of the forty-nine countries in the chart that is given below



Primary enrolment ratio for the periods 1930-1934 and 1950-1954 and average rate of increase of the ratio for selected countries

shows the countries arranged according to their level of primary enrolment as in 1950-1954 on the x axis and that in 1930-1934 on the y axis. The countries can be ranked according to the rate of change in their primary enrolment ratios during the twenty years 1930-1934 to 1950-1954, with the help of the sloping lines in the graph, which mark areas with various levels of change in the period of twenty years under study. The countries in the areas marked *A*, *B* and *C* are stable in their educational level during the twenty years under consideration

and they are nearer the diagonal representing no change in the level of enrolment in primary education, though *A* includes countries stable at a low level, *B* at a medium level and *C* at a high level of literacy. The further the countries are from the diagonal showing no change, the larger is the change in their educational level during the twenty years before 1950-1954. The graph clearly indicates the countries that are in transition and those that are progressing with extraordinary rates, as differentiated from countries with a high and mature level of education. The crude live birth rates in 1950-1954 for countries lying in *A*, *B* and *C* are found to be 46.4, 37.4 and 23.5, respectively. For countries in *D* and *E*, they are 38.9 and 33.4, respectively. Ceylon, the only country in *F*, has a birth rate of 39.6 for 1950-1954. The decreasing levels of fertility in *A*, *B* and *C*, as well as in *D* and *E*, show the effect of education on fertility.

6. Thus, there are clear indications of the close relation between education and fertility. Going into the data for individual countries, it can be shown from a number of studies that the higher the level of education of persons, the smaller is the number of children born to them in those countries. The differences in fertility between the highest and the lowest levels of education are, however, expected to shrink as the knowledge regarding fertility gradually spreads to all strata of society. This may also be accompanied by a shrinkage in the differences of educational levels in the various social groups.

7. In certain situations, however, it may not be possible to find a regular declining trend in the crude fertility rate, with the rising level of education. This may simply mean that the effect of education on fertility is seen only among the highly educated and is yet to spread to the lower levels of education. This may be found to be the case in India and similar countries, where the idea of fertility control has not yet begun to spread to groups with a low level of education, though it has been picked up by the highly educated.

8. To illustrate what has been stated above, the data for Great Britain, India and the United States of America are presented here. For Great Britain, the figures are from the Royal Commission Report on population for women that married during 1920-1934. Here, among the non-manual workers, the number of children was 2.29 for parents both of whom had a level of education not higher than elementary, and only 1.75 when both parents had higher education than elementary. Among the manual workers, the corresponding respective numbers of children were 2.80 and 2.23. Obviously, in both categories of workers, the number of children decreased with a rising level of education.

9. In the United States of America, according to the expected fertility for white women in 1960, women with college education and those with four years of high school education were expected to have three children, while those that have one to three years of schooling in high school were expected to have 3.3 children.[1] Those with grade school education were expected to have 3.7 children.

10. Generally, the data for Great Britain and the United States of America showed a regular declining trend in fertility with rising level of education. In fact, this has been the situation in those countries for a long time, but it may not always be so for samples of populations surveyed in India. This is especially true for data referring to the earlier part of the decade (1951-1961). The surveys conducted in Poona district, in the urban and non-urban areas, and those conducted in Mysore State during the earlier part of the decade did not show appreciable change in the number of children as the level of education rose. For instance, in the city of Poona, a slight decline in the number of children occurred only when women had completed high school education. In the non-urban sample, no such association was observed. In the Mysore population study, the number of children of women aged 45 ranged between 5.3 and 5.5 for the illiterates and for those that had schooling of seven or less years. In this study, women with high school or higher education had 3.9 children. Though a part of this difference could be explained by the differences in the age at marriage, there was some decline in the number of children that could be attributed to differences in the level of education. In the sixteenth round of the National Sample Survey in 1960-1961, women aged 47 years had borne 6.6 children. For women completing seven to eleven years of schooling, the number of children was between five and 4.6. Women with a university education had two children. Thus, it can be observed that the association between education and fertility was small at the beginning of the decade, but at the end of the decade the association seemed close, as shown by the data from the National Sample Survey.

11. Reasons for observing the trends as above are quite obvious. The knowledge regarding contraceptive practice also shows

[1] United Nations, "Conditions and trends of fertility in the world", *Population Bulletin*, No. 7 (United Nations publication, Sales No.: 64.XII.2).

similar trends. In non-urban areas of the Poona district surveyed in 1951 and in the six rural communities surveyed in 1953-1954, there seemed no association between education and the knowledge regarding contraceptive practice. The case was similar in rural areas surveyed in the Mysore population survey. On the other hand, in the city of Bangalore in the Mysore study, the proportion of women knowing about contraceptive practice, though low even in the highly educated classes, showed a decreasing proportion with the declining level of education. In the sixteenth round of the National Sample Survey in 1960-1961, there was a regular increase in the percentage of men and women knowing about contraceptive practice as the level of education went up, as noted in the table given below:

Percentages of husbands and wives in the National Sample Survey and of wives in the Bombay Clinics Survey knowing about contraceptive practice, by educational categories

Level of education	*National Sample Survey*		*Bombay Clinics, wives*
	Husbands	*Wives*	
Illiterate	60.6	63.5	46.5
Below primary	64.1	77.5	—
Primary	71.9	84.7	72.3
Middle	79.4	91.1	72.6
Completing high school	87.7	94.2	84.5
Two years of college	92.8	96.7	87.5
University graduates and above	95.6	96.9	

12. Recently, for certain developing countries like India, special efforts have been made to raise the level of education in order to speed up the economic development. Here the growth of population itself is so large that even maintaining the current enrolment ratios for increased populations is difficult. Hence, it has been a formidable problem to raise the enrolment ratios. It means that fertility has begun to affect the level of education. This almost seems like the cart drawing the horse.

Some demographic and economic aspects of Central American education and their implications for the public administration of education

KARL T. HEREFORD

1. The purpose of this paper is threefold: (*a*) to summarize briefly the salient demographic and economic characteristics of education in Central America; (*b*) to assess the capability of educational institutions there to produce an economically useful output; and (*c*) to identify promising avenues of public action that may enlarge the capabilities of these institutions.

2. The data included here are limited principally to those produced during 1962-1965 by two new regional research bodies in Central America: (*a*) the Human Resources Study Group of the Consejo Superior Universitario Centroamericano (CSUCA); and (*b*) the Instituto de Investigaciones y Mejoramiento Educativo (IIME) of the University of San Carlos of Guatemala.

INTRODUCTION

3. Each of the five Central American nations formally embraces the concept of universal education. Each subscribes to it as public policy and defends that policy in terms both of socio-political theory and of economic necessity.

4. The nations' schools and universities have never succeeded, however, in making education universal. In general, ruling groups have not given high priority to education.[1]

5. Now that the nations are individually and collectively engaged in serious programmes of economic development, many Central Americans are concerned lest the educational systems fail to produce the number of literate and technically proficient persons required for economic development. Relevant and dependable data are just now emerging in a form which permits description and measurement of the capabilities of education systems in Central America. The first of these data, herein summarized, tend to justify the evident concern of Central American authorities for their school and university systems. Careful examination of the data, however, has prompted at least one responsible study group to conclude that substantial improvements in education are both possible and feasible, given the appropriate socio-political behaviour in the five nations.[2]

THE STATUS OF EDUCATION IN CENTRAL AMERICA

6. Most children in Central America do not attend school. Only one of two eligible children enrols in primary school. Only one of sixteen attends a secondary school. Only one of 1,000 enters upon university-level studies.[3]

7. Moreover, of those who enter, most fail to complete the programmes that are available to them. Of the children initially enrolled in elementary school: less than one-half complete first grade and pass to the second; only one pupil of four completes as many as four grades of study; and only one of ten completes six grades.[4]

8. At the secondary school level, only one child in sixteen enters; of these only one in six completes a standard five-year programme (*bachillerato*); and only one in twelve a six-year technical curriculum.

9. As an example, consider the 451,735 children who were enrolled in first grade in 1958. Of these:

(*a*) 227,866, or 50 per cent, passed to second grade in 1959;

(*b*) 93,279, or 21 per cent, passed to fifth grade in 1962;

(*c*) 53,279, or 12 per cent, passed to seventh grade in 1964;

(*d*) 18,246, or 4 per cent, will pass to eleventh grade in 1968;

[1] The exception is Costa Rica where, despite limited public resources, high priority has consistently been given to education.

[2] Pablo Lacayo *et al.*, *La Formación de Personal para la Enseñanza Media: Plan de Acción* (Guatemala, Instituto de Investigaciones y Mejoramiento Educativo, 1965).

[3] *Ibid.*

[4] Consejo Superior Universitario *Centroamericano, Estudios de Recursos Humanos*, manuscripts in progress, Ciudad Universitaria, Costa Rica.

(*e*) 3,531, or 1 per cent, will pass to twelfth grade in 1969.[5]

10. Programme completion among students of the nations' five national universities is correspondingly low. Romero reports that—even in the most productive of the five universities—more than one half of incoming freshmen fail to continue to a second year of study.[6] With the remarkable exception of the Faculty of Education of the University of Costa Rica,[7] less than 4 per cent of enrolled students in the five universities are graduated each year.[8]

11. Moreover, rates of student progress are extremely low. An illustrative case in point is Guatemala: "The university student", according to Friedman, "invests in excess of two calendar years to complete a single year of academic work." Using current rates of student progress, Friedman projected the representative number of years required to produce a graduate in the following careers.[9]

Career	*Number of academic years in programme*	*Projection: total years required to complete*
Agronomist	6	12.30
Architect	6	10.02
Accountant	6	16.44
Business administrator	5	16.25
Economist	6	17.04
Lawyer	6	14.94
Medical doctor	8	12.24
Chemical engineer	5	9.60
Civil engineer	6	16.44
Dentist	6	11.94
Pharmacist	6	11.16
Biochemist	6	14.22
Teacher, secondary school	2.7	13.52
Veterinarian	6	6.66

12. As might be expected, the overwhelming majority of university students do not pursue their studies to completion. A large number withdraw. Others maintain a part-time and inconclusive relationship with the university. Consequently, each university accumulates a backlog of non-productive students at beginning levels. At the University of San Carlos of Guatemala, a typical example, 44 per cent of all students in 1963 were enrolled in the first academic year of study; less than one half of these, however, were new students. The others were re-enrolled students who had failed to complete at least one academic year of work, 211 of whom had never completed a single course at the University, despite repeated enrolments.[10]

13. There are only incomplete statistics regarding the small number of students graduated each year. Yarman studied responses of 1,113 graduates of three of the five national universities. He reported that (in 1963): "A statistically average university graduate is male, 37.5 years old with 4.6 dependents. He has been out of the university for 11.2 years, and his average annual income is $5,218. He entered the University from a public school at the age of 18.9 years and spent from 5.7 to 9.9 years to complete his degree. Of all graduates, 64.16% prepared themselves in the law and social sciences, 25.24% in the medical sciences and 10.60% in the natural sciences (Agriculture, Architecture, Engineering)".[11]

14. It seems fair to conclude, therefore, that the status of education in Central America is unsatisfactory. Educational institutions are under-productive of needed graduates; moreover, those who are graduated are in areas of relatively lesser importance to the developing economies.

Public expenditure for education

15. Each nation—in terms of gross national product per capita—is clearly just developing economically. The combination of a high birth rate and declining mortality rates threatens to dissipate those economic gains already achieved. Hence, it is of crucial importance that the education systems in Central America contribute significantly to economic capacity in the several nations. Unfortunately, this is not currently the case.

16. The five nations now invest in public education about one fifth of their aggregate national government expenditure. Private institutions expend added funds to provide formal studies for about one tenth of enrolled elementary pupils and nearly 40 per cent of all enrolled secondary students. In 1963, the aggregate expenditure for all levels of public education was an estimated $69 million, or slightly less than 20 per cent of total national government expenditure in that fiscal year. The aggre-

[5] Karl T. Hereford *et al., Plan of public Expenditures for Education in Central America* (East Lansing, Michigan State University, 1965).

[6] Mario Romero, *Deserciones Estudiantiles Universitarios* (Guatemala, Instituto de Investigaciones y Mejoramiento Educativo, 1965).

[7] This faculty has produced 60 per cent of its university's graduates since 1941; annually, nearly one third of its enrolment is graduated.

[8] S. Kirkwood Yarman, *The University Graduate in Central America,* doctoral dissertation (East Lansing, Michigan State University, 1965).

[9] Burton Dean Friedman *et al., Progreso Estudiantil Universitario* (Guatemala, Instituto de Investigaciones y Mejoramiento Educativo, 1965).

[10] *Ibid.*

[11] S. Kirkwood Yarman, op. cit.

gate expenditure provided the following average allocations per student: (*a*) $36.00 per elementary school pupil; (*b*) $127.00 per enrolled secondary school student; and (*c*) $335.00 per enrolled university student.[12]

17. These investment costs per student are evidently low; indeed, they are not sufficiently high to provide an adequate or competitive teacher salary, unless teachers are to be overloaded with numbers of pupils. To attain reasonable minimums of financial support, average allocations per student should be increased, according to one major study, to $100, $225 and $500, respectively.[13] Before undertaking to increase the allocations per student, however, the nations would be well-advised to study the actual costs of producing needed graduates. Contrary to popular belief, these costs are very high, if not excessive, owing, in largest part, to the low productivity and inefficiency of the educational institutions. For example, to produce literacy that will persist through adult life, the school should enrol a child for not less than four years, and preferably for six. The annual cost (1963 figures) for basic education is $36 per child. The cost, at this rate, is $216 for six grades of basic education, a conservative sum by any standard of comparison. Yet, only one in ten enrolled children actually completes the six grades; hence—to produce one literate person—the Governments actually expend funds that should produce ten, under highly productive circumstances. The actual cost, therefore, to produce one literate person is not $216, but as much as ten times that amount, or $2,160.

18. Studies employing similar analytic methods report that the average cost to produce a secondary school graduate exceeds $5,000, and a university graduate, $45,000.[14]

19. Under-productivity of educational institutions, therefore, mitigates against the fulfilment of public educational policy in Central America; moreover, it produces an uneconomic condition. Central American schools and universities tend, therefore, to be "consumers" of their nations' economic weath rather than "producers" of economic capacity. At current rates of educational output, to achieve a nominal increase in numbers of literate and technically proficient people, the nations would need to invest in education the greatest proportion of their national government expenditure, clearly an uneconomic and inefficient course of public action.

[12] Karl Hereford *et al.*, op. cit.
[13] *Ibid.*
[14] *Ibid.*

Projections for the future

20. The magnitude of problems confronting educational institutions in Central America threatens to worsen, owing, in largest part, to a combination of these factors: (*a*) a rapidly increasing and urbanizing school age population; and (*b*) an inability of preparatory institutions to produce qualified educational personnel in needed numbers.[15]

21. During the period 1965 to 1980, the number of enrolled elementary school pupils will increase by nearly 1 million, according to conservative estimates; secondary school enrolments will more than double, annual increments exceeding 7,000 new pupils; university enrolments are expected to increase by a ratio of at least 2.4.[16]

22. These increases in school and university population generate needs for new qualified educational personnel, for buildings and facilities, and for instructional materials and aids of all kinds. At the very least, there will be a need for about 26,000 new elementary class rooms, up to 130 new secondary school buildings of about 1,000 pupils each, and new instructional and library facilities for the equivalent of 14,500 new full-time university students. One estimate of costs for school and university buildings alone exceeds $162 millions.[17]

23. There is no guarantee, however, that increased public expenditure for education will have a salutary effect upon institutional productivity, principally because of deficiencies in educational personnel. Such additional investment that is made, therefore, should be directed toward increasing institutional output of needed graduates at primary, secondary and university levels. The key action is to place, during the immediate future, a qualified, full-time instructor in each of the nations' class-rooms.

Qualified educational personnel: a critical need

24. Student progress and school retention rates cannot be attributed wholly to the quality of instruction. None the less, it is not reasonable to expect, as a matter of public policy, significant educational improvements to be achieved without qualified instructional personnel in all or most of the nations class-rooms.

25. Currently, most educational personnel in Central America are not trained for their positions. Less than half of the elementary teachers have completed a secondary school

[15] Consejo Superior Universitario Centroamericano, op. cit.
[16] Karl T. Hereford, op. cit.
[17] *Ibid.*

education; less than 15 per cent of secondary teachers have completed university-level training programmes; two thirds of personnel in ministries of education are undertrained for their positions.[18] Moreover, university instructors normally are not prepared for university teaching but rather for specific non-teaching professions; hence, the largest part of university instruction is itself provided by part-time *empiricos*.

26. The situation is crucial at the secondary school level, inasmuch as the secondary schools occupy a strategic position in the over-all educational structure. In four countries, secondary "normal" schools prepare teachers for elementary schools. In all nations, secondary vocational schools prepare the nations' commercial and technical personnel; potential college students are prepared in secondary-level *bachillerato* programmes. Hence, the quality of education at all levels would be directly or indirectly improved by significant improvements in secondary education.[19] In order to place a qualified teacher in each secondary class-room, it will be necessary to graduate approximately 1,000 new qualified teachers annually for the next seven or eight years.[20] The average annual output of the seven preparatory institutions since 1950 is fifty-four; it follows, therefore, that teacher preparation at the university level claims highest priority among needed courses of public action.

Possible corrective measures

27. The object of public action for education during the next decade should be to increase institutional productivity while conserving public expenditure. This is the major conclusion drawn by the IIME staff following its intensive studies of education in Central America.[21] To achieve the former, qualified and full-time instructional personnel are required, preferably in each of the nations' schools and universities. To achieve the latter, a pattern of public expenditure is required which would allocate the highest priority to personnel development, while simultaneously bringing support levels per student up to reasonable minimums. That these corrective measures are feasible is demonstrated in two recent IIME reports.[22]

[18] Paul G. Orr and Karl T. Hereford, *Necesidades de Personal en la Educación Media* (Guatemala, Instituto de Investigaciones y Mejoramiento Educativo, 1963).

[19] Pablo Lacayo *et al.*, op. cit.

[20] Karl T. Hereford *et al.*, *Formation of Personnel for the Teaching Media: Estimate of Costs* (East Lansing, Michigan State University, 1965).

[21] Pablo Lacayo *et al.*, op. cit.

[22] *Ibid.*, and Karl T. Hereford *et al.*, see footnote 5.

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An educational growth index as an instrument in measuring and planning education development

E. G. JACOBY

INTRODUCTION

1. International comparisons of spending on education, usually presented in the form of national income percentages to suggest the allocation of national resources,[1] rest on insecure foundations.[2] Even national time series in this field can be quite misleading.[3] No attempt, it would appear, has yet been made to control the comparative material for the variable intrinsic growth rates in the education systems. The need to study this problem has become more urgent as the relevance of the education system of a country for the development of its human resources is recognized as an essential element in the context of economic and social development in the past, the present or the future.

2. The educational growth index proposed in this paper aims at a distinction and an estimate of the variables in cost of education services. But the content and the structure of the educational growth index will be discussed independently from its applications. To ensure the compilation of index numbers by the same methods for any education system, the foremost requirement is simplicity.

STRUCTURE OF THE EDUCATIONAL GROWTH INDEX

3. The basic information needed for the index consists of two sets of educational data: one, on enrolments at educational institutions by level; and two, on expenditures by the same levels, from which costs per pupil/student by level are obtained. The compilation of these data in a time series is assured by implementing the recommendations made by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1958 on classification by level (No. 12), on the number of pupils and students (No. 16, iii), and on educational finance, current expenditure (Nos. 17 and 18).[4]

4. The data on enrolment by level serve as quantities and the costs per pupil/student by level as weights. The weighting assumes for the current time that the cost per primary school pupil is equal to 1.000; costs per pupil/student at all other levels are expressed as multiples of the cost per primary pupil. At this stage of index making, then, the time series is in the form of primary cost units.

5. This procedure has several advantages. In estimating the demographic component of the educational growth index (see paragraphs 10-14) costs per pupil/student by level are as in the base year, that is, they are held constant. In view of the confidential nature which some Governments assign to actual costs at different times, no monetary amounts need be divulged. The difficult problems of comparing different national currencies and their purchasing power, or the same national currency at different times, do not obtrude at this stage.

6. A second point is that the index, as it comprises quantities and weights at all levels of the education system, relies, for as large an area as possible of all educational services and activities, on statistical information of an established degree of quality; and, for as small an area as possible, on estimates.[5] For example,

[1] United Nations Educational, Scientific and Cultural Organization, *Basic Facts and Figures*, International statistics relating to education etc. (Paris, 1961), table 12; Japan, Ministry of Education, *Japan's Growth and Education*, the 1962 White Paper on Education (MEJ 6557) (July 1963), pp. 109-110.

[2] F. Harbison and C. A. Myers, *Education, Manpower and Economic Growth* (New York, McGraw-Hill, 1964), pp. 34, 35-96.

[3] Examples are for the United States of America, Office of Education, *School Life*, vol. XLV, No. 3 (January, 1963); and for New Zealand, *Report of the Commission on Education* (Wellington, Government Printer, 1962), pp. 134-139.

[4] United Nations Educational, Scientific and Cultural Organization, *Manual of Educational Statistics* (Paris, 1961), 1st ed., appendix: Recommendations etc., of 3.12.58; United Nations, *Statistics needed for educational planning*, preliminary study by the United Nations Educational, Scientific and Cultural Organization (United Nations document E/CN.14/A.S.P.P./L.15, 12.10.62); United Nations Educational, Scientific and Cultural Organization, *Educational Planning*, Educational Studies and Documents, No. 45 (Paris, 1963), p. 15.

[5] A. Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge, Harvard University Press, 1962), p. 405.

details on education finance in the private school sector are rarely available, so that quantities and weights must, in the first instance, be compiled for the public school sector, which may be as much as four fifths or nine tenths of the national system. In this case, it is only when relating indexed spending on education to other significant factors of the economy, such as national income or rates of productivity growth, that educational spending must be grossed up to include the private school sector.[6]

7. A third point, as in every index making, is the choice of base year. This is partly a matter of availability of basic data on both quantities and weights. However, the "base year" need not be the first year in a time series. Moreover, in international comparisons, it may be useful to assign different years in different countries as the base year; the choice is then according to an educational criterion, for example, equal or near-equal enrolment ratios in the 6 to 13 age group, as an indicator of the degree of achieving universal education. This ratio may be 75 per cent in country *A* in year *t*, but 76 per cent in country *B* in year *t*-5, so that a comparable take-off point can be assumed for country *A* five years later than for country *B*. This argument in favour of flexibility is not without its dangers, but it is suggested, nevertheless, as a corollary of the principles of comparative research. In dealing with a single country's educational development, the presentation of index numbers with different base years may afford a better view of developments.

8. An illustration of the educational growth index for New Zealand (which was compiled for single years from 1948 and for 1938) is given in the annex to this paper. This is merely an illustration, for what this paper is discussing is not one, but fifty or a hundred series of educational growth index numbers.

9. The base data used in this illustration suffer from some imperfections which entail an estimation error amounting, at a guess, to a few points out of 1,000.[7] For example, it is a serious gap in information that technical education at the post-secondary level could not be separated from general secondary education expenditure because no distinction was made in the public accounts; part-time students in certain technical classes of further education were assumed to represent one fifth of full-time equivalent quantity. Similarly, university enrolment (omitting extra-mural students) does not distinguish between full-time and part-time students, although their ratios are known to be changing. These examples illustrate the sort of problem that arises in index making in this field; but, at the cost of some controlled degree of inaccuracy, some statistical decision is better than no index.

THE DEMOGRAPHIC COMPONENT

10. From enrolments at each level in the base year, enrolment ratios per age and per level can be derived. Where population statistics (whether census or inter-censal estimates) do not permit an estimate of single age enrolment ratios,[8] it will at least be possible to compute enrolment ratios for quinary age groups or similar age ranges (for example, 6 to 13 years).

11. Holding base year enrolment ratios by level constant, the next step is to assess the (hypothetical) enrolments by level that correspond to the change over time in the size of age groups. Since such change in enrolment is mostly one of increase, it is then only the demographic factor that expresses itself in these enrolment estimates. It is, furthermore, convenient to hold all weights per level constant at the values observed in the base year; this relates not only to multiples at all other levels of cost per primary pupil, but to the cost per primary pupil itself. The resulting series of partial index numbers represents the demographic component of the educational growth index.

12. Because of the changes in the structure of the New Zealand educational system between 1938 and 1948, the latter year has been taken as the base for observation of the demographic component. The following table, using the 1948 enrolment ratios and weights by level, has been compiled in the same way as the detailed illustrations in the annex.

[6] J. Vaizey, *The Economics of Education* (London, 1962), pp. 54, 63; J. Svennilson, F. Edding and L. Elvin, "Targets for education in Europe in 1970", *Policy conference on economic growth and investment in education*, II (Paris, Organisation de coopération et de développement économique, 1961), p. 65.

[7] O. Morgenstern, *On the Accuracy of Economic Observations*, 2nd ed. (Princeton, 1963), pp. 119, 305.

[8] E. G. Jacoby, *Methods of School Enrolment Projection*, United Nations Educational, Scientific and Cultural Organization, Educational Studies and Documents, No. 32 (Paris, 1959), chap. III.

Table 1. Education growth index, New Zealand demographic component, 1948-1963

		1948	*1953*	*1958*	*1963*
(1)	Total education growth index cost units indexed.....	1,000	1,328	1,678	2,064
(2)	Demographic component.....	1,000	1,229	1,467	1,727
(3)	Residual [a]	0	99	211	337

[a] See discussion of development component in paragraphs 15-19.

13. Item (2) in this table shows that the rate of demographic growth has been approximately 73 per cent in fifteen years. This represents an average annual rate (compound) of 3.7 per cent for the entire period, and rates of 4.2, 3.6 and 3.3 in the three five-year sections, 1948-1953 to 1958-1963. As growth rates go, these figures are as high as, if not higher than, past rates or target rates of sustained growth in economic productivity. In developing countries, with a higher natural increase in population, the rates of growth of the demographic component are likely to exceed by a substantial margin the New Zealand rates (which reflect the post-war baby boom and higher levels of fertility since 1950 being absorbed into the school system).

14. In assuming, however, an increase in economic growth of the same order as the rates of increase in the demographic component of the education growth index, one arrives at the following conclusion. If resources were allocated to education (as one among other social services) in the proportion of the base year only, they would just be sufficient to accommodate the demographic increases in school rolls at the base-year level—before any improvements, requiring further allocation of resources to the education sector, could be planned for. It is at this point, then, that the special topic of this paper links up with the theory of social and economic growth in the *tiers monde*, which A. Sauvy outlined in his paper at the Vienna Conference in 1959.[9] The operative term to be stressed in this conclusion is the word "before", that is, in A. Sauvy's expression,[10] that any national income increases are "amputated" by the need to provide for mere demographic growth, if the *status quo* is to be maintained.

[9] A. Sauvy, "Investissements démographiques et investissements économiques", *International Population Conference* (Vienna, 1959), pp. 136-141.

[10] A. Sauvy, *Fertility and Survival* (New York, Criterion Books, Inc., 1961), p. 97.

THE DEVELOPMENT COMPONENT

15. Before the residual in the education growth index (see table 1) can be used as an indicator of educational development over and above the demographic growth, it is necessary to introduce one further variable. By assigning educational growth index weights by level on the assumption of the cost per primary pupil being constant, no allowance has as yet been made for real changes in the cost per primary pupil (and, consequently, at all other levels). This cost must now be expressed in currency, hence the problem of converting monetary values at different times to constant prices. For evaluating the demographic component alone, this operation was not required, but it now becomes necessary for a full statement of the development component; this must include any improvement (or its reverse) in the education sector that might correspond to improvements in economic productivity or levels of living.[11]

16. The solution of this problem cannot be simply passed on to the economist, but is a matter of co-operation between economists, manpower experts and educationalists.[12] Here one merely follows the beaten track and uses the retail price (consumer price) index as a deflator.[13] In this case, this procedure is more easily justified; up to four-fifths of total current education expenditure consists of salary and wage payments, which, if not directly related, are loosely related to current consumer prices and their inflation.

17. With 1948 as the base year, the cost per primary pupil changed as shown in table 2, which uses as deflator the New Zealand retail price index (long-term linked series):

[11] F. Edding, *Oekonomie des Bildungswesens* ("Economy of Education") (Freiburg i.B, 1963), p. 217.

[12] M. Debeauvais, "Manpower planning in developing countries", *International Labour Review*, vol. L.XXXIX, No. 4 (April 1964), p. 319.

[13] A. J. Peacock and J. Wiseman, *The Growth of Public Expenditure in the United Kingdom* (Princeton, 1961), p. 156.

Table 2. Cost per primary pupil at constant prices, New Zealand, 1948-1963, on 1948 base = 1,000

		1948	*1953*	*1958*	*1963*
(1)	Cost per primary pupil at current prices	1,000	1,491	1,924	2,452
(2)	Retail price index numbers — reciprocals to 1948 base	1,000	744	629	564
(3)	Cost per primary pupil at constant prices	1,000	1,109	1,210	1,383

SOURCE: New Zealand, *Official Yearbook 1963* (Wellington, Government Printer), p. 718.

18. By weighting the total educational growth index cost units (item (1) in table 1) with the multiplier in item (3) above, one can set out the complete educational growth index numbers and their demographic and development components.

Table 3. Educational growth index numbers, demographic and development components, New Zealand, 1948-1963

		1948	*1953*	*1958*	*1963*
(1)	Total educational growth index numbers	1,000	1,473	2,030	2,854
(2)	Demographic component	1,000	1,229	1,467	1,727
(3)	Development component	1,000	1,244	1,563	2,127

19. The growth of the development component is of interest in comparison with that of the demographic component, as noted in the following brief comments.

(*a*) The New Zealand illustration shows that in the period 1948-1963 approximately two thirds of other than demographic increase in the resources allocated to education is the result of rising costs per pupil at constant prices. It can be surmised that a large share in this increase is owing to improved salaries in real terms, but this statement is only the beginning for a study of this aspect by an analysis of cost structure; this point is important in developing countries planning to raise teachers' salaries to a professional level;

(*b*) For international comparisons of current spending on education, it is suggested that they be made specifically for the development component of the educational growth index, with the demographic component held constant for a comparable base year. For comparisons of this nature, it would also be necessary to ensure, after an analysis of cost structures, that there should be equal comprehensiveness, for example, by grossing up rates of expenditure in the public education sector to include the private sector, on-the-job training etc., by appropriate estimates;

(*c*) That part of the development component which is not determined by higher costs per pupil/student at constant prices, that is, the residual in table 1, line (3), is an indicator for a great variety of changes in educational development through time.[14] One group is the particular policies resulting in increases of cost per pupil/student at other than the primary level (for example, provision of free textbooks in secondary schools, or longer training of teachers). Of even greater importance, perhaps, is another group, which relates to effects of general policies, as, for example, of universal education at the primary level, or of opportunities for secondary education for all children, or of a free place system. These produce raised enrolment ratios—higher retention rates, fewer drop-outs and less wastage. This aspect will be of the greatest importance in developing countries because of its close link with the development of human resources through the educational system. The information fed into the educational growth index may prove sufficiently detailed for an evaluation of developments of this nature, and at the same time, ensure that there shall be comparability.

PROJECTIONS AND PLANNING

20. Finally, the educational growth index

[14] Their analysis is a major field in studying the cost of education in its detail, but it falls outside the scope of this paper, which is concerned with separating the development component from the demographic component.

may be considered in the context of educational planning and forecasting. Extrapolated index numbers can immediately be translated into an educational budget.[15] They also allow a forward estimate of growth rates in the education sector of a country.

21. Enrolment projections by level, if proceeding by a distinction between enrolment ratios in a base year as a bench-mark and articulated assumptions on changes, particularly increases in enrolment ratios, can be entered as demographic and as development quantities. The projection basis of the demographic component can, by current revisions, be adjusted to a rolling plan.

22. Once purely demographic future growth has been assessed, the consideration of items of development becomes more realistic. It can provide guide-lines within the framework of economic and social development planning. Improved enrolment ratios or reduced class size presupposes improved teacher supply, which in turn depends on improved outputs in teacher training and university education. The development of technical education to meet manpower requirements may depend on widening the opportunities in general secondary education. Various policy choices, whether they resemble the Karachi plan (concentrating on reducing illiteracy and giving priority to universal elementary education) or the Addis Ababa plan (conjoint development of the elementary and higher levels), can, according to circumstances, be spelt out as assumptions in the projection of educational growth index numbers.

23. The cost per pupil/student at constant prices may either be held constant as the current rate or raised in proportion to expected increases in economic productivity. The multiples of cost per primary pupil at other levels can be adapted to stated assumptions on particular aims of educational planning. All such modifications in the weights will be reflected in the projection of the educational growth index numbers.

24. To illustrate the projection aspect, the author of this paper made forward estimates of the New Zealand educational growth index for 1968 and 1973, by detailed assumptions on all these points. Demographic rates were predictable, except for the youngest ages in 1973 where assumptions on future birth rates enter; retention rates at the secondary level were, by extrapolating past trends for boys and girls separately, assumed to increase; the teacher training course was assumed to be lengthened from two to three years. Multiples at other than the primary cost level were held at 1963 values, and the cost per primary pupil at constant prices was assumed to increase at the same rate as between 1958 and 1963. The resulting total index numbers (1948 = 1,000) are 3,909 for 1968 and as high as 5,464 for 1973. They indicate an average annual rate of growth (compound) of > 6.7 per cent in the next ten years, with greater increase in the development component. This expected growth, which is much in excess of growth rates in the economy, compares with 7 per cent for 1958-1963, 6.6 per cent for 1953-1958 and 8.1 per cent for 1948-1953.

25. In this form, educational growth index projections may be of practical use to the agencies concerned with national economic and social planning for human resources development.

[15] F. Edding, *Ockonomie des Bildungswesens* ("Economy of Education") (Freiburg i.B, 1963), p. 217.

ANNEX

An educational growth index

NEW ZEALAND, EDUCATIONAL GROWTH INDEX, 1938 (1948) THROUGH 1963

		1938	*1948*	*1953*	*1958*	*1963*
(1)	*Quantities by level:*					
	Pre-school	1,756	3,462	9,752	13,928	18,024
	Primary	211,897	237,399	300,299	357,355	393,071
	Secondary [a]	38,261	50,257	66,686	93,224	139,977
	Teacher training	1,522	1,875	2,769	3,602	4,536
	University	5,622	10,450	9,911	11,915	16,999
(2)	*Weights by level:*					
	Pre-school	344	588	615	573	436
	Primary	1,000	1,000	1,000	1,000	1,000
	Secondary [a]	1,832	1,852	1,945	1,891	1,749
	Teacher training	9,203	12,641	12,592	15,040	14,041
	University	1,945	2,476	3,694	3,795	4,649

An educational growth index (*continued*)

NEW ZEALAND, EDUCATIONAL GROWTH INDEX, 1938 (1948) THROUGH 1963 (*continued*)

	1938	*1948*	*1953*	*1958*	*1963*
(3) *Total educational growth index units:*					
Σ[Item (1) × item (2)]	307,537	382,087	507,478	640,994	788,467
(4) *Educational growth index units indexed:*					
(1938 = 1,000)	1,000	1,242	1,650	2,084	2,564
(1948 = 1,000)	804	1,000	1,328	1,678	2,064
(5) *Educational growth index numbers:* [b]					
(1948 = 1,000)	673	1,000	1,473	2,030	2,854

[a] Including technical education.
[b] Item (4) adjusted for cost per primary pupil at constant prices.

Some demographic factors associated with the development of school enrolment

BANGNEE ALFRED LIU

1. It has been generally believed, and often affirmed, by demographers and educational workers alike, that certain demographic factors—such as the birth rate—affect the development of education in a given country, and conversely, that the development of education among a given population tends to bring about certain changes in the demographic structure of that population, such as by lowering its fertility level.

2. In order to substantiate these assumptions, it is necessary to have internationally comparable indices of educational development which can be correlated with relevant demographic indices applied to the same population. This paper is confined to a consideration of some indices which are designed to measure the quantitative development of education, more particularly the development of pupil enrolment potential in the formally organized school system of a country.

3. One of the most widely used indices of educational development is the percentage of literates or illiterates among the population above a certain age level.[1] Another is based on the number of years of schooling completed by the adult population. These indices, derived from population censuses or sample surveys, are mainly of value in assessing the past educational experience of a population. They do not directly measure the current stage of educational development of a nation.

4. In recent years attempts have been made by the author and his associates in the United Nations Educational, Scientific and Cultural Organization (UNESCO) to develop a method suitable for international comparison in terms of the development of pupil enrolment potential in schools at the first and second levels of education. It consists of a set of school enrolment ratios based on the number of pupils enrolled in school related to the total population in the relevant age groups.

5. Thus, a school enrolment ratio at the first level of education is computed by relating the total number of pupils enrolled in all primary schools, elementary schools and the like in a given year to the estimated population aged 5 to 14 years inclusive, for the same year. Similarly, a school enrolment ratio at the second level of education relates the total number of pupils enrolled in all types of schools above the first level but below the level of college or university to the estimated population aged 15 to 19 years inclusive. A combined school enrolment ratio for the first and second levels is related to the estimated population 5 to 19 years inclusive.[2]

6. Since the actual ages of pupils enrolled in schools of the first and second levels in any given country usually vary considerably from these arbitrary age groups, the school enrolment ratios as defined above must be interpreted in the light of the normal duration of schooling and the actual age range of pupils in each country. To overcome this difficulty, an "adjusted school enrolment ratio" is computed on the basis of a population figure adjusted to correspond to the normal duration of schooling. A full presentation of school enrolment ratios, both unadjusted and adjusted, for almost all countries of the world, around the years 1950, 1955 and 1960, has been published for the first time by UNESCO.[3]

7. To illustrate the use of these newly refined measures, an analysis is made of the adjusted school enrolment ratios computed by UNESCO for 116 countries, each with a population of 1 million or more in 1960, examining concomitantly the status and trend of certain demographic factors associated with the more advanced development of school enrolment in a number of selected countries.

8. Table 1 gives the distribution of these 116 countries, by geographical region and by the level of school enrolment ratio for 1960, the latter in three categories: under 50, 50 to 79,

[1] See United Nations Educational, Scientific and Cultural Organization, *Progress of Literacy in Various Countries* (Paris, 1953); *World Illiteracy at Mid-century* (Paris, 1957).

[2] See United Nations Educational, Scientific and Cultural Organization, *World Survey of Education*, vol. II (Paris, 1958); vol. III (Paris, 1961); *Basic Facts and Figures, 1961* (Paris, 1962).

[3] United Nations Educational, Scientific and Cultural Organization, *Statistical Yearbook, 1963* (Paris, 1964).

80 and over. It may be noted that nearly half of the world's larger countries have school enrolment ratios under 50; these are among the educationally developing countries. About one third have enrolment ratios ranging between 50 and 79; these may be considered a group of countries in various stages of upward development in the quantitative aspects of school education. The remaining group of twenty countries may be characterized as having more or less fully developed their potential in school enrolment at the first and second levels of education; each of them has a school enrolment ratio of 80 or more.

Table 1. Distribution of 116 countries, each with 1 million or more inhabitants, by world region and by school enrolment ratio, 1960

World and region	*Number of countries*	*School enrolment ratio*		
		Under 50	*50-79*	*80 or more*
WORLD TOTAL	*116*	*55*	*41*	*20*
Northern Africa	8	8	—	—
Tropical and southern Africa	27	25	2	—
Northern America	2	—	—	2
Middle America	12	5	6	1
South America	10	1	9	—
South-west Asia	10	6	3	1
South central Asia	5	4	1	—
South-east Asia	9	5	4	—
East Asia	5	—	4	1
Union of Soviet Socialist Republics	1	—	1	—
Northern and western Europe	9	—	—	9
Central Europe	7	—	4	3
Southern Europe	8	—	7	1
Oceania	3	1	—	2

SOURCE: United Nations Educational, Scientific and Cultural Organization, *Statistical Yearbook, 1963* (Paris, 1964).

9. Comparison of crude birth rates reported for countries in each of the three groups reveals the following:[4]

(*a*) Among twenty countries with a school enrolment ratio (1960) of 80 or more, the following rates were found:

(i) Range of crude birth rate (average 1955-1959), 14.5-33.7;

(ii) Median crude birth rate (average 1955-1959), 19.2;

(iii) Trend of crude birth rate between 1945-1949 and 1955-1959: decrease in crude birth rate, 20 per cent or more, five countries; decrease in crude birth rate, 10 to 19 per cent, five countries; change in crude birth rate, less than 10 per cent, ten countries; increase in crude birth rate, 10 to 19 per cent, (none); increase in crude birth rate, 20 per cent or more (none);

(*b*) Among thirty countries with school enrolment ratio (1960) of 50 to 79, the following rates applied:

(i) Range of crude birth rate (average 1955-1959), 16.8-47.7;

(ii) Median crude birth rate (average 1955-1959), 37.2;

(iii) Trend of crude birth rate between 1945-1949 and 1955-1959: decrease in crude birth rate, 20 per cent or more, (none); decrease in crude birth rate, 10 to 19 per cent, four countries; change in crude birth rate, less than 10 per cent, fifteen countries; increase in crude birth rate, 10 to 19 per cent, three countries; increase in crude birth rate, 20 per cent or more, eight countries;

(*c*) Among fourteen countries with school enrolment ratio (1960) under 50, the following data applied:

(i) Range of crude birth rate (average 1955-1959), 24.4-49.9;

(ii) Median crude birth rate (average 1955-1959), 41.0;

[4] Data on crude birth rates are based on those published in the United Nations, *Demographic Yearbook, 1963* (United Nations publication, Sales No.: 64.XIII.1); in some cases they are stated to be unreliable or of unknown completeness.

(iii) Trend of crude birth rate between 1945-1949 and 1955-1959: decrease in crude birth rate, 20 per cent or more, one country; decrease in crude birth rate, 10 to 19 per cent, one country; change in crude birth rate, less than 10 per cent, five countries; increase in crude birth rate, 10 to 19 per cent, two countries; increase in crude birth rate, 20 per cent or more, five countries.

10. Thus, one may conclude that a country which has more or less fully developed its school enrolment potential is found to have a typically low birth rate (say, under 30), which has been in a generally declining trend at least in recent periods of time. On the other hand, a country which has yet to develop its school enrolment potential has a typically high birth rate (say, 40 or more), which has generally been in an upward trend during the last ten to fifteen years. Countries in intermediate stages of educational development are likely to have also intermediate characteristics regarding their birth and fertility trends.

11. A similar conclusion may be drawn from an examination of the infant mortality rate, namely, that the development of the school enrolment potential in a country tends to be associated with a relatively low infant mortality rate (say, under 50) in a rapidly declining trend. However, a general decline of the infant mortality rate is observed in almost all countries, including those at an early or intermediate stage of educational expansion.

12. Table 2 presents average crude birth rates and infant mortality rates for the periods 1945-1949 and 1955-1959, as well as school enrolment ratios for 1960, relating to twenty countries with the highest values of the latter index. This table also indicates the trend of each of the demographic indices between the two time periods. For lack of space, similar tables for the other two groups of countries are omitted.

Table 2. Crude birth rates and infant mortality rates for twenty countries with school enrolment ratios of 80 or more

Country	School enrolment ratio (1960)	Crude birth rate			Infant mortality rate		
		Average 1945-1949	Average 1955-1959	Trend [a]	Average 1945-1949	Average 1955-1959	Trend [b]
Australia	93	23.1	22.6	*	28.0	21.4	§
Belgium	101	17.3	17.0	*	71.2	35.4	‖
Bulgaria	81	24.6	18.7	†	127.0	66.1	¶
Canada	81	27.0	27.8	*	46.6	30.5	¶
Czechoslovakia	85	22.4	18.5	‡	99.9	31.0	‖
Denmark	89	21.6	16.8	†	41.2	23.7	¶
Federal Republic of Germany	83	16.9	16.9	*	74.8	37.3	¶
Finland	87	27.0	19.9	†	55.5	26.3	‖
France	88	20.3	18.4	*	72.0	33.9	‖
Ireland	94	22.5	21.1	*	61.5	34.6	¶
Israel	92	29.0	27.9	*	38.0	36.2	§
Japan	91	30.1	18.2	†	66.9	37.7	¶
Netherlands	93	25.9	21.3	‡	40.4	19.3	‖
New Zealand	92	26.5	26.3	*	30.7	23.8	§
Norway	92	20.8	18.1	‡	32.6	20.2	¶
Poland	93	28.4	27.1	*	109.1	74.7	¶
Puerto Rico	93	40.8	33.7	‡	78.8	52.4	¶
Sweden	80	19.0	14.5	†	25.7	17.0	¶
United Kingdom	82	18.3	16.4	‡	41.0	24.1	¶
United States of America	102	23.4	24.6	*	33.3	26.4	§

SOURCES: School enrolment ratios from UNESCO, *Statistical Yearbook 1963;* crude birth rates and infant mortality rates from United Nations, *Demographic Yearbook 1963* (United Nations publication, Sales No.: 64.XIII.1).

[a] Change in average rates between 1945-1949 and 1955-1959:
* indicates decrease (or increase) less than 10 per cent;
‡ indicates decrease between 10 and 19 per cent;
† indicates decrease of 20 per cent or more.

[b] Change in average rates between 1945-1949 and 1955-1959:
§ indicates decrease less than 25 per cent;
¶ indicates decrease between 25 and 49 per cent;
‖ indicates decrease of 50 per cent or more.

13. Admittedly, in demonstrating the existence of the association of certain demographic phenomena with the development of school enrolment, no direct causal relationship between the factors involved has been proved. Such proof would require, first, longer series of statistics than are available here; and secondly, a wider exploration of the interrelationship between not only the educational and demographic factors, but also the various other social and economic factors influencing the over-all development of a country.

14. By way of illustration, some additional data are presented on the degree of urbanization as measured by the percentage of population living in localities of 20,000 or more inhabitants, and the stage of industrialization as measured by the proportion of the labour force in agriculture, limited, as explained above, to twenty countries having the highest school enrolment ratios in 1960.

15. Table 3 shows that only one of these twenty countries has an estimated percentage less than 25 per cent of the population living in localities of 20,000 or more inhabitants, and, at the same time, has at least 50 per cent of its labour force in agriculture. Six countries have at least half of their population living in localities of 20,000 or more, and, at the same time, less than one-fourth of their labour force engaged in agriculture. The remaining thirteen countries occupy intermediate positions on one or both of these rough socio-economic indices.

Table 3. Distribution of twenty countries with school enrolment ratios of 80 or more, by estimated percentage of population in localities of 20,000 or more and by estimated percentage of labour force in agriculture

Estimated percentage of population in localities of 20,000 or more	*Estimated percentage of labour force in agriculture*		
	Less than 25	*25-49*	*50 or more*
Less than 25....	—	—	Bulgaria
25-49 .....Belgium		Czechoslovakia	—
Canada		Finland	—
Denmark		France	—
Federal Republic of Germany		Ireland	—
Norway		Poland	—
Puerto Rico		—	—
Sweden		—	—
United States of America		—	—
50 .....Australia		—	—
Israel		—	—
Japan		—	—
Netherlands		—	—
New Zealand		—	—
United Kingdom		—	—

SOURCES: Population distribution based on United Nations, *Demographic Yearbooks, 1962, 1963* (United Nations publications, Sales Nos.: 63. XIII.1 and 64.XIII.1); labour force data based on International Labour Office, *Year Book of Labour Statistics, 1963* (Geneva, 1963).

Demographic considerations in integrated planning of education

H. M. PHILLIPS

INTRODUCTION

1. Demographic factors play a major part in educational planning. The load to be placed on the educational system at any given time is a function of fertility some six to sixteen years earlier, or longer in the case of higher education, less the intervening deaths and plus or minus the migration of children in the period. Economically, it is a function of the proportion of school age population to the economically active population as a whole, and of the extent to which the output of the educational system is geared to development needs. It is also a function of life expectancy, which in some developed countries is twice that of some developing countries. Moreover, education reciprocally affects population. As regards mortality rates, it does this both indirectly, through its effect on raising living levels and promoting economic and social development, and directly, through its contribution to health campaigns and its general influence on the reduction of morbidity through the spread of knowledge. As regards birth rates, there is considerable evidence that education reduces fertility because of its influence on behavioural pattern, as well as on the cost of child raising and the age of marriage, though its impact varies at different socio-economic levels and in different cultural situations. Further, the educational system closely affects the geographical and occupational distribution of the population. The search for better educational facilities is one of the causes of the rural exodus in many countries, while the surpluses and shortages of professional skills, whether in urban areas or in the country side, are indicators of the past successes or failures in educational planning. The educational system also affects employment by removing children from the labour market and the flow of internal migration by increasing labour mobility, and it can be an instrument of income redistribution.

EDUCATION, POPULATION POLICIES AND INTEGRATED DEVELOPMENT

2. At the suggestion of the organizer, the following topics are treated in this paper:

(*a*) Goals for educational development, including education as an instrument of population policy;

(*b*) Needs for education in connexion with economic and cultural development;

(*c*) Economic resources and plans needed to attain goals (*a*) and (*b*), taking into account both demographic trends and the role of education as an instrument.

3. As regards (*a*), an adequate discussion of educational goals would take one into the heart of man's current and past objectives and his future. The educational system is the most powerful single force in the hands both of society and of the individual for moulding their futures. Accordingly, much of the discussion of educational goals centres around the question of what the "good society" is and what sort of a person the well-educated individual should be. The answers to these questions vary with the philosophical and religious beliefs and the socio-cultural situations of different countries. Each major answer has its own demographic consequences.

4. It is not easy to distinguish the influence of education, as distinct from that of the cultural and socio-economic environment generally, upon population growth. But a comparison of the birth rates of different countries and the structure of their educational system shows a correlation between broader and more-developed structures and lower birth rates. To some extent, this is caused by a dual phenomenon, namely, that at the income levels of developing countries, birth rates tend to decline as income increases, while, at the same time, the higher a country's income, the broader is its educational base. The exceptions are high-income countries where the distribution of wealth is poor and where there are socially backward sectors of the population in which the cultural environment or the individual's beliefs favour family planning.

5. The effect of education on the birth rate operates through the changes in attitudes and behavioural patterns produced on the population as a whole. One would expect this process to be subject to a time lag needed for the products of the educational system to become a large or

the major part of the population, i.e., a period of twenty to twenty-five years. The data roughly support this expectation. As incomes grow—still at the income level of the developing countries—and especially as secondary education spreads, the tendency for birth rates to fall increases. In the developed countries, however, there appears to be a tendency for the birth rate to regain momentum as high levels of income are reached. This tendency is reflected predominantly in the middle-income groups and might well be reversed again if income in those groups increased further. It appears that education is positively related to family planning, and that family planning is negatively related to high fertility. But once there is equal acceptance and efficiency in the use of family planning methods, fertility and income are positively related.

6. As regards the effect of education upon income redistribution and social structure, recent research indicates that education is currently not a very effective means of social re-structuring, although there are individual successes to record in particular cultures and situations. Educational systems usually reflect social structure, rather than change it, and educational planning and policy designed to encourage social mobility seem to have much less effect than hoped—at least over the threshold of economic development—owing to the influence of the family and the socio-economic environment in which pupils spend their childhood. In the developing countries, the effect of education on mobility seems more positive. In these countries, there is less education and less educational opportunity, as well as large income differentials between more-educated and less-educated people; and the growth of the educational system and the bridging of income differentials tend to move together.

7. In recent years, increased emphasis has been placed on the educational system as a factor of production. Studies by economists have shown that a large proportion of economic growth is attribuable to education. This has pointed to the need to plan education so as to maximize economic growth. Sometimes a conflict is perceived between the cultural and the economic role of education, but this is a topic on which discussion is still open, since the answer depends upon the efficiency of the educational system in fulfilling the totality of its objectives and not only some to the exclusion of others. The problem for the developing countries with high birth rates is how to obtain the per capita development required for economic and social progress in a situation where rising production is, to a large extent, offset by the population increase. In the educational field, this tendency is especially apparent in the problem of literacy. The number of illiterates in the world is larger than it ever was, despite the expansion of education, because of population growth. Another equally grave facet is that the higher the rate of population growth, the higher is the population of school age, as compared with those of working age. Thus, educational systems are proportionately more expensive in poorer countries with high fertility than in richer countries with lower fertility.

8. Thus, one may summarize the conclusions under (*a*) as follows: the planning of education in relation to economic development, in so far as it successfully increases the rate of economic and social progress, constitutes an instrument of population policy in that it tends to lead both to lower death rates and to lower birth rates. Within this over-all influence on development, education has a specific role in controlling fertility by changing behavioural patterns and spreading technical knowledge. This role is fundamental to population policy. Equally, population policies which promote the rise of per capita income also facilitate educational expansion.

9. This leads to (*b*), which is the problem of devising a system of analysis in which the social and the economic and cultural contributions of education will be maximized in terms of national needs of the population as a whole. This means producing the number of educated people at the different levels of education required by the development goals. This, in turn, involves finding answers to three questions. First is the question of how to mobilize the necessary resources inside the educational system to produce the desired result. This is not easy, because education as a system contains many intricate "complementarities". An intervention at one part of the educational system taken alone can throw the rest of the system out of balance. Secondly, one must consider how to produce, in particular, the suitable trained teachers and teaching methods to promote the quality of education. The third question is how to reconcile the financial needs of the educational system with the needs of other sectors, or other objectives, in the development plan.

10. The search for a framework of analysis within which to find answers to these questions leads into item (*c*) of the three issues. This item raises, in effect, the whole question of the

methodology of how to plan education in relation to integrated development. How can the planning of education with its special characteristics be brought into the mechanism of over-all planning? How can all the necessary demographic factors be accounted for in the process of educational planning? What are the means of relating education planning and population policy? Some approaches are suggested in the analysis set out below.

11. Projections have to be made of the future size and demographic composition of the population for a period of fifteen to twenty years. If possible, the school and university age groups should be shown on a year-by-year basis. The census returns do not normally separate the school age groupings as such, but many census reports tabulate the population up to 24 years of age by five-yearly age groups and demographic techniques exist to redistribute the number within the five-year age period into estimated numbers for single years of age, which are described in *Methods for Population Projections by Sex and Age.*[1] The projections will show the number coming forward annually in the different age groups, in respect of whom educational planning decisions have to be made. The existing stock of educated people at the different levels should also be ascertained.

12. On the basis of the data thus obtained, a social standard or social minimum of education may be postulated. This may be taken as compulsory schooling for every child for a certain period of years; or it may be universal literacy for adults as well as children. The minimum objective, whatever it may be, will need to have a target date set for its achievement. The length of the period will depend on the resources found to be available and the degree of sacrifice of other objectives which may be involved. This can be ascertained only after the other steps of the assesment have been made, including the positive contribution of the social standard to the rate of population growth and the development plan itself, as well as its costs. At this stage, the social standard can only be postulated, and then re-estimated after "feedback" when the other points of the assessment process have been completed.

13. The next requirement is to study the long-term plan, or the best possible long-term projections, of the economy by sectors and by sub-sectors. A period of fifteen to twenty years should be envisaged. Failing detailed projections, some future profile of the economy will have to be assumed. The levels of economic activity assumed have now to be analysed to establish the manpower requirements which flow from them. This can be done by using norms obtained from census returns and sample surveys showing the numbers and skills of the labour force required for different types of production. The norms should be based on industrially accepted, rather than hypothetical, occupational structures and should then be adjusted for foreseeable changes brought about through the advance of technology affecting the nature of industrial skills, as well as for such factors as trends in wages and hours of work affecting the demand for labour.

14. The occupational data so obtained needs to be translated into its educational component. The number of classified occupations in the International Labour Organisation is 1,345, and the classification of skills by educational components can produce 300 items in advanced economies. Difficulties are that there are no fixed relations between occupations and education, except over broad categories and in a certain number of professions. For planning in advance up to ten to fifteen years, it is not necessary to disaggregate into as many as 300 items. The educational facilities, enrolment flows and cost structures have at this stage to be grouped as broadly as possible. As progression takes place into the planning period, it is possible to come closer to the more detailed specifications required and to plan for training of more specialized categories within the facilities provided under the long-term plan. Education is the core around which specialized training has to be built and thus should not be planned in too great detail as regards specialization within occupations, in order that the educational system should be as flexible as possible. For perspective planning purposes, the educational classifications of occupations can probably be reduced to ten to fifteen. Even smaller groupings are possible, according to the time period and the detail that the other factors in the planning process permit. Recourse has to be made to census returns, sample inquiries and consultations, with employers and trade unions, as well as with the educational planners, administrators and technicians concerned with the different types of education involved. Once again, too, estimates should be based on the best practice rather than on theoretical educational needs for different types of work, except to the extent that changes in practice can be foreseen and incorporated into the analysis.

15. The foregoing analysis will have shown the social standard or social minimum demand,

[1] United Nations, *Methods for Population Projections by Sex and Age* (United Nations publication, Sales No.: 56.XIII.3).

plus the derived occupational demand for education over the planning period. It is now necessary to add the further demand for education. First, provision must be made for switches made by students in midstream and other forms of "turnover", and for geographical disparities of supply and immobilities of demand. Just as there has to be at any given moment a certain amount of frictional unemployment, even in conditions of full employment, so there should always be an educational surplus to the extent necessary to provide for environmental adjustments. Secondly, it is necessary to provide education in excess of demand, to the extent that education is a field in which the existence of supply creates demand. Professor Arthur Lewis has stated that educational output should always move somewhat in advance of demand since economic growth inevitably requires a progressive raising of skills. It is clear that the existence of qualified manpower attracts investment, but planning for education to move in advance of demand needs great care because of the danger of creating groups of educated unemployed who cannot be absorbed by the turnover of the economic system and its rate of growth. Thirdly, additional facilities for formal education are required to meet other national objectives and consumption patterns not already taken into account. Finally, provision must be made for adult education and literacy campaigns.

16. The quantitative changes required at the different education levels to meet the estimated demand have now to be assessed. This involves translating the total educational demand into the outputs required from the different levels of the educational system. These outputs will have emerged from the analysis already made in paragraphs 14 and 15, and they have now to be provided for by enrolment inputs, taking into account anticipated rates of wastage and drop-out, and rates of movement between educational levels. A time period has then to be allotted to securing the necessary expansion of the educational system. This period depends upon the logistics of the educational process, e.g., time periods required to train teachers, to build schools and for the pupils to move through the various levels. Out of this analysis there should emerge one or more projected pyramids of educational expansion with time schedules attached to them. The important demographic factor here will be the "bulges" in the school intake which will occur during different periods, owing to variations in population growth in previous years. A study of these "bulges" is important for planning educational facilities. In countries which already cover the whole of the school age education, temporary expansions of the school intake can be met by temporary enlargements of buildings and of the teacher force, provided they are foreseen similarily. Careful study has to be made of wastage and retention rates.

17. While these pyramids will constitute the broad basis for the over-all planning of education, in terms of numbers of pupils at the different levels, and so indicate the number of primary, secondary and university places needed, a detailed assessment is needed of subjects of study within levels and of the qualitative changes required. Other qualitative aspects to be assessed at this stage (some of which, e.g., scholarship ladders, will affect cost) are: the degree of efficiency to be expected from the educational system in the pedagogic and social environment, and whether the content of curricula and selection criteria for the different educational levels are effective. The comparative cost and efficiency of alternative technologies of teaching and teacher-training methods to produce the same output have then to be studied.

18. The resulting costs have now to be studied in terms of the availability of future resources, as well as their competition with other expenditure required for the development plan. At this point arises the most difficult problem of all. It involves the reconciliation of the education programme with the over-all development programme. This reconciliation requires that: (*a*) the education programme is not so high in real cost as to be inconsistent with the achievement of other targets in the development programme; and (*b*) the physical capacity of the "education industry" is such that all the education requirements of the final over-all development programme can be met. If either of these conditions is not fulfilled, adjustments must be made until the reconciliation is achieved. These adjustments may take the form of: (*a*) reducing the education budget, up to the point where only the basic needs can be met; (*b*) reducing the budgets for other sectors in the development programme; (*c*) choosing a less education-intensive technology; (*d*) choosing a less education-intensive product mix; or (*e*) choosing a lower rate of economic growth.

19. The progress of reconciliation may involve successive approximations. Several of these adjustments may be made in sequence, until the point is reached where all educational requirements of the development programme are met, while at the same time the aggregate

demand for monetary and physical resources from the education sector and all other sectors does not exceed the available supply. It is also necessary that the monetary cost of the educational programme, when added to that of the other sectors, does not increase the tax burden so much as to retard economic growth or to cause detrimental inflation through excessive deficit finance.

20. The final stage is to study the incentives or other measures required to guide pupils into those particular studies and school leavers into those occupations, including questions of the wage structure and prestige of the different occupations. Students' and parents' preferences have to be foreseen and guided.

21. The concept of the social minimum or social standard introduced in paragraph 12 as the second analytic point needs careful study. For the purpose of the analysis, this is treated as a possible plus or minus factor in terms of contribution to growth of national product. It is postulated after the demographic data has been obtained, but not determined until the other points of analysis are completed and the extent of positive or negative influence on output assessed. The notion of the social standard arises from the policy decisions of Governments, which are regarded as fundamental to the political and social life of the country, e.g., that universal literacy must be established as a first priority or that a school must be established forthwith in every village of more than so many inhabitants. Decisions of this kind are similar to those taken by Governments when they rule that the defence effective should not fall below so many divisions or decide to set up a national steel mill even though steel could be imported more cheaply, i.e., they fall outside strictly economic analysis. Population policy falls partly under the heading of such a social standard or minimum (i.e., paragraph 12). But it may also and should also be introduced as a factor affecting the quantitative assumptions on which planning starts, i.e., in paragraph 11. At least three population projections are needed on low, medium and high forecasting assumptions. Each of these assumptions will affect the final totals in paragraphs 16, 17 and 18.

22. Furthermore, the demographic assumptions themselves have to be challenged by the process of "feedback", as population changes are projected further into the future. The progressive expansion of education will itself change the rate of population expansion. If it is the constitutional decision of a country that all its population should have such and such a minimum standard of education and if the resources are shown by the analysis to be insufficient, population policy and educational policy cannot be reconciled and choices have to be made. Such choices require much data, as well as a system of analysis such as that indicated above, and a large-scale research programme is needed for this purpose.

Educational aspects of the labour force in relation to the economic and social development of Central America

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[*Translated from Spanish*]

I. GENERAL DESCRIPTION OF THE REGION

1. At the heart of the American continent, between North and South America, lies a strip of land of 441,269 square kilometres in area and with a population of 12,210,037 people; it is known as Central America and consists of five countries: Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica.

2. Formerly, they constituted a single entity, but following the events of 1821, when they became independent from the Spanish Crown, the small republics began to develop separately and today, after over a century of struggles and hardships, unity has been restored through Central American economic integration. At the same time, higher education is making giant strides toward integration through the Confederation of Central American Universities, a body which was established in 1948 by agreement between the five Central American universities. Subsequently, with the establishment in 1959 of the Permanent Secretariat of the Central American Advanced University Council (CSUCA), an unprecedented programme of work was launched for the development of higher education. Such bodies as the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), the Central American Joint Programming Mission, the Organization of Central American States (ODECA), the Central American Bank and others are all engaged in an intensive effort to achieve a more accelerated development of the region as a whole.

3. In all the American continent, Central America constitutes a nucleus with the highest population growth rate (3 per cent per annum); this raises a number of obstacles to the improvement of its economic and social well-being.

4. The per capita income remains low ($281) after slowly rising in the 1950-1960 decade and at the beginning of this decade. Every effort is being made to accelerate its growth. Planning offices have been established in every one of the countries and they are all co-ordinating their efforts to achieve the maximum utilization of their resources.

5. The problem of education is acute since a very high proportion of the population, except in Costa Rica, is illiterate and—even more important—many students drop out of primary school after completing the first and second grades and, in time and through neglect, they become potential illiterates who render little assistance to the plans for the improvement of the Central American isthmus. Very few Central Americans between 13 and 18 years of age attend secondary schools and plans for vocational and technical training are still rudimentary since, as in the case of primary and secondary education, suitable teaching staff, equipment, physical facilities and programmes adjusted to the requirements of the labour market are almost completely lacking. Only a tiny fraction of the population has access to higher education and in all the countries a shortage of high-level professional people, especially in the sciences, continues to be one of the chief obstacles to development and economic expansion.

6. The supply of manpower is increasing very fast; yet, as a percentage of the total population it is dwindling, since the total population is expanding more rapidly. Over 60 per cent continue to be engaged in agriculture and the difficulties are more acute in those countries where the problem of the Indians is far from being solved satisfactorily. In Guatemala, for example, over 50 per cent of the population are Indians, and in Honduras and El Salvador the percentage is almost as high. The workers' educational level is low but the targets that have been fixed for improving productivity in the various sectors of the economy in the next ten years are high.

7. Undoubtedly, the countries of Central America will have to make great efforts to improve their educational systems as well as the health and housing standards of the population.

8. Within this framework, the lack of political stability in the region constitutes another of the many obstacles to development but to offset them, a new generation, in numbers and awareness of its responsibilities in the modern world and fortified by a strong sense of Central American unity and patriotism, is determined to achieve the effective improvment of the region by their toil and by taking the quickest and shortest route to their goal.

II. Utilizing the educational system

9. The quality of present and future manpower depends, in short, on the degree to which the educational system is utilized by the school-age population.

10. Central America is still an area in the process of development and has not yet been able to reduce its dependence on agriculture. Its per capita income level clearly puts it in an unfavourable position vis-à-vis the developed countries; and, as a consequence of this and its rapid population growth, educational services are hindered by the Governments' lack of economic capacity and the people's struggle to maintain a bare level of subsistence.

11. Although there has been an increase in the number of children receiving primary education, between 1950 and 1960 they represented only 38 to 51 per cent of the population aged 6 to 13 years; in other words, almost 50 per cent of that age group are denied the opportunity of attending school. The contrast is greater when we consider individual countries: Guatemala and Nicaragua, in 1960, were below the average for the region; Honduras and El Salvador were only slightly above it; Costa Rica alone stood head and shoulders above the rest, since 90 per cent of its population of school age was attending primary school.

12. The enrolment in secondary schools, in 1960, represented 7 per cent of the population aged 13 to 18 years and in the countries individually it varied from 4 per cent in Nicaragua to 22 per cent in Costa Rica. Vocational and technical training at the secondary level, except for commercial and secretarial studies, is practically insignificant. Skilled manpower is, quantitatively and qualitatively non-existent and this puts a brake on efforts to achieve faster industrial growth. The industrial schools existing in the region lack suitable teaching staff, equipment and programmes duly adjusted to the needs of industry. This fact, together with the short-sightedness of industrialists and the educational authorities, has contributed to the stagnation and low productivity of educational institutions.

13. The movement and energy triggered off by Central American economic integration are producing changes in the situation and today the attitude of both the educational authorities and the industrialists themselves toward the problem is palpably different. There is no polytechnic institute in the region and consequently technical personnel at the sub-professional level are almost wholly lacking; hence professionals have often been employed in typically sub-professional jobs. Such a waste of human resources only tends to worsen the situation.

14. The enrolment in higher education does not exceed 1 per cent of the population aged 18 to 25 years. Nevertheless, between 1950 and 1960, this percentage rose from 0.4 per cent to 0.9 per cent, i.e., 2.25 times. In Costa Rica alone of the five countries, the 1960 enrolment was above the average for the region (2.4 per cent) whereas in Nicaragua, it was only 0.5 per cent.

15. The preliminary figures for highly specialized manpower needs in 1974, as computed by the CSUCA project on human resources in Central America, show that the universities will have to make great efforts to double and, in some cases, almost to treble their output of graduates from 1964 to 1974. Otherwise, it will be extremely difficult to achieve the 1974 economic targets fixed by the planning offices in the various countries.

16. It follows from what has been stated in the preceding paragraphs that education has an important role to play in the economic and social improvement of Central America and the success, stagnation or retrogression of the region in the next decades will depend on the extent to which the educational system can be improved.

III. Efficiency and output of the educational system

17. The low enrolment coefficients accurately reflect the inefficiency of the educational system resulting from the low level of participation of the school-age population and the number of drop-outs.

18. Primary education provides a minimum of learning for a population which will either continue its education or join the labour force. Particular attention must therefore be paid to the conditions in which children receive their primary education.

19. By comparing the number of pupils who, in the period 1950-1960, successfully completed the last grade (sixth) of primary school with those who finished the first grade, it is possible

to obtain an efficiency index per one hundred pupils for the region and for the individual countries. The efficiency index for Central America, in the period, was 17.1 per cent and in the individual countries it ranged from 12.1 per cent in Honduras to 22.7 per cent in Costa Rica. All the results clearly show that the cost of education is very high because so many students drop out at some stage between the beginning and end of primary school.

20. If we divide these drop-outs into three categories—potential illiterates, i.e., those who have completed the first and second grades; deficient literates, i.e., those who have completed the third to fifth grades; and satisfactory literates, i.e., those who have completed their primary schooling—we find that in the entire region, only 19.3 per cent belong to the last category while 59.7 per cent leave primary school after less than three years and, lacking the means and opportunities to use their elementary knowledge of reading and writing, rapidly become potential illiterates through neglect and thus swell the ranks of the already numerous group of those who have received no education at all.

21. If we take a cross-section, in 1960, to estimate what proportions of the population of school age (six to thirteen years) have attained various educational levels, we find that for Central America as a whole 58.3 per cent of the school-age population had no opportunity of attending primary school; this figure, added to that of the potential illiterates, gives us a tragic picture: 82.5 per cent of the population of school-age do not possess the minimum requirements for the labour force and only 8.2 per cent can be considered to have completed their primary education.

22. The reasons for such a large deficit are complex and varied. The lack of suitable teaching staff is a factor of some importance and other factors are to be found in the budgetary limitations with which Governments have to contend and in the social and economic conditions of a society which must necessarily struggle for survival before it can have an opportunity to improve its educational standards.

23. The efficiency of secondary education is little better than that of primary education and the possibilities of its being further improved are hindered by the lack of opportunities and resources for children to continue their studies. As a consequence of this process of elimination, few go on to higher education and even when they are qualified to do so, they are easily absorbed into the labour market and the possibilities of increasing the output of graduates are thereby reduced.

24. A high proportion of students continue to abandon higher education; just under 10 per cent of those who start their university studies are able to continue until the end and, consequently, the supply of high-level manpower is insufficient for the needs of economic development. It follows from the foregoing that, in order to improve the educational system in the next ten years, the greatest efforts must be concentrated on (*a*) the expansion of educational opportunities; (*b*) the improvement of efficiency at all educational levels; and (*c*) structural changes in the educational system.

IV. Educational level of the labour force

25. In 1963 the economically active population of Central America totalled 3,816,254 persons, of whom only 0.9 per cent were university graduates; 2.1 per cent had graduated from secondary schools, including those who had completed their primary schooling plus those who had had only one or two years of secondary schooling, and a very large group (87.6 per cent) had had no schooling at all or had left after one or two years in primary school. Such are the results of a defective educational system which is incapable of producing the human resources required for a stage of accelerated economic development, since, in these conditions, the levels of productivity cannot be easily raised. The very dependence of national economies on the agricultural sector and its strongly conservative attitude towards the processes of production have obscured the situation and today, when the region is faced with a challenge arising from the establishment and organization of the Central American Common Market, our labour force is educationally deficient.

26. The professional classes represent only 3.4 per cent of the total and of them only 17.7 per cent are university graduates, while the highest percentage (31.3) are of primary school level. The managerial class is only 0.4 per cent of the economically active population and the highest percentage of that class (33.3) are classified educationally as "other". Farmers, the largest group, represent 62.7 per cent of the total but 97.7 per cent of them did not complete their primary schooling. The situation of the workers is no less discouraging. While they represent over a quarter of the labour force, their educational level shows enormous gaps: 82.1 per cent did not get through first grade or had less than six years of primary schooling; only 16.7 per cent had completed their primary

schooling and only 1.2 per cent, as a whole, had received secondary and higher education.

27. The educational profiles of the six occupational groups used in the CSUCA study on human resources reveal very marked educational deficiencies both in the region as a whole and in individual countries. The educational profiles for the economically active population of the five countries reveal important differences from country to country. In Costa Rica and El Salvador, 2.6 per cent and 1.4 per cent respectively of the labour force are university trained, whereas in Guatemala, Honduras and Nicaragua, between 0.6 per cent and 0.4 per cent only of the total are university trained. The number of working people with secondary education is low in all countries. But the most striking differences are to be found in the figures for primary education which range from 22.4 per cent in Costa Rica to 5.6 per cent in Honduras. Costa Rica and El Salvador alone of all the countries are below the average for the region in the group classified "other".

28. The general presentation of the subject has sufficiently shown the inadequacy of the supply and distribution of qualified personnel for the economic development of the region; and it will not be possible for the countries involved to achieve very high rates of economic growth unless particular attention is paid to a radical overhaul of the educational system. Education, from the point of view of production, is a most lucrative investment and both planners and Governments must take due account of that fact by redoubling their efforts to achieve in the shortest possible time some positive progress in their educational systems.

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The demographic factors involved in the provision of educational facilities in the Transkei

JAN L. SADIE

1. To illustrate the demographic factors involved in the provision of educational facilities in a community where scarcity of national economic resources, which could be applied to education, is a much more serious obstacle than is encountered in industrialized societies, the Transkei—a self-governing Bantu area within the boundaries of South Africa—has been selected. It is a developing region whose economic mainstay is subsistence agriculture, the income from which is being supplemented by the earnings of exported labour.

2. The Transkei is an almost exclusively rural area. Of its Bantu inhabitants, i.e., the *de jure* population, which came to 1,622,000 in 1960,[1] after allowance has been made for under-enumeration of the 0 to 4 age group and the absentee workers, fewer than 2 per cent are living in "urban" areas. These latter consist of twenty-seven localities, of which only five have 1,000 or more Bantu inhabitants. During a period of twenty-four years, between 1936 and 1960, the proportion of urban dwellers increased from 1.2 per cent to 1.8 per cent. The urbanization of the population, which is taking place, occurs by way of temporary and permanent migration to towns and cities outside the Transkei.

3. Concomitantly, the 1,622,000 inhabitants are widely and fairly evenly scattered over 16,554 square miles of landscape with some local variation in the general pattern, giving an average density of ninety-eight persons per square mile. In terms of averages, and with reference to the provision of primary schools, this does not constitute a low density of population. With 1,559 primary schools established as of 1962, statistically each school would serve the population of 10.7 square miles, thus bringing some 193 children of primary school age, defined as those in the 7-14 age group, within easy reach of an educational institution, the longest distance to be travelled being 2.4 miles. These averages, however, obscure local differences in density. In nine of the twenty-seven districts, representing 42 per cent of the land area, the average density is only sixty-nine persons per square mile and in one district it is as low as nineteen. In a few regions, the population is so widely dispersed that primary schools cannot be located within a reasonable distance of every child of school age, or if they are, the small number of pupils per school means that a single teacher would have to handle a large number of classes if a complete primary school course were offered, which must necessarily have a detrimental effect on educational standards. In the alternative, the courses offered could be confined to the lower primary classes, which include the two substandards A and B and grades I and II, as is being done in the case of 24.8 per cent of Transkeian primary schools. By thus eliminating one problem, another is created, viz, the non-availability, within walking distance, of facilities for attaining the final primary school certificate. Distances present an impediment, not because of inaccessability of some regions, since the tarred national highway which runs through the territory is linked to an extensive network of reasonably good gravel roads, but in consequence of the economic status of the inhabitants, who cannot generally afford means of transport.

4. The problem of providing schools, which is associated with the lack of urbanization or concentrated inhabitation, is magnified in the case of post-primary educational facilities. Whereas there are, on average, eighteen children of primary school age per square mile in the Transkei, the corresponding figure for those in the 15 to 19 age group, who represent the potential attendants of secondary and/other post-primary institutions, is just over nine. Their number is reduced by 13 per cent as a result of a tradition among men of beginning their migrant labour career at around age eighteen. In the sparsely populated districts, there are less than six children of secondary school age to the square mile, and in one district fewer than two. Of necessity, facilities for them will be fewer and far between. Attendance at

[1] The data in this paper refer to the geographical area of the Transkei, which is somewhat larger than the self-governing political entity.

any of the sixty-eight secondary and vocational schools existing in 1962 is hampered by the expenses involved in board and lodging away from home and by the need for the part-time labour of the child at home.

5. While the spatial distribution of population militates against the adequate provision of educational facilities, its growth constitutes a favourable factor. The *de jure* population increased from 1,318,100 in 1936 to 1,499,400 in 1951, and 1,622,000 in 1960, which represents a growth rate of 0.86 per cent per annum during the first period and of 0.85 per cent during the second. With a birth and death rate of 43 and 22 per 1,000, respectively, its natural rate of increase is 2.1 per cent per annum. It is, therefore, an area of emigration, the permanent overflow into other parts of South Africa being larger than the natural increase which is accommodated by the Transkei itself. While easing the demographic burden in the territory, the concentration of a majority of emigrants in towns and cities outside its borders facilitates the provision of educational opportunities for them. In consequence, as the table given below indicates, the number of children 7 to 14 years old increased, on an average, by only 2,100 each year between 1951 and 1960, or by 0.73 per cent per annum, approximately 4,700 having left the territory every year. If the latter had remained in the Transkei, the authorities would have had to cope with an annual addition to the potential primary school population of 2.06 per cent. At 0.51 per cent, the annual increase in the potential secondary (or high) school population was smaller still. *Ceteris paribus,* this demographic situation should have rendered it easier for the supply of schools and teachers to remain ahead of the new demand arising from the entry of children into the appropriate age groups. This factor, coupled with the campaign to raise the general standard of education, helped to increase the primary enrolment ratio from 74 per cent in 1959 to an estimated 95 per cent in 1964. Enrolment in post-primary schools, as a percentage of population aged 15 to 19 years, increased only from 5 to 6 per cent, however.

Number of children of school age and enrolment ratios, 1951-1965

	Primary school			*Post-primary institution*		
Year	*Population 7-14* [a]	*Average enrolment* [b]	*Enrolment ratio (percentage)*	*Population 15-19* [a]	*Enrolment* [b]	*Enrolment ratio (percentage)*
1951....	280,180	—	—	147,430	—	—
1959....	296,350	219,699	74.1	153,480	7,735	5.0
1960....	299,170	243,835	81.5	154,280	8,890	5.7
1961....	301,050	255,523	84.9	155,320	8,968	5.8
1962....	302,950	261,622	86.4	156,380	9,134	5.8
1963....	304,890	277,427	91.0	157,460	9,490	6.0
1964....	306,880	291,930[c]	95.1	158,560	—	—
1965....	308,880	—	—	159,680	—	—

SOURCES: South Africa, National Censuses: *Annual Reports of the Department of Bantu Education* (Department of Education of the Transkei).

[a] Estimates for the years after 1960 based on the assumption of a continuation of the 1951-1960 rate of emigration.

[b] Refers to enrolment at the middle of the school-year.

[c] Preliminary.

6. What with high birth and death rates in the Transkei a youthful age composition is to be expected. On the basis of the foregoing table, the percentage distribution of the *de jure* population in three broad age groups in 1960 was as follows: 0-14 years, 38.8 per cent; 15-64 years, 57.9 per cent; and 65 years and over, 3.3 per cent. Owing to the differential age incidence of permanent emigration, the dependency ratio is, at 73, somewhat lower than it would have been in the absence of such emigration. Even so, of the total, the children of primary school age form 18.4 per cent, and the over-all potential school population is 27.9 per cent. The significance of these proportions can be appreciated by comparing them with 16.3 and 25.2 per cent, respectively, found among the white population of South Africa, which has reached an intermediate stage in the aging process. Over the years, the relative number of Bantu children in the 7 to 14 age group has shown no increase, the juvenescent effect of diminishing mortality having been all but neutralized by emigration. The comparative youthfulness of the population is reflected in the relatively large number of children of pri-

mary school age, namely, 318, whose educational expenses are to be borne by each 1,000 persons in the "productive" age group, 15 to 64. This compares with 268 among the South African whites. If all these children attend school and an average of thirty-four is assumed as a reasonable number of pupils to be handled by one teacher,[2] ninety-five teachers per 10,000 persons in the 15 to 64 age group are required, compared with eighty among whites. This burden is being alleviated by increasing the load per teacher, which in 1962 amounted to fifty-four pupils. In 61 per cent of the primary schools, however, two sessions are being held, which reduces the average number of pupils instructed per teacher at a time to thirty-four. Or, in other words, while keeping the average load per session reasonably low, the performance of each teacher is increased by the expedient of double sessions.

7. This latter practice, incidentally, has the advantage of enabling parents with two or more children at school to make use of the services of a child at home, if they so prefer, while the others are receiving instruction.

8. Included in the *de jure* population of 1960 are 220,200 male absentee migrant workers. At any time during the year some 46.2 per cent of the men between 15 and 64 years of age are away from home. The export of labour supplies the cash to pay for schoolbooks and fees, monetary transactions involved in subsistence agriculture being a minimum. The migrant labour system brings the population in contact with an urban, technological culture, which appears to widen mental horizons, generate new values and stimulate the desire for more and better education for their children. While the absence of the father might conceivably make for laxity in school attendance on the part of children, it is counteracted by the enthusiastic appreciation of the value of education and their social system of mutual, communal responsibility. Although the average absenteeism of 12.5 per cent among pupils is considerably higher than what is considered normal, it is owing to economic circumstances rather than to the absence of parental authority. To young men, the migratory labour system offers an alternative to school attendance, and, as a result, the enrolment ratio of girls exceeds that of boys.

9. The average enrolment being only 3.5 per cent below the initial number at the beginning of the school-year, absenteeism does not appear to involve actual permanent dropping-out during the course of the year so much as irregular attendance. The effect, however, is the same, namely, a boosting of the number who repeat their grades. The resulting increase in enrolment ratios would not reflect a corresponding rise in the educational standards achieved. It also means that educational facilities have to be provided for larger numbers than actually receive regular and effective instruction.

10. The complete primary school course provides for eight years of tuition, which includes substandards *A* and *B* and standards I to VI. The normal age of entry being seven, the pupil who does not fail any of his grades would be fourteen by the time he passes the final grade. In practice, the age distribution by grade of pupils deviates greatly from the theoretical expectation, as is borne out by the following statistics which relate to 1961:

[2] This is the average number of pupils per teacher per session in the Transkei.

	Substandards		*Standards*					
	A	*B*	*I*	*II*	*III*	*IV*	*V*	*VI*
Arithmetic: average age (in years) of pupils	9.0	10.3	11.5	12.4	13.3	14.2	15.3	16.2
Percentage above normal age	66.1	73.2	77.2	77.8	77.3	75.1	73.2	72.6

SOURCE: Republic of South Africa, *Annual Report of the Department of Bantu Education*, 1962, pp. 23-25.

Primary school enrolment, no less than those in secondary and high schools, is characterized by considerable retardation with respect to age, in most cases more than two years. Of those in the first primary grade, only 33.9 per cent are seven years of age, and of the remainder, 22.5 per cent are retarded for three and more years. This tendency is reinforced by the bunching effect of rapidly rising enrolment ratios, resulting from a campaign which seeks to attract new entrants who had previously avoided school or have had no opportunities available to them. Any increase in the degree of age retardation means an addition

to the number of schools or teachers required, over and above the demands of population growth.

11. The age-specific rates of enrolment among children 7 to 14 years old were as follows during 1961:

	Age							
	7	8	9	10	11	12	13	14
Percentage enrolled.....	55.0	76.0	82.9	83.8	88.3	85.0	74.3	58.8

SOURCE: Republic of South Africa, *Annual Report of the Department of Bantu Education,* 1962.

These figures reflect once more the tendency towards entering school at an advanced age. Converting these rates into a single magnitude, it is found that the gross average number of years a child is expected to be enrolled at school between his seventh and fifteenth birthday amounts to 6.04 years, or 75 per cent of the potential number of eight years. When mortality is taken into account, the net years of expected primary school life becomes 5.8 years. The gradual increase in the ratio of actual to potential duration of school life from 66 per cent in 1959 to 84 per cent in 1964 represents, perhaps, more adequately than do the gross ratios in the first table, the enrolment situation in primary schools.[3]

12. While the volume of school accommodation required is determined by the size, growth and composition of the population, together with enrolment ratios, the type of facilities to be provided is a function of grade retention ratios, if policy is assumed to be a neutral variable. On the basis of the experience over the last eight years, of a typical cohort of 100 Transkeian pupils who start their school career, seventy-five proceed to the second class, sixty-nine to the third etc., until twenty-five reach the final (eighth) primary school year, of whom twenty-one obtain their final certificates.[4] Of these latter, just over eight pupils proceed to secondary schools, while one other attends a vocational school. Eventually fewer than 0.2 will obtain the matriculation certificate or its equivalent, and not all of them will have the qualifications for entering a university. Assuming that those who do not proceed to the next grade have failed —an assumption which tends to underestimate the degree of success—the grade survival ratios can be translated into an average number of grades completed by a cohort passing through school. In the case of the primary school, this came to 3.6 grades out of a potential number of eight, a statistic which epitomizes the high rate of dropping-out of pupils during their school career.

13. Such low grade-survival ratios, coupled with the fact that the population is relatively small and widely scattered over a sizable area, make it extremely unlikely that post-primary schools could be conveniently situated within easy reach of everyone concerned. The costs per student of operating a university or other institution of higher education out of own resources would become well-nigh prohibitive, and external sources would have to be approached for financial support.

[3] The figure for 1964 was based on the assumption that the relative distribution of age-specific rates did not change between 1961 and 1964.

[4] Republic of South Africa, *Annual Reports of the Department of Bantu Education,* 1962.

Education and fertility in Puerto Rico

J. MAYONE STYCOS

1. One of the most important questions for nations where population growth is impeding economic development refers to the relation between education and fertility. Interest is motivated by the belief that western fertility declines have been caused, at least in part, by advances in education for the general population. As a consequence of this belief, modernizing countries sometimes argue that direct programmes to induce fertility control are unnecessary, since educational advances will take care of the problem. Others justify heavy outlays in population education, especially at the primary levels, partly in terms of the presumed effect *on* fertility.

2. At a very general level, some relation between crude measures of fertility and education is found for most Latin American countries. Utilizing 1950 census data for eleven Latin American countries, child-woman ratios (persons aged 0-4 per 1,000 women aged 15-49) and literacy rates (percentage of adult population who can read and write) were computed for the smallest administrative units in each country reported in the censuses.[1] Although considerable variation in size of the relation between these two measures was apparent, in all cases the relation was negative, ranging from lows of — 0.10 to — 0.26 for Honduras, Panama, Mexico and Venezuela, through moderate correlations of — 0.36 and —0.46 for Guatemala and Colombia, to correlations of — 0.60 and over for El Salvador, Costa Rica, Nicaragua, Chile and Argentina.

3. While of considerable interest, the interpretation of such findings is made difficult by the crudeness of the measures themselves, the difficulty of holding constant such related variables such as urbanization,[2] and by the general limitations on causal inference based on ecological correlations. Furthermore, for any nation engaged in systematic planning, the question is not so much whether education produces a reduction in human fertility, as how much education produces how much of a change in fertility among which categories of the population. To answer such a question, while avoiding the limitations of ecological data, direct cross tabulations of educational achievement and fertility are needed, holding constant other relevant variables.

4. One of the few attempts of this kind for Latin American populations occurs in A. Jaffe's study of Puerto Rico. Utilizing 1955 sample survey data from the Puerto Rican Bureau of Labour Statistics, Jaffe concluded that "...at least six and possibly nine years of schooling for women is required before any significant decline in the birth rate occurs...;" and "the combined influence of increasing education and increasing participation of women in modern economic enterprises is likely to be more effective than either factor by itself".[3] The present paper continues this discussion by utilizing 1960 census data for Puerto Rico.

5. Jaffe's important thesis that at least six years of schooling was needed in order to have a real influence on fertility was somewhat limited by the broad educational categories reported in his analysis: zero to four years, five to nine, and ten or more years of schooling. As Jaffe pointed out, "The data do not show at what point the education of women begins to take effect, i.e., whether six, seven, eight or nine years of schooling are needed...". Table 1, utilizing 1960 special tabulations, increases the number of categories. In order to simplify the analysis, the data have been confined to legally married women of completed fertility whose spouses were present.

[1] The countries were Argentina, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama and Venezuela. The number of units ranged from fourteen in El Salvador to sixty-five in Costa Rica.

[2] While the mean correlation between the fertility ratio and the percentage of literate persons for the eleven countries is — 0.46, it is — 0.58 between the fertility ratios and the percentage of urban population. Unpublished data of the International Population Program. For a more extended analysis of a single country, using similar data, see J. M. Stycos, "Culture and differential fertility in Peru", *Population Studies*, vol. XVI, No. 3 (March, 1963).

[3] A. J. Jaffe, *People, Jobs and Economic Development* (Glencoe, Ill., Free Press, 1959), pp. 196-197.

Table 1. Total live births per 1,000 married women aged 45 and over,[a] by education, Puerto Rico, 1960

Years of school completed	*Births per 1,000 women*	*Change from preceding category (percentage)*	*Women in category (percentage)*
0	7,421	—	35.2
Primary:			
1-4	6,896	—7.0	32.8
5-6	5,836	—15.4	11.7
7-8	4,288	—26.5	8.5
Secondary:			
1-3	3,367	—21.5	4.0
4	2,453	—27.1	3.4
College:			
1 +	1,920	—21.7	4.4
TOTAL	6,224	—	100.0

SOURCE: Special tabulations of the 1960 census of Puerto Rico.
[a] Legally married women with spouses present.

6. The total range in fertility is very great. Women with no education have had 3.3 times as many births as those with one or more years of college. If the progression were distributed evenly over the approximately fourteen years of education, it would mean that each additional year of schooling produced 0.4 fewer live births—or well over one birth for every three years of schooling. However, the progression is not even. There is only a difference of 7 per cent in the number of live births between those with no education and those with one to four years of education. Between the latter category and those with five or six there is a 15 per cent reduction in fertility. Thus, women with about six years of schooling, a major educational goal for many modernizing countries, have only 1.6 fewer live births by completion of the childbearing period than do women who have had no education. Each year of education over this range means only 0.28 fewer births and much less than this at the lower end of the educational continuum.

7. The data indicate an accelerating effect of education on fertility, starting very slowly in the lower primary school,[4] and reaching a high level towards the end of junior high school, which is maintained thereafter. Differences are especially marked at the points of completing primary school and high school, which is maintained thereafter. Differences are especially marked at the points of completing primary school and high school,[5] but from the seventh grade on there are marked differences in fertility with each increment of education.[6]

8. As noted earlier, in evaluating or explaining the influence of education on fertility, one must control other variables, probably the most important of which is residence. In Puerto Rico, there is a marked relation between residence and education. For example, of legally married women aged 45 and over in 1960, 49 per cent in San Juan, 59 per cent in other urban areas and 83 per cent in rural areas have had less than five years of schooling.

9. In table 2, a three-category residential classification—the San Juan Standard Metropolitan Statistical Areas, other urban areas and rural areas—has been introduced:

[4] The accelerating effect of education on fertility may even occur within the first category, zero to four years. Published data for ever-married women aged 35-44 (including consensually married, divorced, separated or widowed) show a 2.7 drop in live births between those with no education and those with one or two years, and a drop of 3.5 per cent between the latter category and those with three or four.

[5] See *United States Census of Population, 1960: Puerto Rico*, Series PC (1), No. 53D (Washington, Government Printing Office), table 95.

[6] It is of interest that even women with seven or eight years of education are having more than twice as many live births as the average Puerto Rican woman considers the ideal number of children to have (two or less)—and only a fifth of the women get this far in school. See P. K. Hatt, *Backgrounds of Human Fertility in Puerto Rico* (Princeton, Princeton University Press, 1952), p. 53, table 37.

Table 2. Total live births per 1,000 married women aged 45 and over,[a] by education and residence, Puerto Rico, 1960

Years of school completed	*San Juan SMSA*	*Urban*	*Rural*
0	6,936	6,454	7,830
Primary:			
1-4	5,962	5,865	7,626
5-6	5,078	4,942	6,886
7-8	3,924	4,106	5,271
Secondary:			
1-3	3,032	3,295	4,454
4	2,386	2,525	2,648
College:			
1 +	1,909	1,938	1,931
TOTAL	4,878	5,200	7,422

SOURCE: Special tabulations of the 1960 census of Puerto Rico.
[a] Legally married women with spouses present.

10. Although there is little difference between San Juan and other urban areas when education is controlled, both education and residence (rural and non-rural) show independent relationships with fertility. Over the total educational range, i.e., from those with no education to those with one or more years of college, the rural areas show the greatest absolute and relative declines in fertility. Rural women of no education have had four times as many births as rural college women.

11. Urban fertility starts at a higher level than rural, but declines somewhat less over the entire educational range. The net effect is that towards the upper end of the educational range, differences in fertility by residence have virtually disappeared.[7] High educational inputs serve to equalize fertility at low levels among women of varying residence. The leveling out, however, does not occur until completion of high school.

12. An important question for the strategy of modernization relates to the timing and amounts of rural *versus* urban investments in education. In terms of effects on fertility, will the dollar invested in rural schools go so far as the dollar invested in urban schools?

13. Looking at the degree of change in fertility associated with successive increments of education within each residential area (table 3), one finds that rural and urban areas have somewhat different patterns. The modest declines in fertility which are characteristic for the Commonwealth as a whole at the primary school level are especially characteristic of rural areas. Despite the fact that education eventually levels out fertility differences between urban and rural areas, the same increases in education do not have the same effect on fertility in rural and urban areas at the same time. Thus, urban fertility drops by 25 per cent between women with no education and women with five or six years, but only by 12 per cent for rural women. It would appear that modest inputs of education have a negligible impact in rural areas, but a more important effect in urban areas. To summarize, a little education goes a longer way in the urban areas, but a lot of education goes farthest in rural areas.

Table 3. Percentage change in fertility (live births per 1,000 legally married women 45+) between successive educational categories, by residence, Puerto Rico, 1960

Between educational categories	*San Juan SMSA and urban*	*Rural*
0 and 1-4	—11.5	—2.6
1-4 and 5-6	—15.2	—9.7
5-6 and 7-8	—20.1	—23.4
7-8 and 1-3 high school	—21.9	—15.5
1-3 and 4 high school	—22.4	—40.5
4 high school and college	—20.9	—27.1

14. If fertility is closely related to education, even when other variables are controlled, what accounts for this relation? While physiological and nutritional factors should not be ignored, there is good reason to believe that the major

[7] Jaffe found that urban and rural differences disappeared after ten years of education. Since part of the San Juan metropolitan area was classified as rural, he speculated that "a higher proportion of the better educated 'rural' women were residing in the metropolitan area and conforming to urban rather than rural ways of life", op. cit., p. 181.

explanation lies in deliberate attempts by couples to limit their fertility. As obvious as this point may seem, it is sometimes seemingly denied by non-demographers who imply that education could be a substitute for birth control.

15. Table 4 shows data from a sample survey conducted in Puerto Rico in 1953, relating the practice of birth control to residence and education.

Table 4. Percentage who have used a birth control method, by residence and education, Puerto Rico, 1953 [a]

Years of education	*Urban*	*Rural*
0	40	26
1-4	40	35
5-8	57	37
9 + ...	71	64

[a] While the sample was representative of the population of Puerto Rican households, the reported data for 767 couples refer to the married or consensually married population. See R. Hill, J. M. Stycos, and K. W. Back, *The Family and Population Control* (Chapel Hill, University of North Carolina Press, 1959), p. 164, table 78.

16. Consistent with the foregoing findings on fertility, one sees that:

(*a*) Urban residence and years of education are independently and positively related to the practice of birth control;

(*b*) At the high school level, differences in contraceptive practice virtually disappear between urban and rural families;

(*c*) The largest impact of education on contraceptive practice occurs after elementary school, in both urban and rural areas. However, the data do not support the hypothesis that a little education has more impact in the urban areas.

Conclusions

17. Over the past half-century, Puerto Rico has shown remarkable gains in education. According to census data, 55 per cent of its population over age 10 was illiterate in 1920, 41 per cent in 1930, 32 per cent in 1940, 25 per cent in 1950 and 19 per cent in 1960. The birth rate, however, showed no signs of change until the turn of the half-century, when it began dropping from about forty to its current rate of about thirty-one. However, other evidence indicates that much of this decline was caused by the out-migration of Puerto Ricans in the reproductive ages. It would appear that major improvements in education do not produce automatic fertility declines within the time span discussed.

18. On the other hand, the analysis presented here shows marked differential fertility by education. The fact that the differentials accelerate with education, with major declines occurring only after elementary school is achieved, accounts for the apparent discrepancy, for much of Puerto Rico's educational gains have been at lower levels.

19. The implications of the foregoing for Latin American countries with currently high birth rates are not favourable. Educational gains in Puerto Rico have been accomplished in a most propitious milieu for fertility decline, i.e., they have been accompanied by marked gains in per capita income, urbanization and industrialization. (In 1950 its per capita commercial energy consumption was exceeded only by Argentina, Chile and Venezuela; its per capita income only by Venezuela.) Thus, educational gains have not occurred in a "socio-economic vacuum", as may occur with some Latin American countries.

20. In any event, most Latin American countries are well behind Puerto Rico in education. In 1950 at least eleven Latin American countries showed higher illiteracy rates than did Puerto Rico in 1930, and the average level of schooling in most Latin American countries is well below the point where crucial drops in fertility were seen to take place in Puerto Rico. In 1950, in at least nine Latin countries, more than three quarters of the males aged 25 and over had completed less than four years of primary school; in only two countries and Puerto Rico was this figure under 50 per cent. [8] For the sixteen Latin American countries where data were available, only about 7 per cent of the total population aged 15 years and over had more than six years of education. The average years completed in these countries were 2.2, as opposed to 4.5 in Puerto Rico. [9] Most striking of all are data from the mid-1950's which indicate that only about one in every four or five who begin school in Latin America ever completed the elementary level, and only one in twenty complete the secondary level. [10] Latin American countries which wait for "education" to reduce birth rates may wait a long time.

[8] *United Nations Compendium of Social Statistics: 1963* (United Nations publication, Sales No.: 63. XVII.3), table 60.

[9] See O. Vera, "The educational situation and requirements in Latin America," in E. De Vries and J. Medina Echevarria, *Social Aspects of Economic Development in Latin America*, vol. 1 (Paris, United Nations Educational, Scientific and Cultural Organization, 1963), p. 286, table 3.

[10] *Ibid.*, pp. 291, 303.

Educational expansion, deployment of educated personnel and economic development in China

H. YUAN TIEN

1. China (Mainland), along with other developing nations, is often said to enjoy many advantages in its efforts to modernize and develop economically. In particular, it can make use of technical knowedge and technological innovations which were not available wholesale to developed nations at the initial stages of their modernization. These advantages are undoubtedly real. What is generally not stressed is the fact that people in the developing nations must be made literate and taught the necessary skills before they can make use of techniques and equipment introduced from without or developed from within. Whatever their other prerequisites, modernization and economic development can thus best proceed only with increased efficiency in the utilization of human resources. The importance of education and the role of the educated are therefore apparent.

2. However, education has other important social connotations, in addition to its utility in economic development. In China, as in other developing nations, education is viewed also as a personal transmogrification through learning. In the process of educational attainment, pressures or expectations are inevitably built up, which can have considerable impact on both the individual occupational aspirations and the internal mobility of the educated. In this paper, an attempt is made to trace some of the consequences of educational expansion in China in relation to the geographical distribution of educated personnel and economic development.

3. Leaving aside such questions as the method of instruction and the contents of the curricula, one salient feature of post-1949 developments in Chinese education is that the greatest expansion has occurred at the lower levels. The number of students who completed primary school reportedly increased nearly six times between 1950 and 1958. At the secondary level during the same period, the number of graduates increased a little more than four times. There was a threefold increase in the number of students who graduated from institutions of higher learning between 1951 and 1958. This pattern of differential growth means, among other things, the enforced termination of formal education for a large number of students at pre-college levels. In 1957, for instance, for every student in the university, there were four in senior secondary schools, eleven in junior secondary schools, and 150 in primary schools. Cumulatively, therefore, of the students who finished the primary school, an estimated total of 77.7 million were barred from further schooling at the secondary level. Another 5.5 million graduates of senior secondary schools failed to gain entrance into universities. Whatever qualifications may be in order regarding these statistics, a large pool of relatively educated persons has evidently been formed in China.

4. In relation to modernization and economic development, this large pool of such persons should certainly prove useful for the tasks at hand. In actuality, however, there are a number of complicating factors and complex questions concerning their effective utilization. In terms of the "manual-non-manual" dichotomy, individuals can be placed along a vertical scale based on differential prestige conventionally attached to the various occupational pursuits. But there is also a horizontal (geographical) dimension to the question of manpower utilization: persons in the labour force can be employed either in urban places or in rural areas. Roughly speaking, therefore, according to current or anticipated needs, Chinese manpower can be distributed in four different sectors: urban non-manual, urban manual, rural non-manual and rural manual. The urban non-manual sector is the smallest, and the urban manual and rural non-manual sectors fall somewhere between it and the rural manual sector. In the Chinese situation, the bulk of the economically active population is employed in the last sector.

5. Given the national effort to modernize and develop economically, there will ultimately be a drastic modification in the distribution of the economically active population. When that occurs, the rural manual sector will have become greatly reduced in relative size and ab-

solute numbers. Meantime, a fundamental question is the rate or the rapidity with which this shift—a shift principally out of agriculture into non-agricultural occupations—can be accomplished.

6. As previously noted, post-1949 expansion in education has produced a large pool of comparatively educated persons. It should be stressed that the extension of education to include greater and greater numbers of people is, in itself, an intrinsic part of modernization. However whatever its other utilities in relation to economic development, education itself is also a potent stimulus socially and demographically.

7. In this connexion, and to illustrate the point, it is of interest to note a recent Chinese statement:

> "There are some people who believe that [Chinese] villages have no need for knowledge, and that it is 'too bad' for educated youths to become peasants. This is an old-fashioned viewpoint. Is it really 'too bad' for high school students to become peasants? Does this mean that this constitutes 'the use of large material for small purposes' (the employment of talented men in inferior capacities)? ... Ours is a socialist country. The great majority of the people must participate directly in productive work. The aim of learning is not to separate 'mental workers' from 'manual workers', but is to enable a person to become a worker equipped with both knowledge and a socialist consciousness. That educated youths go to the villages and join the practical struggle is only to consolidate their proletariat point of view, ... and to infuse step by step 'mental work' with 'manual work' ...." [1]

In *A Chinese Village*, one also reads:

> "A member of the Yang clan ... had a very good reputation as a student when he was in the market-town school. He was praised by the teachers, the community leaders of the whole market-town area, and also by the senior members of the P'an clan. ... [However,] the young man was very unconventional. Even after he became a college student, he still came home to work on his father's farm during the summer vacations. He dressed like an ordinary farmer. This gave the kinsmen and the villagers the impression that he was not going to be a scholar or a gentleman or an official... and they became indifferent to him. ...." [2]

[1] *People's Daily*, 26 August 1963.

[2] Martin C. Yang, *A Chinese Village* (New York, Columbia University Press, 1945).

This is indicative not only of what an educated cannot or should not do, but also of what he must or ought to do. For him and those similarly situated, therefore, the social expectation is that they leave or shun jobs which amount to only "the manipulation of things" and follow pursuits in the "manipulation of people". To the extent that the fulfilment of such expectations hinges on non-return to villages of origin, and to the extent that people with some education or literacy are more likely to migrate to the cities, one major consequence of expanded educational opportunities is what Hsiao-tung Fei has aptly called the social erosion of the rural communities analogous to the process of mining natural resources. [3]

8. Therefore, post-1949 expansion in education means, among other things, that a large number of people have become aware of occupational alternatives which were unknown or unreachable for them and which were denied to their parents and older relatives. Given this downward extension of the ladder of opportunity and the accompanying expanded occupational horizons beyond the village, one logical result is for the educated to develop aspirations for further education or employment which is both currently and potentially more rewarding than manual work in a rural area.

9. On the other hand, the retention or transfer of educated persons to rural areas is of central importance in the strategy for development. With reference to the current Chinese effort "to strengthen the agricultural front", for instance, it would be unsound to take it to mean simply an increase in the supply of fertilizer, farm machinery, improved seeds and the like. Educated persons are also needed in the rural areas to act as change catalysts and to contribute to rural improvement in matters relating to education, health, cultural activities and administrative functions.

10. Of course, the question concerning the effective employment of educated persons would be resolved relatively easily in the Chinese and similar situations, were material incentives amply available to be extensively applied to induce their "voluntary" relocation to places where they are needed. The fact of the matter is that where differential rewards exist in China, they tend to draw people, educated and otherwise, in the opposite direction. Wages and other amenities are more favourable in urban places, particularly in industrial and commercial centres, than in rural areas.

[3] Hsiao-tung Fei, *China's Gentry* (Chicago, Chicago University Press, 1953).

11. Yet, the urban non-manual sector (which is the traditional outlet for the educated) is unlikely even to be able to absorb any appreciable number of the growing educated population from within the cities themselves, and it is much less probable for it to be able to employ many from the rural areas. As far as the urban manual sector is concerned, there will probably be some increase, particularly in terms of service and related occupations. Again, this can probably be easily accomplished without any substantial in-migration from rural areas. This means that, in all probability, the great majority of educated persons in the foreseeable future can only hope to find employment in the rural manual and non-manual sectors.

12. In other words, it must be observed that economic development of China thus far has allowed only a limited change in occupational structure. For instance, the Second Five-year Plan (1958-1962) projected an average increase of 1.4 million persons per annum. As previously noted, the expansion in education, especially at the primary and secondary levels, has evidently occurred at a much faster rate than employment opportunities in the non-agricultural sector. To the extent that this is true (and probably unavoidable), post-1949 expansion in education may be considered inconsistent with the short-term goals of national development, as the great majority of people must still be employed in the villages and agriculture.

13. In the light of these and other considerations, the deployment of educated persons in relation to economic development becomes what may be called a problem of diverting them from their "traditional" occupational goals. This "diversification" of occupational goals among the educated has also another dimension. To the extent that it involves an horizontally (geographically) effective distribution of educated persons in the over-all context of planned change, it entails their leaving urban areas, or returning to the countryside, or staying there, as the case may be. In short, many of the educated are expected to place themselves at the bottom of the vertical occupational scale and remain away from the city.

14. In fact, since the early 1950's, a variety of Chinese publications have printed editorials, feature articles, accounts of personal experiences and news items, in which public counselling regarding occupational choices is provided for students about to graduate from primary and secondary schools, technical institutions and universities. They are urged to "go to places where the country needs them most", namely, the rural areas. The most specific expression of this can be found in the communique of the National People's Congress in Peking in 1962: "To reduce the urban population and the number of workers and functionaries to an appropriate extent by persuading, first of all, those workers and functionaries who had come from the rural area to return to rural productive work and strengthen the agricultural front."

Demographic considerations in integrated planning of educational levels

J. E. VAIZEY

1. The development of education throughout the world has notably accelerated in the last fifteen years and more particularly in the last five years.

2. The goals for educational development may be broadly considered under a number of heads. In the first place, there is the target for universal literacy which entails the development of adult education on a wide scale. Secondly, there is a universal adoption of the principle of compulsory free primary education. Thirdly, the development of secondary and higher education is a necessary consequence of the development under the first two heads. Education is a process where the appetite grows with eating, and it is observed that an initial period of education leads to demands for more education at secondary and higher levels. Fourthly, there is the target for secondary and higher education which is derived from economic and social targets. It has been felt in most countries that the goals for economic and social development themselves place a heavy demand upon secondary and higher education.

3. The task of educational planning is to reconcile all these factors, which pull in different directions. Their achievement is made more difficult by the population expansion. The rate of growth of educational expenditure to maintain current levels of educational activity (e.g., enrolment ratios and so on) is in itself alarmingly high in relation to the expected gross national products of many countries. When, in addition, it is realized that the unit costs of education tend to rise in relation to other costs, mainly as a result of improvements in educational standards, it will be seen that the total target for educational expenditure is considerably higher in many countries than is likely to be attained with any ease or comfort.

4. The problems of meeting the targets may be listed under a number of heads. First, there is the problem of organization and planning a massive drive for educational expansion and improvement. Secondly, there is the task of financing the programme through public funds. Thirdly, there is the task of meeting requirements for those parts of the programme depending upon foreign exchange, which imposes a severe constraint in a number of countries. Lastly, there are particular bottlenecks with certain kinds of real resources, especially in the supply of teachers; frequently, the shortage of teachers and, more occasionally, of buildings and books, has led to a catastrophic decline in standards.

5. Thus, it will be seen that the problems of extension of education in the contemporary world are acute and that they raise administrative and economic questions of a profound nature. The difficulties would be eased by two major forms of policy. One is a direct attack on the problem of educational unit costs. At the current time in education, there is a tremendous amount of waste by dropouts and in terms of repeated failure to attain minimum standards. In addition, it is known that frequently more costly courses of action are adopted than are justified by the circumstances in which a country finds itself. It is thought that an analysis of educational methods in terms of their cost and effectiveness might well save substantial amounts of real resources.

6. It is striking that the technological innovations in medicine, which have revolutionized it in the past thirty years, have so far not spilled over into education. It is possible that a similar breakthrough in education is imminent.

7. The second main front on which progress might be expected is the development of a positive population policy. It is obvious that one of the consequences of universal education is that the share of family income allocated to children will have to rise. This derives from two facts. First, the income from child work is reduced or eliminated; secondly, the cost of maintaining a child at school, even when the education is itself free, is substantial in terms of food, clothing etc., and the rising standards of society, which are associated with ever-increasing educational levels themselves, raise the social standards of expenditure per child. A more immediate effect on family size would obviously be felt if the cost of education were directly borne by the families with children, but

this runs counter to most current political thinking. Generally speaking, family size is determined by: (*a*) the age of marriage of the women; and (*b*) the spacing of the family (which is affected, in turn, by such matters as contraceptive techniques etc.). Both these factors, age of marriage and spacing of births, are in part determined by social and economic considerations. In developed countries, during the slump, the age of marriage rose and the size of completed family fell. In recent years, both trends have been reversed. The rise in female participation rates in the labour force, which has accompanied the high employment levels of the post-war world, has not acted, it seems, to counteract these trends. Until recently, it has been roughly true that family income was negatively correlated with family size. This is no longer true: both the higher and the lower socio-economic groups tend to have larger families than the middle socio-economic groups.

8. In general, the more expensive it is to rear children, the fewer children there will be per family (at a given income level), whether from postponed marriage or few children per marriage. But this general tendency is offset by: (*a*) rising personal incomes; and (*b*) shifts in tastes towards child-centred families.

9. Thus, what is really interesting in societies where middle-class incomes are widespread is the degree to which the family is child-centred. For this will affect not only the number of children per family but also the amount spent on children. If one takes two extreme cases, they will illustrate this point.

10. A family might decide to limit its number of children in order to spend as much as possible on each child, or, if there were no serious economic constraints, in order to devote as much attention to each child as possible. On the other hand, a family might decide to have a large number of children because it wanted them to have the benefits of living in a large family. The psychological evidence has pointed first in one direction and now in the other. The economic argument has won going towards the larger family, by removing the constraints in family size.

11. Thus, it has been noted that the major educational targets are affected: (*a*) by the cost per unit of education; and (*b*) by population trends. What must now be considered is how far the total level of activity in education is determined by regard to economic and social requirements. Here one has a dual problem. On the one hand, investment in education is necessary for economic growth, but, on the other hand, economic growth is necessary to provide resources for education.

12. Economic and social development go hand in hand. The task is to accelerate economic growth while safeguarding the standard of living of the people during the process of growth. During the early period of industrialization in many countries, enormous social disruption has taken place. As change takes place, people get hurt. Education of the right sort can help to avoid this disruption and make changes in social attitudes an important element in growth. So the first task of education could be said to be that of making economic growth an acceptable and desirable objective for the mass of the people. But education has also another important role. The scarcest resource in most countries is skill—sometimes high-level skills, sometimes low-level skills and sometimes both together. Capital goods may lie idle, land be wastefully used and opportunities be unexploited because the people lack training. Training, of course, can be accepted in many ways—through short training courses of people already working in industry, trade, agriculture and government—or even by simply learning on the job. After all, most automobile mechanics, in the early days, had looked after horses, and just picked up their new skills. But the main way of making skill available is by the long-term organization of education at all levels. Since newly trained people must have a general educational background, the provision of specific skills implies an adequate system of education. At this point, it is necessary to assert, but not to demonstrate, that the provision of skill through education is a long-range fundamental process, which requires considerable modification and adjustments in the accepted techniques of economic planning.

13. In conjunction with the principal aim of increasing the flow of skills into the economy through the educational system, there is another social objective which makes education an important sector in the economy. This is the acknowledged thirst of the peoples of the poorer countries for schools for their children. For, while education is a producers' good—creating wealth—it is also an item of consumption, like food.

14. The demand for literacy is growing rapidly, and the demand for education at higher levels grows enormously fast, too. Education, therefore, has three roles in economic development. It changes attitudes and is a precondition of growth. It provides skills and is an essential component of growth. But it

is also an aspect of the rising standard of living that growth permits and it is, therefore, a consequence of growth. Thus, the provision of schools and teachers makes considerable demands upon current resources and, as education is mainly a public enterprise, the greater part of these resources have to be found by Governments, either central or local. It follows that the allocation of resources to education will play a major role in decisions about priorities in public policy.

15. Two other matters must also be borne in mind. An increasing volume of international aid is likely to be made available for education. In a sense, education in the poorer countries has often been supported from overseas through missionary and colonial activity, but international effort on the scale now foreseen is something new and important. Unless the aid is properly co-ordinated with activities initiated internally, the system of national priorities may be distorted by the form and size of international help.

16. Secondly, the general raising of social and cultural levels through education is something which is difficult to pin down, but which is widely acknowledged to be a fundamental cause of economic growth and development, affecting both its skill and its character. This social role of education would be important even if education made no direct contribution to economic growth, and it would, therefore, be wrong to conceive of education wholly in terms of its role as a source of skills. Wise judgements need to be made about the character of society which is likely to emerge from the changes which take place in the educational system. Economic growth and social change must go together, and education is the essential link. In creating an educative society, one must look several generations ahead. Today's children are tomorrow's citizens. As one educates them, one decides what tomorrow will be like. The long-range views which are necessary in order properly to plan education may well be a means of discussing fundamental issues, which tend to be neglected in the seemingly more urgent discussions of short-term economic problems.

17. One sees, therefore, that education and economic and social development are closely related. First, education provides skills—the "manpower approach" to educational development is an important one. Education is also concerned with changing the existing technology in many economies. The development of scientific and technological research, and the transmission of its results to industrialists and farmers, are functions of the educational system. In the developing nations, too, technological developments may be imported from more advanced economies, through the use of overseas training facilities.

18. But alongside these primary links between the economy and education are social connexions of no less importance. Education is a source of social change. It is also a consumer good for which the demand increases rapidly in response to economic development. Thus, education can be looked at as a sector of the economy for which facilities have to be provided, and the problems of providing resources for it (in real terms and in financial terms) are serious ones.

19. Finally—and this is, perhaps, the crux of the matter—it is important to say what kind of education it is desirable to stimulate. The development of rural areas may be taken as a case in point. This is the most difficult aspect of development in the poorer areas of the world. In order to raise the level of agricultural production, social attitudes have to be changed and new skills introduced. Therefore, the kind of education which can be given is fundamental to any analysis of the place of education in developing rural areas.

SUMMARIES OF PAPERS

Education and fertility in the United States

ROBERT M. DINKEL

The hypotheses of this study are: (*a*) there is a negative relation between education and fertility; and (*b*) the education of the wife is more strongly associated with fertility than is the education of the husband.

The data are from 5 per cent sample of the 1960 census of the United States of America. The population studied is that of white ever-married women aged 35 years and over; or of white women 35 to 54 years old, married and husband present.

The data for the United States show that the more years of schooling the woman had completed, the lower was her fertility. During the historical period covered by the child-bearing years of the women included in this sample, there took place a substantial reduction in the differentials according to education.

The method used in determining whose education was more strongly associated with fertility was that of the comparison of complementary pairs of sub-groups that were specific for education of husband and wife. Complementary pairs are sub-groups so chosen that the difference in years of schooling of the spouses in one sub-group is exactly reversed in the other.

Using this method of analysis, it was found that the education of the wife is more strongly associated with the number of children ever born than the education of the husband. This association was especially strong in those cases in which the wife had sixteen or more years of schooling.

Two explanations were suggested for this finding: first, there is a difference between the age of marriage of college graduates and that of other wives; and, secondly, women with sixteen or more years of education probably have more non-family interests that compete with childbearing than do women of lesser education.

Population growth and growth of education in France

ALAIN GIRARD

Educational problems can no longer, today, be considered without reference to their demographic side. But the reasons for the increasing number of school and university enrolments are primarily cultural and social. Population growth is a secondary reason, and adds its own effects to those of social pressures. The case of France is an illustration, because for the past twenty years that country has experienced a marked upswing in the birth-rate after a period of stagnation. This paper considers some of the problems arising: geographic location, democratization, selection, planning etc. The compounding, in education, of psychological and social problems with population problems is found in all countries in which certain specific elements are present. France provides an individual example of a general state of affairs.

Factors associated with the historical decline of illiteracy in the United States

CHARLES B. NAM

Official statistics on illiteracy in the United States of America date back to the census of 1840, but sketchy unofficial data can be used to trace the course of illiteracy back to the colonial period. About one third to one half of the adults in that period could not read and write; the illiteracy rate has declined progressively to about two out of 100 at the current time.

Up until the Civil War, reductions in illiteracy were associated with the growth of manufactures and commercial development, which required a more literate labour force. Following that war, the rapid growth of the public school systems had begun to have its effect, and reductions in the inability to read and write were hastened. The low levels of illiteracy in recent years attest to the efficacy of compulsory school attendance laws, the more rigid requirements concerning reading ability for jobs and the generally high value placed

on literacy in modern society in the United States.

Over the years, illiteracy has been reduced in all segments of the society, but proportionately greater reductions for disadvantaged groups has resulted in diminished differentials by residence areas, racial groups and socio-economic categories of the population. Adult education does not seem to have played an important role in the decline of illiteracy. The completion of an adequate amount of formal schooling by greater proportions of each younger age cohort can explain nearly all of the historical reduction of illiteracy in the United States.

Effects of out-migration on educational level of Negro males in southern United States

DANIEL O. PRICE

Two sources of data are examined in the study of the effects on the residual population of the out-migration of non-white males from the southern part of the United States. The 1960 census data showing migration between 1955 and 1960 indicate a high positive association between out-migration and level of education, with the resultant lowering of the educational level of the residual population by approximately one third of a school year.

An examination of survival rates by educational level within cohorts between 1940 and 1960 indicates for rural areas of the South that losses to the cohorts are highest among those with one to eight years of schooling and lowest among those with twelve or more years of education. The losses were also quite low among those with no education.

The data are examined for different age groups and cohorts, and three possible explanations are suggested to account for the differences in the data from the two sources.

Logic, techniques, interpretations, applications and limitations of enrolment forecasts

CALVIN F. SCHMID

The basic problems of all levels of education, including financing, staffing, physical expansion, entrance requirements, curricula and scholastic standards, are inextricably related to future enrolment potentials. Without the guidance of reasonably detailed and reliable enrolment forecasts it would be extremely difficult, if not impossible, to provide appropriate solutions to these problems and to develop rational plans for the future.

An intelligent evaluation and utilization of enrolment forecasts presupposes an understanding of their basic logic, methodology and limitations. In developing enrolment forecasts, the demographer is compelled to work within a self-contained context without either knowledge or control over most of the specific causal elements in the process under analysis. The factors that are specified are customarily expressed in the form of basic assumptions.

In discussing more specifically the problems pertaining to the reliability and interpretation of enrolment forecasts, the following points are covered: (*a*) enrolment forecasting techniques; (*b*) adequacy and completeness of data; (*c*) implications of altered assumption; (*d*) derivation of forecasts for small populations; (*e*) interpretation of forecasts; and (*f*) reliability of enrolment forecasts in relation to time span.

Repercussions of various rates of natural population increase on the educational level of the population of Yugoslavia

VLADIMIR SERDAR

[*Translated from French*]

The populations of the various regions of Yugoslavia lived for centuries under widely different political, social, economic and cultural conditions. The undeveloped regions of Yugoslavia are the legacy of such unequal development. They cover 40 per cent of the total area and contain one third of the total population of Yugoslavia.

The undeveloped regions with their very high rates of natural population increase account for more than half of Yugoslavia's total population growth. This means that half of all Yugoslav children live and grow up in these undeveloped regions where 20 per cent of the children do not attend school and the percentage of illiterate adults is very high. The fact that the birth rate is relatively so high in the undeveloped regions slows down improvement of the educational standards of the population and is at the same time an obstacle to the country's general development. It is therefore highly important for the country to overcome this obstacle as soon as possible, but this

is feasible only if more vigorous action is taken to remove all the barriers to the belated development of the undeveloped regions. It should be obvious that the developed regions will also have to make a big contribution in this connexion. Nevertheless, such a contribution must not be regarded as intended exclusively for the undeveloped regions since the future development of the developed regions themselves depends on it.

Meeting B.9

INTERNATIONAL MIGRATION AS RELATED TO ECONOMIC AND DEMOGRAPHIC PROBLEMS OF DEVELOPING COUNTRIES

PAPERS

The economics of immigration into Australia

R. T. APPLEYARD

1. The salient feature of Australian immigration since World War II has been its consistency (table 1). Despite several economic recessions in Australia and the gradual improvement of economic conditions in the European countries of supply, immigration has been maintained at the level envisaged by planners at the end of the war: annual intakes equal to 1 per cent of the Australian population.

2. Consistency has been achieved for several reasons. First, because immigration is an integral part of economic policy and annual targets are calculated according to the current and prospective demand for labour which is maintained by the high rate of economic growth. Even during two short recessions (1952-1953 and 1960-1961) when there appeared to be no excess demand for labour, [1, 2] immigration was reduced only moderately. During these recessions the Australian Government continued to encourage skilled immigrants and gave priority to dependents of workers already in Australia. The reason was that dependents could contribute to effective demand without exacerbating unemployment. Indeed, qualitative controls over immigration have been as important as quantitative controls. Second, the immigration programme has operated under conditions of a buyers' market mainly because real incomes in Australia have been higher for artisans than in most European countries. [3] Available evidence suggests that differential real income is still the major determinant of free migration. Third, the Australian Government has been flexible regarding immigrants from the supply of Europe. As economic conditions in Northern Europe improved and caused a reduction in the supply of immigrants, the Australian Government increased the number allowed to enter from Southern Europe. Finally, immigration has been expanded by agreements with most countries in Europe for assisting passage. Subsidised transport has lowered the main financial hurdle facing potential migrants.

[1] Keith Sloane, *Wage-drift in Australia* (Durham, North Carolina, USA, unpublished Ph.D. thesis, Department of Economics, Duke University, 1960).

[2] R. T. Appleyard, "The effect of unemployment on immigration to Australia", *The Economic Record*, vol. XXXIX, No. 85 (March 1963), pp. 65-80.

[3] R. T. Appleyard, *British Emigration to Australia* (Canberra, Australian National University, 1964), chap. 3.

I. DETERMINANTS OF IMMIGRATION POLICY

3. During the early post-war years most of Australia's immigrants came from the traditional source—the United Kingdom. In fact, the first minister for post-war immigration (A. A. Calwell) expressed the hope that there would be ten people from the United Kingdom for every foreign immigrant. [4] Although the two Governments renewed their pre-war agreement on assisted migration, the United Kingdom soon showed that it was less enthusiastic than Australia about the scheme. An adverse demographic structure (a legacy of the long-run decline in the birth-rate culminating in the 1930's depression) together with a high post-war demand for labour made emigration a less pressing necessity compared with earlier decades. In addition, the shortage of ships caused by losses during the war prevented Australia from moving most the thousands of Britons who applied to emigrate to Australia during the 1940's.

[4] Commonwealth of Australia, *Immigration-Government Policy* (22 November 1946), p. 7.

4. Despite these difficulties the Australian Government was determined to implement a large-scale immigration programme. As a direct result of the invasion nearly achieved by Japanese forces during the war, the Australian Government reasoned that the most effective defence against invasion was to increase the population as quickly as possible. Two per cent per annum was considered the maximum that the country could effectively absorb. During the five years previous to the decision, the annual average natural increase had been only one per cent. An additional 1 per cent increase per annum through immigration was decided upon as an economically safe objective.

5. Demographic and economic conditions in the United Kingdom during the late 1940's were not conducive to large-scale emigration, so the Australian Government was obliged to find other sources of immigrants to achieve its "1 per cent" target. In 1947 an agreement with the International Refugee Organization led to the immigration of more than 170,000 displaced persons into Australia within three years. With a reduced intake of British immigrants, this represented an increase of 1.9 per cent in Australian population during 1949 and 1950, nearly double the "economically safe" objective of the planners. The main reasons for this important change in policy were that displaced persons had to be taken from the refugee camps while they were available and that the I.R.O. agreed to find the necessary shipping to transport them to Australia. In addition, the I.R.O. allowed the Australian Government to "direct" the refugees into employment for two years.

6. The allocation of displaced persons to employment played an important role in alleviating inflationary pressure which, to some extent, had been engendered by the high rates of population growth during 1949 and 1950 (3.2 per cent each year). By placing the refugees in jobs for which Australian labour could not be found (excess demand for labour, according to one estimate,[5] was 2.3 per cent in 1948-1949) and by housing them and their dependents in old army camps and warehouses, the Government not only increased production in under-manned basic industries but also postponed investment in housing and some public works. Even so, inflation became a serious problem. The extent to which it was exacerbated by immigration cannot be calculated. Other factors certainly contributed: internal demand for goods and services which had been pent up by wartime restrictions, increased expenditure on defence, and the adoption of the forty-hour working week. But there can be no doubt that the direction of refugees into basic industries helped subdue inflation during the late 1940's.

7. During 1951 Australia's export income rose sharply mainly because of increased wool prices. Stockpiling by the United States Government during the Korean War led to a rise in the world prices of most raw materials. These increases further aggravated inflation but by 1952-1953 they had fallen below their peak. In addition, the number of displaced persons in Europe decreased. The Australian Government considered that it was an appropriate time to "consolidate the assimilation ... of the large influx of immigrants" during the past few years and it reduced its annual "target" from 150,000 to 80,000 immigrants.

8. This major reduction, the result of a decline in demand for labour in Australia as well as the reduction in immigration by displaced persons, was the second important change in post-war immigration policy. As economic conditions in Australia improved the Government made new agreements with European countries in order to maintain immigration at 1 per cent of the population. The terms of the bilateral agreements (first with the Netherlands, Italy and the Federal Republic of Germany and later with Malta, Belgium, Greece and Spain) partly reflected changed economic conditions in both Australia and Europe. The Australian Government was unable to obtain such favourable terms as it had had from the I.R.O; instead, the new arrangements were more "scientific". When excess demand for labour in Australia was more than 2 per cent in 1948-1950, the Government admitted large numbers of refugees and directed them into jobs. When there was little or no excess demand for labour after 1952 the Government selected immigrants according to prospective demand for their specific skills. Perhaps the most important feature of the post-1952 bilateral agreements is that, though there appeared to be no excess demand for labour, the Australian Government calculated that current rates of economic growth still required an annual intake of immigrants equal to 1 per cent of the population.

9. Nearly all Australia's assisted immigrants since the early 1950's have been sponsored under bilateral agreements with European countries, including the United King-

[5] Keith Sloane, *Wage-drift in Australia* (Durham, North Carolina, USA, unpublished Ph.D. thesis, Department of Economics, Duke University, 1960).

dom. But since the mid-1950's improved economic conditions in Europe have considerably weakened the incentive to emigrate, a fact that was clearly demonstrated during the economic recession in Australia during 1960-1961. While gross national product prices and retail sales fell by 5 per cent (constant prices) and unemployment rose to 2.7 per cent of the estimated workforce, Germany and the Netherlands were experiencing rising levels of private consumption and full employment. The effect of these comparative conditions on migration was immediate: the number of German-born settlers arriving in Australia in 1961 fell to 4,066 compared with 11,313 in 1960; respective figures for the Netherlands were 3,991 and 7,987. Although Australia soon recovered from the recession, it was unable to regain the same number of immigrants from Northern continental Europe. Economic conditions, it would seem, are now in a state of delicate balance and Australia is less economically attractive than during the early 1950's. In fact, Australia has encountered difficulty in obtaining the numbers and types of Southern European it requires. There is evidence that Italian, Greek and Spanish workers may be more attracted to short-term employment contracts in Northern Europe than "permanent" settlement in Australia.

Table 1. Permanent and long-term arrivals [a] in Australia, 1947-1948 to 1962-1963

Year (July/June)	*Assisted British arrivals*	*Assisted non-British arrivals*	*Total assisted arrivals*	*Total permanent and long-term arrivals*
1947/1948	9,280	5,823	15,103	46,569
1948/1949	33,569	36,891	70,470	114,818
1949/1950	41,704	92,225	133,929	184,889
1950/1951	43,198	45,851	89,049	153,290
1951/1952	45,113	16,550	61,663	130,462
1952/1953	26,250	17,246	43,496	95,890
1953/1954	17,679	20,909	38,588	86,468
1954/1955	30,316	33,910	64,226	124,180
1955/1956	27,702	36,442	64,144	132,628
1956/1957	24,423	36,120	60,543	120,601
1957/1958	31,027	23,632	54,659	107,978
1958/1959	29,885	28,135	58,020	116,697
1959/1960 [b]	33,897	35,420	69,317	133,684
1960/1961 [b]	34,700	32,296	66,996	138,481
1961/1962 [b]	27,070	14,992	42,062	118,532
1962/1963 [b]	41,700	15,459	57,159	137,235

SOURCE: *Australian Immigration Quarterly Statistical Bulletin,* vol. II, No. 12 (July 1964).
[a] Arrivals stating they intend to remain in Australia twelve months or longer.
[b] Figures for 1959/1960 to 1962/1963 relate specifically to "U.K. — Australia Assisted Passage Scheme".

II. THE ECONOMIC ABSORPTION OF IMMIGRANTS IN AUSTRALIA

10. The application of quantitative and qualitative controls over immigration within a framework of moderate rates of economic growth has enabled the Australian Government to maintain annual rates of population growth of 2 per cent without encountering serious inflation. Indigenous capital formation, together with investment from overseas and a favourable balance of payments, have been adequate for sustained growth in population without eroding per capita real income.

11. Family immigration, which is favoured by the Government, has posed special economic problems. One of these is especially the high demand for non-productive investment. When immigrant families reach Australia they have an immidiate demand for housing. Although their short-term needs are met either by their nominators (who are required to provide them with suitable accommodation) or by the Commonwealth Government in one of its many hostels, their long-term needs (either rented housing for a reasonable rental or purchased dwelling for low deposit and manageable repayments) pose a major financial problem. Investment in housing in Australia since the war has not been adequate for the demand created by the population growth. Low-cost housing for working-class families has been both expensive and difficult to obtain, mainly because the banking system generally has not

awarded a high priority to housing in its allocation of credit.[6] All banks require an initial deposit and equity amounting to about 1,500 Australian pounds for average 3-bedroom bungalows. Very few immigrants bring this amount of capital with them; a recent survey conducted with 494 British immigrant families showed that 68 per cent brought less than 500 Australian pounds. To qualify as house purchasers they must save at least an additional 1,000 Australian pounds from incomes earned in Australia.

12. Other capital demands by immigrants, such as for schools and public works, while obviously necessary and important, can be delayed although there are limits imposed by the continuous inflow of new people. Of course, the capital required for immigrants' needs must be matched with their contribution to production. It has already been noted that by allocating displaced persons to industries which were extremely short of labour, the Australian Government dampened inflation which threatened to reach serious proportions. Since that period of inflation, the Government has achieved a similar goal by selecting immigrants according to a short-term demand for their skills. Table 2 throws a great deal of light on the effect of these policies. Although the figures include a number of pre-war immigrants from the United Kingdom, Greece, Italy and the Federal Republic of Germany, the majority of persons represented are post-war immigrants. By confining the analysis to birthplace, table 2 excludes the occupations of children born to immigrants after they reached Australia.

13. The most striking feature of table 2 is that the proportion of "craftsmen and operatives" in all categories of those born overseas is considerably higher than for Australian-born males. This pattern reflects the Australian Government's policy of priority to skilled and semi-skilled workers when selecting migrants for assistance. It also reflects the circumstances of economic development in post-war Australia. Another feature is that immigrants from Northern Europe comprise a larger proportion of professional workers than immigrants from Southern Europe. On the other hand, a larger proportion of Italian and Yugoslav-born immigrants were in "rural enterprises".[7]

[6] R. T. Appleyard, *Low Cost Housing and the Migrant Population,* Committee for Economic Development of Australia, Monograph No. 7 (July, 1963); A. R. Hall and M. R. Hill, "Housing demand in Australia", *The Economic Record,* vol. XXXVI, No. 76 (December 1960), pp. 550-567; M. R. Hill, *Housing Finance in Australia, 1945-1956* (Melbourne, 1959).

[7] C. A. Price, *Southern Europeans in Australia* (Melbourne, Oxford University Press, 1963).

Table 2 follows on page 195

Table 2. Australia: occupied population, males, by birthplace, 1961

OCCUPATIONS [a]

Birthplace	Code numbers [b]											Total (per cent)	Total numbers
	0	1	2	3	4	5	6	7/8	9	10	11		
Australia	7.0	8.3	8.5	6.2	15.6	1.0	8.2	39.3	3.7	1.3	0.9	100.0	2,412,340
Europe	5.4	6.7	4.3	4.8	7.8	1.2	5.7	56.4	5.3	1.0	1.4	100.0	683,847
UK and Ireland	7.7	7.8	7.2	5.8	6.8	1.3	7.0	47.2	6.3	2.0	0.8	99.9	288,529
Germany (Fed. Rep.)	5.2	5.3	3.0	2.8	4.3	1.6	4.6	67.8	3.4	0.4	1.5	99.9	38,579
Greece	0.5	9.5	0.7	8.5	5.7	0.5	3.6	59.7	8.1	0.0	3.1	99.9	37,692
Italy	0.7	4.3	0.5	3.9	15.0	1.6	3.6	64.5	3.7	0.0	2.1	99.9	112,781
Hungary	9.8	8.6	4.4	4.0	2.9	1.2	5.4	56.6	5.2	0.0	1.7	99.8	15,652
Malta	0.9	1.1	3.1	1.7	6.2	1.0	5.4	73.5	4.2	0.4	2.4	99.9	17,309
Netherlands	5.6	6.2	4.8	5.3	7.9	0.6	5.8	57.7	4.3	0.7	0.9	99.8	41,375
Poland	4.7	8.2	2.2	3.7	2.5	1.2	5.6	66.4	4.1	0.2	1.3	100.1	33,825
Ukraine and USSR	7.2	4.3	3.0	2.4	3.1	0.8	5.2	66.7	5.7	0.2	1.4	100.0	13,580
Yugoslavia	2.2	2.5	1.3	1.6	10.5	2.2	3.8	68.5	4.4	0.2	2.8	100.0	28,973
Elsewhere	12.3	11.0	9.6	7.6	5.2	0.5	9.3	34.7	6.9	1.4	1.4	99.9	69,740
													3,165,927

SOURCE: compiled from unpublished tables, Australian census 1961.

[a] Census tables include a category "not in workforce", which has been excluded from the percentage distribution.

[b] Code:
0 — professional
1 — administrative
2 — clerical
3 — sales
4 — rural enterprise
5 — mines
6 — transport and communication
7/8 — craftsmen and operatives
9 — service, sport etc.
10 — armed services
11 — inadequate description

Immigration as a means of obtaining needed skills and stimulating economic and social advancement

W. M. BESTERMAN

1. A characteristic which most of the developing countries share is the existence of unexploited natural resources side by side with a mass of unemployed or underemployed manpower, which can be employed only on subsistence pursuits because of an almost total lack of training. In such countries the strategy of development is twofold: to draw this mass of unemployed manpower into the production process and at the same time to generate income which will create, within this unemployed mass, an effective demand for the products of modern industry. In addition to capital and technology these countries need to valorize their manpower by raising standards of skill so that these human resources may be utilized within a developed economy. Modern technology cannot be used without a whole range of expertise and skills; machinery has no purpose without the machinists.

2. In many respects, these problems have been aggravated rather than alleviated during the last two decades. Public health measures have reduced mortality greatly whilst they have left traditionally high birth rates unaffected. Although in some underdeveloped countries the gross national product has increased by as much as 4 or 6 per cent yearly, the value of this growth in terms of increased living standards has been eroded by a population growth of 3 per cent yearly. In other underdeveloped countries, population growth in fact has been faster than economic growth with the result that already low living standards have been depressed further.

3. To say that development is an indigenous process, that investment in human beings (in the national manpower resources) must be an integral part of a government's development programmes has become commonplace. Improved sanitation, health and nutrition develop the quantity and physical capacity of available manpower whilst investment in education and technical training improves the quality of this manpower. Even in developed countries the improvement in the human factor of production has been shown to have a spectacular influence on output. In the United States during the twenty years following 1940, although the input of the factors of production increased by only 1.7 per cent per decade, output grew by 29 per cent. One can assume that this increase in output was primarily because of the improvement of the human factor: increased skill of the labour force, advances in technology and improvements in organization and management.

4. Developing countries must undertake a similar upgrading of their manpower if they are to achieve a rate of economic growth which will exceed their annual population increase by a margin sufficient to result in a significant rise in living standards. If an appropriate rate of economic growth is to be sustained, it has been estimated that the middle and upper levels of manpower must increase two to three times as fast as the whole labour force. The scarcity of this strategically vital manpower in developing countries calls for the mobilization of all resources which are likely to increase competent personnel. Measures to improve the educational system and vocational training facilities are necessarily of a long-term nature. It is imperative to complement long-term methods by means which can be effective immediately. Skill, like most other factors of production, can be imported. It can be imported on a short-term basis through technical assistance programmes, "peace corps" activities, or through the investment activities of foreign companies. It can be brought in on a long-term or permanent basis through immigration. This method has been one of the traditional sources whereby developing countries have obtained new injections of skill and middle level manpower.

5. Some idea of the need of developing countries for technicians and qualified personnel can be gathered from the three-year development plan of Brazil, which, based on a projected population increase of 3 per cent yearly, envisaged the accelerated training of teaching personnel at the rate of 5,000 in 1963, 20,000 in 1964 and 50,000 in 1965. These

teachers are being used primarily to train technicians. Further, an enquiry undertaken in Rio de Janeiro in 1962 indicated unfilled vacancies in industry for artisans and specialized workers totalling nearly 7,500. To produce technicians and qualified workers from the national manpower resources in the numbers needed and at the speed required to ensure that per capita gross national product keeps well ahead of the rapidly mounting population is a task of great magnitude. The need seems inevitable for many developing countries to supplement their national training efforts by importing skills. The simplest and most effective way of doing so appears to be through organized immigration programmes. Immigrant manpower has the dual advantage of filling some of the gaps of conveying skills and knowledge to the indigenous labour force.

6. Successful immigration always has had considerable impact on the area in which the immigrants settled and on the local population with whom they worked. Although an evaluation in quantitative terms of the contribution of immigrants to the development process is seldom easy owing to statistical deficiencies, many illustrations can be given of the influence of immigrants on their environment. This influence has been apparent most often where groups of immigrants have lived together in an agricultural settlement or where they have found employment in the same industrial enterprise.

7. Immigrant agricultural settlements have led to the cultivation of previously untilled land, both in the settlement and around it, to the increases in food production and the diversification of crops, to the introduction of improved techniques, machinery and marketing arrangements, to the creation of productive capital through property imported by the settlers (the private and public investment they have attracted and their propensity to save) and to the improvement of social, health and educational facilities. The indigenous population in contact with the settlements has shared these improvements and has benefited from them.

8. A few examples will suffice. The Dutch agricultural settlement of Holambra in Brazil was initiated in 1948 with a nucleus of 100 families who had settled approximately 12,500 acres of land by 1960. A sister colony recently has been developed. Shortly the total complex will have a population of 2,000 people of whom 500 will be Brazilian. The influence of this colony is spreading widely. Young farmers have left the original colony to become managers of Brazilian farms, thus they have disseminated the advanced techniques brought from Europe. The settlement itself serves as a demonstration centre for local farmers who take advantage of its market and other facilities. The Pedrinhas settlement, also in Brazil, was started in 1950 with an original group of approximately 160 Italian families. A civic and administrative centre was constructed which includes a church, schools, a hospital, machinery repair shops and agricultural processing factors. All these facilities serve the local farming population. Furthermore, a marketing co-operative has been organized. Of the membership, nearly 50 per cent are local farmers. One final example comes from Paraguay. A Mennonite settlement in that country found it necessary to establish its own medical centre: now 75 per cent of the persons utilizing the centre's services are Paraguayans.

9. In the industrial sector, immigrants tend to supply some of the requirements in the broad strata of manpower between the top-level technicians and the semi-skilled workers who can be employed usefully only if the qualified groups are available. In recent years, the Intergovernmental Committee for European Migration has assisted certain Governments of Latin America to obtain construction, electric power and telecommunications engineers, scientific laboratory technicians and veterinarians in addition to its normal programmes for the selection and migration of skilled industrial and agricultural workers. ICEM also has assisted these Governments to recruit university professors and secondary school teachers for their educational and training programmes. Many of these skilled immigrants have established private enterprises to meet such diverse local needs as the repair of Diesel engines and pumps, the production of surgical instruments and the assembly of television receivers. Even highly developed countries have found it necessary to import technical personnel. During the period 1953 to 1959 the net immigration to Canada of craft and technical workers amounted to more than 100,000 whilst the number of graduates from high school and post-high school technical courses amounted only to approximately 21,000.

10. The evidence suggests that immigration of technical and qualified workers can assist developing countries greatly in upgrading their labour forces. This process from immigration shows signs of advancing. Why is it, therefore, that immigration of this nature is not taking place on a more effective scale? The Brazilian needs for specialized workers were used as an

illustration earlier in this paper, but in 1964 ICEM was able to send only 250 such workers to Brazil. The answer lies with what has been called "the pull of the industrially advanced countries". The migration of technical and specialized workers is taking place on a considerable scale but the largest movement is to the developed rather than to the developing countries. During the period 1953-1956, 59,704 professional technical and kindred workers were admitted as immigrants to the United States; this number amounted to 6.4 per cent of all immigrants during the period. About 33 per cent of these immigrants came from Europe, 27 per cent from Canada and 30 per cent from the rest of the world. It may be assumed that within the category "the rest of the world" were many developing countries which could ill afford to export any resources in trained manpower. During the third quarter of 1964, 34,110 immigrants arrived in Australia; 17,222 were workers of whom 7,180 were classified as skilled. Within the skilled category were 2,386 persons in the professional, technical and related grades.

11. The explanation of this phenomenon is simple. Often an unfortunate discrepancy exists between the marginal social product of a skilled worker's labour and the rewards it can command. In the developing countries the marginal social product is great but the rewards are often low; in the advanced countries the marginal social product is relatively small but the rewards are great. The evidence shows that the migration flow of professional, technical and skilled workers is, not unnaturally, towards countries where individual rewards are greatest rather than to countries where needs are most acute. At present, this flow tends to make the rich countries richer and the poor countries poorer.

12. What can be done to correct this situation? First, one must clearly recognize that the immigration of professional, technical, and skilled personnel can play a vital part in the economic and social growth of developing countries, not only by the direct contribution of their labour, but also by the general diffusion of their skills. Once one accepts this fact he is but a short step from the realization that any action which facilitates the movement of the skilled immigrant to the developing countries is an effective form of economic and technical aid. Therefore, the governments of both the developing and the advanced countries should concert policies which will provide adequate incentives for professional, skilled, and technical workers to move to developing countries where their knowledge and experience can contribute vitally to the growth process.

13. One must, of course, admit that professional men and technicians do not migrate to advanced countries only for reasons of financial gain. Neither can Governments direct such personnel to migrate to countries where the marginal social net product of their labour will be greatest. Nevertheless, if the needs were recognized and were explained publicly with some of the fervour which goes into much voluntary service, it should not be beyond the imagination of policy makers to devise a solution. Any policy to attract long-term immigrants will cost money but the amounts are likely to prove infinitesimal when compared with the vast sums spent on economic aid and technical assistance and when measured against the gains which will accrue to the developing countries. The cost of rearing a person to working age, educating him and training him to advanced professional or technical level (much of this at government expense) is considerable and must be counted as a substantial capital gain to the receiving country. If the advanced countries were to join the developing countries in making arrangements for professional and technical workers to be attracted to areas where skill is needed most, the advanced countries fairly could take credit for a very effective form of economic aid.

The demographic and social effects of migration in Ghana[1]

D. K. GHANSAH and A. F. ARYEE

1. Emigration and immigration have been known to be regular phenomena in Ghana on a considerable scale for a long time. Writers on migration such as Jean Roche have written much about this movement of peoples. In this short paper the aim is to discuss briefly the volume and direction and the demographic and social effects of this migration both on Ghana and on other countries.

2. The bulk of persons migrating in West Africa is known to travel by foot across the borders of the different countries into the countries of their choice. Few movements across the various borders are recorded. As a result, the actual volume of migration to and from any of the countries is not known. One of the main reasons for this lack of data is that migrants usually use many varied routes (footpaths) across the borders and the various countries have not yet been able to station sufficient officers to record movements on all the routes. It is, of course, true that most of the Governments have some approved land routes on which officials have been stationed for normal customs duties, but most migrants do not use these approved routes either because they want to avoid customs officials or because the approved routes may not be convenient for them.

3. Two main reasons may be assigned for the large migratory movements across the state boundaries in West Africa. The first of these is economic. Proof is available that many immigrants come to Ghana from neighbouring countries, especially from Togo, Upper Volta and Nigeria, to look for employment. Ghanaian cocoa farmers long have been known to employ migrant labour from Togo, Upper Volta and the Ivory Coast.

4. Similarly, the mining industry, especially gold and diamond mining, has been relying heavily on immigrant labour from the Upper Volta and Nigeria. The conservancy and domestic services in Ghana are known to rely heavily on migrant labour from Togo and Nigeria. Migrants, especially the Yorubes from Nigeria, are also known to control a considerable part of retail trading in Ghana. In fact, a common saying in Ghana is that any village in Ghana without a Nigerian trader is not a complete village. The 1960 census of Ghana has confirmed these views generally held by Ghanaians. The table below shows the distribution of immigrants in certain industries in Ghana.

[1] The title of the original paper was changed because data for other countries of West Africa were not available. However, the situation in Ghana is thought to be similar to that in most of the other West African countries.

Table 1. Percentage of non-Ghanaians employed in selected industries

Sex	*Agriculture, forestry, loggers*	*Cocoa farming*	*Petty trading*	*Mining and quarrying*	*Diamond mining*	*Domestic services*	*Personal services*
All non-Ghanaians ...	10.7	15.9	22.3	43.7	64.5	30.2	39.0
Males	14.6	20.4	59.6	44.4	66.7	39.7	52.1
Females	3.8	5.8	15.5	31.4	39.9	13.8	20.1

5. The table indicates the part played in Ghana's economy by migrants. The figures show that non-Ghanaians have considerable influence in industries like mining and the services. For example, while the immigrants formed 14.7 per cent of total employed in 1960, they made up 64 per cent of the labour force in the diamond industry. Nigerians alone formed 48 per cent of the non-Ghanaians in the diamond industry. This indicates the migrants' influence in those industries and the amount of capital they control and automatically means that much money is sent out of Ghana because immigrants usually transfer their profits home.

6. Colonial rule also could be said to be the second main cause of immigration in West Africa. Colonial rule established fixed boundaries as they are known today. In establishing these boundaries various ethnic groups and, in fact, some families were divided between two colonial powers. Examples are the division of the Ewes and Komkombas between Ghana (British) and Togo (French), the Sanwis between Ghana (British) and the Ivory Coast (French). The result of these artificially imposed boundaries was that travellers across them came to be regarded, at least officially, as migrants while the people did not regard themselves as such because they were accustomed to use certain routes before the boundaries were fixed. In fact, between Ghana and Togo the boundary was so placed that some families had their homes on one side and their farms on the other side of the border. For this reason available figures show, for example, that more than 50 per cent of the immigrants from Togo to Ghana settle in the Volta and Eastern Regions of Ghana among their relatives and their ethnic groups, while female migrants from the Upper Volta in particular settle among people of their ethnic group in the northern region of Ghana.

7. The first demographic effect is the distortion caused by migrant population in the age distributions of the countries receiving them. In Ghana this effect is seen in the total population of the country as well as in the population of regions and ethnic groups. The age distribution of the total population of Ghana as compared with that of the Ghanaian-born population shows clearly the effects of migration on the age groups of the total population. Similarly, the distribution of certain border tribes, for example, Ewe[2] as compared with those of purely Ghanaian tribes like the Gas and Fantis, have an appreciable proportion of migrants in their middle ages who, according to the census data, do not always report themselves as foreign born.

8. The second effect is on the distribution of the sexes of the population. As is usual among migrant populations, Ghana's migrant population is largely composed of males in their middle ages. The main effect of migrant population is that it increases the masculinity of the total population. While Ghana's local born population has a total sex rate of 97.2 (males per 100 females) the total population has a sex ratio of 102.1. The table below shows clearly the effect of migrants on distribution of the sexes in different administrative regions of the country.

[2] B. Gil, A. F. Aryee and D. K. Ghansah, *Tribes in Ghana* (Central Bureau of Statistics, Accra, Ghana).

Table 2. Country of origin and country of birth and region of enumeration

SEX RATIO (males per 100 females)

Country of origin/ country of birth	*All regions*	*Western*	*Accra C.D.*	*Eastern*	*Volta*	*Ashanti*	*Brong-Ahafo*	*Northern*
Origin — Ghana:								
Born in Ghana	97.2	97.1	103.2	96.4	91.9	97.7	103.1	96.4
Born abroad.....	97.9	93.9	113.0	148.0	92.8	141.5	95.1	86.9
Origin — abroad:								
Born in Ghana.....	107.3	108.3	106.8	107.7	107.8	108.1	112.1	103.9
Born abroad.....	175.3	203.0	197.4	177.1	126.3	219.3	237.8	107.7

9. What remains to be proved is whether a marked difference exists between the fertility of the total population and that of Ghana's migrant population. Available data are not sufficient to give a clear indication of the actual situation but if there happens to be a difference, then the fertility of the migrant population is bound to affect the natural increase rate of the total population. Of course, the migration of males, especially, in the middle-age groups from neighbouring countries is bound to affect birth rates of those countries since absence of the males causes a delay in marriages and reduces the marriage rates of the females.

10. Another important demographic effect of the migrants in Ghana is its effect on the growth of Ghana's population. The 1960 census has shown that the migrant population forms 12 per cent of a total population of 7,000,000. This is by all standards a high percentage. The figures also indicate that the rate of immigra-

tion is about 5 per cent yearly and that annual arrivals have been rising gradually, especially since 1957. This, of course, presents Ghana a difficult problem in population growth because it is not easy to determine the exact rate growth. This case is made more difficult by the fact that it is not possible to know exactly the volume of movement into and out of the country since there is no present system of registering either the migration or births and deaths in the country.

11. Apart from the demographic effects the social effects of immigration are equally important. First among these is the effect of the flow of males on marriages both in the countries into which the migrants move and their countries of origin. In the countries of origin the lack of males delays marriages by the women in the marriageable ages. In the countries to which the men migrate an excess of males may give rise either to intertribal marriages or to an increase in prostitution or both. Of course, intertribal marriages ultimately may lead to better understanding between Ghana and neighbouring countries if these marriages become numerous. The big problem of unemployment arises in the countries which receive an appreciable volume of immigrant population.

Table 3. Employment and unemployment

		Percentage non-Ghanaian
Aged 15 years and over:		
TOTAL	3,730,309	14.4
Males	1,884,552	18.2
Females	1,845,757	10.5
Employed:		
TOTAL	2,559,383	14.7
Males	1,567,965	19.1
Females	991,418	7.8
Unemployed:		
TOTAL	163,643	17.7
Males	109,093	21.5
Females	54,550	10.0

12. The figures show that non-Ghanaians form 21.5 per cent of the unemployed males. This proves that not all non-Ghanaians who come to Ghana get jobs at the time they want them. The 21.5 per cent even may be underestimated since some migrants may not report themselves as unemployed while they are in fact unemployed.

13. Inadequate and insufficient housing facilities give rise to the creation of slums, especially in the urban areas of countries which receive large numbers of immigrants. An example of this in Ghana is Nima (a suburb of Accra, the capital) which contains mainly immigrants from Upper Volta, Togo and Dahomey. The Government of Ghana at the moment is faced with the problem of resettling these people.

14. In the foregoing statements an attempt has been made to give briefly the effect of immigration on Ghana—economic, demographic and social. Migrants make up about 12 per cent of Ghana's population also present Ghana with a problem of providing jobs as well as health and housing facilities for many persons whose number cannot even be accurately determined. The presence of these migrants creates slums in certain urban centres of the country which the Government must clear eventually. From all these facts one must conclude that even though Ghana needs some migrants to supplement her labour force the present volume and its annual rate seem too high giving Ghana many problems such as housing, unemployment, and other social difficulties.

Immigration into Ghana and its contribution in skill

B. GIL

1. In Ghana (formerly the Gold Coast) as in many other countries of West Africa, the large population movements which gave birth to the present nation are of relatively recent vintage. According to certain writers these movements occurred as recently as the period between the thirteenth and sixteenth century. Subsequent population shifts caused by slave trade and inter-tribal wars continued to the second half of the nineteenth century. Modern immigration, foremost labour immigration, commenced at the end of the nineteenth century. The "pull" factors were railway and road construction and gold mines. From the beginning of the twentieth century, cocoa farming, manganese and diamond mining, harbour building and trade attracted migrants. World War II slowed but did not stop entirely, the migration from the French colonies to the Gold Coast. After the war, particularly since Ghana attained independence (1957), the increase in public and private expenditures enhanced the attraction for immigrants and migratory movement again increased through the almost unguarded borders.

2. Three stages and three main labour immigrations can be distinguished in relation to the economic development of Ghana. In the initial stage (end of the nineteenth and beginning of the twentieth century), the immigration consisted of seasonal manual labour. In the second stage, after World War II, particularly since Ghana attained independence, more and more migrants who had acquired skill and economic positions settled in Ghana. In the present stage which is the third, when Ghana has embarked on a programme of industrialization, mechanization and specialization, the continuation of unskilled labour immigration presents serious drawbacks. On the other hand, high level manpower, indispensable for the country's development, has considerably increased; however, this immigration may not endure.

I. CHARACTERISTICS OF THE TEMPORARY LABOUR IMMIGRATION

3. Information on the temporary labour immigration into Ghana can be obtained from the comprehensive *Study on Migrations in West Africa* organized as a joint project by a number of experts from several agencies and countries under the guidance of Jean Rouch. The study consisted of several field surveys dealing with the demographic, economic and sociological aspects of the migrants in countries of origin, Upper Volta, Mali, Niger and Dahomey, and particularly in the two countries of destination, Ghana and the Ivory Coast.[1]

4. The basic statistical material on the demographic and occupational characteristics of the migrants was collected by questioning migrants passing (in either direction) through certain obligatory crossings over a period of one year, during 1958 and 1959.

5. This study was preceded by a tour of Ghana for another study in 1954 and summarized in a separate report.[2] The conclusions of both reports which discussed mainly the migration from French-speaking African countries do not seem to differ in their essence. They can be summarized as follows:

(*a*) Size: the migration between neighbouring countries, predominantly French speaking and Ghana, amounts to approximately 300,000 a year;

(*b*) Demographic characteristics: most of these migrants are single males, aged 20 to 44 years. The migration is of a temporary nature, 80 per cent staying less than one year at a time. Permanent immigrants from the French speaking countries are few although some work and stay for several years, creating a pseudo-settler. Those from Nigeria (the Yorubas and the Hausas) show the strongest tendency to settle;

(*c*) Seasonality: the migration shows a seasonal pattern. Migrants leave their home country in September-October, the beginning of the cocoa cropping season in Ghana[3] and

[1] *Study on Migrations in West Africa*, Joint Project No. 3, Symposium, Niamey, 13-25 February 1961.

[2] Jean Rouch, *Notes on Migrations into the Gold Coast* (first report of the mission carried out in the Gold Coast from March to December, 1954).

[3] Inquiry made by the Ghana Census Office shows the main cocoa harvest ends in February, *1960 Census Report*, vol. V (Accra, 1964), chap. 13.

the beginning of the rainy and sowing season in their country;

(*d*) Occupational pattern: of the migrants 50 per cent to 60 per cent engage in agricultural occupations, 20 per cent in commercial, 3 per cent to 6 per cent in mining and the rest in other occupations, which are mainly manual ones.

II. Characteristics of the permanent immigration

6. *Census data.* The 1960 population census of Ghana sheds light on the permanent immigration which was considered only scantily by the 1958/1959 survey. The "main" census was taken in March-April, 1960, i.e., at a time when temporary immigrants were already leaving. Consequently, most of the foreign-born persons enumerated were permanent immigrants or settlers. Indeed, the Post Enumeration Survey (P.E.S.) of June-July, 1960[4], gave a distribution of the foreign born by year of last entry into Ghana which proves that its population was substantially different from that of the 1958/1959 survey. Whereas 81 per cent of the P.E.S. foreign born had been in Ghana for at least one and a half years (immigrated in 1958 or before), only 14 per cent of the migrants covered by the 1958/1959 survey had been in the country for such a period (see table 1).[5]

[4] The estimate of the foreign born by the P.E.S. was smaller, partly because more temporary migrants had left between April and June.

[5] The sum of the two populations (300,000 of the survey and 536,000 of the census) less about 10 per cent would give an estimate of the total number of foreign persons in Ghana in a year (750,000 or 11.2 per cent of the total Ghana population).

Table 1. Post-enumeration survey of foreign-born by year of entry and migrants leaving in 1958/1959 by length of stay (in percentages)

	Year of last entry						
	Total	*1960 (I-VI)*	*1959*	*1958*	*1957*	*1948-1956*	*Before 1948*
Ghana P.E.S. (June, 1960)....	100.0	9.7	9.3	8.0	7.0	35.5	30.5
	Length of stay in Ghana (years)						
	Total	*Up to 0.5*	*0.5-1.5*	*1.5-2.9*	*3 and over*		
Migration survey (1958/1959).	100.0	62	24	6	8		

7. *Size and provenance.* The census enumerated 536,000 persons born abroad and an additional 291,000 persons, most of them children of foreign origin born in Ghana. The total, 827,000, equals 12.3 per cent of total Ghana population (table 2). Out of the 536,000 foreign born, 522,000 came from African countries, including 100,000 each from Togo, Upper Volta and Nigeria but only 10,000 to 20,000 each from Ivory Coast, Niger, Dahomey and Mali. Some 11,000 came from Europe (United Kingdom 7,000) and America, and 2,800 from Asia (Lebanon 1,400; India 800).

Table 2. Number and provenance of the foreign-born enumerated in Ghana, 1960

	All ages		*Aged 15 and over*		*Economically active*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Total census population	6,726,815	100.0	3,730,309	100.0	2,723,026	100.0
Foreign origin, total	827,481	12.3	536,835	14.4	406,303	15.0
Foreign-born, total	536,143	8.0	457,633	12.3	353,976	13.0
Country of birth						
Africa, *total*	*522,126*	*7.8*	*445,798*	*12.0*	*345,209*	*12.7*
Togo	175,507	2.6	137,127	3.7	100,660	3.7
Upper Volta	132,906	2.0	121,568	3.3	94,936	3.5
Nigeria	114,439	1.7	97,187	2.6	79,475	2.9
Other African countries	99,274	1.5	89,916	2.4	70,138	2.6
Asia	*2,839*	*0.0*	*2,470*	*0.1*	*1,837*	*0.1*
Europe, America, Oceania	*11,178*	*0.2*	*9,365*	*0.3*	*6,930*	*0.3*

8. *Occupations.* In the examination of the occupational pattern of various groups of immigrants (table 3) and their contribution in skill to the Ghana labour force, the following ranking is obtainable: (*a*) European-American workers are predominantly (80.5 per cent) white-collar workers and artisans (professional, managerial and clerical positions). Although negligible in respect to the total number of workers (0.3 per cent of total Ghana labour force), they occupy dominant positions in the highly qualified occupations, for example, 39.8 per cent of all the architects and engineers and 15.3 per cent of all the administrative and managerial workers, in Ghana; (*b*) second in rank in occupational skills are foreign Africans residing in Ghana. Only 2 per cent of them are white-collar workers and 8.4 per cent are skilled craftsmen; the others are mainly unskilled labourers (32.5 per cent), semi-skilled workers on farms, in services etcetera (more than 33 per cent), and petty traders and food preparers (more than 20 per cent); (*c*) third and last in rank are the temporary immigrants (recorded by the 1958/1959 survey), of whom almost all are unskilled or semi-skilled labourers and traders. It is interesting to note here the differences in statements of persons entering and those leaving Ghana. Of those entering, 57 per cent stated themselves to be agricultural workers and 22 per cent traders; among those leaving, the two categories comprised an equal proportion (41 per cent each). This can be taken as a statistical evidence of Rouch's statements that some immigrants after saving money change from manual labour to petty trading.

Table 3. Occupations of the 1960 census and 1958/1959 migration survey populations

Selected occupation	1960 Ghana population census							1958/1959 survey, French-speaking Africans	
		Foreign-born			Foreign-born				
	Total Ghana	Africa	Asia	Europe	Africa	Asia	Europe	Entering	Leaving
	Percentage distribution				Proportion of total Ghana			Percentage distribution	
All occupations	100.0	100.0	100.0	100.0	12.5	0.1	0.3	100.0	100.0
1. Professional, technical	2.3	1.2	10.8	38.6	6.4	0.3	4.4	1.2	1.2
Architects, engineers, etc.	0.1	0.0	5.5	14.9	4.6	3.8	39.8	—	—
2. Administrative, executive, management	0.5	0.2	43.2	29.7	5.9	5.8	15.3	—	—
3. Clerical workers	1.7	0.6	3.5	7.3	4.3	0.1	1.2	0.1	0.2
4. Sales workers	13.5	20.2	35.7	3.1	18.8	0.2	0.1	21.8	41.2
Retail trade	12.9	19.0	16.2	0.5	19.2	0.1	0.0	—	—
5. Farmers, fishermen, etc.	61.1	45.2	0.6	0.6	9.3	0.0	0.0	57.0	41.4
Farm labourers	4.4	15.6	0.0	0.1	45.0	—	0.0	35.9	22.3
6. Miners, quarrymen	1.3	5.0	0.6	4.0	47.8	0.0	0.8	0.9	0.9
7. Transport, communications	2.0	1.3	1.8	7.8	8.1	0.1	1.0	0.2	0.3
8/9. Craftsmen, production process	15.4	20.7	2.9	6.7	17.0	0.0	0.1	17.4	12.9
Artisans	9.6	8.4	2.0	4.9	11.0	0.0	0.1	0.2	0.3
10. Service, etc.	2.2	5.6	0.9	2.1	32.4	0.0	0.3	1.4	1.9
Watchmen	0.4	2.0	0.1	0.1	57.9	0.0	0.0	—	—
TOTAL professional (item 1), administrative (item 2), clerical (item 3), and artisans (item 8/9)	14.2	10.4	59.4	80.5	9.2	0.3	1.5	1.5	1.7

III. APPRAISAL OF THE ECONOMIC CONTRIBUTION

9. *The impact of free immigration of unskilled labour.* According to Rouch, Ghana was to remain for many years dependent on this migratory movement of manual labourers. Ghana obtained labour without great social investment. She was freed of the costs of raising the young generation, care for the old and sick, etc. Indeed, the unskilled foreign labour was in high demand in Ghana because local labour, particularly that in Southern Ghana, was unwilling to accept similar labour offers. This fact, however, does not prove that free and unselected labour immigration was also economically sound or indispensable. It is a fact that at the time foreign unskilled labour

immigrated by the hundreds of thousands, much local labour was unemployed or underemployed. It appears, therefore, that low wage rates influenced the lack of local labour, these latter being a result of foreign labour offer from low income countries. Indeed, wages, particularly in rural areas, were so low that in 1960 the Ghana Government saw it as a duty to fix a minimum wage. This is not a usual event in developing countries.

10. Particularly questionable appears to be the economic contribution of the comparatively high number of traders among migrants. The 1954 report quotes serious disturbances which had arisen from the trade competition between migrant and local traders. Local traders are mainly women.

11. Uncontrolled immigration of unskilled labour, low wages, and excessive petty trading are incompatible with the present economic and social policy of the Ghana Government, as can be gathered from the statements embodied in the Seven-year Development Plan, which calls for economic advancement by means of mechanization and specialization; an increase in the proportion of the labour force in manufacturing industries and a decrease in that of agriculture; increases in the percentages of high level workers (from 4 per cent to 7 per cent) and of middle level operators (from 16 per cent to 19 per cent) through the expansion of educational facilities, while, at the same time, maintaining the proportion of unskilled labour at the existing level of 20 per cent.

12. *High level manpower immigration.* The immigration of high level skill persons and middle level technicians mainly from Europe and America but some from Asia, has also increased in connection with the economic expansion, industrialization and development of services. As can be seen from a comparison between the 1960 census figures with those of the 1948 census (given in parentheses), the total number of these workers doubled and their distribution by industry changed. Of 5,982 Europeans in 1960 (some 3,000 in 1948), there were in public services—30 per cent (25 per cent), in mining—10 per cent (20 per cent), and in manufacturing and construction —20 per cent (4 per cent). The number of European workers has increased since 1960 and at present may amount to more than 10,000 persons, that is three to four times the pre-independence figure.

13. The tasks of this immigration in the economic development of Ghana were defined in an official report as follows:[6] "Usually the foreigner's most useful contribution to a country is not his capital, but the new techniques which he brings. If these new techniques are dispersed among the people, progress is rapid and the country soon becomes independent of foreign patronage."

14. Since these words were written in 1953, Ghana has made a big leap forward. Africanization of the Civil Service is almost complete apart from a certain number of professionals (physicians, engineers, etc). Many professional people serve under various schemes of foreign technical assistance. In most, if not all the foreign enterprises in manufacturing and business, Ghanaians participate in management and their number increases from year to year. In many public enterprises foreign investors have agreed upon time tables for a Ghanian staff to take over management. However, economic development and industrialisation progresses more rapidly than the training of local persons in new skills. New enterprises in particular must import, at least temporarily, their own staff.

15. *Immigrants' remittances affecting the balance of payments.* The export of foreign exchange, by temporary immigrants in particular, is another serious economic drawback in the present condition of Ghana. In the nineteen fifties when the foreign exchange reserves held by Ghana were comparatively large (170 million Ghanaian pounds around 1955) a transfer of about 10 million Ghanaian pounds per year by migrants to French-speaking African countries alone[7] raised no foreign exchange problem for Ghana. The foreign exchange assets since have decreased sharply and have fallen to 29.5 million Ghanaian pounds in 1963.[8]

16. To reduce the deficit in the balance of payments (£G52.7, 28.3 and 45.8 million in 1961, 1962 and 1963, respectively) Ghana started in 1961 a policy of import restrictions initially by raising import duties, but gradually turned it into a strict control of imports and foreign exchange. From 1963 remittances of foreign nationals working in Ghana were limited to 50 per cent of their gross monetary incomes. Because there are no reliable estimates (the official statistics on remittances are only a part of the real transfers in foreign exchange and goods) the estimate in 1954[9] could be accepted as a reasonable minimum of transfers to French-speaking African countries. If the number of migrants indeed were as

[6] W. A. Lewis, *Report on Industrialisation and the Gold Coast* (Accra, 1953).

[7] Jean Rouch, op. cit.

[8] Central Bureau of Statistics, *Economic Survey of Ghana, 1963* (Accra, 1964).

[9] Arrived at by multiplying the number of earners by the estimated average savings.

stated in the 1954 report (300,000 per year), the total value of transfers would amount to £G10 million per year. To these one should add the value of transfers to English-speaking African countries as well as to Asian and European countries to the amount of at least between £G10 and 15 million. Both amounts would present an appreciable factor in the invisible imports of Ghana and, consequently, in her deficit in the balance of payments.

IV. Immigration policy

17. Clearly, unless unskilled labour immigration is controlled, it will compromise the Seven-year Plan which aims to raise the rate of economic growth to 5.5 per cent, that is 3.0 per cent above that of population growth (2.5 per cent). The plan provides for heavy expenditures for education and industrialization to increase employment opportunities for the growing national labour force. In the past uncontrolled labour immigration and free economic activity and competition were the result of an unplanned economy. In the present days when economic planning is becoming more comprehensive and integrated, the attitude of the Government in respect to unskilled labour immigration eventually may change.

18. In this connexion it is worth mentioning that in 1963 the Ghana Government imposed tighter restrictions on border movements though informal crossings cannot be entirely eliminated. "Closing of the borders" might have been partly for political or economic security reasons (for example to prevent smuggling of goods), but it also affected labour immigration. In time an appropriate immigration policy, which will take into consideration the quality and price of the labour immigration, may become part of the development planning.

Some social consequences of immigration for Canada

FRANK E. JONES

1. Although facts are adequate describing the waves of immigration which populated and brought a variety of ethnic traditions to Canada from the time of the French régime to today, few facts are available to assess the influence of immigration on Canada's development as an industrial society. Uncertainty exists about the number of immigrants Canada has been able to retain although the net increase from immigration over a long period is evidently small.[1] The present Canadian population would not have been appreciably smaller without immigration[2] although immigrants who remained in Canada contributed to Canadian population growth by their natural increase and by their replacement of native Canadians who migrated to the United States. The birth rate rather than immigration has been the main key to Canadian population growth during the past 100 to 150 years.[3] In spite of the elusiveness of the facts, the influence of immigration on Canada's development as an industrial society may be explored and related to certain social consequences implied in official Canadian policy.

2. Although not the sole factor, technological change has been a major influence on social change in Canada. In gross terms technological innovations have led to urbanization. As technological innovations tend to flow from heavily industrialized to less industrialized countries, neither native Canadians nor immigrants can claim extensive contributions to Canada's developing technology.[4] The main sources of technological change in Canada are the United States, Great Britain, and certain western European countries.

3. The insignificant influence of immigrants on technological change makes untenable the claim that these immigrants have contributed to fundamental changes in Canada's social structure; however, immigrants have contributed to Canada's rate of industrialization by filling important gaps in the labour force and by contributing to the required population growth. Instead of influencing the form and function of Canadian society, immigrants have been obligated to alter their behaviour as have native-born Canadians, in response to social changes resulting from industrialization. Official Canadian policy supported this trend by deliberately attempting to minimize possible

[1] Nathan Keyfitz, "Changing Canadian population", in S. D. Clark, *Urbanism and the Changing Canadian Society* (Toronto, University of Toronto Press, 1961), pp. 3-19; also in B. R. Blishen and others, *Canadian Society* (Toronto, Macmillan, 1964), calculates that the net increase due to migration from 1851 to 1951 is 700,000 persons, not quite 10 per cent of the immigrants who entered Canada during the entire 100 years. Duncan McDougall, "Immigration into Canada, 1851-1920", *Canadian Journal of Economics and Political Science*, vol. XXVII (1961), pp. 162-175, argues that Keyfitz has over-estimated Canadian immigration and emigration. As his criticism is based on Keyfitz's use of British life tables for 1851-1931 and on the unreliability of government immigration statistics during this period, it may be assumed that he accepts Keyfitz's estimates for the post-1920 era. If so, McDougall's estimates to 1921 added to Keyfitz for 1921-1951 indicate that the net increase due to migration was almost 15 per cent of the total number of immigrants entering between 1851-1951. P. Camu and others, *Economic Geography of Canada* (Toronto, Macmillan, 1964), pp. 58-59, taking into account both Keyfitz's and McDougall's work, estimate the net increase to be 17 per cent of the total number of immigrants entering between 1851-1951.

[2] Although Camu and others, op. cit., p. 68, state that immigration accounted for more than 35 per cent of population growth during 1951-1961, they also state that 77 per cent of emigrants from Canada during 1951-1961 were non-Canadian-born persons admitted to Canada during that period. Oswald Hall, "Migration to Canada", in *Immigrants in Canada*, John Kosa (ed.) (Montreal, 1955), states that 75 per cent of the immigrants who arrived in Canada between 1855-1955 left within ten years of arrival.

[3] N. Keyfitz, op. cit.; N. Ryder, "Components of Canadian population growth", *Population Index*, vol. XX (April, 1954), pp. 71-79; also published in Blishen, and others, *Canadian Society*, first edition (Toronto, Macmillan, 1961), pp. 58-69.

[4] Immigrants did bring technological innovations to Canada even though their contributions may not have transformed the society. For example, the Mormons introduced the cultivation of sugar beets on irrigated land; the Doukhobors introduced the steam plough and steam-driven mills; immigrants from the United States introduced such farming techniques as summer fallow, irrigation and the use of grain elevators for storage. David Corbett, *Canada's Immigration Policy* (Toronto, University of Toronto Press, 1957), pp. 134-135; also V. J. Kaye, "The Ukrainians in Canada", in *Immigrants in Canada*, J. G. Kosa (ed.) (Montreal, 1955), who asserts that the Ukrainians contributed to farming techniques.

social change through immigration. This aspect of policy is most evident in the regrettably ambiguous term, "absorptive capacity", used mainly to refer to economic consequences of post-World War II immigration, but also applicable to its social consequences.[5] In applying a concept of "social absorptive capacity",[6] the Canadian Government has sought to determine how many immigrants Canada can absorb in a specific period of time without dislocating the society in terms of its ethnic composition, religious composition, family structure, social class structure, political organization, and its ideology.

4. The tendency for immigrants to conform to the social patterns of an industrial society and the related success of the government's conservative policy may be assessed by some observations on family life, political behaviour, employment, and ethnic differentiation.

I. The Canadian family

5. The Canadian family fits the model of the urban family characteristic of industrial societies.[7] In earlier periods of immigration, many immigrants, especially those who lived in rural areas in their native countries, formulated a more hierarchical family structure in Canada than is typical of the contemporary family. Conflicts between parents and their offspring loomed large in the descriptions of the adjustments of those immigrants who settled in the pre-1946 period. Households consisting of two or more conjugal families, usually related by kinship, were more frequent in the early days. Such immigrant families changed in the direction of the characteristic urban industrial family[8] as time passed. As many post-1945 immigrants have been subject only to urban influences in both their countries of origin and in Canada, their families can be expected to resemble the dominant type from the time of their arrival.[9]

II. Political behaviour

6. Immigrants, as a category of voters, have not influenced the structure of Canadian politics. The possibility that post-1945 immigrants would add to the socialist vote has not materialized. The available evidence[10] suggests that when possible, recently-settled immigrants vote for a candidate on the basis of ethnic affiliation but vote on the basis of party appeal after a period of living in Canada. Neither immigrants nor persons claiming specific ethnic affiliations among the non-French and non-British population support, as a bloc, any political party.[11] Rather than changing Canadian political ways, immigrants have acquired political patterns of behaviour of native Canadians.

III. Occupational distribution

7. Generally, management leaders have supported immigration while labour leaders have opposed it. Labour leaders have modified their position in the post-war period by accepting the view that immigration could contribute to the expansion of the economy although they continue to oppose the entry of immigrants in periods of unemployment. In part, the Government has responded to these conflicting views by promoting the admission of immigrants intending to seek employment in agriculture. In spite of a shortage of farm labour immediately after World War II, this policy was inappropriate for a country requiring the employment of a steadily decreasing percentage of its labour force in agriculture.[12] The Government also reduced the flow of immigrants during periods of high unemployment which stemmed either from seasonal variation in demand or more long-term economic recession. These restrictions represented organized labour's achievement in obtaining a measure of protection against what it regarded as a competitive threat; however, neither the

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[5] Mabel Timlin, *Does Canada Need More People?* (Toronto, Oxford University Press, 1951).

[6] Absorptive capacity, economic or social, is an inherently conservative concept as it emphasizes a capacity to accept immigrants without dislocation or change in the society. The idea of collecting a heterogeneous population with the aim of creating a society different from Great Britain, France, or any other country did not penetrate official policy.

[7] T. Parsons, *Essays in Sociological Theory Pure and Applied* (Glencoe, Illinois, The Free Press, 1949).

[8] John Kosa, *Land of Choice* (University of Toronto Press, Toronto, 1957), chap. IV; P. Yuzyk, *The Ukrainians in Manitoba* (University of Toronto Press, Toronto, 1953).

[9] Of 1946-1961 immigrant families 88 per cent, compared to 93.2 per cent of all Canadian families, maintain separate households, while the average size of 1946-1961 immigrant households was 3.6 persons compared to 3.9 for all Canadian families.

[10] F. Vallee and others, "Ethnic assimilation and differentiation in Canada", in Bernard Blishen, *Canadian Society* (Toronto, Macmillan, second edition, 1964), pp. 63-73.

[11] The similarity of political positions of the federal parties may facilitate conformity among immigrants to the patterns of the native born in the political sphere.

[12] See W. Petersen, *Planned Migration: The Social Determinants of the Dutch-Canadian Movement* (University of California Press, Berkeley and Los Angeles, 1955), for an excellent discussion of this issue.

Government nor organized labour successfully directed immigrants permanently to the agricultural sector of the labour force.[13] Whether the Government has been Liberal or Conservative, it has managed to restrain the continuing controversy over immigration to the point that it has not fomented direct labour-management conflict or precipitated an election. Despite the effort to preserve the *status quo* by encouraging admission of immigrants possessing agricultural skills or skills which were not competitive with those possessed by native members of the labour force, actual admissions did not contribute to this objective. Compared to the occupational distribution of native Canadians in 1961, post-war immigrants were under-represented in farming. They were over-represented in low prestige service and unskilled labouring occupations, in craft occupations, including several higher prestige blue collar occupations, and in professional and technical occupations—high prestige white collar occupations. Pre-1946 immigrants were over-represented among farmers[14] as well as among managers, craftsmen, and service and recreational occupations, but their distribution conformed more closely to the distribution of native-born Canadians than did the post-1945 immigrants.

8. Especially since 1946, immigration not only has met a demand for unskilled workers but also has helped meet the shortage of highly-skilled workers. This lack resulted from the demands of organizational and technological change for workers which could not be met by the native labour force owing to the low birth rates of the 1930's and the early 1940's and the emigration of native Canadians. In 1961, post-1945 male immigrants contributed about 25 per cent of the draughtsmen and scientific and engineering technicians—all occupations essential to the process of industrialization.[15] Male immigrants who came after 1945 were also over-represented among other professions important to an industrial society, providing 3,700 doctors and dentists (15 per cent), and more than 3,000 accountants and auditors (11 per cent). Although post-1945 immigrants were under-represented among teachers, male and female immigrants contributed almost 7,900 needed school teachers. The immigrants' important contribution to the expansion of expressive activities made possible by industrialization is revealed in their over-representation among artists, writers and musicians where they contributed 17 per cent of the total employed. The high proportion of post-1945 immigrants in professional and technical occupations reveals the vital contribution of immigration in maintaining Canada's rapid rate of industrialization.

IV. Ethnic differentiation

9. Using ethnic origin as a criterion of selection, the Government encouraged the admission of immigrants, such as the British and North Europeans, who were regarded as the easiest of immigrants to assimilate.[16] As stated by Mackenzie King in 1947, selection was aimed at maintaining existing proportions among ethnic groups to avoid making "a fundamental alteration in the character of our population".[17] Despite this principle, non-British and non-French admissions have modified the ethnic composition of Canada at the expense of those claiming British origin who, in 1961, contributed 43.8 per cent of the population as compared to 47.9 per cent in 1951 and 49.7 per cent in 1941.[18] Assessment of the consequences of such changes is difficult. The reduction of the British may mean a reduction of British domination of the society resulting in less concentrated opposition to the claims

[13] Of post-1945 immigrants 5.6 per cent as compared to 17.2 per cent of pre-1946 immigrants were employed in farming in 1961. Dominion Bureau of Statistics, *1961 Census of Canada,* Bulletin 3.1-15 (Ottawa, 1964), table 21.

[14] The census category includes farm workers but most immigrants were farm owners.

[15] Dominion Bureau of Statistics, op. cit. More than half of the physical scientists were chemists. Post-1945 male immigrants also provided about 16 per cent of craftsmen employed in 1961.

[16] This has been a consistent principle throughout Canada's immigration history.

[17] If the skills, behaviour and attitudes of immigrants are regarded as acquired characteristics, the most assimilable immigrants will be those who emigrate from countries which most resemble the receiving society. However, this proposition needs more adequate investigation. See Lloyd Reynolds, *The British Immigrant: His Social and Economic Adjustment in Canada* (Toronto, Oxford University Press, 1935), for an account of the difficulties of adjustment encountered by British immigrants during the pre-World War II period. An immigrant's attitude to the receiving society can be important—if immigrants from Great Britain or France regard Canada as a colony, such an attitude may interfere with assimilation. Breton's work suggests that it is necessary to understand how the associational structure to which the immigrant is exposed stimulates or inhibits assimilation. See Raymond Breton, "Institutional completeness of ethnic communities and the personal relations of immigrants", *American Journal of Sociology,* vol. LXX (September, 1964), pp. 193-205.

[18] The proportion of Roman Catholics among immigrants admitted since 1946 has been increasing steadily and although it is not greater than among native-born Canadians, the trend is toward conformity to the existing religious composition of the population.

of other ethnic groups, such as the French-Canadians.[19] The non-British and non-French groups, augmented by immigration and strengthened by better-educated immigrants employed in above-average prestige occupations, may be in a position to demand more than lip service of the official Canadian policy of cultural pluralism. Certainly, Canada's ethnic heterogeneity is evident in the multiplicity of ethnic associations and in the variety and growth of the "foreign-language" press.[20]

10. One is mistaken to assume that the official policy of cultural pluralism has maintained more pronounced ethnic differences in Canada than in the United States where a "melting pot" policy is assumed to have reduced ethnic differentiation. Canada's commitment to cultural pluralism may have led to greater tolerance towards certain ethnic groups, such as the Hutterites or Mennonites, than was shown in the United States,[21] but the hostility expressed toward Hutterites and Doukhobors in western Canada suggests that the expression of values or adherence to customs markedly different from dominant Canadian values and customs is likely to arouse strong opposition. Regardless of official policy, the trend is toward relinquishing subcultural patterns in favour of conforming to uniform values and customs.[22] This trend, however, does not represent simply a conformity of minority ethnic groups to the values and customs of the majority peoples, the British, but to secular values and customs which emerge from certain elements in modern industrial societies.[23] Isolation as a means of preserving cultural autonomy is recognized by the Sons of Freedom, the most militant Doukhobor sect, in their efforts to prevent Doukhobors from adopting majority values and customs and becoming as indistinguishable from their neighbours as many Doukhobors have on the Prairies and in British Columbia.[24] Similarly, French-Canadian separatists have mobilized their resistance to the inevitable trend to uniformity resulting from rapid industrialization by promoting a stronger isolationist policy than has been needed to maintain French-Canadian ethnic identity in the past. "A Canadian mosaic" no longer accurately describes Canadian society.

[19] Since French-Canadians have been generally suspicious of immigration and hold that non-British groups tend to assimilate to British value and behaviour patterns, they do not regard the admission of non-Europeans as an advantage despite the possibility that immigration policy has reduced British strength.

[20] Non-English, non-French. Vallee and others, in *Canadian Society*, B. R. Blishen and others (eds.), second edition, p. 65, assert that ethnic differentiation in Canada is most evident in such expressive spheres as play, sport and art.

[21] Members of such groups emigrated to Canada from the United States prior to and during World War I. See E. K. Francis, *In Search of Utopia* (New York, Macmillan, 1955); A. M. Willms, "The brethren known as Hutterites", *The Canadian Journal of Economics and Political Science*, vol. XXIV (1958), pp. 391-405.

[22] P. Yuzyk, *The Ukrainians in Manitoba*, chap. 15.

[23] I have in mind a complex relationship between technological development, science, the values which underlie technological and scientific developments, and developments in organization and communication.

[24] *The Doukhobors of British Columbia*, H. B. Hawthorn (ed.) (Vancouver, University of British Columbia, and J. M. Dent and Sons, Canada, 1955), chap. I-III.

Demographic consequences of international migratory movements in the Argentine Republic, 1870-1960

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[*Translated from Spanish*]

INTRODUCTION

1. Large-scale migratory movements have a direct or indirect influence on a given population. The direct influences are those produced by the influx of population and its immediate demographic effects (size of the migrant population itself—which has different sex and age characteristics from those of the native population—the resultant natural growth and geographical distribution); the indirect influences are those which operate through social and economic transformations of the migratory impacts, that is, modifications in mortality, fertility and the internal migrations of the total population produced by economic, social and cultural changes. This study will deal mainly with the direct influences of immigration in the Argentine Republic which, according to existing records, amounted in the course of a century (from 1857 to 1960) to 5,094,874 persons. [1]

INFLUENCE ON THE SIZE AND SEX-AGE STRUCTURE OF THE POPULATION

2. Records of migratory movement in Argentina go back to 1857. The first national census was taken in 1869 and shows that even then 12 per cent of the population was foreign-born, or that there had already been considerable (greater than recorded) immigration up to that time. Nevertheless, it appears that mass immigration began in 1880, continued with some ups and downs in the 1890's, was interrupted during the First World War and the 1930 depression, and reached its trough from 1952 onwards. Thus, by starting the analysis in 1869 we shall cover almost a century of migration, representing 98 per cent of the total arrivals and departures recorded from 1857 to 1960.

3. The method used is the following: a model was constructed on the basis of the total population enumerated in the 1869 census brought forward to 1870, by sex and age groups; the model was then projected for ten-year intervals until 1960, it being assumed that international migration was nil and the population closed from 1870 onwards. The differences established, in size and structure, between the projected population—for which we use the term "closed"—and the actual populations as enumerated in the 1895, 1914, 1947 and 1960 censuses will be attributed to migratory movements occurring between 1869 and each of the years mentioned, and to the natural increase of the immigrants.

4. Each component of the projection was studied separately. The total population as enumerated in 1869, by sex and ten-year age groups, was projected to 1870 by applying the annual intercensal geometrical growth rate, 1869-1895 (32.6 per thousand). This population was successively multiplied by ten-year aging factors to obtain the number of survivors every ten years, the number of births in each decade being estimated in the same way. By applying the corresponding aging factors to them in their turn, we finally obtained a population figure for each ten years, by sex and age groups, for the period 1870-1960. (The estimated fertility and mortality levels are given in table 1.) Linear interpolations were then made to obtain the population (closed) for the years 1895, 1914 and 1947. It must not be forgotten, however, that the closed model was based on a census that is bound to have contained major errors (which persist throughout the whole projection) and that the same defect must affect the censuses of 1895, 1914 and 1947, used to make comparisons. For 1950 the corrected figures [2] were taken, which may alter the results. It should also be borne in mind that the fertility levels observed in the total population were used for the projection which, as will be seen in paragraph 12

[1] Net balances of arrivals and departures, through all channels and of all kinds.

[2] National Development Council, *Serie anual de la población argentina, 1947-1970* (unpublished).

below, are lower than in the case of the native population. This means that, if higher fertility rates had been used throughout the projection —more closely corresponding to the probable characteristics of the native population without the impact of migration—the resulting population would have been even bigger, and bigger differences would likewise have been observed when comparing its structure with the actual population.

5. When the closed model was compared with the actual population in the years mentioned, the following was observed:

(*a*) In the absence of international migration, the population would have been approximately 27 per cent smaller than it actually was in 1895, 46 per cent smaller in 1914, and 52 and 55 per cent smaller respectively in 1947 and 1960 (see table 2); i.e., the most striking differences between the actual and projected populations occurred between 1870 and 1914 —a period in which the 1857-1960 balances of migration reached almost 54 per cent. In 1960, the actual population was more than double the closed model projected from 1870 onwards. The same conclusion follows from the annual growth rates of both population in the same periods (table 2): the difference between the rates of the actual population and the closed model reaches its maximum during the period 1895 to 1914;

(*b*) Important differences in the sex and age structures of the actual population and the closed model were also noted at the particular moments of comparison. Starting with a masculinity index of 105.5 for the population enumerated in 1869, the sex ratio shows the maximum difference as between the two populations in 1914, and then declines sharply in 1947 and 1960 (see table 2). In other words, the masculinity index changes at the very moment of large-scale immigration (sex differential), but, since the descendants of the migrants show a normal sex distribution, the masculinity index returns to normal as immigration declines;

(*c*) The age structure is also affected by migration. In the male population, as was to be expected given the selective character of the migrations by sex and age, we observed in all cases a larger proportion of males aged 20 to 59 in the actual population (which includes the migrants and their natural growth) than in the closed model and, consequently, a smaller proportion of children and young people. The effects of migration on the female population are smaller and less clear than on the male population. Thus, fewer adult females and more girls are observed in the actual population in 1895 and 1914, and the reverse in 1947. In 1960 the differences between the two populations are at their smallest;

(*d*) In summary, it may be concluded from the analysis made so far that the modifications produced by large-scale migratory movements in the size and structure of the population of the Argentine Republic are of two kinds:

(i) Lasting changes produced directly in the size of the population by the arrival of immigrants and their natural increase;

(ii) Transient changes in the age and sex structure under the momentary impact of mass immigration, which diminish as the immigration falls off and tend to disappear.

6. The result of these transformations was a greater number of presumably economically active persons in the country, determined by the size of the population and its sex and age composition (larger proportion of men, with a predominance of adults). It is expected that, in the absence of another large wave of immigration, the proportion of persons of economically active age will return to that found in a closed population.

Influence of international migrations on the geographical distribution of population

7. International migrations have considerably influenced the geographical distribution of the Argentine population, which is very dense in the *pampa* zone (provinces of Buenos Aires, Santa Fé, Entre Ríos, La Pampa, Córdoba and the Federal Capital) which covers approximately 27 per cent of the total area of the country. As long ago as 1869, 53.5 per cent of the population lived in this zone, of whom 19.9 per cent were of foreign origin. Prominent in this zone as a focus of attraction for immigrants are the Federal Capital and the province of Buenos Aires, with 49.6 and 41.7 of the total foreign-born population respectively. The southern zone also has a very high proportion of foreign-born population, but these figures are not very significant owing to the low density of population in the region. These features are accentuated with the passage of time. In 1895, 67 per cent of the total population was living in the *pampa* region, of whom 34 per cent were foreign-born. At that time, over half the population of the Federal Capital were foreign-born, and Santa Fé

appears as a centre of attraction for immigrants. In the north-east, too, over 15 per cent of the population was foreign-born, but that is a less important zone, representing only 7.3 per cent of the country as a whole. In 1914, the proportion of foreign-born population in the country reached almost 30 per cent and then declined to 15.3 and 12.8 per cent in 1947 and 1960 respectively. In all cases the majority (excluding the south for the reasons given above) lived in the *pampa* zone and, within that zone, the Federal Capital and the province of Buenos Aires have the highest percentage.

8. Looking at the same subject from another angle, it may be said that more than 80 per cent of the aliens entering the country settled, over the period covered by the five national censuses, in the *pampa* zone. This proportion reached its peak in 1895 (89.6 per cent). For more details see table 3.

9. The proportion of the urban population[3] in Argentina increased very rapidly from 1869 onwards, when it was 28.6 per cent. It reached 37.4 per cent in 1895, 52.7 per cent in 1914 and 62.5 per cent in 1947 (there are no data available from the 1960 census).

10. There is very little information to indicate what the proportion of immigrants in this population was in 1869 and 1895. But according to the analysis carried out by Germani,[4] a classification of geographical departments by major urban centres and of the population within these areas by origin leads to the conclusion that during the periods 1869-1895 and 1895-1914 "the growth of the cities was due mainly to immigration from abroad and to natural growth". Similarly, the censuses of 1914 and 1947 show that the foreign-born population has a growing tendency to live in urban zones, since in those years 68.3 and 76.6 per cent respectively of the foreign-born population were living in such zones.

11. In addition to the analysis in the last two paragraphs, which concerns only the absolute size of the foreign-born population concentrated in particular parts of the country, it should be remembered that the natural growth of that population in the zones mentioned definitely contributes to its increase on a large scale, so that the effect of the migrant population on the geographical distribution of the Argentine population is much greater than indicated.

[3] According to the census definition, "urban" means any centre of 2,000 or more inhabitants.

[4] Gino Germani, *El proceso de urbanización en la Argentina* (Institute of Sociology of the University of Buenos Aires, 1958).

Influence of migrants on general fertility

12. Analysis of the data from the censuses of 1895, 1914 and 1947[5] shows that the migrant population has helped to make the total fertility of the country lower than it would have been in the absence of foreigners (this analysis refers solely to observed fertility, and hence does not take into account the transmission of cultural patterns from one group to another—native to non-native and *vice versa*). The average number of children was calculated for the indigenous women, foreign-born women and the total, these rates being adjusted according to the duration of marriage in 1895 and 1914 and according to the age in 1947, the structure of the indigenous group being used as the model in all cases. The figures for the years 1895, 1914 and 1947 are, respectively, for indigenous women: 4.7, 4.6 and 3.3; for the foreign-born women: 4.2, 4.1 and 3.0; and for the total female population: 4.5, 4.3 and 3.2. These figures, although limited to legitimate births, indicate different levels of fertility for the migrant and non-migrant populations.

ANNEX

Estimation of mortality and fertility in the period 1870 to 1960

It was assumed that both mortality and fertility levels would have been the same, in the absence of migratory movements, as those recorded for the total population (with a large number of immigrants), leaving aside the influence of the migrant population on those levels. Use was made of the following life tables: for the city of Buenos Aires, the year 1887, and for the Argentine Republic, the years 1914, 1946-1948 and 1959-1961.[a] The ten-year aging factors were calculated for ten-year age and sex groups corresponding to each of them, and then interpolations were made for the mid-points of the projection (1895, 1905, 1915, 1925, 1935, 1945 and 1955). For the years before 1887 it was assumed that mortality was the same as in 1887. The resulting levels are given with the calculation of life expectancy at birth (table 1).

There are data on the births registered since 1914 which were used to calculate the standardized birth rates[b] for the census dates from that year onwards.

[5] This topic was not investigated in 1869, and the data of the 1960 census have not yet been tabulated.

[a] Enrique Roberto Kern, *La mortalidad en la ciudad de Buenos Aires* (Buenos Aires, Faculty of Economic Sciences of the National University of Buenos Aires, 1948); Zulma C. Camisa, *Tabla abreviada de mortalidad, República Argentina, 1946-1948* (Santiago de Chile, CELADE, 1964); Zulma C. Camisa, *Tabla abreviada de mortalidad, República Argentina, 1959-1961* (unpublished).

[b] A detailed description of this method may be found in United Nations, *Manual III, Methods for population projections by sex and age* (United Nations publication, Sales No.: 56.XIII.3).

For the previous years estimates were based on the populations as enumerated in 1895 and 1914, the number of births, calculated by dividing the population aged 5 to 9 years by appropriate aging factors, being related to the number of women of fertile age computed in a similar manner.[c] Thus, rates were obtained for the periods 1885-1890 and 1904-1909 (which were assigned to the mid-points) and for the years 1914, 1947 and 1960. From 1870 to 1880, it was assumed that fertility was at the same level as in 1888. Thenceforth the values found were interpolated linearly in order to obtain them at the beginning of each decade and by thus applying the standardized birth rates to the female population aged 15 to 44 (duly weighted) in each year, to calculate the number of births during the whole period of the projection. The results may be seen in table 1.

[c] A detailed description of the method used may be likewise found in: United Nations, *Manual III, Methods for population projections by sex and age* (United Nations publication, Sales No.: 56.XIII.3).

Table 1. Argentine Republic: levels of mortality and fertility estimated and used in the projection of the closed population, 1870-1960

Period	*Mid-point*	*Life expectancy at birth* [a]		*Fertility rate* [b] *(per thousand)*
		Men	*Women*	
1870-1880	1875	28.33	31.84	53.2
1880-1890	1885	28.33	31.84	52.0
1890-1900	1895	33.99	36.93	46.0
1900-1910	1905	41.10	43.25	39.7
1910-1920	1915	47.23	49.02	34.6
1920-1930	1925	51.91	53.76	30.5
1930-1940	1935	55.58	57.95	26.4
1940-1950	1945	57.99	60.70	23.7
1950-1960	1955	60.63	64.30	24.1

[a] The life expectancy at birth was calculated from the aging factors, interpolated or extrapolated from the life tables for the years 1887, 1914, 1947 and 1960.

[b] At the end of each of the periods indicated.

Tables 2 and 3 follow on page 215

Table 2. Argentina: some features of the census and closed-model populations, 1869, 1895, 1914, 1947 and 1960

Year	Population		Rate of growth, annual, per thousand		Masculinity index		Structure by large age groups (percentages)											
							Population enumerated						Closed population					
							0-19		20-59		60 and over		0-19		20-59		60 and over	
	Enumerated [a]	Closed	Enumerated Population	Closed Population	Enumerated Population	Closed Population	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1869	1,737.1	1,737.1	32	20	105.5	105.5	55.2	57.2	42.3	40.2	2.6	2.6	55.2	57.2	42.3	40.2	2.6	2.6
1895	3,954.9	2,894.9	36	20	111.9	100.0	48.4	52.5	48.3	43.7	3.4	3.8	53.1	51.4	43.4	44.3	3.5	4.3
1914	7,885.2	4,234.9	21	18	115.5	100.6	46.7	51.9	49.4	43.9	3.9	4.2	51.0	49.6	44.5	44.4	4.5	4.2
1947	15,893.8	7,684.5	21	16	105.1	101.8	40.2	40.8	53.3	52.7	6.5	6.8	42.7	42.0	50.9	52.7	6.4	6.5
1960	20,756.7[b]	9,406.3			103.8	100.7	39.3	38.8	52.1	51.9	8.6	9.3	40.2	39.0	52.0	51.3	7.8	9.7

[a] National censuses.
[b] Adjusted enumerated population: National Development Council, *Serie anual de la población argentina, 1947-1970* (unpublished).

Table 3. Argentina: relative zonal distribution of the total and foreign-born population, and latter expressed as percentage of total, various years

Zone	1869			1895			1914			1947			1960		
	Total	Foreign	Foreign as per cent of total	Total	Foreign	Foreign as per cent of total	Total	Foreign	Foreign as per cent of total	Total	Foreign	Foreign as per cent of total	Total	Foreign	Foreign as per cent of total
Pampa	53.5	88.1	19.9	67.1	89.6	34.0	73.6	87.3	35.5	71.8	83.1	17.7	71.4	81.2	14.6
Northwest ...	28.8	3.4	1.4	17.8	2.4	3.4	12.6	3.1	7.5	11.2	3.8	5.1	11.1	4.2	4.9
Cuyo	10.3	4.3	5.0	7.1	2.3	8.3	6.5	4.9	22.4	6.4	3.8	9.0	6.8	3.8	7.2
Northeast ...	7.4	4.2	6.8	7.3	4.4	15.3	5.9	2.7	13.6	8.3	6.4	11.7	8.2	6.8	10.6
South	0.0[a]	0.0[a]	69.9	0.7	1.3	44.4	1.4	2.0	44.1	2.3	2.9	19.9	2.5	4.0	20.2
TOTAL	100.0	100.0	12.1	100.0	100.0	25.4	100.0	100.0	29.9	100.0	100.0	15.3	100.0	100.0	12.8

SOURCES: national censuses.
[a] Less than 0.1 per cent.

Migration in relationship to the economic development of Rhodesia, Zambia and Malawi

C. A. L. MYBURGH

1. The economic development of the countries now known as Rhodesia, the Republic of Zambia and Malawi (formerly Southern Rhodesia, Northern Rhodesia and Nyasaland) dates back a mere 73 years. It began in 1890 when the British South Africa Company brought 700 Europeans from South Africa to settle in Rhodesia and the British Government established a protectorate in the area now known as Malawi.

2. In 1890 all three of the countries under consideration had nothing more than a bare subsistence economy with Rhodesia and Zambia each supporting a population of roughly half a million people and Malawi a population of nearly three quarters of a million. At 1963 price levels the value of the 1890 subsistence production was probably no more than £4 million in Rhodesia and Zambia and perhaps £6 million in Malawi.

3. Since 1890 the populations have grown to approximately 4,100,000 in Rhodesia, to 3,500,000 in Zambia and to 3 to 4 million in Malawi. In the absence of a recent census it is impossible to give a more precise indication of the Malawi population. In 1963 the gross domestic product (GDP) stood at £329 million for Rhodesia, £215 million for Zambia and £49 million for Malawi.

4. During the past 73 years the growth in GDP of Rhodesia measured at constant prices has averaged no less than 6.3 per cent a year. This is substantially higher than the United States of America growth of 3.9 per cent a year for the 73 years starting in 1869.[1] It is also well above the growth rate of 5 per cent which the United Nations has recommended as a target for developing countries.[2]

5. Although the growth in Zambia's GDP since 1890, an average of 5.6 per cent a year, has been less than in that of Rhodesia, it is still impressive by the United States and United Nations standards. Malawi's GDP has increased by only 2.9 or 3.0 per cent a year.

6. That the arrival of the first European immigrants in 1890 started the development of Rhodesia, Zambia and Malawi cannot be denied. These immigrants brought with them the necessary technical knowledge and initiative to start the development of the natural resources. They were supported by the financial resources of the British South Africa Company and the British Government.

7. Statistical records suggest a close relationship between the subsequent growth in GDP and the increase in the European, Asian and mixed race population. For example, Rhodesia with the largest European, Asian and mixed race population (244,000) has by far the highest GDP and Malawi with the smallest European, Asian and mixed race population (22,000) has a paltry £50 million GDP. The relationships between migration and economic development are by no means clear cut. Although immigrants have helped to increase the GDP, one should note that people do not normally migrate until the employment opportunities have been created for them.

8. In the short compass of this paper it is possible to examine only four of the many factors which have affected migration and development in this part of Africa. These are as follows:

(*a*) Mineral resources;

(*b*) Land tenure and job security;

(*c*) Availability of local labour;

(*d*) The formation and subsequent dissolution of the Federation of Rhodesia and Nyasaland.

I. MINERAL RESOURCES

9. Although a missionary spirit, a desire for adventure, or political interests no doubt encouraged some of the early European settlers to migrate to this part of Africa, the main driving force for most of them was the pros-

[1] Simon Kuznets, *National Products Since 1869* (New York, National Bureau of Economic Research, Inc., 1946).

[2] *Report of the Seminar on Population Problems in Africa*, United Nations document E/CN.14/186-E/CN.9/CONF.3/1(1962).

pect of making a profit from the development of the mineral resources.

10. Without going into details, one can attribute the disparity in the rates of the development of Rhodesia, Zambia and Malawi to the relative range and economic value of their basic mineral resources. The most rapid expansion has occurred in Rhodesia where there is a wide range of mineral resources and the slowest rate of expansion has been in Malawi which has virtually no minerals of value.

11. Zambia's development is based largely on its copper ores supported by its lead and zinc deposits, but the relatively narrow range of the lead and zinc resources has made this economy sensitive to fluctuations in the world price of copper. The direct and indirect contributions of the copper mines to Zambia's economy amounts to more than half, if not two thirds, of the total GDP. As a result the total GDP and general economic development have varied greatly with the world demand for copper. For example, between 1957 and 1958 world copper prices declined from more than £400 to £200 per ton; the GDP at constant prices fell by 16 million pounds. Major setbacks of this nature have been a serious handicap to the general growth of the economy.

12. The development of Rhodesia also has been affected by variations in the prices obtained for its exports, but the more broadly based and larger economy has greatly reduced the overall impact of changes in the prices of individual commodities.

II. Land tenure and job security

13. In Rhodesia skilled immigrants have experienced only normal financial difficulties associated with the earlier protectorate status of the areas now known as Zambia and Malawi. In these two countries a limited amount of land has freehold title. This fact probably has restricted permanent settlement and capital investment.

14. The skilled immigrant entering Zambia and Malawi as an employee must bear in mind that he may be asked to leave his job to make room for a locally trained African. This factor has become of increasing importance in recent years.

15. Although various racial prejudices must be taken into consideration, the average skilled immigrant's resentment to hiring locally trained Africans for purely political reasons is based largely on an objection to the lower standards which usually follow. Although hiring Africans rapidly gives rise to an increase in immediate employment opportunities for the local people, the reduction in standards which often follow are apt to reduce the opportunities for swift economic development in the future.

16. In general, lowering work standards reduces the quality of the end product or service and its market value. At the same time there is likely to be a reduction in the volume of each labour unit's production. These changes in quality and volume are apt to reduce the rate of growth as measured by the GDP at constant prices and they are likely to reduce the volume of local savings available for financing further development. As a result there probably is a reduction in future employment opportunities.

17. The relative advantage of Rhodesia in respect to job security and opportunities for permanent settlement can be illustrated by the fact that since 1939 Rhodesia has lost only 6 per cent of its locally born population, whereas Zambia and Malawi have lost roughly 30 per cent.

III. Availability of local labour

18. Most developing countries have plenty of local unskilled labour, but lack skilled personnel. This shortage must be met by temporary or permanent immigration. Both Malawi and Zambia fall into this position, but in Rhodesia the rate of economic development has been at such height that for many years a shortage of skilled and unskilled labour has required immigration.

19. The shortage of unskilled labour in Rhodesia started early in the twentieth century and by 1921 (the earliest date for which figures are available) nearly two thirds of the unskilled wage-earners were immigrants from neighbouring countries, mainly Mozambique, Malawi, and Zambia. The number of these unskilled workers reached a peak of nearly 310,000 in 1956, but their relative importance had declined to a little more than half the total unskilled labour force.

20. A significant proportion (about one sixth) of the Africans employed in Zambia come from neighbouring territories, but a larger number of the locally born people are working in Rhodesia and South Africa, leaving Zambia with a small net surplus of unskilled labour. In Malawi the unskilled labour surplus is so great that more than half the Malawian wage earners are working in other countries.

21. The unskilled labour surpluses very likely have encouraged Zambia and Malawi to

reduce work standards in some of the skilled occupations to provide employment opportunities for the indigenous people and to reduce the need for skilled immigrants. That the building industry and other sectors have done this is well known.

22. Unfortunately comparable statistics on the employment of skilled Africans are limited to the year 1961 and are related only to Rhodesia and Zambia.[3] These statistics show that if all sectors of the economies are considered Rhodesia provides greater absolute and relative employment opportunities for skilled Africans than Zambia. There are 46,000 skilled African wage earners in Rhodesia. These workers represent 6.6 per cent of the total number of wage earners and 35 per cent of the total number of skilled wage earners. The corresponding figures for Zambia are 14,000 skilled Africans representing 5.2 per cent of all wage earners and 31 per cent of all skilled wage earners.

23. The fact that Rhodesia employs more than three times as many skilled Africans as Zambia is largely a reflection of the relative size and breadth of its economy. It might be argued that Rhodesia's resources could provide greater employment for skilled Africans than it has done. The argument may be that more attention could have been paid to education, particularly in secondary schools, to increase the supply of skilled African labour and that racial discrimination could have been reduced to allow employment opportunities for skilled Africans. This argument is debatable.

24. Rhodesia has provided education to a larger number of Africans than either of the two northern countries. If more had been spent on education, it is probable that other development projects with a higher immediate return would have been reduced. Furthermore there probably would have been a greater diversion of financial resources from the private to the government sector. Such changes would have reduced the general rate of economic development and the expansion in employment opportunities.

25. In so far as racial discrimination is based on pure prejudice, it cannot be supported by any logical argument and any reduction in such discrimination would be advantageous to the community as a whole. However, racial discrimination has often an economic background, based on the desire to maintain high work standards. As indicated in preceding paragraphs, a reduction in work standards to provide employment opportunities for less skilled people is likely to reduce the growth rate rather than to increase it.

26. It is probable that the present size and breadth of the Rhodesian economy and Rhodesia's relatively large employment opportunities for skilled African labour are due in part to the relatively rapid rate of immigration in the early years. This immigration rate was sufficiently high to create a shortage of unskilled labour which removed pressure for standards to provide additional employment for the indigenous people. Skilled immigration continued at a high level and, in the long run, provided greater financial resources for African education and more opportunities for locally trained skilled Africans than would have been the case.

IV. Formation and dissolution of the Federation of Rhodesia and Nyasaland

27. Often it has been argued that the formation of the Federation in 1953 stimulated the economic development of Rhodesia, Zambia and Malawi because it brought together three complementary economies and provided a soun-

[3] *The Requirements and Supplies of High Level Manpower in Northern Rhodesia 1961-1970* (Salisbury, University College of Rhodesia and Nyasaland, 1964).

Approximate average annual change in money economy. Net domestic product at constant prices

Period	Zambia			Malawi (Per cent)	Rhodesia (Per cent)
	Mining sector [a] (Per cent)	Other sectors (Per cent)	Total (Per cent)		
1938-1946	N.A. [b]	N.A. [b]	1	7	5
1946-1951	24	29	26	7	12
1951-1954	12	22	17	10	7
1954-1958	(—)5	10	2	6	9
1958-1963	12	3	7	0	3

[a] Controlled by external demand factors.
[b] N.A. = not available.

der investment area. It is argued that the uncertainties for the future caused by the first dissolution talks led to a decline in the years after 1958. An examination of the figures in the table indicates that the economic advantages of the Federation and the repercussions of the dissolution talks have been exaggerated.

28. The figures in the table generally follow a common pattern of steady decline since the peak during the post-war boom, although this boom appears to have been delayed in Malawi. As far as the three countries are concerned, the growth and decline of this boom was brought about by external rather than internal factors.

29. The peak years of expansion were 1947 in Zambia, 1949 in Rhodesia and 1954 in Malawi. In Rhodesia and Zambia development rates had been declining for several years before the formation of the Federation. The advent of the Federation did not reverse this downward movement in Zambia although it possibly reduced its impetus. A small, temporary rise in the Rhodesian economy between 1954 and 1958 could be attributed to the formation of the Federation. In Malawi the rate of expansion declined steadily during the first part of the federal era.

30. From the beginning of the talks on dissolution, all sectors of the Federation (other than the externally affected Northern Rhodesia copper industry) have experienced declining growth. The available figures for 1964 show this downward trend was accelerated with the formal dissolution of the Federation at the end of 1963. Nevertheless, against the general background of the long-term trends, it is doubtful that the long-term downward trend would have shown a change in the period from 1958 to 1963 if this period had not been the beginning of the dissolution of the Federation.

The role of emigrants' remittances in the economic development of European countries

GIUSEPPE PARENTI

1. When I was requested to prepare a communication on the subject "The role of emigrants' remittances in the economic development of European countries", I hesitated to accept the task because of the difficulty in basing the paper upon reliable facts; either statistical sources are inadequate or the concept of "remittance" is undefined.

2. Without doubt, earnings saved and sent by the workers employed abroad to their families or to their relatives living in the country of origin, must appear among the remittances. These must include earnings of either emigrants living abroad temporarily or emigrants settling abroad permanently. However, if we want to evaluate the real contribution of emigration through the flow of remittances to the economic resources of the native land, we must consider also all sums liberally transferred by the emigrants or by their descendents in relation to ties which still bind them to their country of origin, even if these emigrants have lost their original nationality. Finally, we should add pensions, subsidies etc., paid by foreign countries to workers who have returned to their home or to National Social Services in relation to rights earned during their residence abroad.

3. In accordance with national accounting systems, remittances, in the wider sense as defined above, should appear among current accounts (revenue from labour abroad) or among unilateral transfers (private donations), according to whether or not the workers have kept their residence in their country of origin. Some countries, Italy for instance, give separate figures for these two accounts. Other countries put both in the item "emigrants' remittances"; others include the remittances under the item "private donations" without indicating separately their entity.

4. In the items of the balance of payments just mentioned do not appear all "remittances", but only those transferred through official channels (bank systems and international money orders). Sums transferred by national and foreign currency or private compensations are excluded. National and foreign currencies appear in many countries under the item "active tourism". Private payments cannot be traced; neither can incidental sending of consumer goods, pre-paid journeys etc. Social Security transfers and insurance benefits often are mixed under other accounts.

5. Concerning the entity of the remittances which cannot be traced, some rough estimates have been made [1] but these incidental estimates —apart from the roughness of the methods of evaluation used—cannot be extended to different intervals of time. The relative importance of the flows which escape official channels of transfer varies according to many factors which have importance according to the time they take place: the difference between official and parallel rates of exchange; the length of the expatriation (for instance, seasonal workers usually bring home savings accumulated in a short period of residence abroad), the prospects at certain times of a temporary investment abroad; and the monetary regulations in the countries of immigration at different times.

6. Finally, to measure the real contribution of remittances to the balance of payments of the country of emigration, it would be necessary to subtract the sums that the emigrants bring when emigrating. These sums vary widely according to the economic situation and professional activity of the emigrant, according to whether the emigration is free or assisted and according to whether sums appear under other items of the balance of payments when they are registered. Since the structure of emigration currents varies at different times according to countries of destination, areas of origin, types of emigration, and economic levels

[1] In Italy, it was estimated, around 1957, that half the remittances escaped official channels (Bureau international du travail, *Migrations Internationales 1945-1957* (Genève, 1959), p. 411). Unofficial estimates of the Italian Ministry of Labour for 1962 and 1963 evaluate at about 30 per cent of the total the amount of emigrants' remittances transferred outside the banking system.

of the emigrants, occasional evaluations are not sufficient for an estimate to be considered generally valid. Evaluations by the immigration countries differ considerably one from the other and, in the ways and circumstances they are made, generally are considered unreliable.

7. The remarks just made were necessary to underline the significant scarcity of statistical analysis of the remittances' flows based only upon figures of the balance of payments as they appear in standard accounts. A penetrating analysis actually would need investigations especially for this purpose—by sample or conjectures—which cannot be carried on without accurate research on the spot. I give only a few data concerning Italy (since 1861), Greece, Portugal and Spain (1950-1962). For these last three countries, the figures under the item "remittances" are actually the balances of the item "private donations" as they appear in the publications of the International Monetary Fund. [2]

[2] The figures concerning Italy (see table 1) include both private transfers and labour income from abroad. Istituto Centrale di Statistica, *Sommario di Statistiche Storiche Italiane, 1861-1955* (Roma, 1958); for recent years (as shown in table 2) see Ministry of the Budget, *Relazione Generale sulla situazione economica del Paese*. For other countries the data were taken from International Monetary Fund, *International Financial Statistics*, supplement (1964/65). The conversion of national currencies into U.S. dollars was done at the official rates. For Greece and Spain, data anterior to exchange stabilization have been omitted.

Table 1. Emigrants' remittances to Italy in pre-war period (1861-1940); yearly averages, millions of lire 1938

Decennial periods (1)	*Remittances* (2)	*Imports* (3)	*National income* (4)	*Col. 2 / Col. 3 · 100*	*Col. 2 / Col. 4 · 1,000*
1861-1870	140	4.832	49.991	2.89	2.80
1871-1880	367	5.928	54.640	6.19	6.72
1881-1890	694	7.752	57.632	9.95	12.04
1891-1900	1.574	7.789	62.525	20.20	25.17
1901-1910	3.734	13.619	79.544	27.41	46.94
1911-1920	2.774	19.030	92.084	14.57	30.12
1921-1930	3.196	18.242	111.919	17.52	28.56
1931-1940	943	11.453	129.246	8.23	7.30

8. The ratios of the amount of remittances to the amount of imports and the national income even taken alone have an evident meaning in terms of development. The first ratio shows the quota of imports financed through the remittances; the second measures the direct contribution of remittances to the resources of the country. There is no doubt that the possibility of disposing of an additional quota of imports without upsetting the balance of payments or the availability of resources outside those produced in the country, are positive facts in a process of development, whatever might be its characteristics and independent of the economic policy of the Government concerned. A certain flow of remittances surely can influence the development of the balance of payments. One must consider the stage reached, the destination of the financial means transferred by the emigrants and the use made at home, policies of the government and the flexibility allowed by the flow of the remittances.

9. An accurate analysis of the combined effects of these factors would be of remarkable interest but it cannot be developed at length in the limits of this note. I, therefore, prefer to concentrate attention on a particular period of Italian experience—the decade 1901 to 1910. In that interval the present development of the Italian economy began in the same period. We have at our disposal accurate investigations on the use made at home of the emigrants' remittances, and in that decade Italy had all the characteristics of a typically underdeveloped country. The results drawn from the analysis of this period, which will be developed later, may be useful to formulate interpretative hypothesis and generalizations which will be valid for other countries and other periods.

10. The simple observation of the decennial averages shows that the decade 1901 to 1910 clearly differs from all the others because of its strong increase in income, almost sudden forward expansion of imports and for the peak reached in the annual average amount of emigrants' remittances. It is also the decade which sees, for the first time after Italian unification, the implementation of an active economic policy, which a modern economist could properly call "development policy". This policy was meant to extend state intervention in the economic life and was qualified by some notable events, such as the nationalization of

Table 2. Emigrants' remittances to some European countries, 1953-1962; millions of U.S. dollars [a]

Year	*Italy*			*Greece*			*Portugal*			*Spain*		
	Remittances	*Imports, per cent*	*National income, per cent*	*Remittances*	*Imports, per cent*	*National income, per cent*	*Remittances*	*Imports, per cent*	*National income, per cent*	*Remittances*	*Imports, per cent*	*National income, per cent*
1953	103.1	3.8	0.6	45.6	–	–	15.8	–	–	–	–	–
1954	90.2	3.3	0.5	47.0	14.2	2.8	20.2	–	–	–	–	–
1955	90.2	3.0	0.5	50.6	13.2	2.7	30.6	–	–	–	–	–
1956	273.9	7.8	1.3	73.7	15.9	3.4	30.4	6.9	1.8	–	–	–
1957	357.7	8.7	1.6	85.6	16.3	3.6	48.5	9.7	2.8	–	–	–
1958	415.7	11.0	1.8	89.8	15.9	3.7	49.2	10.3	2.8	–	–	–
1959	370.6	9.4	1.5	96.9	17.1	3.8	56.7	11.9	3.0	47.7	6.0	0.6
1960	430.2	8.0	1.6	99.1	14.1	3.6	54.5	10.0	2.6	63.8	8.8	0.7
1961	533.4	8.8	1.7	107.2	15.0	3.5	44.6	6.8	2.0	119.5	10.9	1.2
1962	638.1	9.0	1.9	153.3	21.9	4.7	51.1	8.8	2.2	156.9	10.0	1.4

[a] For this item see foot-note 2.

the railway, formerly in private hands; the reorganization of the transport services and of the network of communications in general; the expansion of public works and the financing of work programmes carried out by local authorities; the realization of differential policies to benefit underdeveloped areas and the introduction of fiscal reliefs and of special credits to support or help the rise of new industries. [3]

11. Industry developed in that period at an average annual rate higher than 5 per cent and chemical, paper and mechanical industries developed at a rate of 10 per cent. The mechanical industry was particularly supported by the State through orders of railway goods, subsidies to the merchant navy and protection given to the ship-building yards. [4] Agriculture from which the majority of emigrants were recruited, also developed at a high rate in spite of the many losses of manpower. This rate recently has been estimated at approximately 3 per cent a year. The gross investments doubled, compared with the previous decade, and the public expense, left almost unchanged for a long period, increased by 50 per cent. All of this took place while the wholesale prices were more or less stable and the cost of living increased only slightly (about 10 per cent during the whole decade).

12. Obviously, many factors contributed to make this development. We must not omit emigration which reduced the demographic pressure—especially in the southern regions—and stimulated enterprises through the experiences of the repatriates and produced a renewal in old structures of the most depressed areas. Certainly, the influx of the remittances was an important factor, perhaps decisive, in allowing the starting of the transformation of Italian economy and its continuity. The process probably soon would have slowed or stopped because of monetary or balance of payments difficulties. From this point of view it is sufficient to consider that the increase of imports (mostly determined by the larger consumption of raw materials and machinery) —equal to 75 per cent of the total imports of the previous decade—was compensated by more than a third by the increase of remittances which assured the cover of 27 per cent of the total imports.

13. As to financing productive investments and to public expense, we can gather that the remittances in 1901 to 1910 represented almost half the total national savings, more than double compared with that of the previous decade. This is confirmed by the results of a Parliamentary inquiry of 1901 to 1911 [5] from which it appeared that the greater part of the remittances went into savings. No more than one fourth of them actually were used for consumption purposes. As to the quota saved, equal to about a third of the national savings, it was deposited in the Post Office Savings Banks or other banks, or directly invested, in payment of old debts, in the exercise of small commerce or artisan activities, in buying and building houses or in buying land. What is interesting in the results of the Parliamentary inquiry, is the ascertainment that the use of the emigrants' savings differed substantially from district to district. The productive investments prevailed in the comparatively advanced areas and in those areas wherein transformations in the traditional structures (partly due to emigration) were taking place.

14. Coletti, who was General Secretary to the Parliamentary Commission, reporting in one of his books the main results of that inquiry [6] extends his analysis to other areas and arrives at analogous conclusions. He, moreover, observes that through the flow of remittances the small local usurer in the poorer areas was eliminated or reduced; the financing of local authorities by the deposit and loans banks—through the accumulation of savings in Post Office Savings Banks—was facilitated and the high rate of interest was reduced to allow a successful conversion of state bonds with remarkable economic and psychological effects.

15. The Italian experience of the decade 1901 to 1910, I think, allows one to qualify the particular role which emigrants' remittances can play in the development of developing countries. When these reach sufficient high levels compared with national income and imports (this seems to be true in recent years in Greece and Spain)—and if a remarkable part of them is used to supplement national savings or directly productive investments, they can constitute a decisive factor for the implementation of a modern development policy. Inevitably, such a policy determines a large increase in imports, which after a certain "lag" and possibly as a consequence allows a parallel increase of exports. Therefore, it is indispens-

[3] E. Corbino, *Annali dell'Economia Italiana*, vol. V (1901-1914) (Città di Castello, 1918).

[4] Istituto Centrale di Statistica, *Sommario di Statistiche Storiche Italiane, 1861-1955* (Roma, 1958).

[5] Ministerio di Agricoltura, Industria Commercio, *Inchiesta parleamentare sulle condizioni dei contadini delle province meridionali e nella Sicilia* (Roma, 1909-1911).

[6] F. Coletti, *Dell'emigrazione italiana* (Milano, Hoepli, 1912), pp. 240-248.

able to assure the temporary cover of the monetary unsettlement by foreign means in the beginning. When remittances reach a high level, they can provide this cover, at least partly and at the same time supplement savings without being used largely for consumption. Often, in the developing countries—as was the case of southern Italy during the period 1901 to 1910—they constitute the main source of private savings.

16. When development is well underway as is the case in Italy now, the remittances lose importance compared to other factors of expansion, such as the increase of foreign demand, the flow of capital from other countries, or the entity of other invisible entries of the balance of payments; nevertheless they still form a contribution to the development process. On the other hand, the flow of remittances in a country which does not carry out a development policy wears out its function by simply increasing domestic private consumption.

17. In this note I mentioned only remittances without taking into consideration that when they reach high levels, they are almost always the counterbalance of a mass emigration. This emigration—for a country whose economy is definitely on the road to expansion—may cause a much bigger loss than the benefits gained under the monetary aspects. This does not happen for economies which are at the beginning stages of economic development. In such cases the emigratory flows represent lightening of underemployed manpower at almost insignificant marginal productivity.

Economic development and international migration of labour

E. P. PLETNEV

[*Translated from Russian*]

1. International migration of labour can be studied scientifically if it is seen not as a combination of "free choices" by individuals but as an objective natural phenomenon governed by the conditions of economic development in a capitalist society. The migration of labour is just one factor in a broader problem, the problem of employment, and in this paper the problem of employment is studied only in relation to that factor. The question to be studied is how far international labour migration can serve the needs of economic development and in what way the groups of the working population that can be transferred between States to the greatest economic effect become evident in the course of development. This study of international migration will be concerned solely with the advisability of exchanges of population between the developing and industrialized countries with the economic side of the question.

2. Mass international migration of labour is far from the most efficient means of achieving mobility of labour resources, since it entails great losses of working time and is merely a reflection of the highly unequal distribution between States of centres of high and low demand for labour, the sale of which has become the only means of subsistence for hired workers. The migration of labour depends essentially on the migration of capital. In the nineteenth century migrant workers followed capital (mainly from the United Kingdom and Ireland, and also Germany, to the United States, Canada and Australia). From the beginning of the twentieth century the industrialized countries, trying to relieve the so-called over-accumulation of capital, began to import cheap labour from the developing countries and at the same time to export "excess capital" (for example, France imported workers on a large scale from North Africa, Indo-China and eastern Europe, where it had the bulk of its foreign investment).

3. While the international migration of labour is a result of differences in levels of capital formation and employment and of the uneven flow of capital from country to country, it in its turn has an actively accelerating or retarding effect on the economic development of whole continents. If the import of 50 million migrant workers during the nineteenth and twentieth centuries was one of the factors in the rapid economic growth of North America, the export into slavery and extermination by white slave traders of a similar number of people in the prime of life from the seventeenth to the nineteenth century accounts to a large extent for the stagnation of Africa.

4. In a market economy, the reason why capital migrates is not merely to secure a supply of labour but also to redistribute the "surplus" population, from which the bulk of migrants are recruited. In the present situation, in which the former monopoly position of a handful of rich powers has been undermined and the labour market in those countries is extremely unstable, it is in the interests of the traditional exporters of capital to unload the main burden of relative over-population on the developing countries, in order to prevent them from flooding the labour exchanges of the industrialized countries. After many years of studying the world economy, Professor G. Myrdal came to the conclusion that to ask the rich countries to open their frontiers to mass immigration from the poorer countries which had not solved their population problem would in fact be a display of very dubious idealism in the field of international relations. [1] How pointless such idealism seems to some industrialized Western countries can be seen from their discriminatory policy of establishing barriers to the entry of workers from the countries of Asia, Africa and Latin America. Under the Immigration and Nationality Act adopted in the United States in 1952, the entry quota for "coloured" persons from Asia, Africa and Oceania is limited to 5,200. The immigration quota for "coloureds" into the United Kingdom was

[1] G. Myrdal, *An International Economy. Problems and Prospects* (New York, Harper, 1956).

drastically reduced by the Act of 4 April 1963. In the belief that developing countries will try to solve their population problems by mass emigration to developed countries, the latter are seeking to protect their comfortable living conditions by placing various barriers in the way of immigrants.

5. The great paradox, however, is that faith in mass emigration as a panacea is indeed widespread in the developing countries. In many of them emigration of the population to find a livelihood abroad is regarded as a means of relieving the labour market, as a way of avoiding relative over-population. This view is not only erroneous, but very dangerous.

6. The harmful effects of a mass outflow of labour on the economic development of new States are due in the first place to the fact that it is mainly the most able-bodied members of the population who are drawn towards emigration. It has been established by the United Nations Economic Commission for Africa that in most African countries over half the migrants are men. [2] In addition, the majority of migrant workers are people in the prime of life. In Tanganyika and South West Africa 39 per cent of emigrants are in the age group sixteen to thirty-four, in Kenya 42 per cent and in Mauritius 69 per cent. [3] Often a considerable proportion of the men are away from their homes and families for a large part of their lives. Itself a consequence of the wretched standard of living in rural areas in Africa and many countries of Asia and Latin America, mass emigration by the labour force to developed countries reproduces the conditions of poverty in the abandoned villages over and over again on an expanded scale and leads to stagnation and a decline in productive forces. [4]

7. But perhaps for the emigrants themselves absence from their countries and the poverty of the families they have left behind are compensated for by a rise in their standard of living in their new countries? Except in rare cases, immigrants from the developing countries do not succeed in overcoming the numerous obstacles set up by the civilization of the industrial countries of the West in the way of people of non-white races. These newcomers to the industrialized countries are invariably placed on the lowest rungs of the social ladder. The lowest wages, the hardest kinds of work, the worst housing—these are only some of the well-known features of the situation of Africans in France, Indians and West Indians in the United Kingdom and Mexicans in the United States. The situation of the Africans imported into the Republic of South Africa has become a world problem. In South Africa, unlike many other States which import labour, the African immigrants suffer not from the fact that they are deprived of the rights of the native population, but from the fact that they have the same rights (more accurately, they are equally deprived of their rights under the inhuman system of *apartheid*). The earnings of African immigrants in South Africa are only one sixteenth of those of whites.

8. The problem goes much deeper, however. The low qualifications of the workers imported from the developing countries, their lack of vocational training, their rapid turnover and consequent low productivity make employment conditions unstable and raise doubts about the economic advisability of introducing such labour into stable parts of the economy. Implicit in the mass recruitment and export of labour is the inevitable return home of the migrant workers. [5] Thus the migration pump not only sucks away the "surplus" able-bodied population from the developing countries but returns part of the previously exported workers to the reservoirs of relative over-population.

9. (*a*) The way out of this "vicious circle" is not for labour to migrate to the centres of employment but for the centres of employment to "migrate" to the labour force. This move-

[2] United Nations, Economic Commission for Africa, *Fertility, Mortality, International Migration and Population Growth in Africa* (E/CN.14/ASPP/L.2, E/CN.9/CONF.3/L.2, 1962), para. 39.

[3] Op. cit., table III.3.

[4] The report on the *Economic and Social Consequences of Racial Discriminatory Practices* says that "under conditions of shifting migrant labour, whether this is the result of normal economic and social pulls or of subtle artificial controls (pass systems, reserves, recruitment), a great deal of wastage in human resources is entailed" (United Nations publication, Sales No.: 63.II.K.1), para. 292.

[5] Speaking of these modern African "Wandering Jews" of whom there are hundreds of thousands, D. Houghton has said "They merely work there for a period and then return to their tribal homes in the reserves... there is not a permanent shift of population. When a man has completed his period of work, he returns home, and his place is taken by another migrant. There is thus no tendency towards equilibrium and the migrations continue in perpetuity... there are hundreds of thousands of men who alternate all their lives between two worlds." (D. H. Houghton, "Men of two worlds. Some aspects of migration labour", *South African Journal of Economics*, vol. 28, No. 3, September 1960, pp. 178-179). Discussing the practice of exporting and importing labour, the authors of the report on the consequences of racial discrimination conclude: "The whole process does not make for acquisition of skills and stability... the practice... is economically wasteful and socially disruptive". *Economic and Social Consequences of Racial Discriminatory Practices* (United Nations publication, Sales No.: 63.II.K.1), para. 292.

ment of the centres of capital formation to the reserves of labour, as the principal way of solving the employment problem in the developing countries, means establishing the material basis for the demand for labour to grow of its own accord, i.e., it entails industrialization and radical agrarian reform. Industrialization, i.e., the establishment of the optimum combination of industries as "markets for each other" and at the same time as new and necessary elements in world industry, entails, first, the planned allocation of capital investment among the sectors serving both domestic and foreign markets and, secondly, the mobilization of free-floating capital used for financial speculation, usury and hoarding. Similarly, productive employment of the labour force would be stimulated by mobilization of idle land in the possession of the land-owning oligarchy, the aristocracy and speculators. A policy for increasing employment in the developing countries would also have to attract foreign capital from the developed countries;

(*b*) A redirection of the present international flow of capital to the developing countries would entail liberalization of the conditions governing long-term international loans and would make it desirable to place the main responsibility for giving financial aid to the countries undergoing industrialization on those industrial powers whose wealth was created to a considerable extent by the labour of their former colonies and was acquired by means of transfers of profits and unequal trade. This capital, which is the fruit of the labour of past and present generations in the developing countries, can today become a considerable source of finance for industrialization and expansion of employment in the developing countries. In order to maintain an annual rate of growth in per capita income in the developing countries of 2 per cent, it is necessary to double the present flow of foreign capital, i.e., to increase it to approximately 8,000 million dollars, U.S. currency; [6]

(*c*) There are other and much greater financial opportunities for increasing employment and solving the basic problems of the economies of the developing countries—for example, the release of many thousands of millions as a result of disarmament. In addition, an effective policy for ensuring full employment in the existing labour force makes it absolutely necessary to transfer such huge and —from the standpoint of economic development —idle capital as the hundreds of thousands of millions spent on the arms race to the peaceful task of providing for the welfare of the rapidly growing human race. Even the gradual release of these resources from expenditure on arms would make it possible to set up a capital investment fund of unprecedented size for economic development and for financing full employment even during the life time of the present generation. The mass of capital released by disarmament would not have to be pushed into the developing countries since it would move there as a result of competition.

10. (*a*) But if such a massive flow of domestic and foreign investment into the labour markets of the developing countries could be organized and if the capital thus mobilized was enough to provide practically all workers with work, would this inflow of capital end the traditional tendency for the able-bodied population in such countries to emigrate? Many economists, of course, give a negative reply, on the basis of a widespread theory which says in essence that even if all employable persons were given work in the developing countries, employment would still not be full, because enterprises would be obliged to maintain superfluous unproductive labour paid from the accumulation fund, which would lead to a flight of capital into the "money box" and a reduction in the demand for labour and would once again mean unemployment and, in the end, emigration. The bogey of "subsidized unemployment" now gets a great deal of attention in discussions on employment policy. "It is therefore important to ask", say the authors of the report already referred to, for example, "whether Governments should themselves employ, and whether through taxes and subsidies they should try to induce private enterprise to employ, more labour than it would be worthwhile to employ on the basis of a comparison between productivity and wages." [7] But in fact there should be no such dilemma (should they or shouldn't they) in this matter. The real dilemma that has to be faced by many developing countries is a different one, namely, should they remain in the position of suppliers of unskilled labour to foreign countries from their own labour resources or should they adopt a policy of keeping them at home in order to form a productive body of workers to carry out the tasks involved in the economic development of their own countries? It is a vital task for the Government of each such country to stimulate the highest possible level of employment of the labour resources within the

[6] International Labour Office, *Employment Objectives and Policies*, Report I (Geneva, 1963).

[7] *Ibid.*, p. 146.

country as an absolute essential for its economic development;

(*b*) So-called subsidized employment is a means of enabling workers to participate in constructive activity and is therefore important both from the economic and from the social and psychological standpoint. The fact that each person is participating in the economic development of the country and knows himself to be doing so creates a basis for transferring him to more productive kinds of work in the future. Here differences in the way a society achieves its aims become very evident. [8] In developed countries with private enterprise, maximum efficiency is a condition for full employment. In the developing countries, full employment is a condition for maximum efficiency. For the developing countries, full employment of the entire able-bodied population, even if at a low technical level, is an important aim, though not an end in itself;

(*c*) An increase in the number of workers is merely a step towards improving the quality of the labour force, the main element in a country's productive forces. Improvement in the quality of the labour force, i.e., raising its level of vocational training and general education, is a prerequisite for and an integral part of the process of increasing the productivity of labour. Any policy for financing employment, therefore, must undoubtedly include investment in vocational training and education of the labour force. The role of State investment in general education and vocational training is all the greater because of the incentive for private capital to invest in this field is extremely weak or non-existent. But if education seems unprofitable to the private investor, investment in this area brings great benefits for the economy as a whole. The economic benefit of investment in education takes the form of a growth in the productivity of labour brought about by the rise in the level of general education and vocational skill of the active population. This effect can be measured by comparing the increase in the national income and the expenditure on education over any given period. In the opinion of Soviet economists, such comparisons reveal not just a mere coincidence, but an inner connexion between the things compared, [9] i.e., with a more highly skilled labour force, it is possible to use more modern techniques, which are the main basis for a rise in the productivity of labour. Merely as an arithmetical example, we may give some data relating to Soviet experience. As early as 1924, when the economy of Soviet Union was backward and had suffered serious damage, the economists of the State Planning Commission calculated that a year of training on the job would enable an unskilled worker to increase the productivity of his labour by 12 to 16 per cent, while a year spent at an ordinary primary school would lead to an increase of 30 per cent. The effect of secondary education on labour productivity is even more marked. Soviet economists have calculated that one secondary school graduate raises labour productivity as much as two primary school graduates. Investment in secondary specialized and higher education is even more productive. The growth in the national income of the Soviet Union was 52 per cent of current expenditure on education in 1942, 132 per cent in 1950 and 144 per cent in 1960;

(*d*) It is obvious that the higher the qualifications and vocational skills or general educational level of any members of the labour force, the greater the loss to the economy if they emigrate. [10] Any attempt to conclude from this that the emigration of unskilled labour does not harm the economic development of the country of origin would be a vulgar sophism, the falsity of which is shown by the considerations already put forward. To this we might add that mass emigration, which involves first and foremost men in their prime and is caused to a considerable extent by their lack of qualifications, destroys the basis for forming national cadres.

11. The establishment of a system of centres for the eradication of illiteracy and for general education and vocational training helps to bring reserves of labour into the labour force and prepares them for more advanced spheres of activity. [11] Since this policy of raising the qualifications of the national labour force at all

[8] It should be pointed out that in considering the problems of the developing countries one should not mechanically transfer to them the standards of developed Western countries, as is often done.

[9] See, for example, S. Strumilin, "Effectivnost obrazovaniya v USSR", *Ekonomicheskaya gazeta*, No. 14 (2 April 1962). The figures which follow are taken from this article.

[10] For example, the above-mentioned report of the United Nations Economic Commission for Africa states that "an overflow of needed technical personnel can have grave effect on a country's economic development" — *Fertility, Mortality, International Migration and Population Growth in Africa* (E/CN.14/ASPP/L.2, E/CONF.3/L.2), para. 32.

[11] Incidentally, the inclusion of a training programme for the masses of workers in the national policy for increasing employment will show the full artificiality of the problem discussed by the authors of the ILO report regarding the "choice" between digging irrigation canals and hawking pencils: see International Labour Office, *Employment Objectives and Policies*, Report I (Geneva, 1963), p. 134.

levels is obviously one of national importance, Governments will be able and entitled to mobilize increasing amounts of spare resources from internal sources for the purpose. And although investment in the educational system is completely incompatible with the idea of profit for private investors, this does not mean that the share of private capital in financing the system of education and vocational training for the national labour force should be zero. On the contrary, the share of private capital should be determined on the basis of the undoubted fact that it gains most from increased labour productivity, which is the most immediate result of any programme for training the labour force. A policy of establishing national cadres for a stable labour force does not exclude but on the contrary presupposes wide use of financial and technical assistance from other States and international organizations. Thus the mobilization of domestic and foreign financial and technical resources provides a solid basis for redirecting the flow of the labour force in the developing countries from external to internal labour markets.

12. Economic development in no way requires the cessation of any exchange of labour between countries which are still not industrialized and those which have been so for a long time. On the contrary, the objective requirements of economic development make an intensive international exchange of labour necessary. But what kind of exchange?

13. The kind of labour involved is first and foremost skilled labour in the broadest sense of the word—foremen, engineers, technicians, students, instructors, specialists and scientists. Without such cadres it would be impossible for the developing countries to solve the practical development problems facing them. [12] The need for such cadres, moreover, is growing rapidly. Thus, for example, in India, during the Second, Third and Fourth Five-year Plans there were, respectively, 29,000, 51,000 and 80,000 engineers working in industry. In addition, 56,000, 100,000 and 125,000 engineering diploma holders were needed. [13] There is no question that a policy of increasing the productivity of labour by raising the qualifications of the labour force is one of the chief factors creating a demand for specialists at all levels and in all fields. In order to increase the number of workers at industrial enterprises and farms and at training centres, it is necessary to speed up the training of engineers, technical personnel, agronomists, instructors and other cadres. The point of training such specialists is not only that they help to increase labour productivity and raise the national income through their own labour, but also that they create conditions for bringing more and more sections of the labour force into productive activity. (A foreman provides productive activity for dozens of workers, a technical expert for hundreds, an engineer for thousands and an office of economic planners directs the work of millions.)

14. If the system of mass training of the labour force is a kind of employment accelerator, the training of specialists has a multiplier effect on employment.

15. But it is this very element in the national labour force which is most scarce and takes longest to train. [14] Hence the need to make use of the achievements and experience of the industrially developed countries in order to assist the developing countries' specialist training programmes. One effective way of speeding up such training is to send probationers, instructors, engineers, students and scientists to developed countries for education and practical experience. This also means that the developing countries must act as hosts to specialist instructors, teachers and scientists from the developed countries.

16. Thus in place of the mass export of unskilled labour to be discriminated against abroad, there will be a beneficial exchange of specialists and international co-operation in training them. This is the kind of international population migration which will most effectively meet the needs of economic development.

17. The foregoing relates to migration at the present time, i.e., migration due to differences in levels of economic development. Future migration will take place on the basis of a greater equality in economic development, as a planned process for the distribution of labour resources throughout the world. Then, according to Marx, mankind will allocate social labour resources just as rationally as a free man expends his own labour force in space and time. Scientifically, this stage of development is linked to socialism.

[12] The report of the Asian Population Conference notes that "the strategic role of skilled manpower in economic development has now been widely recognized", see United Nations, *Asian Population Conference, 1963* (United Nations publication, Sales No.: 65.II.F.11), p. 24.

[13] *Ibid.*

[14] In developed countries, specialists represent 5 to 8 per cent of the labour force, whereas in India they represent only 1.6 per cent, in Pakistan 1 per cent, and in Indonesia 1.12 per cent (*ibid.*, p. 8).

The economics of immigration to Israel, 1948-1963

M. SICRON

I. MOTIVES OF IMMIGRATION TO ISRAEL AND ITS CONSEQUENCES

1. Israel has witnessed in fifteen years an immigration influx of unparalleled dimensions. From its establishment 15 May 1948 until the end of 1963, more than 1 million immigrants arrived in the country. At the time of Israel's establishment, the Jewish population was 650,000, while in the middle of the year 1964 it numbered 2.2 million.

2. This enormous flow, even when compared to the absolute numbers of international migration during the period, was not motivated by economic conditions in the countries from which immigrants arrived or by special economic opportunities in Israel. The driving forces were political unrest and insecurity in the countries of emigration, the ideal of "return to Israel" and the "open gate" policy of the Israel Government.

3. Certain economic consequences accompanied this immigration: immigrants were a non-selective group, representing the structure of their country of origin, and most immigrants arrived with neither capital nor financial resources. Despite these unfavourable economic factors, immigrants were absorbed into the country's economy. This paper intends to describe the main features and problems of the process of economic absorption. Social problems of absorption will not be discussed.

4. The main factors contributing to the success of economic absorption of this immigration were: (*a*) the willingness of Israel's population to take on itself sacrifices and inconveniences brought by this influx of immigrants; (*b*) the influx of large economic resources either in the form of capital transfers or in the form of long-term loans; (*c*) a very high rate of development of the Israel economy; and (*d*) the existence of an important "unused" capacity of managerial and professional people in the veteran population of Israel.

II. ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF IMMIGRATION, THE BASIS FOR ECONOMIC ABSORPTION

5. *Size of immigration.* During the period 1948 through 1963, "net immigration" to Israel (that is, immigrants arriving, less emigrants) amounted to more than 1 million. This immigration was large not only compared to the absorbing population (650,000 at the establishment of the state on 15 May 1948), but also in absolute terms, even in comparison to international migration. Very few countries (the United States, Canada, Australia) received a larger number of intercontinental migrants in this period.

6. Approximately half the Jewish population (at the end of 1963) is composed of immigrants who arrived in 1948 and afterwards. With their children born in Israel, they account for two thirds of the population.

7. Age and sex structure: immigration was not a selected group in terms of its age and sex structure, as most international migrations are. It reflected to a large extent the demographic characteristics of the population from which immigration arrived. For this immigration, originating to a large extent from Asian and African countries, a large proportion of children (30 per cent aged less than 14 years) and a small proportion of old people (4 per cent aged 65 years and older) were characteristic. The effect of this age structure on the population was to increase the proportion of young children and to decrease the proportion of the main working age group (15 to 44 years old). This last age group decreased from 51 per cent in 1947 to 42 per cent in 1963—only part of this change was brought about by the aging of the veteran population. The number of males was equal to the number of females.

8. Occupational structure: the proportion of immigrants gainfully employed was smaller than that in the veteran population or in international migration: a third of the immigrants to Israel compared to 50 per cent and more in

international migration. The occupational structure of immigrants on arrival reflected the occupations of Jews abroad. The largest group was that employed in crafts and industry (40 per cent of occupied persons), mainly tailors, carpenters, shoe-repairers and only a small proportion of industrial skilled workers. The second group was that of commerce workers (13 per cent) and a similar proportion of clerks and administrators. Approximately 10 per cent were in professional and technical occupations. Only a small proportion worked as agricultural workers. Most of these occupations were not those needed by the Israel economy.

9. Education: the educational level of the immigrants was lower than that of the old population (especially that of women). The median number of years of study of immigrants was six to seven years compared to nine to ten years in the veteran population. To sum up, the immigration was a non-selective potential in terms of the size of potential labour force and its skill and educational preparedness compared to the veteran population or to a large number of international migrations.

III. The stages of economic absorption of immigration

10. Immigration to Israel was an organized immigration. Most immigrants were transferred from their place of residence through transit camps outside Israel and then by ships or by air to Israel, where they received first accommodation and were provided with housing and employment. All these steps were performed and financed by Jewish organizations (especially the "Jewish Agency").

11. Transfer of immigrants: the Jewish Agency made arrangements for transferring immigrants to Israel; transit camps were organized near ports, and ships and airplanes were hired. For some groups of immigrants, special arrangements of transfer within very short periods were organized (such as the transfer of more than 100,000 Jews from Iraq and 50,000 from Yemen by plane in a few months). The pace of immigration could not be co-ordinated and spaced in a rational form, but rather was carried out according to possibilities of exit. More than 300,000 of the immigrants were transferred to Israel by air and 800,000 by ships.

12. Reception and accommodation: in 1948-1949, immigrants first were transferred to immigration camps and were kept there for some weeks until a permanent place of living and appropriate employment were found. There they were provided with food and shelter and all services. Later, because of the large influx of immigrants, the camps were overcrowded, though they were expanded and new reception camps were added. More than 100,000 immigrants stayed there; most of them were without employment and the period of their residence in these camps increased, requiring a heavy expenditure for food and all other services.

13. At the beginning of 1950, a new policy of "transit work camps" was adopted. Temporary places of residence of low standard were built near towns and places of employment. Immigrants were transferred to these places immediately after arriving in Israel and employment was provided for them; consequently, they were left to their own resources and quickly became economically self-dependent. Some immigration camps were transformed into transit work camps. This method had an advantage in quickening the pace of economic absorption and in facilitating the receipt of the large incoming migration at a lower cost; however, housing conditions were of a low standard. At the peak of this stage, more than 200,000 immigrants stayed in such transit places. Permanent housing was provided only after some delay. After immigration had decreased in 1953, reception could be planned by a more rational method. At this stage, permanent housing was prepared before immigrants arrived, and they were directed from the ship to their permanent homes. The immigrants could begin to take care of their homes and begin employment a day or two after arriving in the country.

14. Shelter: construction did not keep pace with the high rate of immigration in the first years, and immigrants were provided with temporary housing in camps. Housing could be provided for immigrants directly from ships only after 1954. Because housing for immigrants was constructed by the Government, it could determine in most cases the place where these houses would be built; thus, more than 400 new settlements (towns and villages) were built between 1948 and 1963.

15. In the period from 1949 through 1963, more than 200,000 apartments were constructed under the schemes of "new immigrants" (forty to fifty square metres per apartment of 2-2.5 rooms on the average); 1,500 million Israeli pounds were spent by the Government and the Jewish Agency to finance these large projects. Immigrants were charged only a low subsidized rent. Special conditions

were created whereby immigrants were encouraged to purchase their apartments by making an initial down payment (10 per cent of the purchase price), with the balance to be paid in twenty-four years.

16. Employment: to help immigrants become self-subsistent, employment opportunities had to be created. Only a very high rate of economic development could create the jobs for the newcomers. Development was initiated by the Government either by direct investment or through large loans. As investment and the establishment of new jobs lagged behind immigration in the first years after the establishment of the state, the country witnessed a large proportion of unemployment and underemployment for several years.

17. Government policy was to give some work to each unemployed person by relief work. This employment for a low wage was mainly in public works such as road construction, afforestation, cleaning etc. This method was preferred to welfare and assistance payment. Millions of man-days of relief work were provided by the Government to relieve unemployment until some jobs were found. Not only employment opportunities had to be created, but also a large programme of training the immigrants for their new occupations had to be established. Most consisted of on-the-job training, but a large programme of vocational training was also established. Even with all these arrangements, it took some months for most immigrants to be absorbed into permanent jobs. There remained immigrants who could not find suitable working opportunities, especially those aged 50 and older with no skill or profession needed in the country. Some of these people were kept in relief work in special programmes for the old and disabled. Others were assisted continually by the Ministry of Welfare.

18. Public services: in addition to shelter and employment, social and public services were needed, especially educational and health services. As free compulsory education is given to every child from the age of 5 to the age of 13, an increase in population by immigration was followed by an increase in the number of school age children requiring additional schools, teachers etc. Health services (for example, clinics, mother and child health centres, hospitals) were extended.

19. Financing economic absorption: no full study of the total cost of immigration to Israel and the source of financing this expenditure has been carried out until now. Such a study encounters a large number of conceptual problems: which expenditures should be taken into account, in addition to transportation, reception and so on; what part of the expenditure on building, on creating new jobs; over which stages and period of absorption should each assessment be made. Crude estimates put the average cost of absorption of an immigrant family by the Jewish Agency at some 10,000-12,000 United States dollars. This cost varied widely, depending on the shelter provided, the branch of the economy in which employment opportunities were created and so on. Considering the size of immigration during the period under consideration (more than 300,000 families), one can get impression of the gigantic amount of capital required.

20. Immigrants themselves financed only a small fraction of the cost. The Jewish Agency, other Jewish organizations, and the Government of Israel bore most of the expenses. Financing was either directly by paying for some stages of the economic absorption or through loans to investors, subsidies and so on. The expenditures of some departments of the Jewish Agency can give some insight regarding these costs. During the period 1948-1962, the Immigration Department of the Jewish Agency (responsible for transportation of immigrants and other pre-immigration arrangements) spent more than 125 million dollars; the Absorption Department (in charge of the first arrangements of immigrants in the country, camps and so on) spent more than 200 million dollars; the Department for Youth Immigration spent approximately 100 million dollars. Large amounts were spent by the Settlement Department (in charge of the establishment and upkeep of agricultural settlements) and by the Housing Department, bringing the total expenditure to 1,500 million dollars in 1964.

IV. Evaluation of economic absorption

21. Criteria for evaluating economic absorption: two points of view could be considered for evaluating economic absorption: (*a*) the individual and (*b*) the national. From the immigrant's individual point of view, the criterion for assessing economic absorption is whether the immigrant has a job enabling him to obtain his needs as a consumer and to approach the level of living of others in his occupation. From the national point of view, a proposed criterion is consideration of how far the "immigrant sector" of the economy is producing the means for its livelihood and how far it is independent economically of other sectors. This criterion could be stated in more technical

terms: when the national income accruing to immigrants (at factor cost plus indirect taxes paid by immigrants minus subsidies received) is equal to (or larger than) the consumption of immigrants (private or public). This assumes that financing of investment need not necessarily come from the immigrant sector (statistically, this requires dividing the economy into artificial sectors—"immigrant" and "veteran"). Some researchers would be satisfied with the criterion that absorption is obtained when national income equals, or is bigger than, consumption (that is, even if there are large transfer payments to new immigrants). But if total consumption is supported partly from outside sources, absorption is not yet attained. Of course, these criteria require factors other than full employment. We will limit discussion to cruder criteria.

22. Employment and occupational distribution: unemployment reached a low level in 1963, when it constituted 3 per cent of the civilian labour force. Among new immigrants the proportion of unemployment was somewhat higher. Unemployment declined from previous years: in 1955 it had been 7 per cent of the labour force, but before 1955 it had constituted 10 per cent or more of the labour force.

23. Participation in labour force of new immigrants is lower than that of the veteran population. Differences are important for persons aged 45 and more than 45 years and for women. The reason for these differences is attributed, to a large extent, to the need for a large number of new immigrants to change their occupation (an estimated 50-70 per cent of immigrants changed the occupation they followed before immigration). For immigrants aged 45 and older, learning a new trade was more difficult, so some remained outside the labour force.

24. The distribution of immigrants by occupation is quite different from that before immigration. Of new immigrants, 18 per cent were absorbed in agriculture (only 4 per cent of immigrants declared agriculture as their occupation on immigration); 40 per cent in industry, crafts, building and unskilled work (a similar proportion of immigrants declared these occupations on immigration, but this hides an important fact: occupations abroad were mainly small crafts; in Israel most immigrants are industrial workers, skilled or unskilled, and construction workers). Less than 10 per cent of the immigrants are in commercial occupations, and 8 per cent are in the professional and liberal occupations etc. The basic change in the occupational structure required a large occupational training of all kinds.

25. Immigrants have a different occupational composition compared to that of the veteran population. They are concentrated to a larger degree in the semi-skilled and unskilled occupations. The 1961 census showed that, while new immigrants constituted less than 40 per cent of the "professional and technical workers", they constituted 70 per cent of construction workers, craftsmen and production workers and 63 per cent of agricultural workers.

26. The economic level of immigrants: other indicators for evaluating economic absorption may be the level of income of new immigrants compared to veterans in the country and changes in income level. Average income of new immigrants increased, in real terms, through all the period under review at a pace of some 5-7 per cent per year, a rate of increase similar to that of the veteran population. Big differences in income exist between the veteran population and new immigrants. According to a "Survey of urban wage earners 1963/1964", the gross monthly income per household amounted to I£750 for veterans, as compared to I£500 for new immigrants. As the average size of a family of new immigrants is larger than that of veterans (4.2 persons per family, as compared to 3.4), the difference per person is even larger. A large part of these differences is a reflection of differences in occupation education and so forth. Similar trends and differences are found when analysing the housing conditions and ownership of durables. Government policy aims to decrease the gap between veterans and new immigrants by a very progressive taxation and by high government expenditures on social services (such as education and health), which are supplied to a larger extent to new immigrants. For a large number of the immigrants (particularly for those arriving from Asian and African countries), the standard of living in Israel represents a large increase, compared to the standard in their countries of origin.

27. A fuller evaluation of economic integration can be obtained by comparing the national income of new immigrants to their consumption. Such an analysis was carried out for the year 1954. This analysis shows that the consumption (private and public) of new immigrants exceeded the national income accruing to them by a quarter. This difference has decreased since that period.

V. Problems encountered in economic absorption

28. Rapid economic development: absorbing the large influx of immigrants, with a simultaneous increase in the standard of living of both veterans and new immigrants, was not possible without a very high rate of economic development and a high level of investment. Between 1949 and 1963, the gross national product increased four times in real terms (more than 10 per cent annually), which was more than the population increase. A high rate of investment was characteristic of the economy throughout this period; a quarter of all resources (gross national product and import surplus) were directed to gross investment. More than a third of this investment went to dwellings, 20 per cent to manufacturing and electricity, 18 per cent to agriculture and 12 per cent to transport and communications. The Israel economy did not accomplish this high rate of development and investment without some important difficulties: (a) *inflation:* through most of this period the economy witnessed a great increase in prices. The consumer's price index rose between 1948 and 1963 more than four times. Five devaluations brought the Israeli pound, which was equal to $4 in 1948, to the value of a third of a dollar in February 1962; (b) *a high deficit in the trade balance:* throughout this period the value of import of goods and services exceeded export of goods and services by a large amount. Import surplus constituted 20 per cent of the gross national product. In absolute terms, this surplus amounted to approximately 5,000 million dollars (or more than 300 million per year) in the period 1949-1963. Nevertheless, it should be pointed out that exports increased more than ten times, while imports increased three and a half times. This large deficit in the trade balance was financed largely (80 per cent) by transfer payments. Those payments consisted of donations and other transfers of Jewish institutions abroad (covering a third of all this deficit); reparations and restitution payments from the Federal Republic of Germany (covering more than a quarter of the deficit); United States Government grants (covering more than 10 per cent); and immigrant and other private transfers (covering 8-10 per cent). The other 20 per cent was financed by capital transfers (such as loans and investment by foreign firms).

29. Conclusions: the vast immigration which Israel received during the period 1948-1963 was absorbed in the Israel economy. Practically all immigrants in the labour force are employed and all have been provided with shelter. The standard of living of immigrants, although lower than that of the veteran population, has been increasing through the entire period. For a large number of immigrants, the standard is higher than before immigration. Most immigrants arrived with no resources of their own. Absorption was possible only because the whole national economy was organized towards absorption. The Israeli Government not only "opened the gates" of the country, but also took measures to develop the economy at a fast pace, to provide employment, shelter and education for every immigrant. Special departments and units were set up within the Government administration to help this process. In addition, the Jewish Agency and other Jewish institutions established the framework and the means for facilitating immigration and absorption. The Government needed to take certain drastic measures such as severe rationing and controls, price control, devaluation and high taxation. This organization could succeed only by a large transfer of capital from abroad, by a high rate of development and investment and by the continuing inflation. The process was facilitated by the availability of a large number of professional, technical and administrative strata in the veteran population.

The demographic and social effects of migration on the populations of East Africa

AIDAN SOUTHALL

1. Migration may take many forms. Labour migration certainly has been a dominant fact in the lives of the masses of the East African population during the last half century. In the last five years, the movement of workers has been supplemented by political refugee migration on a massive scale. This refugee migration is new and changing rapidly and the reliable data too few to draw any but the most general conclusions. Areas and populations most unlikely to be involved in labour migration are of polar types—those the least favoured and those the most favoured. The general factors of influence have been distance from main urban centres, local natural resources, population balance or growth, and the political strength and power of the people concerned. Closely linked are the results of education upon changing and rising wants and the effects of non-African pressure groups such as European farmers.

2. Initial reactions of various ethnic groups in East Africa were so varied that to ignore them and to deal only in global migration figures which take no account of local ethnic differences inevitably means missing immediate causes. One must stress that the causative factors are not essentially tribal. In the initial formative period during the first two decades of this century, and in remoter areas during the third decade, the traditional tribal communities still were relatively closed; their social structures and their economic ways of life differed in so many ways that their reaction to migration incentives varied to a major extent. Recently local communities have become more open to outside influences. Communication and spatial mobility between them have increased largely because of labour migration and the influence of education, allowing one reasonably to argue that the ethnic or tribal factor is much less relevant than at the beginning of the century. These changes affect the increasing number of rapidly changing areas more often than the remote and slowly changing areas, but in either case the combination of ethnic and customary, ecological, demographic and economic factors continues to produce tremendous local variations in migration patterns and their effects. With a still rudimentary and diachronically shallow supply of statistics, these local variations are only one possibility of tracing tribal categories which permits their impact to be traced in time and space. The tribal category therefore is not necessarily essential, but simply expedient. It is the only available (if inevitably crude) indicator of local variations due to a complex combination of factors. These factors still acquire distinctive force from the tenacious homogeneity of local linguistic and cultural differences which permit more intensive communication and crystallization of common reactions among traditional ethnic groups than between groups of varying ethnical backgrounds.

3. The largest area of remote peoples only slightly involved in labour migration is that of northern Kenya and adjacent north-eastern Uganda. This enormous area of hundreds of thousands of square miles is semi-arid, with unreliable rainfall and no natural resources sufficiently important to attract modern exploitation. It is correspondingly sparsely populated partially by nomadic, pastoral peoples, such as the Turkana, Suk, Tuken, Rendille, Galla and Somali of Kenya and the Karamojong and Sebei of Uganda. Because population is sparse and natural resources are unattractive, few forces of change have penetrated the area; communications remain poor. The inhabitants are largely illiterate. They have virtually no modern health services. The population has not grown sufficiently to force the peoples to seek new ways of livelihood elsewhere.

4. By contrast, the Ganda of south-central Uganda had the main urban centre and focus of all new forces of change in their midst. Much of the country is fertile with well distributed rainfall. It did not yield mineral resources to attract large-scale industrial and inevitable foreign exploitation. The political strength of the natives and a climate less suitable for European settlement than that of the Kenya Highlands encouraged the colonial

administration to initiate economic development by small-scale peasant farming. On the basis of these farms, an imposing export trade in cotton and coffee was born. After an initial period of migrant labour briefly and compulsorily induced, the population settled to a low rate of migration, devoting its energies not only to peasant farming, but also to acting as landowning entrepreneurs who employed large numbers of labour migrants from other tribes from Uganda and from other countries such as Ruanda-Urundi. The major characteristics of this migration are worth noting. Migration is rural, involving three or four times the numbers of those who have migrated to the towns in the area. While the first migration was chiefly employment of migrants from many other tribes, and while such employment still continues in large numbers, more and more migrants have acquired rights of land use, have become peasant producers and have settled on long terms, in many cases permanently, in Buganda. Migration has redistributed population by concentrating it in a favourable area and has added a population of immigrants more than half as numerous as the Ganda themselves. Buganda has become the wealthiest and best educated rural community in East Africa and has gained an increasingly polyethnic composition. The result has been more and more overt social stratification, in which Ganda are found at all status levels, with increasing numbers in the upper reaches. The non-Ganda occupy mainly the lower status levels. In Tanzania, the Chagga of Kilimanjaro are a notable similar case. For several decades, since the development of "arabica" coffee production by Chagga small-holders, the rate of emigration by Chagga has become low. Other instances in which rural prosperity is associated with low migration rates include the Haya with their "robusta" coffee; the Sukuma with their cotton and cattle, both in Tanzania; in Uganda the Teso with their cotton and cattle; and the Amba with their "robusta" coffee.

5. Climatic and ecological variations are so great that zones may vary widely even within a tribal area. Thus, in Uganda, the Gisu on Mount Elgon have a prosperous "arabica" coffee crop and migrate little, while most other Gisu, forced by population growth to settle on the plains, have less economic prosperity and migrate at a higher rate. The Alur of northwest Uganda occupy three distinct ecological zones. In the midlands, where a large cotton crop is produced, migration rates are low. In the highlands, where no cash crop for export existed until recently, emigration was heavy. Recently arabica coffee growing has been spreading rapidly and fewer men migrate to look for employment. In the lowlands, where cotton is grown under less favourable conditions and a number of people fish successfully in the Nile, the emigration rate is midway between that of the highlands and the lowlands.

6. Two important contemporary developments are working in opposite directions: lowering of the migration rate because of the emergence of cash-crop farming by smallholders in areas hitherto confined mainly to subsistence cultivation and raising of the migration rate in other areas because overpopulation is increasing pressure on the land. The vast majority of areas and of population in East Africa are in an intermediate position. The people have been drawn somewhat into the modern cash and exchange economy, developing new wants and losing their long self-sufficiency based on primeval subsistence. They have not been able to develop successful cash crop farming extensively. As a result, large numbers of them are forced to find the solution in migrant labour.

7. The effects of labour migration can be understood only in relation to its causes. Buganda was the earliest focus of extensive modern changes in the hinterland of East Africa. As time went on, it had a powerful demonstration effect on most parts of Uganda and even in neighbouring countries. Before 1900, a sufficient demand for European trade goods existed to induce a considerable supply of labour for wages to purchase these goods. This labour migration was relatively local. The main impetus to short-term and long distance mass migration for employment is generally agreed to have come in Uganda (as in the whole of East Africa) from the colonial imposition of taxes around the turn of the century. Although taxation was essential to support administration and inducement to work was not its primary motive, colonial officials and missionaries were unanimous on its virtue and desirability for all concerned. In Kenya, European farmers besought the Government to use taxation as a lever to force African men out of their subsistence communities to the labour market. Introduction of cotton growing in Buganda during the first decade of the century provided an alternative means of earning cash to pay taxes, but the supply of labour rapidly became inadequate for the rising demand. A compulsory levy of one month's labour annually from each able-bodied man was enforced through the chiefs from 1909 till 1922. During this period, the habit of migrant labour

became deeply entrenched in many communities to whom the alternative of cash crop production was not available.

8. In mainland Tanzania, a number of caravan routes had spread their tentacles far into the interior during the nineteenth century and involved certain peoples, such as the Nyamwezi, Ngoni and Yao, who were heavily employed as porters. In many areas, there arose a distinct carry-over and transference from this habit to that of twentieth century migrant labour. The Nyamwezi particularly are noted for migration. Their tsetse-infested country, with its sparse rainfall and low fertility, still offers little effective alternative in pursuits such as cash-cropping. In marked contrast are the closely related Sukuma neighbours of the Nyamwezi immediately to the north who have an increasingly prosperous production of cotton and cattle. The tsetse menace ingrained the migrant labour habit in a number of other Tanzanian peoples such as the Ha and the Zinza in the north-west.

9. Nowadays in most areas, considerable social and economic differentiation exists. Larger numbers are drawn into the unskilled labour market as migrants. Some go to the towns, but more than twice as many go to the country, where they are employed in agricultural employment on farms and plantations now run by Africans as well as non-Africans, and in the various commercial and industrial enterprises outside the towns which are mainly in the hands of non-African *entrepreneurs*. Meanwhile, African farming is developing in other areas, as in the case of the Kikuyu coffee plantations, providing employment both for migrants and increasingly for the economically least favoured among the local population. The strong prejudice against employment by a member of one's own tribe is now breaking down. At the same time, with the raised level of education, an increasing high status migration of skilled and educated persons to better paid jobs in the main employment centres is taking place.

10. The demographic effects of labour migration as yet are impossible to state with refinement. Such migration produces a major redistribution of the population. The male population is the first to move in the context of a rapidly rising over-all population. The only over-all indication of the scale of labour migration is the crude one of employment figures. Because a high proportion of the labour force is unskilled and the vast majority of this force is working away from home, a close relationship exists. In the peak year of 1951, 400,000 adult males were employed in Tanganyika, amounting to 21 per cent of the adult male population. In Kenya, the peak year was 1957, when 417,000 men were employed, a higher proportion, while in Uganda, the peak year was 1958, with 220,000 employed—a much lower proportion. In both Kenya and Uganda, employment declined somewhat from the years 1957 and 1958, until 1962, when it rose again. In Tanganyika, it increased from 1958 to 1961, but did not regain its peak of 1951. This redistribution has peopled the towns and concentrated larger numbers in the favoured rural areas. It is important to remember that this redistribution has produced countless, small population clusters around every local trading post, cotton ginnery, coffee curing works, mine, plantation, fishery, saw mill, brick and tile works or other new environmental exploitation.

11. The actual effects on birth rates are difficult to gauge. Probably twice or even three times as many men as women are involved in redistribution. A surplus of males in the general age group from 16 to 45 live in the labour-importing areas and complementary surpluses of old people, women and children live in the other areas. These figures indicate many women are left without men in their most productive childbearing years. Undoubtedly, male migrants procreate children in their areas of employment. The numbers probably are not very large, but may be important as one of the major sources of intertribal breeding. Similarly, women left at home sometimes bear children by men other than their husbands (a common cause of complaint) or swell the ranks of polygynous wives, whose fertility is known to be less than that of women in monogynous unions if other factors are equal. Much evidence indicates that migrant husbands make deliberate efforts not to let their wives "lie fallow" at home. However, in the case of the Alur, the 1948 and 1959 census figures show a faster rate of population increase for areas with a relative balance of the sexes (that is, cash cropping areas with low migration rates) than for those with a heavy preponderance of women of childbearing age (that is, areas least advanced from a subsistence economy with high migration rates).

12. The Kikuyu and other Bantu peoples of the Kenya Highlands show high rates of population growth despite heavy migrant labour. The population growth has certainly enforced the migration upon the Kikuyu, who are now involved in major migration to settle as peasant small-holders in neighbouring areas acquired

from European farmers. This migration and the scheme to build villages in Tanzania are intended as major settlement schemes to strengthen the rural economic and social foundations of new nationhood.

13. Social costs of labour migration have been heavy. Migration has been held at least partly responsible for low wages, urban overcrowding, malnutrition, prostitution, venereal disease and juvenile delinquency. The inhibiting effect it can have on the acquisition of industrial skills and consequently on productivity is not doubted. The vicious circle of impermanence, instability, low reward, lack of commitment, or integration in labour organization and urban industrial life generally, produces a peculiar urban proletariat with important political implications for a new nation. In rural areas, the implications are modified, but entail some of the same disadvantages until a settlement becomes relatively permanent and a new polyethnic, stratified rural community begins to take shape.

14. The temporal patterns and sequences of migratory careers are variable and condition the incidence of the effects just mentioned. Some persons go to work for only a few months, two or three times in their lives; many go seasonally for many years. Others are employed on a long-term basis, but visit their rural homes periodically. Undoubtedly, a high correlation prevails between the acquisition of education, skill and good wages and the tendency to remain in employment and establish a family on the spot. Further corollary of this idea is that while migrant women are few in numbers, they tend to be more stable and to stay longer than men in the areas to which they have migrated. This naturally applies to those who go as wives of long-term migrants, but also seems true of independent women, who in all non-traditional contexts play a special part in running bars and hotels, brewing beer, selling food-stuffs in the markets, and providing short- and long-term sexual satisfaction and domestic services to migrant men.

15. The complementary inhibiting effect of heavy labour export on the social and economic development of any area is manifest, but migration is a reflection, not a cause, of the lack of economic opportunity. Once established, migration tends to become habitual and to perpetuate the deficiencies which brought it about. It supports and prolongs the tribal system in a modified form, because the tribes are insulated against many forces of change by the fact that new wants and ambitions are largely satisfied by the migrants who are outside it, but who still cling tenaciously to their membership in it and materially strengthen it by financial contributions. As long as economic growth barely outstrips the population increase, migrant labour is likely to continue. Rising frustrations and pressures on land worked by simple technology threaten to cause a growing pool of unemployed and underemployed in towns. Those migrants who win skills and schooling are becoming stably employed and committing themselves to long-term family life at their new place of work; but the great majority of unskilled workers are likely to continue for a time to see comparative advantage in continued insistence upon oscillation between rural and urban areas. They are more likely to hold membership in both areas and to be dependent upon the economics of the employment territory and the traditionally near-subsistence tribal life.

International migration and population dynamics in the Far East

IRENE B. TAEUBER

1. Expansions and international movements have been continuing, and even decisive factors in the growth of the populations of the Far East. The dynamics and the structural alterations of migration were significant, but the demographic relevance of the correlates and consequences of the movements were far greater than numbers alone would suggest. Migrants differed from indigenous people in culture, capabilities, and political status, and in economic and social roles and the changes in those roles. Sometimes assimilation among ethnic and cultural groups took place but accommodations of separatism were usually prevalent. In most countries at most time periods, migrants and their descendants contributed to economic development while limiting social and political cohesion.

2. Reasoned or historical categories under which migrations may be subsumed are as diverse as the focus of the demographic or related interest. All are abstractions from demographic reality, for the various movements of people are interrelated as antecedent, associated, or consequent factors. The several groupings of types of migration and migrant adjustments suggest both the diversity of the migrations and their relevance to other aspects of population dynamics and to modernization.

(*a*) The increase and expansion of the Chinese peoples were the basic demographic processes in the Western Pacific region. Peripheral migrations were recurrent; sometimes the movements were internal, sometimes international. The relations of the Chinese peoples with the indigenous peoples or those of earlier intrusion ranged from assimilation to extermination. Whatever the initial process of movement and adjustment, changing dynamics and distributions of Han, natives, and the descendants of earlier migrants altered the populations of the areas of settlment. The migrations of the Han and the anticipations of such migrations continue to generate instabilities along the perimeters of China;

(*b*) The immigration and later exodus of Europeans and Japanese contributed substantially to the formation and dynamics of present populations. Intruded, indigenous, and minority peoples alike moved within and among countries in response to the pressures, stimulants, or opportunities of the colonial or imperial presences. This is true for the Chinese peoples who were not subjected to direct imperial rule, as well as for the less numerous peoples who were ruled directly;

(*c*) The Soviet Union and the United States were continuing forces in the growth and migrations of the Western Pacific peoples, partially through selective migrations of their nationals, but primarily through economic activities and governmental policies that influenced the movements of Asian peoples, whether in Alaska, Japan, China, Southeast Asia, or the islands and archipelagos of the Pacific littoral;

(*d*) Migrations associated with population pressure, famine, epidemic, and natural calamity were episodic or recurrent in specific areas, characteristic of the region as a whole;

(*e*) Governmental policies of seclusion limited migration, whether in Ch'ing China, Tokugawa Japan, or the Peoples Democracies. Instability, rebellion, revolution and war have led both to flights and to altered bases for the natural dynamics and the migrations in subsequent periods;

(*f*) Labour movements in variate forms and with diverse correlates were aspects of ancient orders and bases for colonial developments as well as precursors of modernization in national States.

3. Area inventories contribute little to hypotheses concerning migration as a demographic process; analyses of specific movements within regions may so contribute to these hypotheses. In the Far East, the selectivities, processes, and demographic correlates of migration differed for primitive peoples, nations formed in the integration of components of great cultures and indigenous bases, and the Chinese or Chinese-related great cultures. Criteria of demographic and of social, economic, and political relevance alike dictate that priorities be given China and the Chinese.

4. The major migrations of the Western Pacific region have been related to, if not derivatives of, the predominance of the Chinese race as a massive, cohesive, and efficient people. The expansion of the Chinese involved migration, social stability, and cultural persistence among the Han themselves, along with the assimilation and absorption of the less sophisticated peoples on the peripheries. Many of the migrations of peoples other than the Han involved evasion or response to the challenge, the opportunities, or the hazards of China and the Chinese. This fact is as true of the migrations of the Europeans and the Japanese as of the peoples resident in the great arc between the North China Sea and the Bay of Siam.

5. Direct approaches to the analysis of international migration are largely barred if the area of concentration is China, the people of interest the Chinese. Conventional definitions involve modern concepts of the nation or the imperial structure. These concepts were not always present, nor are they firmly established today. Fluidity in political status precludes incisive simplicity; movements that were initially internal became international, or *vice versa*. Moreover, data on the population of China are deficient; the country as a whole was neither modernized nor ruled by a data-collecting power. Some migrations were recorded in appropriate and accurate detail; some migrants and their descendants were identified and enumerated in the successive censuses of the countries of residence. These were minorities of China's historic migrants. The minority is now shrinking as countries delete or restrict data on country of origin or ethnic group in the censuses, surveys, and vital records.

6. The limitations of knowledge and the difficulties of analysis are admitted, but series of studies may permit some generalization. There is a Chinese culture, and there are structures of values and achievement orientations that are pervasive. There are kin and livelihood institutions that pattern responsibilities and decisions, including those of movement, migration, and stability. The multiple movements of the Chinese people within and from China have many similarities, whatever the area of origin or destination, and whatever the time period. These similarities in migration seem to reflect the cultural cohesion and the group conditioning that have insured the survival and the growth of the Chinese population over the millenia.

I. Migration and the migrant population

7. Many aspects of international migration and the impact of that migration on the structure and dynamics of population are related to physical factors and biological processes. The regularities in the relations of numbers and selectivities to distance are as striking among the Chinese as among other peoples. Most migrants came from accessible areas with populations available for migration. Numbers decreased progressively with distance except as modified by subsidized or planned movements and traditional interchange relations. Women were recruited less widely than men and in far fewer numbers; sex ratios among migrants increased progressively with distance. Professional and technical, governmental and elite groups were recruited more widely and along more dispersed paths than labourers. Return migration was related to distance and to feasibility. In general, proportionate retention increased with the distance of the area of origin, while the probabilities of return declined with duration of residence. The descendants of Chinese migrants followed the migrant regularities of the upwardly mobile, perhaps becoming international migrants to Chinese settled or developmental areas in other countries.

8. The majority of Chinese migrants were young men who moved without families. Labour service and collective undertakings involved this movement; so did economic development within and outside China in more recent periods. Movement occurred in relation to the family roles and responsibilities of men; it was consistent with family and social stability in populations where a severe mortality of females generated substantial excesses of males.

9. In the years and countries of record, populations living outside China but born in that country were predominantly male. Married men were more numerous than married women. The normalization of the age and sex structures came as the descendants of the migrants matured. This normalization was facilitated by any special circumstances that permitted the immigration of Chinese women and by informal relations between Chinese men and native women. In most countries and in most time periods, children of Chinese fathers were reared and identified as Chinese. As ethnically pure and mingled native-born Chinese increased, marriage and family life became more conventionally Chinese in form, function, and value structure. As intermarriage among Chinese again became model the biological contributions of native women were dis-

persed throughout a population defined as Chinese.

10. The formal dynamics of Chinese migration and the impact on populations of origin and destination were complex in detail. Linguistic, subcultural, and territorial groups moved selectively and maintained identities after migration, much as had the European migrants to the United States of America. The refugees of famine, epidemic and war differed in structure and characteristics from the migrants who moved in traditional ways from areas of pressure to lands of jobs, if not lands of abundant opportunity. Gentry, professional people, and modernizing urban residents followed different patterns of movement from labourers or the younger sons of farmers. Perhaps the most apt comparison is with the international migrants from Europe. Resources bases, technologies, economic organization, culture, the pressure of numbers on subsistence, family institutions, reproductive mores, and life habits differed as greatly as between Europe in its premodern and modernizing period and China in the recent and current periods. However, both Europe and China were culture areas of continental scope. Patterns existed in stability and migration, adjustment and persistence characteristic of the greater cultures, whatever the variations that separated Poland and the Iberian Peninsula in Europe, Shantung and Szechwan in China. Too, there were diversities within Poland and Spain just as within Shantung and Szechwan.

11. Many of the migrations, the migrant adjustments, and the transgenerational mobilities among the Chinese displayed the regularities that would be anticipated on the basis of analyses of other migrants in other areas. The distinctive aspects involved the supplies of potential migrants in relation to the limited outlets and the forces of resistance or fluidity in movement, adjustment, and allegiance. No one factor was specifically Chinese, but the combination of factors in historical context was unique. And, of course, so was the specific Chinese conditioning of all processes, whether demographic, social, economic or political.

II. Migrant transformations

12. The roles and transformations of the migrant generations may be viewed alternatively as indicators of the opportunities of the areas into which the migrants moved or as reflection of the potentialities of the ethnic groups or cultures from which the migrants came. Since the focus here is China, the latter approach is explored.

13. If data were available for all Chinese groups within and outside China, or for probability samples of them, order distributions of associated variables would permit firm analyses of transitions and transformations. Such data are not available. The analytical approach, therefore, involves an examination of the potentialities and transformations of Chinese immigrants and their descendants in three areas that may be taken as roughly ordered sequences of migrant and adjustment situations. The first is Manchuria, where Chinese peoples were the industrializing labour force and the urbanizing population during Japan's thrust to economic hegemony and imperial power in mainland Asia. The second is Hong Kong, where migrant Chinese are *entrepreneurs,* professional and middle classes, and labourers in a rapidly growing economy. The third is Hawaii, where the descendants of indentured plantation labourers are the economic and educational elite in a metropolitan state.

III. Migrants to Manchuria

14. As noted earlier, increase, expansion, and ethnic intermingling were associated processes in the growth of the Chinese as the world's largest cohesive ethnic population. Faulty Chinese records portray the movement to Szechwan and the south during Ch'ing, to the northeast during the period of the Republic. This latter process became international in the Kwantung Leased Territory and the South Manchuria Railway Zone, 1905 to 1945, and in Manchukuo, 1932 to 1945. Thus the process was measured in modern data systems.

15. In the Kwantung Leased Territory, migrant populations maintained the traditional family structures and reproductive values so long as life remained agricultural, rural, and remote from urban centres. In the cities age at marriage was higher, fertility lower. Areas adjacent to cities were intermediate between the remote rural and the concentrated urban. The transitions of industrialization were operative in the urban and urbanizing sectors, but the fertility of the rural sectors was high and remained high. Law and order, increasing productivity, accessible markets, and areas of employment for growing sons and daughters seemingly released the controls on fertility that had been operative in North China.

16. Manchuria was the great expansion frontier for North China, but not even the greatest of the migrations of the twentieth century was sufficient to produce measurable alleviation of the pressures of population on

subsistence in North China. In Manchuria, though, were land frontiers, commercial agricultural areas, developing commercial and industrial cities, and the military and associated activities of imperial Japan. Special censuses of the large cities showed the processes of formation and the migrant structures already described as characteristically Chinese. Inside the cities were differentiated ecological patterns with fertility ranging from very low levels in the central districts of concentrated migrant residence to the high levels in settled districts of the upper status and the rural districts incorporated into the cities.

17. In 1940, a census of all Manchukuo indicated continuity in urban growth, with a general pattern of major rural-urban differentiations in fertility. The most important analyses concern the local areas (*hsien*), for in these regions it is possible to secure rough measures of demographic structure and dynamics for approximately 40 million Chinese living in variant conditions and in various stages of the normalization of hitherto migrant populations. Some of the associations in these migrant populations as of 1940 may be noted: (*a*) the agricultural areas were essentially occupied and exporting their maturing youth to the nonagricultural sectors; agricultural labourers were mainly immigrants from China; (*b*) fertility was associated negatively with density. In functional terms, fertility was above the levels of North China in remote rural areas, below them in great cities and urbanizing areas. Whatever the measurement, fertility was lower in areas of contact and in the industrial and commercial wedge of the South Manchuria Railway Zone; (*c*) the selectivities of migration contributed to rural-urban differences in fertility. Children reduced the chance that wives would become migrant; childbearing in the urban setting increased the chances of return migration; (*d*) the assimilation of Manchus and Mongols to the Han was advanced; (*e*) patterns of international and internal migration and the relations between the two were similar for Chinese, Japanese, and Koreans in Manchukuo in 1940; (*f*) migration had produced a population of approximately 40 million Chinese in northeast China by 1940. Migrations of this order of magnitude had been neither solutions nor substantial alleviations of the population problems of the North China plain.

IV. Analysis of Hong Kong migrants

18. Hong Kong, as Manchuria, is a part of geographic China. Its historic populations, as those of the cities of Manchuria, were mainly young migrant males. An indigenous population developed, but at any given time the majority of the people were recent migrants. The political developments associated with the Peoples Republic led to severely limited migration. Hong Kong became a colony of resident Chinese with several distinctive characteristics. The immigration of families provided a basis for rapid natural increase. This migrant population was qualified for development and oriented toward it. Whatever the intermingling of political and economic motivations in migration to Hong Kong (but not beyond it to Taiwan), the resultant population was selected disproportionately from the urban, professional, managerial and technical groups of China. The majority of the migrants, though, were of lowly origin and ill-educated. Economic development encouraged an advancing structure of aspirations and rapid movement toward the realization of those aspirations, particularly for children.

19. In Hong Kong, as in Manchuria, major differences existed in the fertility of social, economic, and geographic groupings. Reproduction in the villages of the New Territory was at a level comparable with that in Taiwan; reproduction in the metropolitan area was reduced substantially below peasant levels, whether in the New Territory or in Kwantung Province. The economical diversities and the social and economic associations of the reproductive variables in the Hong Kong metropolitan area were similar to those of the United States in the nineteen-thirties and Japan in its period of modernization.

V. Chinese migrants to Hawaii

20. Hawaii is a small area to be considered in the context of China. Here, though, the potentialities of Chinese migrants and their descendants are demonstrable facts rather than theoretical anticipations. Hawaii's early Chinese migrants were brought as indentured labour to the plantations. The migrants were predominantly male, but children with Chinese fathers and Hawaiian or part-Hawaiian mothers contributed to the growth of a population that was culturally Chinese. As this population became balanced in biological structure, marriage statistics showed Chinese marrying Chinese in high proportion. The social and economic modernization was swift and comprehensive. In 1950, the Chinese were an upper group, whether the criterion was occupational level, advanced education, or high income.

21. Two factors make the experience of a few Chinese and their descendants in Hawaii relevant to the assessment of the future of the great population of China. First, the Chinese immigrants of Hawaii were selected primarily from the lower strata of Chinese society, not the middle or the upper. Their achievements are those of the ordinary people of China. Second, the transformations of Chinese in Hawaii occurred in a setting of rapid economic and social development where opportunities for upward mobility existed alongside educational opportunities from the lowest levels to the highest.

VI. General views on Chinese migration

22. The migrations of the Chinese peoples have been alternately internal and international, for the expansion area of the Chinese has been limited largely to the perimeter of China. Migrant regularities in selection, structure, and life-cycle relations show no sharp dichotomy of the internal and the international. The dichotomy involves the migrations within the context of the traditional society and economy versus those within the industrializing and urbanizing contexts of economic development, educational advance, and social mobility. The work habits, motivations, and aspirations of the Chinese peoples appear to be peculiarly appropriate to contribution to economic development and participation in this development. Consideration of the relevance of the external dynamics of Chinese populations to the internal dynamics of the population of China is beyond the scope of a note on international migration.

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Population, emigration and economic development

S. G. TRIANTIS

1. For a number of reasons, emigration in most developing countries has not reached proportions that can have a significant impact on population growth and economic development. Greece is one of the few countries from which substantial emigration has proved possible. This paper is concerned with the consequences and desirability of this movement.

2. The basic determinants of economic development in Greece are its resources, its size, its geographical location and technological and other developments abroad. A few remarks on the first three determinants will set the background for our subsequent discussion of emigration.

3. Greece is poor in land resources. Cultivation is restricted to about one quarter of its area. The possibility of raising this proportion is limited by mountainous topography and other factors; the soil is not rich, the climate is dry and precipitation is irregular. [1] Regarding the subsoil, Greece possesses no significant proportion of any mineral except bauxite.

4. The second important feature of the Greek economy is its small size, actual and potential. At present, a population of approximately 8.5 million people earns a yearly income equivalent to 400 United States dollars per person. In view of Greece's poverty in resources and her unfavourable location, this country is unlikely to develop a significant industrial pole which would enable it to support a larger population at incomes providing broad industrial markets.

5. Territories (countries, provinces or towns) which are poor in raw materials or have small markets have advanced industrially only when they have been located favourably in respect to external sources of materials or large markets. Greece is near neither important sources of industrial materials nor significant markets. To reach Western European markets, industrial products from Greece must travel a longer distance than the European products. They must be subjected to a greater volume of loading, unloading and handling and must be given sturdier packaging than products from other European countries. For similar reasons and because the economies of bulk buying and handling are fewer in Greece, imported materials and parts are more expensive there than in Western Europe. Often Greece is at a disadvantage even in markets which are near: freight rates to the Middle East are generally higher from Greece than from Western Europe because Greece can provide only a small, irregular volume of cargo for the shipping companies.

6. We conclude that agricultural and industrial development in Greece is seriously circumscribed by the evil trinity of poverty of resources, its small size and its unfavourable location.

7. Unlike that of many developing countries, the natural increase in Greece's population has been small. Before the Second World War, birth rates as well as death rates were declining. The natural increase was 12.0-12.5 per thousand (see table 1). While birth rates and death rates dropped further in the post-war years, the changes were almost parallel until the early nineteen-sixties. At that time, emigration, including a large proportion of people in the reproductive ages, and substantial internal migration from rural to urban areas reduced birth rates further. The rate of natural increase in population declined to about 9.5-10.0 per thousand (see table 1).

8. While this change is significant, it is dwarfed by the enormous increase in emigration. In the later nineteen-fifties, the number of emigrants was equal to roughly one third of the natural growth in population; in 1960-1961, it rose to more than half the natural increase; in 1962, it matched it; and in 1963, it exceeded it (see table 1). Since the proportion of workers among emigrants is relatively high, the number of workers emigrating has exceeded the natural addition to the labour force since 1961.

[1] See also Food and Agriculture Organization, Mediterranean Development Project, "Greece, Country Report", pp. I—2, II—11, III—6 (Rome, 1959), and Food and Agriculture Organization, *World Agricultural Structure, Study No. 3. Land Utilization* (Rome, 1961), p. 15.

Table 1. Natural increase of Greece's population, and emigration, 1927-1963

Year	Births per 1,000 inhabitants	Deaths per 1,000 inhabitants	Natural increase in population per 1,000 inhabitants	Natural increase in population (in thousands)	Emigration
1927	28.8	16.3	12.5	76.5	N.A.
1928	30.5	17.0	12.5	83.6	N.A.
1929	28.9	18.4	10.5	66.3	9.7 [a]
1935	28.2	14.8	13.4	91.1	3.5 [a]
1936	27.9	15.1	12.8	88.3	N.A.
1937	26.2	15.0	11.2	78.2	N.A.
1938	25.9	13.2	12.7	90.7	3.9 [a]
1956	19.7	7.4	12.3	98.7	35.3
1957	19.3	7.6	11.7	94.3	30.4
1958	19.0	7.1	11.9	97.2	24.5
1959	19.4	7.4	12.0	99.3	23.7
1960	18.9	7.3	11.6	96.7	47.8
1961	17.9	7.6	10.3	86.1	58.8
1962	18.1	7.9	10.2	85.8	84.1
1963	17.4	7.8	9.6	80.9	100.1

SOURCE: compiled from National Statistical Service of Greece, *Statistical Yearbook of Greece,* various years, and *idem, Monthly Statistical Bulletin* (February 1963), p. 7, and (February 1964), p. 15.
[a] Only transoceanic emigration.

9. The distribution of emigrants by destination and occupation also has shifted greatly. While the flow to overseas countries has changed very little since the mid-nineteen-fifties, emigration to Western Europe, chiefly the Federal Republic of Germany, has increased enormously (see table 2). While Greek emigration traditionally had been largely farmers and peasants, large numbers of craftsmen, industrial workers and professional and technical people are now attracted to Western European industry and overseas countries (see table 3). [2]

[2] It should be noted that a number of people classified in table 3 as industrial workers were peasants who had moved to towns in search of employment shortly before emigrating. A large proportion of those "without occupation" also were of rural origin.

Table 2. Distribution of Greek emigrants by destination, 1955-1963

Year	Country or area of destination				Total emigration
	North America	Australia	Europe	Other countries	
	(in thousands)				
1955	9.0	9.1	6.1	5.6	29.8
1956	13.4	7.7	7.8	6.4	35.3
1957	6.8	6.0	13.0	4.6	30.4
1958	8.8	4.5	6.6	4.6	24.5
1959	7.1	5.5	6.7	4.4	23.7
1960	8.3	8.3	26.9	4.3	47.8
1961	7.4	8.0	39.5	3.9	58.8
1962	8.1	11.9	60.8	3.3	84.1
1963	9.0	13.0	74.2	3.9	100.1

SOURCE: compiled from National Statistical Service of Greece, *Statistical Yearbook of Greece,* various years, and *idem, Monthly Statistical Bulletin* (February 1963), p. 7, and (February 1964), p. 15.

Table 3. Distribution of Greek emigrants by occupation before migration, 1962-1963

Occupation	*1962*	*1963*
Farmers, fishermen and related workers	6,203	7,719
Miners, quarrymen and related workers	25	69
Craftsmen and industrial workers	47,267	54,070
Workers in transportation and communication	680	795
Clerical workers	1,213	1,561
Salesmen	394	490
Workers in personal services, recreation and sports [a]	1,246	1,540
Professional and technical personnel	1,131	1,212
Executive and administrative personnel	86	126
Non-classifiable	2,238	7,246
Without occupation	23,571	25,244
TOTAL	84,054	100,072

SOURCE: National Statistical Service of Greece, *Statistical Yearbook of Greece*, 1963, p. 291, and *idem*, *Monthly Statistical Bulletin* (April 1964), p. 22.

[a] Including a number of "national defense employees".

10. The basic causes of Greek emigration should be evident from the discussion of factors which have limited the expansion of agricultural and industrial occupations and incomes. Greek workers are attracted by the earnings offered in advanced countries where skills can be acquired readily, industrial materials are adequate, social overhead capital is ample, large markets are provided, and substantial economies based on large-scale operation and industrial agglomeration are available.

11. Differences between the Greek economy and other countries have existed for many years, but emigration from Greece had been limited until recently by many factors. The most notable of these reasons was the foreign restrictions on immigration which began in the late nineteen-twenties. Restrictions have been relaxed in recent years because many Western European countries have experienced high rates of economic growth, accompanied by labour shortages. Improved communications have had an important influence on immigration: the Greeks have become aware of the disparities in their incomes and those of people in other countries; Greek peasants and workers have found adaptation to life abroad eased; and the Greeks generally have broadened their cultural outlook. Communications with other countries have permitted a reassessment of the Greek view that life at home is superior to that abroad. Improved transportation has given possible immigrants the security of knowing they can return home if they change their minds.

12. Emigration from Greece must be evaluated on the basis of goals of economic activity and policy. The objectives of economic policy in Greece seem to include satisfactory rates of growth in income and consumption per person, reduction in income inequality and instability, full employment and varied political and social aims. For the majority of Greece's population, a prime objective is the preservation and advancement of the nation, that is, a sizable group of people living on Greek soil, speaking the Greek language and sharing the Greek tradition and values.

13. Because all goals cannot be pursued to the fullest extent, a compromise is necessary. The variety and combinations of goals which Greece might choose to pursue is great, but for the purpose of our paper we shall restrict the discussion to two. The first combination, called "the economic solution", emphasizes economic goals, chiefly the increase in personal income, full employment and the reduction in income inequality. In the second combination, "the political solution", political objectives are prominent. The Greek nation should expand in some proportion with the population of other European and Middle Eastern nations.

14. Greek emigration may be considered first in the framework of the economic solution. For reasons noted earlier and for other reasons, Greece's prospects of industrial development are limited, involving only industries shielded from foreign competition by transportation costs or similar factors and a few internationally competitive industries. Advantages and

prospects in agriculture also appear to be modest at best. Unless tourism can make a major contribution to Greek employment and incomes, emigration appears a natural way of improving the incomes of the emigrants and the remaining population.

15. A benefit of emigration lies in the emigrants' remittances, which can make a substantial contribution to Greece's income, foreign exchange and resources for investment.[3] It might be noted that, unlike the period before the Second World War, emigrants receive considerable help for their movement and in the countries of immigration they enjoy social insurance and other benefits. These developments and the enormous advances in transportation induce and enable the emigrants to take their families and relatives with them. This circumstance is apt to restrict the volume of remittances to Greece.

16. Against the benefits from emigration must be measured a number of disadvantages. Emigration draws heavily from the young adult population and distorts the age distribution of the population. Emigration attracts the more healthy, gifted, audacious and enterprising members of a community. In recent years, countries of immigration have sought skilled and professional immigrants, which leads Greece to lose the capital invested in the training of these people. (Suggestions have been made that the countries recruiting these persons should compensate Greece.) Finally, emigration tends to create economic and social problems of derelict regions or communities.

17. In view of the variety of benefits and losses from emigration, it is difficult to draw safe conclusions about the size and timing of the flow which could best serve the Greek economy. (The interests of those who migrate are not considered at this point.) Given the modest rate of natural increase in the country's population, the fact that the distortion of the age distribution of the population increases with the rate of emigration, and the possibility that a large stream of emigration may cause sudden changes in the cost structure of various industries, it would seem that a lower rate of emigration than that experienced in 1962 and 1963 would be preferable.

18. We now turn to the "political solution". Supporters of these goals point to the risk of "national suicide" involved in large-scale emigration. Naturally, they allow for some emigration, partly on the ground that Greeks who have succeeded abroad have contributed financially and in other ways to strengthening the Greek nation. But they want Greece to retain its present rate of population as well as the major part of its rather modest natural increase. They recommend creating and spreading opportunities for industrial employment and, if necessary, settling for a smaller increase in income per person than might be possible under the plan for an "economic solution".

19. The political solution, together with some clamour from interested business quarters (chiefly manufacturers depending on a large volume of unskilled or semi-skilled labour), has led to suggestions that the mass exodus of Greeks should be curbed. One recommendation has been that public works be undertaken to provide temporary employment until industry can absorb would-be emigrants. Providing employment at the right places for various labour available and for the appropriate lengths of time is difficult in the context of the Greek economy and public administration. Moreover, a large part of those emigrating, especially from the country-side, are not actually unemployed before they leave. They are being attracted by the much higher incomes abroad. Another recommendation is that the Government informally might delay passports and other emigration documents. Unless such delays discouraged prospective emigrants, they would reduce the volume of emigration only during a short period after their initiation.

20. Sometimes the concern about the exodus of Greeks is countered with the argument that Greece will benefit from emigration as its workers acquire new skills abroad and return to serve its industry. However, the return of the emigrants may not be beneficial and, in any event, may be rather small. A large number of Greek emigrants to the Federal Republic of Germany, for instance, occupy the lowest position on the industrial ladder, and these emigrants are the ones who are likely to return, rather than those who are acquiring skills and knowledge and are advancing in position and income. Demonstration effect is often strong. Those who return are apt to carry with them ideas about union behaviour, material rewards and fringe benefits which can be justified only by the higher productivity in Western Europe. Other Greek labour may be influenced by these ideas.

21. It is too early to estimate the proportion of emigrants who might return to Greece. On

[3] In 1963, emigrants' remittances to Greece amounted to $170 million. Commodity exports and imports were $296 million and $748 million respectively. The remittances provided more than one third of the exchange required for meeting a huge trade deficit.

the one hand, the great improvements in communication and transportation might facilitate such a movement, especially of emigrants to Western Europe. On the other hand, as indicated earlier, emigrants are now induced to take abroad their families and close relatives, and this is likely to discourage their return. As yet, Greece has made no special effort to encourage such repatriation.[4] And just as it has proved hard to restrict emigration in the first place, it has proved difficult for the Greek economy and administration to ensure that returning labour is absorbed productively. Many workers have taken the trail to Germany for a second time.

22. The idea of nation states and territorial attachment of populations is still strong, making many people unwilling to accept the tremendous changes wrought by the progress in communication and transportation and other factors. These people are inclined to view the intra-European movements of population in recent years as a transitory phenomenon.

23. It seems more realistic to assume that the institutional and technical channels for the flow of information about employment and business opportunities, the intermingling of diverse cultures and the movement of labour have improved greatly and will continue to improve. Emigration has been the process by which areas possessing relatively limited advantages of resources and location have been able to diminish their relative density of population. Barring controls or similar obstacles, emigration increasingly will be the process for this ebb. Given the opportunities in Europe and overseas, it appears that Greek emigration will tend to continue for a number of years on a substantial scale.[5]

24. The possibility of a continuing mass exodus is becoming a matter of grave national concern. While the question of devising and applying measures for controlling the outflow is formidable, the difficulties have been compounded by some confusion over the issue and certain unfortunate policies. Thus, by joining the European Economic Community, Greece has committed her economy to a regime in which even the assistance of promising infant industries will be problematic.

[4] Turkey offers her emigrants a generous rate of interest on savings deposited in Turkey. When an emigrant accumulates a given sum, he is eligible for a house loan bearing a yearly interest of 2 per cent.

[5] For probable European countries of net immigration, see Organization of European Economic Communities, *Demographic Trends in Western Europe and the United States, 1956-1976* (Paris, 1961), pp. 24-27, 46 and 49.

SUMMARY OF PAPER

Post-war migration from Italy to Switzerland

KURT B. MAYER

Since the end of World War II, Switzerland has been the leading country of destination for Italian emigrants. The needs of the two countries have been complementary. Swiss industries have experienced boom conditions with manpower shortages while Italy was beset by unemployment and underemployment. Italian migration to Switzerland assumed unprecedented proportions as the number of Italians working in Switzerland rose from 49,000 in 1946 to 474,000 in 1963. Immigration is controlled by the Swiss authorities on the basis of labour market fluctuations. In the early post-war years the need for foreign workers was considered temporary; thus, preference was given to single persons, married men were not allowed to bring their families with them and turnover was rapid. As it became evident that the need for foreign manpower was permanent, the restrictions were liberalized, but in 1963-1964 the Swiss Government imposed an over-all ceiling on the admission of new foreign workers.

Changes in economic conditions and in Swiss policy have brought about shifts in the composition of the Italian work force. Turnover is slowing down as the proportion of non-seasonal workers is rising. Employment in low-status, low-paying occupations like agriculture and housework has declined sharply as industrial employment has risen, especially in the metals and machinery industry.

Accordingly, the ratio of men to women among Italian workers has increased. Remittances to Italy have been substantial but are likely to decline as workers are permitted to bring their families. Improving economic conditions in Italy and immigration restrictions in Switzerland probably will reduce the influx in the future.

Meeting A.5

DEMOGRAPHIC ASPECTS OF LABOUR SUPPLY AND EMPLOYMENT

PAPERS

Regional aspects of employment and underemployment in Italian agriculture

GIAN GIACOMO DELL'ANGELO

[*Translated from French*]

1. Agricultural employment in Italy today is passing through a transitional phase. From an almost static situation [1] characterized on the whole by a surplus of manpower which persisted until 1958, a very dynamic situation has arisen as the result of an agricultural exodus estimated at about 380,000 workers a year on the average.

2. This new trend is not uniform in all parts of Italy, and the changes occurring in the labour force vary widely from region to region. Nevertheless, the exodus has in general brought about the following changes:

(*a*) A perceptible aging of agricultural manpower. According to census statistics, the average age of farmers was 43 in 1961 and 40 in 1951. While this is not a substantial difference, it must be borne in mind that at the time of the last census the exodus had been on the increase for only two years; the difference can therefore be assumed to be greater today, four years after the census. The 1961 figures also show a very substantial shrinkage in the younger groups of workers by comparison with 1951; the 14-21-year age group represented only 9.3 per cent of the total economically active population in 1961 compared to 16.2 per cent in 1951. The 21-65-year age group, on the other hand, shows an increase. The analyses of employed manpower by age groups which have been made every year since 1957 by the Istituto Centrale di Statistica (ISTAT) [2] show a similar trend between 1957 and 1962: employed manpower in the 10-30-year age group fell from 34 per cent of the total to 24 per cent; the 30-50-year group showed a rising trend (from 37 to 40 per cent), while the 50-60-year group registered a substantial increase both in absolute figures (about 200,000 workers) and as a percentage (from 22 to 30 per cent);

[1] From the unification of Italy until 1950, the active farm population never fell below 8 million.

[2] Previous surveys and those carried out since 1957 do not follow the same lines. However, 1957 is sufficiently representative of the situation in the years preceding the exodus, which did not begin to develop at an accelerated rate until 1958-1959.

Table 1. Percentage distribution by age groups of the economically active male farm population

	1951				*1961*			
	Under 14 years	*14-21 years*	*21-64 years*	*Over 65 years*	*Under 14 years*	*14-21 years*	*21-64 years*	*Over 65 years*
Northern Italy	2.3	14.1	73.4	10.2	0.9	7.7	82.1	9.3
Central Italy	3.5	15.1	72.0	9.4	1.4	8.4	81.9	8.3
Southern Italy	3.8	19.1	70.6	6.5	1.5	11.2	82.4	4.9
Italian islands	3.7	17.3	72.2	6.8	1.3	10.6	83.1	5.0
Italy as a whole	3.1	16.2	72.2	8.5	1.2	9.3	82.3	7.2

(*b*) Differing trends in female participation in agricultural work in northern and southern Italy. The expansion of industry and services in the northern and central regions has led to a substantial reduction in the number of women engaged in agriculture; between 1951 and 1961, the total fell from 22.6 per cent to 19.6 per cent and from 25.7 per cent to 22.6 per cent respectively in the two regions. In the southern regions, on the other hand, it rose from 32.5 per cent to 40 per cent. In the islands, where tradition did not permit women to work in the fields, the increase is particularly striking (from 8 per cent to 15 per cent);

(*c*) Changes in the social distribution of the active farm population as between independent and dependent workers owing to a very marked reduction in the former group. According to an ISTAT survey for the years 1959-1964,[3] the decline in agricultural manpower during that period affected more than 90 per cent of independent workers. However, the impact of this development was not uniform in the north and south: in the northern regions, the independent workers who gave up agriculture accounted for almost 80 per cent of the total agricultural exodus; in the southern regions, they accounted for the entire exodus and, moreover, independent workers changed over to the status of dependent workers.

[3] The 1961 census data on the social distribution of the active farm population are not yet available; the data given here refer to employed manpower. There is, of course, a considerable difference between the active population and the labour force, but we are concerned here not with absolute values but rather with trends.

Table 2. Agricultural workers by social categories in 1959 and 1964

	1959		*1964*		*Ratio of independent to dependent workers*	
	Independent workers	*Dependent workers*	*Independent workers*	*Dependent workers*	*1959*	*1964*
	(in thousands)					
Northern Italy	3,283	666	2,218	485	4.9:1	4.6:1
Southern Italy	1,902	996	1,213	1,036	1.9:1	1.2:1
Italy as a whole	5,185	1,662	3,431	1,521	3.1:1	2.3:1

Hence, the ratio of independent to dependent workers, which had been 3:1 for the national territory in 1959, fell to 2.3:1 in 1964, with a particularly sharp decline in the south.

3. The differences in the situation with regard to employment and underemployment in the various regions of Italy arise from the phenomena described above, which are, in turn, the result of fairly significant changes in the economy as a whole.

4. The absorption of agricultural manpower by the industries of northern Italy has occurred on such a scale that hidden unemployment in agriculture has been virtually wiped out. In some areas, such as the foothills of the Alps and the Po valley, it has posed not only the problem of replacing human labour by machinery but also that of effecting changes in the system of production.

5. It must be observed, however, that in areas where a peasant type of cultivation (by proprietors and tenant farmers) predominates, hidden unemployment has virtually disappeared but seasonal underemployment nevertheless continues to exist because of the very irregular distribution of the work in a monoculture system (viticulture and horticulture).

6. In those areas, however, the members of a farm family are able to find an outlet for at least part of their unused work potential by performing wage labour on large farms in the Po valley.

7. At the same time, there has been a considerable expansion of part-time agriculture. In Lombardy and Piedmont, the jobs available in recent years in industries undergoing rapid and steady expansion have been largely filled, as mentioned above, by agricultural workers of both sexes in the younger age groups. Where such workers belonged to families of small farmers, the flow of migration has showed pendulum-like swings. Thus, these young workers also contribute to agricultural production by working in their spare time on the farms maintained by older members of the family.

8. A similar situation may be observed in increasingly extensive areas of the Alps. The development of winter and summer tourism and its related facilities and the ease of communications with the industrial area of the plain has brought about rapid changes in local economic life and increasingly relegated

agricultural activities to second place among local interests.

9. Throughout central Italy, the employment situation in agriculture has been closely bound up with the share-cropping system, which, with the changed conditions in the labour market, is proving increasingly incapable of meeting the management standards required by a high productivity economy.

10. As a result of the manpower shortage, there has been a substantial decline in activity on share-cropping farms situated in mountainous areas with few natural resources. In the entire foothills area, the exodus has affected the younger members of share-cropping families, producing a marked imbalance between manpower supply and demand. Hence, in the share-cropping regions where even in the past the level of unemployment was very low and was due entirely to seasonal underemployment, farming today faces great difficulties as the manpower needed to maintain previous levels of intensive cultivation declines day by day.

11. Even today, the unemployment problem is of major proportions in the south and the islands. Despite the rural exodus amounting to about 1 million workers, the imbalance between population density and employment opportunities continues to exist, particularly since a large part of the workers leaving agriculture is made up of emigrants going abroad temporarily. These are individual emigrants who will presumably return home after a more or less brief absence. In some areas, the temporary nature of such emigration has led to the replacement of male workers by women and children and to some decline in the productive capacity of agriculture.

12. The situation is not the same throughout the south. In the less-favoured rural areas, the exodus has been on such a scale that it has sometimes resulted in the complete abandonment of farming. In other areas, it has led to the complete or partial disappearance of hidden unemployment while seasonal underemployment among members of farm families has remained unchanged because of cereal monoculture and rigid work schedules.

13. The farms which hire wage labour are situated mainly in areas where the relatively low population density was, until 1950, the result of particular environmental conditions —for example, in many coastal flats of Basilicata and Sicily where malaria prevented a permanent settlement of population—or of unfavourable climatic conditions (drought) which prevented spring and summer growth.

14. The eradication of malaria around 1950 and the implementation of an irrigation programme by the Cassa per il Mezzogiorno created the essential basis for the transition from extensive to intensive agriculture. Hence, the low population density of these areas today permits employment levels to rise in step with the transformations being carried out, and it is possible to foresee a situation of full employment in the near future. This is confirmed by the fact that the manpower exodus is lowest in those regions where intensification has already been put into effect.

15. There is still some imbalance in the absorption of manpower in other areas where the system of agriculture is still unchanged, mainly because of the absence of irrigation. While in some areas the decline in population has led to a seasonal shortage of manpower during the busiest periods on the farms, there is still fairly prolonged unemployment among agricultural day labourers. As a result of this unevenness of demand, the labour market is subject to substantial fluctuations, with sudden seasonal increases in wages which can be critical for the farmers and at the same time contribute only marginally to improving the economic position of the temporary workers.

16. It must be noted, moreover, that in southern Italy the exodus—given the proportions which it has assumed so far—has made inroads into but not yet completely eliminated the rural sub-proletariat which is conventionally classified as agricultural and wage-earning but actually has no organic link with farms employing exclusively or mainly wage-earners. Hence, there has been no change in the negative factor of mixed economic activity, i.e., that of the farmer who supplements the earnings from his farm by working as a day labourer and that of the agricultural day labourer who very often is also a smallholder and at the same time pays rent for a few small plots.

Population and labour force growth in selected countries of Asia and the Far East

BASILIO B. AROMIN

1. The growth of the population in the region of Asia and the Far East is determined mainly by developments in the more populous countries, namely: mainland China and India, which together had a population in excess of 1,000 million in 1960; Indonesia, Japan and Pakistan, each with a population of 93 to 94 million in 1960; and Burma, Iran, the Philippines, the Republic of Korea and Thailand, whose populations in 1960 each numbered more than 20 million. One half of the world's population lived in these ten countries in 1960 on a land area smaller than one seventh of the total land area on earth.

2. The estimates of the population of these ten countries for the period 1960-1980, which are shown in table 1, were obtained or derived mainly from national projections calculated by government agencies, institutions or individual experts. Projections prepared by the United Nations Secretariat were resorted to for estimates of the population of mainland China, for which national projections were not available, and of Japan, for which national projections assumed a decline in the gross reproduction rate to 0.87 by 1965-1970, fertility remaining constant thereafter. The United Nations modified the projections for periods following 1970 on the basis that below-unity reproduction rates have never been maintained very long and that Japan's reproduction rate will eventually return to unity. The projection for mainland China is the average of the projection which assumed high mortality and late fertility decline (starting 1970) and that which assumed low mortality and early fertility decline (starting 1955), the "sex-age adjusted birth rate" being halved thirty years after the onset of the decline. [1]

3. Where national projections were given for alternative assumptions of population trends, the one made under the assumptions considered most plausible for each country was selected. Thus, for the Philippines and Thailand, the national projections were adopted, using assumptions of normal mortality decline and constant fertility until 1980; while for the Republic of Korea, the selection was the national projection which assumed normal mortality decline and a small decline in fertility of 5 per cent per quinquennium starting in the period 1960-1965. A mortality decline somewhat more rapid than normal was assumed in the national projection (medium series) for India, with the general fertility rate declining after 1961-1966 by 5, 10 and 20 per cent of previous values in each successive quinquennium, respectively. The available national projections for Burma, Indonesia, Iran and Pakistan assume constant fertility.

4. The estimates indicate that in the 1970's population growth in Burma, Indonesia, Iran, the Philippines and Thailand will even be more rapid than in the preceding decades and that the growth in Japan will be a little faster in that period because mortality rates will have been stabilized at the lowest possible levels and the reproduction rate restored to unity. The slower-than-average population growth in China may be attributed to the assumption of a lower than average and declining birth rate. The slight decline in fertility assumed for the Republic of Korea will apparently be offset by further reductions in the death rate, while the rate of increase for India will slacken, should the assumption of the speed of decline in fertility for the country prove correct. As may be computed from table 1, India will be adding 14 million people to its population each year during 1970-1975, or 4 million more people each year than the annual additions to the population of mainland China (10 million) during the same period, in spite of a smaller population base. In this period, Indonesia and Pakistan will each be adding to their population about 4 million people annually; the Philippines and Thailand will each be adding about 1.5 million people each year.

5. Sex-age specific economic activity rates are available for projecting the economically active population by sex and age of the ten

[1] See *World Population Prospects, As Assessed in 1963* (United Nations publication, Sales No.: 66. XIII.2).

selected Asian countries, except Burma and mainland China.[2] There are no significant differences in the average activity rates for the male population aged 25-54 years of these countries, except in the case of the Republic of Korea, where the unemployed have been excluded from the labour force count—for which reason male activity rates are also lower for that country for those aged 15-24 years, the age group in which may be found the major portion of the population seeking work for the first time.

6. Differences in activity rates among aged 10-14 years may, to some extent, be attributed to the differences in the minimum age used in enumerating the economically active population. Differences in participation rates in the young, aged 10-19 years, are also owing in a large measure to differences in the economic structures of countries (to the extent that agriculture offers more opportunities than non-agricultural industries for the employment of young children); differences in levels of economic development, where the more economically advanced countries can afford greater investments in education and thus keep children in school for longer periods; and differences in concepts used in measuring the size of the economically active population. The last factor largely explains why there is no clear pattern in the differences in average activity rates for women among the countries. Female rates in the Republic of Korea are at about the same levels as those in industrialized Japan, while highly agricultural Thailand has the highest female activity rates among the selected countries.[3] Moslem Iran and Pakistan have very low average female activity rates, but this is not the case with Indonesia, also a predominantly Moslem country.[4]

7. From trends in activity rates observed during the period 1910 to 1955 in countries where these statistics were available,[5] it was assumed, for purposes of projections of the labour force (table 2) that: (*a*) current activity rates for males aged 20-64 years and for females 15 years old and over will remain unchanged until 1980; (*b*) over the twenty-year projection period, male activity rates in the age groups 10-14, 15-19 and 65 years and over will decline by 50, 10 and 20 per cent, respectively; and (*c*) female rates in the age group 10-14 years will decline by 25 per cent during the same period.

8. No current age-sex specific economic activity rates are available for the whole of Burma or for mainland China. From the characteristics of the *de jure* population in 252 towns of Burma obtained in 1953, it seemed reasonable to assume for the country the average rates derived from data of twenty-one agricultural countries at relatively recent dates.[6] These age-sex specific rates were projected to 1980 on the same assumptions as those adopted for the other countries.

9. Considering the political and economic structure of mainland China, it is probable that the average age-sex specific activity rates there are high.[7] Applying the age-sex specific rates of Thailand, which apparently has the highest over-all participation rate among all Asian countries for which data were available (51.0 per cent in 1956),[8] to the 1953 census population of mainland China,[9] gave a total

[2] Age-sex specific economic activity rates for Iran (1956), the Philippines (1957), the Republic of Korea (1955), and Thailand (1960) used in the labour force projections in this paper were obtained from the paper prepared jointly by the United Nations Bureau of Social Affairs and the International Labour Office, "Demographic factors in problems of manpower supply and utilization in Asia and the Far East", *Report of the Asian Population Conference and Selected Papers (1963)* (United Nations publication, Sales No.: 65.II.F.11); for India (1953-1954), from *Demographic Aspects of Manpower, Report I: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No.: 61.XIII.4); for Indonesia (1961) and Pakistan (1961) rates were computed from census results.

[3] A fuller discussion of the patterns of difference in activity rates between countries and explanations of these differences will be found in *Demographic Aspects of Manpower, Report I: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No.: 61.XIII.4); and in Yon Pon Seng, "Growth of the Labour Force in Countries of the ECAFE Region", *Report of the Asian Population Conference and Selected Papers (1963)* (United Nations publication, Sales No. 65.II.F.11).

[4] Activity rates observed in Moslem countries are discussed in *Population Growth and Manpower in Sudan* (United Nations publication, Sales No.: 64.XIII.5), pp. 63-67.

[5] See *Demographic Aspects of Manpower, Report I: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No.: 61.XIII.4), particularly pp. 14-17 and 28-35.

[6] *Ibid.*, p. 12, table 3.2, and p. 22, table 5.1.

[7] This was the thesis of United States Bureau of the Census, Waller Wynne, Jr., *The Population of Manchuria,* International Population Statistics Reports, Series P.90, No. 7 (Washington, D.C., Government Printing Office, 1958), pp. 53-54.

[8] See *Demographic Aspects of Manpower, Report I: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No.: 61.XIII.4), p. 56.

[9] Adjusted official model population for mainland China in United States Bureau of the Census, John S. Aird, *The Size, Composition, and Growth of the Population of Mainland China,* International Population Statistics Reports, Series P-90, No. 15 (Washington, D.C., Government Printing Office, 1961), p. 82, table 14.

participation rate of 57.5 per cent. This crude economic activity rate was applied to the estimates of the United Nations of the population of mainland China, to estimate the labour force of that country from 1960 to 1980.

10. The labour force of the ten most populous countries of the region of Asia and the Far East would total 718 million in 1960 and 1,030 million in 1980. Based on the estimated proportion of the total population of these ten countries to the population of the whole region (93.2 per cent in 1960 and 93.8 per cent in 1980, according to the "medium variant" projections of the United Nations) and assuming that the ratio of the total labour force to their total population would hold true for all countries of the region, the labour force of the region would be about 770 million in 1960 and 1,098 million in 1980. [10]

11. Enough jobs must be provided for the additions to the labour force each year, otherwise population growth would just add to the number of unemployed, which currently compose a considerable proportion of the labour force of Asian countries. Around 1960, the estimated proportion of the labour force which was totally unemployed was almost 9 per cent for the Philippines, about 7 per cent for the Republic of Korea, 5 per cent for India and Indonesia, and 4 per cent for Thailand. [11] These estimates do not take into account the under-employed, a probably more important aspect of the problem of unemployment in Asian countries. About 22 per cent of the labour force of Pakistan in 1960 were either unemployed or underemployed. [12] In the Philippines, current labour force sample surveys indicate that one out of every eight employed persons was working less than forty hours a week and seeking additional work or more hours of employment, while almost 7 per cent of the employed labour desired additional work although these were already working the full number of hours. [13]

12. Employment targets in the current economic development plans of Asian countries were seen to be sufficient only to absorb the additional labour force and not large enough to reduce substantially existing unemployment, let alone underemployment. [14] In some of them, the expected additional employment will not even suffice to absorb the additional labour force coming into being during the plan period. For example, the expected total additional employment in 1961-1966 in the Indian Third Five-year Plan is 14 million, while additions to the labour force during the period will amount to about 19 million (see table 2).

[10] Estimates of the labour force of the region, 735 million in 1960 and 936 million in 1980, were obtained by the International Labour Office (ILO) on the assumption, among others, that the ratio of the total labour force to the population of working age for all Asia would hold true for the Asian countries considered in the ILO estimates. See ILO, *International Labour Review*, vol. LXXXIII, No. 4 (April 1961), pp. 379-381.

[11] Estimates were obtained from the following sources; for India, joint study of the United Nations Bureau of Social Affairs and the International Labour Office, "Demographic factors in problems of manpower supply and utilization in Asia and the Far East", *Report of the Asian Population Conference and Selected Papers (1963)* (United Nations publication, Sales No. 65.II.F.11); for Indonesia and the Republic of Korea, their country statement to the 1963 Asian Population Conference; for the Philippines, *Philippine Statistical Survey of Households Bulletin*, Series No. 11 (Manila, April 1962); and for Thailand, *Joint Thai-USOM Human Resources Study: Preliminary Assessment of Education and Human Resources in Thailand*, vol. II (Bangkok, October 1963), p. 15, table III.

[12] See Government of Pakistan, Planning Division, *Outline of the Third Five-year Plan, 1965-1970* (Karachi, August 1964), pp. 12 and 24.

[13] See the Philippine statement to the 1963 Asian Population Conference.

[14] United Nations, Bureau of Social Affairs and International Labour Office, "Demographic factors in problems of manpower supply and utilization in Asia and the Far East", *Report of the Asian Population Conference and Selected Papers (1963)* (United Nations publication, Sales No.: 65.II.F.11), pp. 40-41.

Table 1. Population estimates for selected Asian countries, 1960-1980
(In thousands)

Country	1960	1965	1970	1975	1980	Rate of increase (percentage) 1960-1970	Rate of increase (percentage) 1970-1980
Burma	22,325	24,732	27,584	30,990	35,000	2.1	2.4
China (mainland)	650,000	695,000	742,000	792,000	843,000	1.2	1.3
India	432,719	486,985	550,506	620,300	685,900	2.5	2.2
Indonesia	92,871	109,189	125,855	144,552	168,050	3.1	2.9
Iran	20,762	23,261	26,310	29,828	33,736	2.4	2.5
Japan	93,210	97,523	101,465	106,174	111,064	0.8	0.9
Pakistan	99,975	113,360	128,840	147,370	169,720	2.6	2.8
Philippines	27,410	32,345	38,493	46,157	55,990	3.4	3.8
Republic of Korea	25,037	28,810	32,849	37,450	42,830	2.8	2.7
Thailand	26,990	31,777	37,537	44,579	53,291	3.4	3.6

SOURCES: estimates for China (mainland) and Japan from *World Population Prospects, As Assessed in 1963* (United Nations publication, Sales No. 66.XIII. 2). Estimates for the other countries were derived or obtained from the following: Burma, Census Department, "Population projections for Burma, 1961-1975" (Rangoon, July 1963), with extrapolations made by the United Nations for 1960 and 1980; India, Indian Planning Commission, revised official projections for India, 1961-1981, medium series, prepared by a working group of the Commission; Indonesia, University of Indonesia, National Institute of Economic Research, Faculty of Economics, projections for 1961-1981; Iran, Statistical Section, Plan Organization, "Population growth in Iran", by M. Setoudeh Zand (Teheran, October 1964); Pakistan, Planning Commission, Perspective Planning Section, *Population projections for Pakistan* (Karachi, November 1963); Philippines, National Economic Council, projections (medium series) adopted by the Committee on Demography (Manila, September 1963); Republic of Korea, Economic Planning Board, Bureau of Statistics, *New Population Projections for Korea, 1960-2000* (Seoul, August 1964); Thailand, country statement to the 1963 Asian Population Conference, projection assuming constant fertility and moderate mortality decline.

Table 2. Estimates of the labour force in selected Asian countries, 1960-1980
(In thousands)

Country	1960	1965	1970	1975	1980
Burma	8,407	9,228	10,141	11,117	12,202
China (mainland)	374,000	400,000	427,000	455,000	485,000
India	187,650	206,547	230,929	261,021	296,200
Indonesia	32,594	36,988	43,227	50,870	58,979
Iran	6,629	7,324	8,161	9,146	10,384
Japan	44,158	49,044	53,106	55,212	57,792
Pakistan	32,058	35,285	39,520	44,183	48,773
Philippines	10,261	11,943	13,986	16,417	19,246
Republic of Korea	8,964	10,190	11,719	13,723	15,969
Thailand	13,788	15,911	18,582	21,798	25,628

Population and labour force growth in selected Latin American countries

J. VAN DEN BOOMEN

1. Trends in labour force supply, are, to a great extent, the result of population growth and changes in its composition, especially in countries with a high rate of increase of population, where the effects of demographic factors on potential supply outweigh, as a rule, those which reflect differing patterns of participation caused by social and economic development. On the other hand, the latter type of evolution can easily be underestimated in the case of the emerging countries, where a process of rapid development and structural changes may induce important changes in the social, economic and cultural determinants of labour force participation.

2. The purpose of this paper is to review some of the recent trends in population and labour force supply for a number of Latin American countries. The scope of such analysis was limited, apart from the restrictions on the size of the paper, by the lack of data of recent censuses. Of the twenty countries traditionally considered to form part of Latin America, that is to say, the eighteen Spanish-speaking republics, Brazil and Haiti, sixteen so far have taken a population census in or after 1960, publishing some of the results obtained. The most important gaps are those resulting from the lack of data on population characteristics on Brazil, which accounts for about one third of the total population of the region, and from the omission of all three Caribbean countries. Moreover, even for many of the remaining countries, very few census results on the economically active population could be obtained. Finally, it should be added that these circumstances, as well as other limitations, did not permit an evaluation of the data discussed below.

3. Although, in order to evaluate the demographic effects of population growth on labour force, probably the most desirable approach would be to analyse the implications of levels and trends of growth components on population change, as regards both size and composition, and labour force supply, the existing information did not justify such an attempt, given the incompleteness of basic statistics and estimates in many Latin American countries. In general, the dominating characteristic of the recent demographic evolution has been, as elsewhere, in most developing countries, the rapid decline of mortality, especially in those countries where levels were still high or moderately high two decades ago. There exists less conclusive and somewhat contradictory evidence about fertility trends; in most countries, fertility, traditionally high, remained most probably more or less stable in the past decades, although in some cases there are indications, if not confirmed, of a slight increase in fertility, while in others a relatively small decline may have taken place. International migrations have not contributed in a significant way to population growth in most countries of the region.

4. For the region as a whole, then, the increase in the average annual rate of growth of about 2.3 per cent in 1940-1950 to approximately 2.8 per cent in 1950-1960 has been mostly the result of declining mortality, associated with more or less stable levels of fertility. Within the region, growth rates of individual countries show a considerable range of variation (table 1): various of them present rates which are far below or above the average of 2.8 per cent for the whole region. Among the former should be mentioned particularly Uruguay and Argentina in the temperate zone, where both fertility and mortality are similar to those observed in many developed countries; in the remainder of South America, Bolivia and Peru, where mortality levels are probably higher than in the remaining countries of this subregion; and in the Caribbean, Cuba and Haiti, the first with a relatively low fertility and mortality and the second with high fertility and exceptionally high mortality. Especially high rates of growth are found in Venezuela and Costa Rica, owing, of course, to a combination of very high fertility with low mortality.

5. With few exceptions, such as Uruguay and Argentina, labour force supply would have to grow at a rapid or very rapid rate in order to remain ahead of population growth or to

maintain at least the same relation between active and non-active population. Problems in ascertaining a rate of investments and economic growth which would create a demand for labour corresponding to the rapidly increasing supply are well known. In case demand were to stay behind potential labour force supply, owing to the rapid increase of the latter, the marginal components in the labour force, that is, the unemployed and underemployed, would necessarily increase. Little is known, however, about the effects of this type of disequilibrium in actual labour force supply. Theoretically, arguments may be advanced which would either support a contraction or expansion of the supply labour. An increasing labour supply would, according to traditional theory, lower salaries and wages to such an extent that part of the supply would retire from the market; or on terms of Ricardian theory, wages would decrease below subsistence level and the resulting check on population growth would lower supply. On different grounds, it has been argued that, seen from the point of view of family income, a lower salary or wage of the main earner might induce other members to enter into the labour market. For instance, the high participation rates for younger children in low-income countries may be an indication of such a reaction. Similar conclusions might be made in respect to other categories of workers at times considered as marginal. [1] In practice, the importance of these effects would depend on the wage elasticity of labour supply and demand, as well as on the structure of supply and demand itself. The structural changes in countries in the process of development constitute a further complication, which makes it exceedingly difficult to study these effects through time. On the other hand, employment does not need to grow at a same rate as population in order to maintain or increase per capita income if labour productivity is increasing; but such increases will naturally lead, *ceteris paribus,* to a relative decline in demand and, where existing, to a higher excess labour force supply.

[1] The findings of a population survey in the metropolitan area of San Salvador, El Salvador, are interesting in this relation. It was found that in middle-income classes, whose salaries are fairly low, the proportion of working wives was especially high. A possible explanation for this phenomenon is that the earnings of these women, qualified for clerical and other types of more or less skilled work, made it possible to employ low-paid domestic servants to take care of household duties. If this were so, the low income levels of the main family earners might be the cause for an increase in supply of two persons, i.e., the wife and the domestic servant who replaced her in the house.

6. Population growth, as such, cannot, as is well known, be identified with growth of potential labour force supply, given the possible changes in population composition, especially as regards age. Results for the two most recent censuses of eleven Latin American countries suggest that the potential labour force supply increased at a much slower rate than total population, if the proportion of the population in active ages between 15 and 64 years or the dependency ratios can be considered an indicator of the former (table 2). In all these countries, except Argentina, the percentage of children under 15 years, that is to say, the primary group of dependants, increased in the inter-censal period, while the proportions for the older age groups remained fairly stable; only in Argentina (where the age limit was 60 years), did a relatively important increase take place in this group. As a result of this development, dependency ratios in all countries for which data were available have risen and the growth of the population in active ages has remained, in differing degrees, below that of the total population.

7. The most important changes in dependency ratios for the eleven countries are found in Central America proper, excluding Mexico and Panama; but differences within this group were important, varying the increases from 13.2 to 20.6 points. Venezuela occupies, with a 10.3 point increase, an intermediate position between this first group and a second one, which consists of Chile, Ecuador, Mexico and Panama, where the ratio went up between 7.2 and 8.4 points. Argentina is, as mentioned earlier, in a special position, being the only country where the higher ratio in 1960 is owing only to a higher percentage of dependants. [2] The smallest increase in dependency ratios, 2.4 points, was found in Peru, where the censuses are separated by twenty years.

8. The lack of complete data on fertility and mortality, as well as the evaluation of the census results, makes it difficult to attribute these changes to any specific cause. As mentioned previously, decreasing mortality has been the main factor in the demographic evolution of Latin America in recent years. Although mortality levels and trends do not have, by far, an influence on age composition comparable to that of fertility, the differential mortality decline (which implies, as a rule,

[2] It may be that the age distribution of this country was affected to some extent by international migrations and that the changes between 1947 and 1960 are in part the effect of changing patterns in these international movements.

for countries in conditions similar to that of most of the region, an especially marked decrease in infant mortality) may have been of importance. Some evidence in this respect became available when for the eleven countries included in table 2 the percentage increases between the two censuses for the age groups under 15 years of age were related to the percentage decline in infant mortality rates for two periods immediately preceding those censuses; rank correlation coefficient (T) of -0.78 was obtained. [3]

9. The comparison of actual labour force growth with total population growth and that of the population in active ages for eight countries of the region show that, as a rule, the growth of the labour force remained, in most cases, below that of the total population and the persons in active ages (table 3). There are only two exceptions in this respect, Mexico and Nicaragua, where the labour force increased at a similar rate as that of the population in active ages, or even somewhat more. In all remaining countries—excluding Chile, which constitutes a special case—the labour force increased annually between 0.4 and 1.1 per cent less than total population, and between 0.1 and 0.4 per cent less than the population in active ages.

10. In terms of sex-age participation rates, the changing labour force has been the result of various factors (table 4). In the first place, in all six countries for which data are available, activity rates in the extreme age groups, especially the younger ones for males, decreased considerably. In the second place, the female labour force (although in some of the countries, the participation rates for younger and older age groups also exhibited a certain decrease) increased, except for Chile, at a higher rate than the population in active ages and, in some cases, even more so than the total population. In Chile, where the absolute number of active females became smaller, data for the two censuses were probably not comparable. [4] In most of these countries, the increased participation of females did not compensate for the lower activity rates for males, a factor which thus contributed to a lower rate of growth of the active population, in comparison with that of the population in active ages.

11. The ultimate determinants of these changes are various. The best known among them are, of course, the changes in the economic structure of the labour force as manifested by urbanization, as a result of which employment opportunities for the marginal age groups decrease, while those for women become more plentiful. Nevertheless, a preliminary analysis of urban and rural participation rates, be it in few countries and with incomplete data, showed that within each of these areas activity rates also varied, suggesting, moreover, structural changes in employment within the two broad sectors of agriculture and non-agriculture. For instance, in the case of Panama, it was found by using standardization procedures that only about 45 per cent of the change in the global activity rates of males of 10 years and over between 1950 and 1960 could be attributed to changes in urban-rural composition and the age composition in each of the segments; the remainder was the result of differing patterns of participation within these areas (or possibly, to some extent, variations in census procedures).

12. In a wider context, the fact cannot be overlooked, that in Latin America as a whole, the labour force is growing in conditions of disequilibrium as regards productive capacity and productivity. [5] A disequilibrium of such a nature has most probably been one of the factors which has determined labour force trends in the recent past; and, in this sense, they can scarcely be considered only the result of economic growth. The important decrease in activity rates for young and old age groups possibly can be explained only, at least in part, by the excessive labour force supply, while the rapid increase of the female labour force reflects the steadily increasing importance of the tertiary sectors of economy.

[3] Nevertheless, the changes in the proportion of young children in various of the countries were considerably greater than those found in similar quasi-stable population models (where fertility is supposed to remain constant while mortality declines). In this relation, it should be mentioned that two other causes may have contributed to these changes, the first being a possible increase in fertility, which, if recent, would affect especially the proportion of young children; and the second, an improvement in census coverage, which would have been probably most important for young children, this latter group being the most liable to be under-enumerated. Of course, a change of the latter type would be apparent, instead of real.

[4] In fact, data for two other countries, Ecuador and Honduras, were not used because inconsistencies as regards the female labour force for the two most recent censuses were even greater than for Chile.

[5] See, for instance, *The Economic Development of Latin America in the Post-war Period* (United Nations publication, Sales No.: 64.II.G.6), chap. II; and *Towards a Dynamic Development Policy for Latin America* (United Nations publication, Sales No.: 64.II.G.4), chap. I.

Table 1. Latin America: recent trends in population growth

Subregion/ country	*Period*	*Annual rate of growth (percentage)*
Temperate South America		
Argentina [a]	1947-1960	1.7
Chile [a]	1952-1960	2.6
Paraguay [a]	1950-1962	2.6
Uruguay [a b]	1950-1963	1.2
Tropical South America		
Bolivia [c]	1950-1960	2.1
Brazil [a]	1950-1960	3.1
Colombia [c]	1951-1960	2.8
Ecuador [a]	1950-1962	3.0
Peru [b]	1950-1960	2.4
Venezuela	1950-1961	4.0
Central America (mainland)		
Costa Rica [a]	1950-1963	4.0
El Salvador	1950-1961	2.8
Guatemala [a]	1950-1964	3.1
Honduras	1950-1961	3.0
Mexico	1950-1960	3.1
Nicaragua [a]	1950-1963	2.9
Panama [d]	1950-1960	2.9
Caribbean		
Cuba [c]	1953-1960	2.1
Dominican Republic [c]	1950-1960	3.5
Haiti [c]	1950-1960	2.1

[a] Provisional results of most recent census.

[b] No census taken in 1950; estimates for that year were taken from *Statistical Bulletin for Latin America,* vol. I, No. 1 (United Nations publication, Sales No.: 64.II.G.9), table 3.

[c] No census taken in 1960 or after; estimates were taken from *Statistical Bulletin for Latin America,* vol. I, No. 1 (United Nations publication, Sales No.: 64.II.G.9), table 3. In order to ensure consistency, in these cases adjusted results of earlier censuses, as shown in the same source, were used.

[d] Includes indigenous population.

Tables 2, 3 and 4 follow on pages 262 and 263

Table 2. Latin America: Changes in dependency ratios of selected countries in recent intercensal periods

Country	Year	Percentage of total population			Dependency ratio [a]
		0-14	15-64	65 and over	
Argentine [b]	1947	30.8	62.6	6.6	59.7
	1960	30.6	60.4	9.0	65.6
Chile	1952	37.6	58.4	4.0	71.2
	1960	39.8	55.9	4.3	78.9
Costa Rica	1950	42.9	54.1	3.0	84.8
	1963	47.6	49.2	3.2	103.3
Ecuador	1950	42.5	53.9	3.6	85.5
	1962	45.1	51.6	3.3	93.8
El Salvador	1950	41.2	55.7	3.1	79.5
	1961	44.8	51.9	3.3	92.7
Honduras	1950	40.6	55.5	3.9	80.2
	1961	47.8	49.8	2.4	100.8
Mexico	1950	41.8	54.7	3.5	82.8
	1960	44.4	52.2	3.4	91.2
Nicaragua	1950	43.2	53.9	2.9	85.5
	1963	48.3	48.8	2.9	104.9
Panama	1950	41.4	55.3	3.3	80.8
	1960	43.2	53.2	3.6	88.0
Peru	1940	42.1	53.6	4.3	86.6
	1961	43.3	52.9	3.8	89.0
Venezuela	1950	42.0	55.4	2.6	80.5
	1961	44.8	52.4	2.8	90.8

[a] Persons in non-active ages (under 15 years and 65 years and over) for each 100 in active ages (15 to 64 years).
[b] The classes are: 0-14, 15-59 and 60 years and over.

Table 3. Latin America: growth of total population, population in active ages and labour force, by sex, of selected countries in recent intercensal periods

Country	Period	Average annual rate of growth (Percentage)				
		Total population	Population in active ages [a]	Total	Males	Females
Argentina	1947-1960	1.7	1.5	1.2	0.9	2.1
Chile	1952-1960	2.6	2.1	1.1	1.5	— 0.2
Costa Rica	1950-1963	4.0	3.3	2.9	2.9	3.4
El Salvador	1950-1951	2.8	2.2	2.0	1.8	2.8
Mexico	1950-1961	3.1	2.5	3.0	2.5	5.9
Nicaragua	1950-1963	2.9	2.1	2.5	1.8	5.7
Panama	1950-1960	2.9	2.6	2.5	2.3	3.2
Venezuela	1950-1961	4.0	3.6	3.4	3.3	3.9

[a] Persons between 15 and 64 years, and 15-59 years in the case of Argentina.

Table 4. Latin America: Participation rates, by sex and age, selected countries, 1950 and 1960 approximately

Country	Year	Sex	Participation rates							
			Under 15	15-19	20-24	25-34	35-44	45-54	55-64	65 and over
Argentina [a] ...	1947	M			83.3		97.5		82.9	
		F			29.9		21.3		13.4	
	1960	M			84.7		96.6		63.1	
		F			34.4		23.1		11.1	
Chile [b]	1952	M		66.2		93.8	97.2		91.6	70.2
		F		28.4		33.1	27.7		23.8	13.3
	1960	M		63.6		95.1	97.7		87.3	52.0
		F		23.6		30.2	22.8		17.9	7.1
Costa Rica	1950	M	51.9	91.1	96.7	98.4	98.6	97.6	94.8	74.0
		F	5.8	22.5	22.6	17.2	15.7	13.3	9.1	5.6
	1963	M	33.5	78.5	94.0	97.9	98.3	97.7	93.2	61.9
		F	5.0	21.5	23.6	20.8	17.8	14.2	9.9	3.9
El Salvador ...	1950	M	37.9	88.9	95.6	97.1	97.5	95.4	95.4	82.4
		F	7.9	20.7	20.9	17.4	17.3	15.9	13.5	10.6
	1961	M	29.2	78.0	94.0	97.6	97.8	97.4	95.3	77.9
		F	5.4	20.3	23.6	21.2	18.2	16.8	14.3	9.9
Nicaragua	1950	M		89.6	96.8	98.1	98.6	98.5	97.4	86.5
		F		14.9	16.3	14.6	14.3	13.8	13.3	8.9
	1963	M		76.9	93.4	97.7	97.6	97.3	93.4	70.8
		F								
Panama	1950	M	17.4	68.3	94.8	97.8	98.2	97.1	89.2	70.0
		F	5.3	23.4	29.6	25.2	24.6	20.8	14.8	8.3
	1960	M	14.3	63.2	92.3	96.7	97.0	95.6	87.2	57.8
		F	3.8	23.5	31.2	28.0	27.1	24.4	15.4	6.6

[a] Age groups: 14-29, 30-49 and 50 years and over.
[d] Age groups: 15-19, 20-29, 30-44, 45-64 and 65 years and over.

The demographic aspects of unemployment and underemployment in Latin America

JUAN C. ELIZAGA

INTRODUCTION

1. Various symptoms of underemployment are to be observed in the countries of Latin America, such as low productivity on the part of the labour force, a high proportion of urban workers self-employed in activities with a low income return and the predominance, in some areas, of subsistence agriculture.

2. In the following pages, underemployment is understood in its fullest concept. Within it are included all the situations of both visible and disguised underemployment, as defined by the International Labour Office (ILO) [1]. As a result, the self-employed worker is taken into consideration along with the salaried worker, and underemployment can be the result of part-time work (visible underemployment) or of an abnormally low income (disguised underemployment).

UNEMPLOYMENT AND UNDEREMPLOYMENT IN THE AGRICULTURAL LABOUR FORCE

The density and rate of growth of working population

3. As a result of the difficulties in measuring agricultural unemployment and underemployment, or simply as a result of the lack of direct information, it becomes inevitable that indirect estimates must be made. One estimate calculates product per agricultural worker; another compares a computation of the potential capacity of the labour force with a computation of its effective utilization based on the number of working days required per unit of land (or production).

4. A low product on the part of the agricultural worker is, generally, a clear indication of chronic underemployment, probably in the form of disguised unemployment. From another point of view, if the agricultural worker has insufficient resources—land etc.—to keep all the economically active members of his family fully occupied, then it is probable that an important proportion of the capacity of the labour force will remain unused.

5. Both the density and the rate of growth of the active agricultural population play important roles in the utilization of this labour force, even in countries with a low geographical density such as those of Latin America, because, while there are extensive uninhabited regions (mountains, forests, deserts and insalubrious areas), there are other regions with a relatively high density of workers per cultivated hectare. If the average number of workers per hectare of cultivated agriculture should be low, this would not disprove the fact that an important proportion of these work only a small piece of land. Figures obtained in Colombia in 1951 showed that one-seventh of the agricultural farms were of less than one hectare, and one third of the farms were of less than two hectares. It is believed that the working of an area of less than two hectares is not economically sound, because such an area cannot absorb the total capacity of the worker together with the other active members of the family, unless the cultivation is of an intensive nature [2].

6. Conditions in the other Latin American countries seem to be similar to those of Colombia. According to the agricultural censuses taken about 1960, 47 per cent of the farms being worked in El Salvador were of less than 1.42 hectares; 28 per cent of those in Brazil were less than two hectares; and 20 per cent of those of Panama were also less than two hectares. This situation is to be compared with that in the United States of America, where only 6.5 per cent of the farms being worked were less than 4.05 hectares (ten acres).

7. Agricultural production per worker in Latin America for the period 1955-1961 was estimated to be $390 per annum. Production

[1] International Labour Office, *Measurement of Underemployment*, Report IV, Ninth International Conference of Labour Statisticians, Geneva (1957).

[2] A calculation of the annual average sum of human labour per hectare under cultivation in Colombia was seventy-three working days. See *The Economic Development of Colombia* (United Nations publication, Sales No.: 57.II.G.3).

for the individual corresponding to all activities was $880.[3] According to the figures published by Food and Agricultural Organization (FAO),[4] $390 is much lower than the corresponding figure in developed countries during the same period.

8. It is not possible to say that the low product per agricultural worker is totally due to unemployment and underemployment. It is the result also, perhaps to a more important extent, of the lack of technical resources, of the low educational level of the worker and of the low purchasing capacity of the internal market. This lack of technical knowledge and resources is to be seen in the high proportion of the labour force that is required in the countries of the region to produce one unit of production. In fact, productivity is usually fifteen or thirty times lower than that of the United States of America.

9. Nevertheless, low productivity per hour worked or hectare cultivated should not hide the fact that an important part of the productive capacity of the labour force is wasted through lack of resources. A study carried out in Colombia in 1953[5] on the labour used in the seventeen principal crops and land under livestock, showed an average of 216 working days per worker. This figure represents 90 per cent of the average potential capacity (239 working days) and only 70 per cent of the maximum potential capacity (281 working days). This partial use of labour capacity is reflected, for example, in productivity per cultivated hectare.

10. In most of the countries of the region, the rate of growth of the population (about 3 per cent) makes the creation of productive employment for all difficult, especially as a result of the fact that material resources have a lower rate of increase.[6] The annual rate of growth of income per inhabitant during the last ten years can be estimated as 1 per cent.

UNEMPLOYMENT AND UNDEREMPLOYMENT IN THE NON-AGRICULTURAL LABOUR FORCE

Differences by sex, age and migration status

11. Unemployment among young workers of both sexes is greater. Most of the unemployment among young workers can be explained by various factors related to their adaptation to their economic environment. In the first place, some of these unemployed persons are seeking their first job. Others have not yet obtained steady employment. Many probably are not the principal supporters of a family, but live on the family income while they seek employment suitable to their hopes and capacity.

12. The unemployment differential by sex is more difficult to explain. Probably it depends chiefly on the conditions of the labour market and the opportunities of access by the women to the same activities and functions of the man. It can be assumed that a differential study by sex should cover, apart from unemployment, the different types of underemployment. The surveys carried out in Puerto Rico do not show any notable differences between male and female non-agricultural unemployment. In the following table is shown the distribution, for 100 workers, of the unemployed and underemployed.

Table 1. Non-agricultural labour force[a]
(Per 100 workers)

	Men	*Women*
Unemployed[b]	11	10
Employed full-time	74	72
Underemployed[c]	11	9
Others (with employment but not working)	4	9

SOURCE: United States Bureau of Labour Statistics, *Full Employment and Underemployment in Puerto Rico* (January 1959 to January 1961), Special Report No. 27 on the labour force.

[a] Average of 1960.

[b] Includes those seeking work for the first time.

[c] Persons working less than thirty-five hours a week for a salary or a wage who wanted to work more hours, and self-employed persons (other than subsistence farmers), irrespective of the number of hours worked, who wanted to work more hours.

13. Similar information was obtained from the in-migration survey carried out in Greater Santiago (Chile) about June 1962.[7] The most outstanding characteristic of female employment, besides its lower rate of unemployment, is the higher proportion of part-time workers, especially among the native population of the area under survey (14.3 female as against 6.6 male). A detailed tabulation by age shows that female underemployment is very strong after 40 years of age, perhaps by over 20 per cent.

[3] *The Economic Development of Latin America in the Post-war Period* (United Nations publication, Sales No.: 64.II.G.6).

[4] Food and Agricultural Organization (FAO), *Conditions of World Agriculture and Nutrition in 1963* (Rome, 1963).

[5] See foot-note 2.

[6] United Nations Economic Commission for Latin America, "Dynamics of the Latin American development", tenth session (United Nations document E/CN.12/680), pp. 30-32.

[7] Latin American Demographic Centre, *Survey on Immigration in Greater Santiago*, General Report, provisional edition (Santiago, 1964).

14. With regard to full-time workers seeking employment, the proportion was higher among the men. In the following table, such workers are taken to be underemployed, because this category in the case of Santiago includes both full-time salaried and self-employed workers seeking employment:

Table 2. Labour force of Greater Santiago (Chile)
(Per 100 workers)

	In-migrants of the period 1952-1962		*Natives*	
	Men	*Women*	*Men*	*Women*
Unemployed	5.4	1.3	6.0	1.6
Employed full-time and not seeking work	76.4	83.9	73.9	74.3
Underemployed:	16.8	13.5	17.5	22.0
Full-time (seeking work).	(11.8)	(7.5)	(10.9)	(7.7)
Part-time work (less than 35 hours per week)....	(5.0)	(6.0)	(6.6)	(14.3)
Others (including those with employment but not working)	1.4	1.3	2.6	2.1

15. The age group 15-24 years is of special interest; 72 per cent of the persons within this age group are employed full-time and are not looking for work, whether in-migrants or natives. Underemployment among part-time native workers (7.8 per cent) is double that among in-migrants (3.5 per cent), but, at the same time, the proportion seeking employment is higher among the latter (15.8 per cent as against 11.6 per cent). It is probable that these in-migrants are in a much poorer position than the natives to be able to withstand unemployment or part-time work (for example, through lack to steady family support), but, for the same reason, their conditions of work are worse and they attempt to change them more frequently.

The level of income as evidence of underemployment

16. In 1961, ten Latin American countries showed an average real income per head of less than $320. Furthermore, in every country, income is very unevenly distributed so that an even smaller income must be allocated to a large proportion of the population. In Venezuela, for instance, where the average income was above the average for the whole region, it was estimated that 45 per cent of the population had an income of less than $150. The same would be said for 55 per cent of the population of Mexico.[8] Generalizing, on the basis of the information available, it could be said that in 1961 more than half the population of Latin America received an annual income of less than $150. From this last figure it is possible to estimate that a similar proportion of workers was receiving, approximately, salaries or earnings of less than $450.

17. Perhaps the qualification of an abnormally low income should be considered within the income structure of the population of every country in particular. It should vary according to the class of worker and according to the level of skill. It is probably more easily obtained with respect to urban workers, because their incomes are better represented and determined in monetary terms and, generally speaking, there do exist for these workers standards which establish socially acceptable minimum amounts for various categories of workers and occupations.

18. A study based on a survey carried out in Greater Santiago in June 1958 on employment and unemployment provides information on the income situation of the workers.[9] Incomes of 40 and 20 escudos are taken as points of reference as the minimum monthly earning in force at the time of the study for employees and wage-earners respectively. The results are the following:

[8] *The Economic Development of Latin America in the Post-war Period* (United Nations publication, Sales No.: 64.II.G.6).

[9] Rudolf C. Blitz, *Some Characteristics of Age, Education and Income of the Labour Force: Greater Santiago, Valparaiso, Viña del Mar* (Santiago, Economic Institute of the University of Chile, 1962).

Table 3. Income status

Income (monthly)	Status			
		Salaried workers		
	Self-employed	Employees (non-manual)	Wage earners (manual)	Domestic servants
	(Percentage)			
Less than 20 escudos: [a]				
Men	23	3	26	–
Women	57	14	57	99 [b]
Less than 40 escudos:				
Men	49	20	68	–
Women	77	39	88	100 [b]

[a] Approximately $20 in 1958.
[b] This does not take into account women workers without information on income.

19. This is to say that about 25 per cent of male workers, self-employed and receiving a salary for manual work, were receiving in 1958 an income lower than the legal minimum salary; 57 per cent of women workers of the same status were in the same situation. On the other hand, non-manual salaried workers who received incomes of less than 40 escudos, that is to say, an amount near to the legal minimum for that category, were 20 per cent (men) and 39 per cent (women).

20. The differences between male and female income do not result from the educational factor, as the standard of education is practically the same for both sexes within each category; seven years on average, for a self-employed worker, 9.5 to 9.8 for a non-manual salaried employee and 4.8 for a manual salaried worker.

Characteristics of the family and its probable relation to unemployment and underemployment

21. In a study carried out in Puerto Rico by the Committee on Human Resources, information is given relating to family characteristics, unemployment and income.[10] This study shows that most of the unemployed were from families with more than one salaried member, and that one out every three unemployed was the head of a family. It is probable that families with more than one source of potential personal income are in a better situation, relatively speaking, to allow one or more of their adult members to continue unemployed while seeking employment in accordance with their hopes and capacity. This conclusion would seem to be confirmed by the fact that families with unemployed members had an income over the average.

22. The non-existence of unemployed members is not associated, in the majority of families, with a better occupational situation, but to the contrary, and 14 per cent of these families had not working members and live on an unearned income. In 30 per cent there were only part-time workers, who did not seek employment when out of work, including an important number of self-employed workers.

[10] Puerto Rico, Committee on Human Resources, *Unemployment, Family Income and the Standard of Living in Puerto Rico* (1959).

Past trends and future prospects of changes in structure of population and labour force in the Middle East

A. M. N. EL-SHAFEI

1. The population structure in the Middle Eastern countries in undergoing significant changes, especially after the Second World War, which initiated many economic, social and political developments in all these countries. Consequently, the structure of the labour force or the economically active population has been changing and is expected to change more vigorously in the future. Many of these countries have won their political independence, or remodelled it, since 1940; and rich natural resources have been discovered and highly developed during this period. This has changed the economic and social picture very considerably and is bound to produce further changes in the future.

2. In this paper, attention is confined to the area composed of the ten Arab countries, namely: Libya, the Sudan and the United Arab Republic in Africa, together with Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Syria and Yemen in Asia. These ten countries constitute what is usually referred to as the Middle East in one or more of the United Nations geographical divisions of the world. Moreover, being all Arab countries, they have very much in common, which makes them constitute a group of their own, especially from the demographic point of view. Admittedly, there are some variations in the degrees of social and economic development in these countries, but the cultural and traditional set-up is almost the same in all of them.

3. Unfortunately, however, there are many gaps in the demographic data available for these countries. Only in the United Arab Republic does one find fairly detailed tabulations of several population censuses (eight censuses taken between 1882 and 1960). Iraq, Kuwait and Libya each has two recent censuses. Syria and Jordan have published fairly detailed tabulations for their censuses, which were taken in 1960 and 1961, respectively. The Sudan population census was taken on a sample basis in 1956, and the tables published do not give many details on the age distribution or on the economic activity of the population. The remaining three countries have not taken or published any censuses so far.

4. In studying the trend of the changes in the structure of the population and labour force in these ten countries, we shall concentrate on broad age groups, 0-14, 15-64 and 65 years and over, more than on the more detailed quinquennial or individual year groups, since the accuracy of age reporting in the early censuses of each country is not very high, as is clearly shown by many irregularities and heapings observed in the age distributions published in these censuses. Table 1 gives the

Table 1. Age distribution in some of the Middle Eastern Arab countries

(Percentage)

Age groups	*Iraq 1957*	*Jordan 1961*	*Kuwait, 1957*		*Libya 1956*	*Syria 1960*	*United Arab Republic 1960*
			Kuwaiti	*Non-Kuwaiti*			
0-14	44.9	45.3	43.8	16.3	38.4	46.3	42.8
15-19	7.9	10.8	8.9	7.8	8.6	8.4	8.3
20-24	6.3	8.2	8.2	19.8	8.3	7.5	6.9
25-34	13.5	12.3	14.2	32.6	15.0	13.3	13.7
35-44	9.7	8.1	10.0	14.3	9.9	8.8	11.5
45-54	7.2	5.6	7.0	6.5	8.0	6.3	8.2
55-64	5.4	5.3	4.2	1.8	5.6	4.6	5.1
65-	5.1	4.4	3.7	0.9	6.2	4.8	3.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
15-64	50.0	50.3	52.4	82.8	55.4	48.9	53.7

percentage age distributions shown by the census tables in some of the countries in question. It should be noted that two age distributions, Kuwaiti and non-Kuwaiti, have been given for Kuwait in 1957, because there are two very distinct populations in Kuwait, namely, Kuwaiti population, and the immigrants, or non-Kuwaiti population, who constituted 46 per cent of the total population of Kuwait in 1957 and 50 per cent in 1961.

5. Except for the non-Kuwaiti population, the percentage age distribution given for Kuwait in table 1 may be taken to represent either of the sexes reasonably well, since the actual differences shown by the census tables cannot be taken to be significant, because of the errors in age reporting and the bias against the reporting of females. Similarly, the sex ratio in all these countries varies within very narrow limits about 50 per cent. Furthermore, the age groups 0-14 and 15-64 years contain approximately the same proportions of the population in all these countries, again with the exception of the immigrants in Kuwait. This shows that, within the limits of the accuracy of age reporting in these countries, the age-sex structure of these populations is practically the same in all of them.

6. All of these populations have a high percentage in the age group 0-14 years, viz, 40-45 per cent, which is very characteristic in the developing countries, as compared with 20-30 per cent in the developed countries, like those of western Europe or in the United States of America and Canada. This reduces the size of the productive portion of the population (aged 15-64) to about 50-55 per cent, as compared with 65-70 per cent in the developed countries. This means a heavy dependency ratio, which acts as a brake on progress and development.

7. As regards the structure of the labour force or the economically active population in these countries, the available figures suffer from a lack of uniformity of definition: from place to place and from time to time in the same place. Table 2 gives the activity or participation rates for the different age groups in some of these countries, as calculated from the published data. These rates are reasonably comparable; but the data for Libya and the Sudan differ very much in grouping and the definitions used, especially with respect to the female population and their activity rates. The situation is similar with regard to the female workers in the United Arab Republic in 1937.

8. It is clear from table 2 that the participation rates for women are very low, with the exception of the immigrant women in Kuwait. The pattern of female participation rates is approximately the same for Jordan and the United Arab Republic, while those for Kuwaiti women are much lower, and those for Syria are definitely higher. Women's participation in the economic activity is lagging and it will take a long time to reach the levels of the developed countries of western Europe and of the United

Table 2. Participation rates for different age groups in some of the Middle Eastern Arab countries
(Percentage)

Age groups	*Iraq* [a] *1957*	*Jordan* [a] *1961*	*Kuwait, 1957* [a]		*Syria 1960*	*United Arab Republic 1960*
			Kuwaiti	*Non-Kuwaiti*		
			Males			
15-19	71.7	51.9	50.3	92.6	61.2	68.0
20-24	88.6	89.2	91.1	99.5	82.5	85.3
25-34	95.3	94.5	98.4	99.9	88.8	95.8
35-44	95.8	95.0	99.2	100.0	88.8	97.2
45-54	94.3	92.9	100.0	100.0	84.7	96.3
55-64	89.9	83.1	100.0	100.0	73.0	89.1
15-64	90.0	81.5	90.0	99.0	81.2	89.7
			Females			
15-19	3.2	4.8	0.8	10.8	11.2	8.5
20-24	3.6	6.9	1.2	19.4	8.2	7.1
25-34	2.8	4.7	0.9	15.9	7.0	4.4
35-44	2.6	4.3	1.4	14.4	6.2	4.4
45-54	2.9	4.0	2.3	18.6	5.1	4.3
55-64	5.5	3.1	2.5	16.0	3.3	3.2
15-64	3.2	4.6	1.2	15.8	7.2	5.2

[a] For the age groups 25-34, 35-44, 45-54 and 55-64, read 25-29, 30-39, 40-49 and 50-59, respectively.

States of America participation. This will be accelerated by the spread of education among the female population and the increase in economic opportunities for women, as is shown by the high participation rates of the immigrant women in Kuwait. Custom and tradition are still a hindrance to women's participation in economic activity in the Arab countries; and these can only be overcome by better education and the increased ability to earn a higher income. The participation of women in industry and commerce must depend on the degree of industrialization and the development of commerce and the allied services. These developments create work opportunities which attract female labour.

9. As to the size of the female labour force, one may see from the table given above—considering that the sex ratio in all these populations, except the non-Kuwaiti, is approximately 50 per cent—that the proportion of women to the total labour force between the age limits 15-64 years is very small indeed: 28 per cent. This leaves much to be achieved before women's participation in the labour force reaches the levels attained in the developed countries.

10. There is certainly a (negative) correlation between fertility levels and activity rates for women. There is also a (negative) correlation between fertility and education levels among women, and also a (positive) correlation between activity rates and level of education for women. Whereas it is not yet settled whether a woman's participation in economic activity reduces her fertility or whether her low fertility enables or induces her to go to work, it has been clearly shown that a woman's education—which almost always precedes her marriage in time—reduces the number of children ever born to her and also increases her chances of employment, thus raising the activity rate among the educated women.[1] It is therefore obvious that women's education lowers the fertility and raises the activity rates—and their income levels—at the same time.

11. As regards the male portion of the labour force, table 2 shows that the highest participation rate—99 per cent—is prevailing among the immigrants in Kuwait, and this is followed by the Kuwaiti males themselves (many of them naturalized immigrants) whose rate is 90 per cent, and also by Iraq and the United Arab Republic. Jordan and Syria have the same activity rate of 81 per cent for all the males aged 15-64 years. The general pattern for activity rates in the several age groups is approximately the same for Iraq, natives of Kuwait and the United Arab Republic, with only one exception, viz, the group 15-19 years, which shows some variation between the three countries—probably due to schooling. For Jordan and Syria, the rates are lower than those for Iraq, natives of Kuwait and the United Arab Republic.

12. It is to be noted that the birth rates in these countries are approximately the same—about 45 per thousand population. It is not likely to rise, but it is more likely to stay at this level for a short period—ten years at most—and will decrease with the spread of education for all the children, which is now the recognized policy by all the Governments. The demand for good education is very keen among all classes of people, and for both sexes equally almost all the ten Governments have adopted compulsory education up to age 12. Furthermore, several of them provide free or subsidized schooling at the secondary and university levels for both sexes alike. This will reduce the participation rates for the age group 15-19 years. The continued improvement in health conditions will reduce infantile mortality, and thus increase the size of the dependent or low-productivity age groups, viz, 0-14 years and 65 years and over.

13. The size of the age group 0-14 years in the United Arab Republic has changed from 39.1 per cent in 1937 to 42.8 per cent in 1960. This is owing to the improvement of health conditions, especially in the field of child and maternity care. There are no data relating to the age distribution in the other Arab countries before 1947, but it is almost certain that a similar change has taken place in all the countries because of the general improvement in health conditions. This trend is very likely to continue for a time, until the spread of women's education and the development of industry and commerce, and the consequent rise in women's employment, reduce fertility.

14. As to the kind of economic activity and the occupational structure of the labour force, it is clear from the recent censuses and the other statistics currently available that agriculture employs the largest portion of the labour force—between 50 and 80 per cent in the different countries, with the exception of Kuwait, which has no agriculture. Several of these countries, viz, Iraq, Jordan, Libya, Saudi

[1] See A. M. N. El-Shafei, "Spacing of children born to educated married women in the United Arab Republic", paper in Arabic prepared for the Family Planning Seminar held by the Ministry of Social Affairs in Cairo, 1964.

Arabia, the Sudan, Syria and Yemen, have a large proportion of nomadic population living on pasture. In the United Arab Republic, industry is growing and increasing its share of the labour—from 6.5 per cent in 1947 to 9.5 per cent in 1960. In Syria, a similar, but slower, development is taking place. In Iraq, Kuwait, Libya and Saudi Arabia, where the oil industries are developing rapidly, the change is certainly more pronounced, but there are no census data to measure this change more precisely.

Population and labour force growth in selected African countries

BAHGAT EL-TAWIL and RIAD TABBARAH

I. INTRODUCTION

1. Most countries in Africa, especially among those south of the Sahara, took their first national population census after 1944. Many such censuses suffered from unreliability of basic results, as well as from restricted coverage of topics important for economic and social analyses. Censuses taken since 1955 had generally more reliable results and wider coverage of subjects. Consequently, a picture of population and manpower in Africa is now emerging. However, African demographic data are still inadequate in quality and coverage to permit comprehensive dynamic analyses of population and manpower in the different countries. This is one reason why the discussion in this paper is restricted to only three African countries, where the results are either fairly reliable (Ghana, 1960, and the United Arab Republic, 1960), or where they have been seriously tested and adjusted (Tanganyika,[1] 1957).

II. POPULATION GROWTH

A. *Fertility*

2. The average crude birth rate in Ghana for the period 1955-1960 may be estimated by the reverse-survival method at 51 per 1,000. In Tanganyika, the analysis of the results of the 1957 census of African population led to a number of estimates, the most reliable of which was believed to be 46 per 1,000.[2] In the United Arab Republic, the 1959 and the 1960 recorded crude birth rate for the population residing in health bureau areas was 46.6 per 1,000.[3] However, the rates for health bureau areas seem to overstate the true rates for the entire population.[4] By readjusting for urban-rural ratios, a new series of birth rates is obtained which seems to reflect more adequately the levels and trends of the crude birth rate in the United Arab Republic. It gives crude birth rates of 46 per 1,000 for the periods 1937-1942 and 1942-1947; 47 for 1950-1955, 44 for 1955-1960 and 46 for 1960-1961.

3. The crude birth rates found in Ghana, Tanganyika and the United Arab Republic are close to the average rates that may be found in the western, the eastern and the north African subregions, respectively. Furthermore, these rates are more or less typical of the developing countries of the world and are distinctly higher than those found in western Europe and North America.

4. Recent past trends of the crude birth rate in Tanganyika cannot be determined with any acceptable degree of reliability. It is assumed, however, that the rate has been fairly constant over the past few decades and is expected to rise in the near future.[5] In Ghana, by reverse-survival of the relevant age groups in the 1960 census, crude birth rates of 51 per 1,000 are obtained for 1950-1955 and 1955-1960. No reliable estimates of the crude birth rate in Ghana prior to 1950 are available. Nevertheless, crude birth rates of over 50 per 1,000 were not known to exist in west Africa before 1950, and the possibility that the crude birth rate in Ghana has recently risen should not be excluded.

5. It seems probable that for the few decades prior to the Second World War, no significant changes in the crude birth rate in Egypt took place. There are strong indications, however, that the average crude birth rates for the periods 1945-1960 or 1950-1960 were distinctly higher than those obtained during the fifteen and ten years preceding 1945, and recent estimates of fertility rates in the United Arab Republic indicate that the fertility rate has risen from 172 in 1947 to 190 in 1960.

6. The above arguments suggest that at the early stages of development African countries may experience rising birth rates together with falling death rates. This may be owing to

[1] Now part of the United Republic of Tanzania.

[2] Tanganyika, *African Census Report, 1957* (Dares-Salaam, Government Printer, 1963).

[3] United Arab Republic, *Vital Statistics, 1960*, vol. I (Cairo, Government Press, 1963).

[4] United Nations Economic Commission for Africa, "Fertility, mortality, international migration and population growth" (United Nations document, E/CN.14/ASPP/L.2), p. 6.

[5] Tanganyika, *African Census Report, 1957*.

improved health conditions, which not only reduce the death rate, but also increase the birth rate through reducing the high incidence of fertility-inhibiting diseases and complete or partial female sterility. In projecting African populations, therefore, "high" assumptions should, in most instances, be formulated in terms of constant, rather than rising, fertility and of declining mortality, at least for the short run.

7. In this paper, two assumptions are made in projecting the crude birth rates of each of the three countries in question. For Ghana and Tanganyika, the "high" assumption is that the crude birth rate will rise linearly to 55 per 1,000 by 1975. The corresponding assumption for the United Arab Republic is that the crude birth rate will rise to 50 by 1970 [6] and remain at that level until 1975. The "low" assumption is that the crude birth rate will remain at its current level until 1975, i.e., 51, 46 and 46, respectively, for the three countries.

B. *Mortality*

8. In Ghana, the recorded crude death rate in a compulsory registration urban area was approximately 22 per 1,000 for the period 1956-1959. [7] This may be taken as a lower limit of the rate in the whole country. On the other hand, the latest estimates of the crude death rate in French West Africa indicate average levels for the region of approximately 27 to 29 per 1,000. [8] These averages may be regarded as upper limits of the crude death rate in Ghana, and an average of 24 per 1,000 for the crude death rate in 1960 may, therefore, be estimated.

9. In Tanganyika, a crude death rate of 24-25 per 1,000 was found by the analysts of the 1957 African census returns. [9] It is believed that the rate has been decreasing slightly since 1948, indicating an early stage in the long-run traditional fall in mortality in a developing country.

10. In the United Arab Republic, the adjusted series of crude death rates [10] in health bureau areas indicates an average for 1960-1961 of 19 per 1,000. For the United Arab Republic, such a level of mortality seems to indicate an expectation of life at birth between 47.5 and 50 years.

11. Mortality levels in Ghana and Tanganyika are more or less typical of African countries south of the Sahara, but are significantly higher than those found in other sub-regions of the world. Mortality levels in the United Arab Republic are distinctly lower than those generally found in tropical Africa, but are still sufficiently high to be comparable to levels found in the developing countries of Latin America and south-east Asia. Nevertheless, the trend in African mortality has, since the beginning of the post-war period, been declining.

12. In projecting mortality levels, it will be assumed that for the period 1960 to 1975 a gain of 2.5 years every five years in expectation of life at birth would be realized in all three countries. With the use of the United Nations model life tables, and the projected crude birth rates (see paragraph 7), average rates of population growth were first estimated. By subtracting these rates from the assumed crude birth rates, the average crude death rates for the three five-year periods of 1960-1965, 1965-1970 and 1970-1975 were obtained.

C. *Migration*

13. Little is known about the extent of emigration and immigration in Ghana and Tanganyika. Nevertheless, it is quite evident that international movements of population of temporary or permanent nature, between countries of tropical Africa, are substantial. On balance, it is believed that Ghana is a net immigration country, whereas for Tanganyika net migration does not seem to have played an important role in the over-all growth of the African population. In the United Arab Republic, migration statistics, which are fairly accurate, indicate no significant migration.

D. *Population growth*

14. In Tanganyika, on the basis of the best estimates, the average rate of natural increase for the period 1948-1957 seems to be around 2.2 per cent. [11] Since there seems to have been slight net emigration of Africans from Tanganyika, an average rate of growth of 2 per cent for the African population may be reasonably assumed for that period. For the year 1957, the rate of natural increase of 2.2 per cent will be taken as that of population growth.

[6] A level slightly higher than the average for the post-war period of 1945-1955 for the country as a whole, but lower than that achieved in the same period in urban areas.

[7] *Demographic Yearbook, 1962* (United Nations publication, Sales No.: 63.XIII.1).

[8] France, *Perspectives de population dans les pays africains et malagache d'expression française* (Paris, Ministère de la Coopération, December 1963), p. 23.

[9] Tanganyika, *African Census Report, 1957*, p. 91.

[10] Adjustment by same procedure as in the crude birth rates, given in paragraph 2.

[11] Tanganyika, *African Census Report, 1957*, p. 92.

In Ghana, the estimated rate of natural increase for the period 1948-1966 is 2.7 per cent. In projecting the population of this country, an arbitrary allowance for net immigration of 0.2 per cent will be made. Recent rates of population growth in the United Arab Republic may be obtained from the adjusted birth and death rates of the health bureau areas. The adjusted average rate of natural increase for 1960-1961 was 2.7 per cent.

15. Rates of natural increase found in Ghana and in the United Arab Republic represent a middle range for Africa, while that of Tanganyika is probably on the lower side. Furthermore, the rates of natural increase for all three countries are comparable to those found in the other developing countries of the world, but are distinctly higher than those found in most of western Europe and North America.

16. Projected rates of natural increase and population growth for Ghana, Tanganyika and the United Arab Republic for three five-year periods beginning 1960-1965 were calculated. Two rates of natural increase were obtained for each period. The "high" was obtained after projecting the population by five-year intervals at the mortality level (see paragraph 12) and with the use of the "high" fertility assumption (see paragraph 7). The "low" was obtained by using the same mortality levels with the "low" fertility levels assumed in paragraph 7.[12] The average values of the projected components and the rates of population growth in the three countries, as well as the resulting levels of actual population totals, are given in table 1.

III. Labour force growth

17. Projected relative age distributions of the populations of Ghana, Tanganyika and the United Arab Republic for 1965, 1970 and 1975 are presented in table 2. Following these projections, it seems likely that the age group under 15 years will, in all three countries, gain at the expense of the age group 15-64 years. The relative share of the older age group of 65 years and over would not change considerably. Since the activity rates for the former age group is generally lower than that of the latter age group, a tendency for the crude activity rate to fall will result. Moreover, intensive literacy campaigns and the rapid introduction of universal education will necessarily reduce the level of economic activity among the younger age groups. It also seems possible that, with social advancement, the maximum age of exit from the labour force, at least in the rapidly growing urban centres, will be lowered. In brief, the effects of the two determinants of the crude activity rate, age distribution and participation, are likely to contribute to a declining level of over-all activity. If the above is true, the dependency ratios in African countries will soon be rising.

A. *Crude activity rates*

18. The crude activity rate for both sexes reported for the United Arab Republic is too low to be credible. Its low level is obviously owing to the low activity rate reported for females, i.e., 4.8 per cent.[13] If the average sex-ratio for Algeria, Morocco and Tunisia (about 60 per cent) is applied to the agricultural sector of the United Arab Republic, the female activity rate would be raised from the reported 4.8 per cent to an estimated 23 per cent, and the crude activity rate for both sexes would be raised from 30 per cent to 39 per cent, the crude activity rate for males being 55 per cent. These estimates of labour force participation in economic activity in the United Arab Republic seem to be more reasonable.

19. The crude activity rate for Ghana, 40.5 per cent, seems also to be understated, probably owing to the fact that questions on economic activity were tabulated only for persons aged 15 years and over. Activity rates for the sex-age groups 6-14 years, available for the United Arab Republic, were applied to the relevant sex-age groups in Ghana. As a result, the activity rates in Ghana would be 54 per cent for males, 35 per cent for females and 45 per cent for both sexes. For Tanganyika, manpower data are extremely scanty. A series of adjustments produced estimates of crude activity rate for males of 55 per cent; females, 36 per cent; and both sexes, 45 per cent.

B. *The sex-age activity rates*

20. Table 3 gives the estimated activity rates by broad age groups for males and females in Ghana, Tanganyika and the United Arab Republic. Compared with rates obtained in developed countries, these are higher for the age group under 15 and over 65 years, somewhat higher than in North America but not significantly higher than in western Europe for the age group 15-19 years, and seem to show no genuine difference for the age group 20-64 years.

[12] For Tanganyika, the 1957 population was moved to 1960 by assuming a rate of population growth of 2 per cent between 1957 and 1960 and no change in the relative sex-age distribution.

[13] Based on 1960 Census, International Labour Office, *Year Book of Labour Statistics 1963* (Geneva, 1963).

21. In projecting the sex-age activity rates, allowance should be made for the decreasing activity rates among the younger age groups (under 15 years). The low assumption here is that the male and female activity rates for all three countries will fall linearly to a negligible value by the year 2000. For the age groups between 15 and 64 years, no change will be assumed to take place before 1975. Finally, for the age groups 65 years and over, current western European and North American levels will again be assumed to obtain in the three African countries by the year 2000. A high assumption will also be made if only for data-control purposes. Following this assumption, no change will take place in the sex-age activity rates before the end of 1975.

C. *The future labour force*

22. A number of projections of the labour force of Ghana, Tanganyika and the United Arab Republic may now be made since three projections of the population by age and sex (high, low and average) and two projections of the sex-age activity rates were made. The most likely situation to materialize, in the authors' opinion, is the one obtained by using the average projections of the population and the low projections of activity rates. It is based on the belief that health conditions will continue to improve and that social progress will advance further. The result here will be that population will again grow faster than the labour force in all three countries.

23. The situation results in the labour force and population projections shown in table 1, columns 5 and 6. It is found that between 1960 and 1975 the labour force of Ghana will grow by 43 per cent, while its population will grow by more than 61 per cent. Similarly, the labour force of Tanganyika will grow by 34 per cent, while its population will grow by 46 per cent. Finally, to a labour force growth of 44 per cent in the United Arab Republic will correspond a population increase of 62 per cent. Consequently, activity rates will fall from 45 per cent in 1960 to 40 per cent in 1975 in Ghana, from 45 to 41 per cent in Tanganyika and from 40 to 34 per cent in the United Arab Republic. This means that an average worker in Ghana or the United Arab Republic (whether employed or unemployed) will have over 20 per cent more dependants in 1975 than in 1960, and that in Tanganyika, the dependency ratio will increase by 16 per cent during the same period. Assuming that every aditional dependant would require the same amount of economic goods as the previous one, the average worker in Ghana, Tanganyika and the United Arab Republic, roughly speaking, will have to increase his productivity by 23, 16 and 20 per cent respectively by 1975 to remain at the 1960 level of living.

D. *The sex-age distribution of the labour force*

24. An analysis of the sex-age distribution brings out at least two facts which tend to counterbalance the unfavourable trend of dependency ratios. The fall in the relative size of the age group under 15 years, caused by spreading education and training, tends eventually to raise the productivity of the worker. Furthermore, if the workers under 15 and over 65 years of age are the less productive, then the predicted decline in their relative shares of the labour force should result in raising average productivity. Other demographic and manpower factors will also tend to increase labour productivity. Health improvements, the eradication of productivity-inhibiting diseases and, most important perhaps, the possible structural change in the future industrial and occupational composition of the labour force should have favourable effects.

Tables 1-3 follow on page 276

Table 1. Average projected crude birth rate and crude death rate, rates of natural increase, most likely size of population and labour force, and activity and dependency rates, 1960-1975

	Crude birth rate (per 1,000 population)	*Crude death rate (per 1,000 population)*	*Rate of natural increase (percentage)*	*Population* [a] *(Millions)*	*Labour force* [a] *(Millions)*	*Activity rates*	*Dependency* [b]
Ghana							
1960	51	24	2.7	6.7	3.04	45	1.20
1960-1965	52	23	2.8 [c]	7.8	3.32	43	1.35
1965-1970	52	20	3.2	9.1	3.78	42	1.41
1970-1975	53	19	3.5 [c]	10.8	4.36	40	1.48
Tanganyika							
1960	47	25	2.2	9.3	4.14	45	1.25
1960-1965	48	25	2.3	10.4	4.52	43	1.30
1965-1970	49	23	2.6	11.8	5.00	42	1.36
1970-1975	50	22	2.8	13.6	5.55	41	1.45
United Arab Republic							
1960	46	19	2.7	26.0	10.09	40	1.58
1960-1965	47	17	3.0	30.2	11.28	37	1.68
1965-1970	48	16	3.2	35.5	12.81	36	1.77
1970-1975	48	14	3.4	42.3	14.58	34	1.90

[a] At end of year.
[b] Ratio of inactive to active.
[c] Rounded figure.

Table 2. Projected relative age distribution of the population of Ghana, Tanganyika and the United Arab Republic, 1965, 1970 and 1975

(Percentage)

	Ghana			*Tanganyika*			*United Arab Republic*		
Age group	*1965*	*1970*	*1975*	*1965*	*1970*	*1975*	*1965*	*1970*	*1975*
14 and under	47.4	47.7	48.5	43.1	44.0	44.9	43.8	45.2	47.8
15-64	49.8	50.0	49.3	54.9	53.8	53.0	52.5	51.4	48.7
65 and over	2.8	2.3	2.2	2.0	2.2	2.1	3.7	3.4	3.5

Table 3. Activity rates by sex for broad age groups in 1960

	Age group							
	Under 15		*15-19*		*20-64*		*65 and over*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
Ghana	11	10	62	54	96	58	72	43
Tanganyika	15	15	67	40	93	52	64	40
United Arab Republic	12	10	68	35	90	31	63	23

The lengthening of working life and its implications

STUART GARFINKLE

1. In the United States as in many industrialized countries, there has been a sharp increase in the average length of working life for males. It has not occurred because men work longer. Instead, the opposite is true. Men who lived to age 70 or 75 in 1960 actually spent fewer years in the labour force than they would have if they had lived to that age in 1900. The increase in the average length of working life has come about because men live longer.

2. Economic, social and medical developments have combined to reduce the incidence of death at all ages. The dependent years prior to the beginning of a work career are notably less hazardous than fifty years ago. At that time, many children did not live to reach the productive ages, and yet much of the family and community resources was spent in attempting to rear these children. In the United States, only about seventy-five out of 100 boy babies lived to their twentieth birthday in 1900, compared with ninety-five out of 100 babies in 1960. Under 1900 conditions, fifty out of 100 male babies would have lived to be 70 years of age, compared with seventy-six out of 100 in 1960.

3. These changes have greatly increased the potential productive years for male babies. Under 1900 mortality conditions, about 2.8 million man-year would be generated between the ages of 20 and 65 years by a single cohort of 100,000 babies. In 1960 this figure had risen to 3.6 million, an increase of almost 30 per cent. This increase in the chances of living to and through the prime labour force years has been accompanied by greater emphasis on education and training in the preparation for work life. It is certainly true that much of the need for higher education has resulted from the complexity of modern industrial and commercial practices. It is also worthy of note that emphasis on lengthened education has been accompanied by a reduction in the loss of young lives, so that more of the educated persons can and do become workers. And once having reached the working ages, the chances of living a long and fruitful life are much greater than they used to be.

4. "Tables of working life" were developed in an attempt to sharpen the meaning of these developments [1]—at first, perhaps, simply to develop a measure of the ratio of dependent years to productive years. Recently, with the development of more frequent and more precise measures of economic activity, [2] the tables of working life have been refined and used in a number of different ways to measure various aspects of labour force dynamics (see annex).

5. Tables of working life are based on ordinary life tables and incorporate many life table concepts. The following is a brief description of the meaning of each of the columns shown in a table of working life:

(*a*) Year of age (x to $x + 1$): all of the variables in the table are expressed in terms of the exact birthday (x) or of the interval between successive birthdays (x to $x + 1$), in accordance with standard life table practice;

(*b*) Number living in year of age (L_x): this is the "stationary population" or number of persons who would be living in any age interval under the assumption of 100,000 live births annually, subject throughout life to the specified mortality rates;

(*c*) Percentage of population in labour force in year of age (w_x);

(*d*) Number in labour force in year of age (Lw_x): the "stationary labour force" shows the number in labour force status in each year of age under conditions of labour force participation prevailing in the reference year;

[1] Seymour L. Wolfbein, *The Length of Working Life*, Population Studies (December 1949); United States Bureau of Labor Statistics, *Tables of Working Life for Men, 1950* (Bulletin 1001); United States Bureau of Labor Statistics, *Tables of Working Life for Women, 1950* (Bulletin 1204); other earlier studies were developed by Georgio Mortara, "La durata media della vita" *Rivista Italiano Di Sociologia*, Fasc. IV (July 1908), Fasc. V (October 1908).

[2] Labour force concepts were greatly modified in the 1940 census of population. Prior to 1940, measures of economic activity were crude by comparison. Since 1940, the *Monthly Report on the Labor Force* has been available, and concepts and coverage of the sample used to prepare the monthly estimates have greatly improved.

(*e*) Accessions to labour force (1,000 A_x): this column shows the net accessions to the life table labour force per 1,000 population between successive years of age;

(*f*) Probability of separations due to all causes (1,000 Q_x^s): the probability of separation is defined as the net separations from the life table labour force between successive ages of those in the stationary labour force in the base year;

(*g*) Probability of separations due to death (1,000 Q_x^d);

(*h*) Probability of separations due to retirement (1,000 Q_x^r);

(*i*) Average number of remaining years of life (e_x^o): the total life expectancy function is identical with that shown in the conventional life tables;

(*j*) Average number of remaining years of working life ($e^o w_x$): this function shows the average remaining years of working life for men in the labour force.

Tables of working life for 1960

6. The table of working life begins with a group of 100,000 male babies, and follows them through life until the age when the last person has died. The 1960 tables show that at age 20, 95,374 of the original group are still alive. Death rates between age 20 and age 40 are rather low and at age 40, 91,326 of the original group are still alive. The next twenty years of a man's life are much more hazardous, however, and only 72,588 are expected to be alive at age 60. After age 60, the death rates rise even more rapidly and by age 80, only 23,245 are still alive.

Patterns of working life for 1960

7. The table of working life differs from an ordinary life table. It reflects not only the effects of death on a group of 100,000 males born alive, but also the effects of labour market activities. For example, at age 14, only 15 per cent of the male population are working or looking for work. This proportion rises very rapidly after age 14, particularly at those ages when young men are graduating from or otherwise leaving school. Between ages 16 and 17, 15 per cent of the population begin a work career; and between ages 17 and 18, about 18 per cent begin a work career. The rates of labour force entry drop off very rapidly after the late teens, and after age 30 there are very few men who begin a work career.

8. Labour force participation for men reaches a peak in the early 1930's and remains relatively stable at a level of over 95 per cent until age 50, although declining very slightly between ages 35 and 50. After age 50, the incidence of disabling conditions, the difficulties of finding work among unemployed workers, the availability of public and private pension plans, and other circumstances result in more rapid separations from the labour force.

9. The 1960 patterns of labour force participation show that between ages 50 and 60, the labour force rate declined from 95 to 85 per cent; and between ages 60 and 65, it declined from 85 to 56 per cent. The 1960 table also shows one of the sharpest changes in the work lives of men occurring between the ages of 64 and 65, the age at which Social Security benefits become available without penalty and the age at which many private pension plans provide for compulsory or voluntary retirement. Almost a fourth of the men in the labour force at age 64 retire by the time they are 65 years of age. More recent data would probably show a rise in retirement occurring at age 62 —the age when reduced benefits have been available since 1961. Retirement in 1960 was a more important reason than death for separation from the labour force for several ages older than 65, although the tendency to retire declines very sharply after age 65. The rise in the retirement rate at age 65 does not show the full extent of the reduction in labour force activity at this age. The proportion of employed men who work on part-time schedules increases from 14 to 21 per cent between ages 64 and 65, in part as a result of the availability of Social Security benefits to those over 65 whose earnings do not exceed specified amounts.

The length of working life as of 1960

10. Men in the labour force at age 20 can expect to live an additional fifty years and to work forty-three years, leaving about seven years outside the labour force. At age 40, life expectancy has declined to thirty-one years and work life expectancy to twenty-four, with seven years still expected in retirement. Even at age 60, men can expect to live an additional 15.8 years, on the average, and to work an additional eight and one half years. Because of the very rapid rate of retirement between the sixty-fourth and sixty-fifth year of age, those remaining in the labour force at age 65 actually have a longer work life expectancy than did those in the labour force at age 64.

Work life potential

11. Between 1900 and 1960, the number of man-years of work expected from 100,000

boy and girl babies increased from thirty-two to forty-one years for men; for women, from six to twenty years.

Table 1. Number of man-years of work expected from 100,000 persons born alive
(Millions)

	Men	*Women*
1900	32	6
1940	38	12
1950	42	15
1960	41	20

12. This increase has occurred as a result of the lengthened life expectancy and despite longer schooling prior to a work career and more years in retirement. The work life potential of women has also increased as a result of the trend towards longer life, but this trend has been accelerated by an increased tendency for women to work outside the home. However, work life potential does not reflect the full gain in productive capacity because it does not allow either for the greater education and training of workers or for changing technology. Both of these have combined to increase the productive capacity per worker more than is indicated by the ratio of productive population to total population.

Work life expectancy of men in the labour force

13. Work life expectancy for a man aged 20 years rose from thirty-nine years in 1900 to forty-three years by 1960 largely as a result of longer life expectancy. Retirement as it is known today was relatively uncommon in 1900, and the difference between life expectancy and work life expectancy was only three years. The longer-range effects of the decline in opportunities for self-employment in agricultural, as well as in non-agricultural, industries, the recent availability of public and private pension plans, and the effects of discrimination against older workers in lay-off and hiring practices, are evident from a comparison of 1900 and 1960 working life patterns. For men aged 60 years, life expectancy rose moderately by almost one and one half years, but work life expectancy declined by three years as a result of a long-run trend towards earlier retirement.

Table 2. Average number of remaining years of life in labour force and in retirement for males 1900, 1940, 1950, and 1960

Age and year	*Average number of years remaining*		
	Life expectancy	*Work life expectancy*	*In retirement*
Age 20			
1900	42.2 [a]	39.4	2.8
1960	49.6	42.6	7.0
Age 60			
1900	14.3 [a]	11.5	2.8
1960	15.8	8.5	7.3

[a] For white males in eleven original death registration states of 1900.

Estimating entrants to and separations from the labour force

14. In recent years, concern has been expressed about the increasing number of young people who can be expected to enter the labour force as a result of population growth in the young ages. The number of babies born during and after the Second World War reached phenomenally high levels. These youngsters are now reaching ages when they typically begin a work career. One can observe the effects of this development in the rising number of young people both in the population and in the labour force. Estimates of the gross number of men who can be expected to begin a work career in the years ahead can be made by applying annual labour force accession rates from tables of working life, by age, to the projected population at corresponding ages. Similar approximations can be made for entry into the labour force of women at young ages.[3] These numbers should be regarded as approximations, however, since economic conditions and other considerations may increase or decrease the number of young persons seeking to begin a work career in any one year.

15. At the opposite end of the working life span, the tables of working life provide a mea-

[3] United States Bureau of Labor Statistics, *Tables of Working Life for Women, 1950*, Bulletin 1204.

sure of separation from the labour force resulting from death or retirement. Separation rates from tables of working life provide a basis for measuring expected losses from certain occupations due to death and retirement. These rates applied to the age distribution of workers in specified occupations indicate roughly the number of persons who must be trained in those occupations if the demand for the occupational skills remains unchanged. These estimates assume that separation rates for each age group in the labour force apply to corresponding age groups in each occupation.

Estimates of lifetime job changes

16. Tables of working life have also been adapted to provide an estimate of the number of times a man can be expected to change jobs during his working life, as well as the length of time he can be expected to stay on each job.[4]

17. A recent study of job mobility prepared by the Bureau of Labor Statistics[5] provided data on the number of job changes that were made during 1961 by men in each age group. If it is assumed that the 1961 age patterns of job changing will remain constant, it is possible to estimate the number of job changes (defined as a change of employer) that men at each age can be expected to make during the rest of their working life. If the number of different jobs is divided into the remaining years of work life, it is also possible to derive an estimate of the average length of time that men at each age can be expected to remain on one job.

18. Under conditions prevailing at the beginning of the 1960's, the average 20-year-old man in the work force could be expected to change jobs about six or seven times, and spend about five and one half years on each job during his remaining working life of about forty-three years. Despite their shorter over-all work life expectancy of only twelve years, the length of time that 55-year-old men can be expected to stay on a job is over seven years—one and one half years longer than for young men of 20 years because most workers who change jobs in their fifties can be expected to work on their new job until they die or retire.

International comparisons

19. Tables of working life have been prepared for several countries, using either the same or similar techniques that were used by the Bureau of Labor Statistics. When historical comparisons can be made, such as in the United States, the development from a predominantly agricultural to an industrial economy has been accompanied by a lengthening of life expectancy, of work life expectancy and a lengthening of the period of life spent outside the work force.[6] Similarly, when agricultural and industrialized countries are compared at the same approximate dates, life expectancy, work life expectancy and years outside the labour force are longer in industrialized countries.[7] These changing relationships have many implications for national well-being. The number of years spent in productive work by 100,000 persons born alive, as they live out their lives, increases greatly as sanitation and medical advances reduce death rates at all ages. Usually this type of development accompanies industrialization and the development of advanced technology.

20. Many analysts have measured social and economic development of various countries in terms of some variant of the ratio of productive population to total (productive plus nonproductive) population. A more complete evaluation of this situation should consider that the lengthening of life prior to entry into the work force has made it possible to greatly increase the amount of education and training provided to the work force. And the lengthening of working life has permitted the more intensively trained workers to spend more man-years at work. These two features, coupled with advanced technology, have added greatly to productive capacity. It is, of course, impossible to separate the effects of the greater education and training of the work force from the development of technology in assessing the greater productive capacity of industrialized countries. But any appraisal should not be limited to the increasing ratio of productive to total population. Ideally, it should be possible to synthesize these developments in a single measure of man-years of productive capacity by combining a measure of working life with a measure of the more intensive training of our work force, and/or with a measure of the increasing output per man-year to give more perspective to international comparisons of industrial and social development.

[4] United States Bureau of Labor Statistics, *Job Changing and Manpower Training*, Manpower Report No. 10 (Washington, D.C., 1964).

[5] United States Bureau of Labor Statistics, *Job Mobility in 1961*, Special Labor Force Report No. 35.

[6] S. Wolfbein, *Employment and Unemployment in the United States*, chapter 7.

[7] *Demographic Aspects of Manpower. Report 1: Sex and Age Patterns of Participation in Economic Activities* (United Nations publication, Sales No.: 61.XIII.4).

ANNEX

Table of working life; males, 1960

Year of age (1) x	Number living of 100,000 born alive: In population (2) L_x	In labour force: Number (3) Lw_x	In labour force: Percentage of population (4) w_x	Accessions to the labour force (per 1,000 in population) (5) $1000\ A_x$	Separations from the labour force (per 1,000 in labor force): Due to all causes (6) $1000\ Q_x^a$	Due to death (7) $1000\ Q_x^d$	Due to retirement (8) $1000\ Q_x^r$	Average number of remaining years of: Life (9) e_x^o	Labour force participation (10) $e_x^o\ w_x$
	(In year of age)				(Between years of age)			(At beginning of year of age)	
14	96,102	14,800	15.4	52.0	.9	.9	—	55.2	48.3
15	96,020	19,780	20.6	119.9	1.1	1.1	—	54.2	47.3
16	95,918	31,269	32.6	143.8	1.2	1.2	—	53.3	46.3
17	95,800	45,026	47.0	177.8	1.4	1.4	—	52.3	45.4
18	95,666	61,992	64.8	116.8	1.5	1.5	—	51.4	44.4
19	95,523	73,075	76.5	63.9	1.5	1.6	—	50.5	43.5
20	95,374	79,065	82.9	33.9	1.7	1.7	—	49.6	42.6
21	95,211	82,167	86.3	26.0	1.8	1.8	—	48.6	41.6
22	95,039	84,490	88.9	18.9	1.8	1.8	—	47.7	40.7
23	94,865	86,137	90.8	14.0	1.8	1.8	—	46.8	39.8
24	94,692	87,306	92.2	11.0	1.8	1.8	—	45.9	38.9
25	94,526	88,193	93.3	9.0	1.8	1.8	—	45.0	37.9
26	94,360	88,887	94.2	8.0	1.7	1.7	—	44.1	37.0
27	94,197	89,487	95.0	7.0	1.7	1.7	—	43.1	36.1
28	94,033	89,990	95.7	5.9	1.7	1.7	—	42.2	35.1
29	93,869	90,396	96.3	5.0	1.8	1.8	—	41.3	34.2
30	93,697	90,699	96.8	2.0	1.9	1.9	—	40.4	33.2
31	93,522	90,716	97.0	1.0	1.9	1.9	—	39.4	32.3
32	93,341	90,634	97.1	1.0	2.0	2.0	—	38.5	31.4
33	93,151	90,543	97.2	1.0	2.2	2.2	—	37.6	30.4
34	92,948	90,438	97.3	—	3.4	2.4	1.0	36.7	29.5
35	92,728	90,132	97.2	—	3.6	2.5	1.1	35.7	28.6
36	92,493	89,811	97.1	—	3.8	2.8	1.0	34.8	27.7
37	92,238	89,471	97.0	—	4.0	3.0	1.0	33.9	26.8
38	91,960	89,109	96.9	—	4.3	3.3	1.0	33.0	25.9
39	91,659	88,726	96.8	—	4.7	3.6	1.1	32.1	25.0
40	91,326	88,312	96.7	—	5.0	4.0	1.0	31.2	24.1
41	90,964	87,871	96.6	—	5.4	4.4	1.0	30.3	23.2
42	90,568	87,398	96.5	—	5.9	4.8	1.1	29.5	22.3
43	90,131	86,886	96.4	—	6.3	5.3	1.0	28.6	21.4
44	89,654	86,337	96.3	—	7.1	6.1	1.0	27.7	20.6
45	89,106	85,720	96.2	—	7.5	6.4	1.1	26.9	19.7
46	88,534	85,081	96.1	—	9.2	7.1	2.1	26.0	18.8
47	87,904	84,300	95.9	—	10.0	7.9	2.1	25.2	18.0
48	87,206	83,456	95.7	—	12.0	8.9	3.1	24.4	17.2
49	86,428	82,452	95.4	—	13.8	9.6	4.2	23.6	16.4
50	85,596	81,316	95.0	—	16.4	11.2	5.2	22.8	15.6
51	84,637	79,982	94.5	—	18.6	12.4	6.2	22.1	14.8
52	83,591	78,492	93.9	—	20.8	13.4	7.4	21.3	14.0
53	82,468	76,860	93.2	—	22.8	14.3	8.5	20.6	13.3
54	81,283	75,105	92.4	—	25.1	15.4	9.7	19.9	12.6
55	80,020	73,218	91.5	—	27.0	16.2	10.8	19.2	11.9
56	78,717	71,239	90.5	—	28.3	17.3	11.0	18.5	11.2
57	77,344	69,223	89.5	—	32.1	18.8	13.3	17.8	10.5

ANNEX (*continued*)

Table of working life; males, 1960 (*continued*)

Year of age (1) x	Number living of 100,000 born alive: In population (2) L_x	In labour force: Number (3) Lw_x (In year of age)	In labour force: Percentage of population (4) w_x	Accessions to the labour force (per 1,000 in population) (5) $1000\ A_x$	Separations from the labour force (per 1,000 in labor force): Due to all causes (6) $1000\ Q_x^s$ (Between years of age)	Due to death (7) $1000\ Q_x^d$	Due to retirement (8) $1000\ Q_x^r$	Average number of remaining years of: Life (9) e_x^o (At beginning of year of age)	Labour force participation (10) $c_x^o\ w_x$
58	75,881	67,003	88.3	—	35.2	20.6	14.6	17.1	9.8
59	74,306	64,646	87.0	—	41.1	22.9	18.2	16.4	9.1
60	72,588	61,990	85.4	—	47.8	24.7	23.1	15.8	8.5
61	70,774	59,026	83.4	—	54.0	26.8	27.2	15.2	7.8
62	68,849	55,837	81.1	—	61.8	29.0	32.8	14.6	7.2
63	66,820	52,387	78.4	—	87.3	30.8	56.5	14.0	6.7
64	64,699	47,813	73.9	—	236.7	29.6	234.1	13.4	6.1
65	62,533	35,206	56.3	—	170.1	34.1	136.0	12.8	6.3
66	60,246	29,219	48.5	—	122.5	37.6	84.9	12.3	7.0
67	57,879	25,640	44.3	—	98.4	41.0	57.4	11.8	7.1
68	55,438	23,118	41.7	—	102.6	44.1	58.5	11.2	7.0
69	52,923	20,746	39.2	—	106.4	46.8	59.6	10.7	6.7
70	50,374	18,538	36.8	—	111.7	50.8	60.9	10.2	6.4
71	47,733	16,468	34.5	—	116.5	54.6	61.9	9.8	6.1
72	45,046	14,550	32.3	—	121.5	58.5	63.0	9.3	5.9
73	42,325	12,782	30.2	—	129.7	62.5	67.2	8.8	5.6
74	39,586	11,124	28.1	—	133.6	68.5	65.1	8.4	5.3
75	36,785	9,638	26.2	—	145.2	71.7	73.5	8.0	5.1
76	34,047	8,239	24.2	—	152.3	77.1	75.2	7.5	4.8
77	31,320	6,984	22.3	—	164.1	82.8	81.3	7.1	4.6
78	28,617	5,838	20.4	—	173.3	89.4	83.9	6.7	4.3
79	25,946	4,826	18.6	—	190.8	99.6	91.2	6.3	4.1
80	23,245	3,905	16.8	—	200.8	105.5	95.3	6.0	3.9
81	20,669	3,121	15.1	—	220.4	115.0	105.4	5.6	3.7
82	18,159	2,433	13.4	—	243.3	125.6	117.7	5.3	3.6
83	15,734	1,841	11.7	—	256.9	139.1	117.8	5.0	3.6
84	13,408	1,368	10.2	—	265.4	140.4	125.0	4.7	3.6
85 years and over	55,525	4,386	7.9	—	—	—	—	4.5	3.6

The influence of family-building activity on women's rate of economic activity

MURRAY GENDELL

1. Since women's primary obligations revolve about family-building activities, their participation in economic activity is contingent upon certain conditions: if there are no effective institutional restrictions on their outside employment, if they want to work and if jobs are available in the vicinity, they will work, provided their domestic obligations do not take too much of their time and energy.

2. The nature and degree of domestic obligations are largely determined by the number and age of children. Hence, this paper focuses on the relationship between women's activity rates and the number and age of their offspring.

3. Unfortunately, relevant data are available almost exclusively for a few industrialized countries.[1] The most systematic, comprehensive and reliables sets of these data are those provided in the 1960 census reports in Sweden and in the United States of America. For this reason, these data form the core of the following analysis. Other information, mainly from the same two countries, are also presented in order to provide a more comprehensive account of the nature of the relationship between activity rates and maternal responsibility.

NUMBER OF CHILDREN

4. As early as the 1920's in Sweden, it was found that the activity rate of childless wives was twice as great as the rate for mothers.[2] Similarly, in 1943 a Swedish sample survey indicated that the percentage in full-time employment was 12 per cent for married women without children, 9 per cent for those with one child, 5 per cent for wives with two or three children and 2 per cent for those with four or more children.[3]

5. National data for 1952 show that among Swedish wives with one child under age 16 living at home, the percentage with work experience during the year was almost three times as large (39 per cent) as the percentage among wives with five or more children at home (14 per cent).[4]

6. The most satisfactory Swedish data are available from the 1960 census (see annex II, table A). These also show an inverse correlation between the number of minor children at home and women's activity rate. In husband-wife families, the correlation is strongest among the youngest wives and weakest among the oldest, probably because the youngest women have the youngest children. Among young childless wives the rate is high, and the impact of the arrival of the first child, these data suggest, is very strong. All wives with no minor children at home do not have a higher rate than all wives with one child because the former are much older.

7. In the United States of America also, the most satisfactory data are available from the most recent (1960) census.[5] (See table A.) The patterns observable in these figures are very much like those just noted in the Swedish data, with an inverse correlation stronger at the younger ages. One interesting difference, however, is the higher activity rates of women in the United States, except among childless wives below 35 years of age. The main reason for this difference probably is the difference in the definition of economic activity: the United States criterion (at least one hour of remunerative employment during the reference week) permits more of those employed part-time to be counted as economically active than does the Swedish criterion (gainfully employed

[1] The information which is available for developing countries is either limited in scope or is unreliable or inconsistent. See annex I for an indication of this.

[2] These data refer to low-income husband-wife families in Stockholm. See K. A. Edin and E. P. Hutchinson, *Studies of Differential Fertility in Sweden* (London, King and Sons, Ltd., 1935), pp. 71-74 and p. 96, table *e*.

[3] "Employment of married women and mothers", *International Labour Review*, vol. 63, No. 687 (1951).

[4] E. Dahlström, *et al.*, *Kvinnors liv och arbete* (Stockholm, Studieförbundet Näringsliv och Samhälle, 1962), p. 201.

[5] The earliest pertinent information seems to be from the 1940 census, in which activity rates according to the number of children under 10 years of age living at home were presented. In the 1950 census, however, activity rates were related only to the number of children ever born. At both dates, the value of the data was enhanced by providing breakdowns according to the age of the women.

for at least half of normal working hours during the reference week).[6]

Age of children

8. In Sweden and in the United States, the activity rate of mothers was greater the older the age of the youngest child at home, among both wives living with their husbands and other ever-married women. In both countries, the direct correlation between the activity rate and age of the youngest child at home was stronger among the younger wives.[7]

[6] Data from Chile, Czechoslovakia, France, Federal Republic of Germany and Hungary also indicate a negative correlation between the number of children and women's activity rate. For data on Chile, see L. Tabah and R. Samuel, "Preliminary findings of a survey on fertility and attitudes toward family formation in Santiago, Chile", in *Research in Family Planning*, C. V. Kiser, ed. (Princeton, N.J., Princeton University Press, 1962). For Czechoslovakia, see Z. Jurecek, "Nektere poynatky o ekonomicke cinnosti zen z vysledku scitani lidu", *Statistika* Nos. 8, 9, (1964), p. 351; and also J. Prokopec, "Married women in household and employment, 1961", *Demographie*, Nos. 1, 2 (1963) (English summary and translation of table headings in No. 2). For France, see A. Girard, "Le budget-temps de la femme mariée dans les agglomérations urbaines", *Population*, No. 4 (1958), pp. 591-618; and A. Girard, "Le budget-temps de la femme mariée à la campagne", *Population*, No. 2 (1959), pp. 253-284, as well as the 1964 census, the main (relevant) results of which may be found in M. Guilbert and V. Isambert-Jamati, "La répartition de la main-d'œuvre: la répartition par sexe", in *Traité de sociologie du travail*, G. Friedman and P. Naville, eds., vol. I (Paris, Librairie Armand Colin, 1961). For the Federal Republic of Germany, see E. Pfeil, *Die berufstätigkeit von müttern* (Tübingen, J. C. B. Mohr (Paul Siebeck), 1961), chap. 2. For Hungary, see Kozponti Statistisztikai Hivatal, *A Termekenysegi, Csaladtervezesi Es Szuletesszabalyozasi Vizsgalat Fontosabb Adatai* (Budapest, 1964), p. 89, table 8-3.

[7] The national sample survey data presented in R. K. Kelsall and S. Mitchell, "Married women and employment in England and Wales", *Population Studies*, vol. XIII, No. 1 (1959/60), pp. 19-33, have been reordered in order to obtain activity rates according to the age of the youngest child at home. Except for two deviations, the rate is greater among mothers of all ages the older the age of the youngest child.

Number and age of children

9. At this point the question arises: which is more influential, the number of children or the age of the youngest child? For the first time in the United States, and perhaps anywhere else, reliable data on a national scale were made available in the 1960 census showing the joint effect of these two variables on the activity rate of mothers (see table B).

10. The data clearly indicate that the age of the youngest child has a more depressing effect on the activity rate than the number of children. For example, the rate for wives living with their husbands with only one child below 3 years of age (22 per cent) is less than that for mothers with at least four children at home, the youngest of which is not less than 12 years old (39 per cent). The same is true for other ever-married women.

Further data on the number and age of children

11. From the monthly labour force sample survey conducted March 1962 in the United States, it was learned that, in terms of work experience during 1961, mothers of pre-school age children were most likely to work part-time for part of the year, whereas those with no children under 18 years old at home were most likely to work full-time for the full year. The extreme values were:

Worked during year	*No Children (-18) at home*	*Children 6-17 only*	*Children 3-5 (none -3)*	*Children (-3)*
		(*Percentage*)		
Full-time, 50-52 weeks.....	44	34	27	13
Part-time, 1-26 weeks.....	11	15	22	21

SOURCE: United States Bureau of Labor Statistics, *Special Labor Force Report No. 26* (1963), p. A-17, table O. The Table refers only to wives living with their husbands.

12. Children, especially young ones, obviously require much time and energy for their care. Just how much time is indicated by the results of Alain Girard's interesting studies of the time budgets of married women in urban and rural *milieus* in France.[8]

[8] A. Girard, "Le budget-temps de la femme mariée dans les agglomérations urbaines" and "Le budget-temps de la femme mariée à la campagne", *Population*, No. 4 (1958) and No. 2 (1959).

13. He found that as the number of children increased, the average number of hours a day devoted to child care increased and that the average number of hours of housework per week also increased among all categories of women, but more so among economically active women than among women not active. Correspondingly, the average daily and weekly time given to remunerative employment declined sharply.

14. It is interesting to note that economically active women work (combining job and housework) more hours a week than women not economically active, but the difference is greatest when there are no children at home and least when there are three or more children. This is owing to the fact that, while the number of hours of housework increases sharply for all women as the number of children increases, economically active women compensate for most of this increased domestic demand by cutting down sharply on the number of hours engaged in remunerative employment.

15. Thus, the available cross-sectional data indicate that women's activity rates vary: (*a*) inversely with the number of children living at home; and (*b*) directly with the age of the youngest child at home.

16. It appears, then, that the greater the degree of maternal responsibility, the less likely are women to be economically active at any moment in time. Moreover, when they do work, they are more likely to work only part-time for only part of the year.

Retrospective inquiries: approximations to longitudinal studies

17. As is the case so frequently, the utility of longitudinal data far exceeds their availability; in this instance only their retrospective approximation is available. In conjunction with the census of 1935/36 in Sweden, a retrospective inquiry (of about 20 per cent of all husband-wife families in the country) found a correlation between the wife's work history and her fertility. After standardizing for age and duration of marriage, it was found that about one third of the wives who worked full-time more than half of the time they were married were childless, as compared with about one quarter of those who worked only part-time or occasionally during their marriage and with less than one fifth for wives who never worked during marriage. Similar differences in the average number of children were observed in families with children.[9]

18. More recently in the United States, R. Freedman and his associates have also found an inverse correlation between the length of the wife's work experience and her fertility.[10] The percentage that never worked after marriage increased steadily from 17 per cent of those to whom no children had been born to 43 per cent of those who had given birth to four children.[11] Moreover, there was found to be an association between the spacing of children and the duration of the wife's employment since marriage; particularly among non-Catholics, working wives gave birth at longer intervals.[12]

19. While referring to the work of Freedman and his associates, it is worth mentioning that they have made some progress in unravelling the knotty problem of causation. They have found that, as has so often been conjectured, women with fecundity impairments are more likely to become economically active. But they have also found that even among fecund couples, working wives are more likely to use the most effective contraceptive methods and, consequently, to have fewer children.[13]

20. Thus, the association between fertility and economic activity is accounted for partly by selection and partly by deliberate fertility control,[14] motivated perhaps by the realization that children and economic activity constitute, to a considerable extent, competing demands.

Conclusion

21. Hence, in cultures where wives are permitted, if not encouraged, to take employment outside the home and where birth control is widely practised, economic activity rates clearly are considerably influenced by family-building activities. But in developing countries —i.e., in cultures where contrary conditions tend to prevail—the direct evidence is too meagre to provide a clear indication of the influence of family-building activities. However, the indirect evidence suggests little or no influence in at least the traditional sector of these societies. There, economic activity is largely agricultural or consists of handicrafts, both of which are conducted at home, and

[9] A. Myrdal, *Nation and Family: The Swedish Experiment in Democratic Family and Population Policy* (London, Kegan Paul, Trench, Trubner, 1945), p. 408.

[10] R. Freedman, P. K. Whelpton and A. A. Campbell, *Family Planning, Sterility and Population Growth* (New York, McGraw-Hill, 1959).

[11] Computed from data presented in J. C. Ridley, "Number of children expected in relation to non-familial activities of the wife", *Milbank Memorial Fund Quarterly*, vol. XXXVII (1959), p. 288, table 2.

[12] N. K. Namboodiri, "The wife's work experience and child spacing", *Milbank Memorial Fund Quarterly*, vol. XLII (1964), pp. 65-75. It has been concluded that an exclusive work history affects child-spacing more than total family size. See D. S. Freedman, "The relation of economic status to fertility", *The American Economic Review*, vol. 53 (1963), pp. 416-426.

[13] R. Freedman *et al.*, op. cit., especially pp. 53 and 197-198.

[14] A similar conclusion was arrived at on the basis of a study conducted in the Federal Republic of Germany. See R. Freedman, G. Baumert and M. Bolte, "Expected family size and family size values in West Germany", *Population Studies*, vol. XIII (1959/60), pp. 136-150.

women economically active at home seem to be no less fertile than women not economically active. [15]

22. But what is the situation in the modern sector of the developing countries? Is it the same as in the industrialized world? Unfortunately, this is not known. If one had the answers, one could better judge the relevance of the findings presented in this paper to the future of these countries. As it is, one must be content with the hope that this effort to present what little evidence is available will stimulate others to fill the large gaps in current knowledge, which so obviously exist.

[15] See, for example, A. J. Jaffe and K. Azumi, "The birth rate and cottage industries in underdeveloped countries", *Economic Development and Cultural Change*, vol. IX (1960), pp. 52-63.

ANNEXES

Annex I

What little information is available for developing countries is either limited in scope or is unreliable or inconsistent. For example, in a survey in Poona District, V. M. Dandekar and Kumudini Dandekar, found that among wives working for pay, births were fewer than expected,[a] and they noted that such a finding was consistent with one obtained from an inquiry conducted in Kolhapur City. However, their data were based on crude distinctions: the wife was classified as doing either: (*a*) manual labour; (*b*) household work; or (*c*) other work, with categories (*a*) and (*c*) comprising the economically active and (*b*) the non-economically active. The basic information was elicited from the respondent by asking what was her "occupation".

In a subsequent report, K. Dandekar wrote: "By and large, we did not find any evidence to suggest that any of these factors had any effect on marital fertility." [b] The factors referred to are the "socio-economic" ones, including economic activity of the wife, considered in previous studies.

Furthermore, N. V. Sovani and K. Dandekar, in a survey of Nasik, Kolaba and Satara (North) Districts, found no evidence that occupation of the wife was associated with fertility in the rural and urban areas of Nasik and Kolaba. [c]

It is also worth noting that although, in the United Nations study of Mysore, it was found that gainfully employed women had given birth to fewer children than had women occupied only with household duties, [d] E. D. Driver, in his study of fertility in central India, found that women working for wages were more fertile than those not working for pay. [e] (And this was not due to age differences.) The fact that Driver's data were based on distinctions as crude as those used by the Dandekars and their associates may explain his unusual findings. On the other hand, both studies may be offering valid findings, with the relationship between employment and fertility in Bungalore City and in selected towns and rural areas in Mysore State different from the relationship in Nagpur District, where Driver conducted his inquiry.

In any case, it is clear that these bits of evidence, with their limitations of scope and methodology, do not provide a secure basis for ascertaining the nature of the relationship(s) between economic activity and maternal responsibility in India. The evidence in respect of the relationship in other developing areas, where it exists at all, does not seem to be more adequate.

[a] V. M. Dandekar and Kumudini Dandekar, *Survey of Fertility and Mortality in Poona District* (Poona, Gokhale Institute of Politics and Economics, 1953).

[b] K. Dandekar, *Demographic Survey of Six Rural Communities* (Poona, Gokhale Institute of Politics and Economics, 1959), p. 72.

[c] N. V. Sovani and K. Dandekar, *Fertility Survey of Nasik, Kolaba and Satara (North) Districts* (Poona, Gokhale Institute of Politics and Economics, 1955), pp. 77-79.

[d] *The Mysore Population Study* (United Nations publication, Sales No.: 61.XIII.3).

[e] E. D. Driver, *Differential Fertility in Central India* (Princeton, N.J., Princeton University Press, 1963).

Annex II

Table A. Activity rate of ever-married women, by marital status and number of minor children living at home, Sweden and the United States of America, 1960

	Number of minor children living at home				
	0	*1*	*2*	*3*	*4 or more*
Sweden					
Ever-married women with children under age 16 at home (other than wives, husband present)		71.4	66.2	51.7	35.2
Married women, husband present..	25.8	25.7	17.3	12.9	9.4

Annex II (*continued*)

Table A. Activity rate of ever-married women, by marital status and number of minor children living at home, Sweden and the United States of America, 1960 (*continued*)

	Number of minor children living at home				
	0	*1*	*2*	*3*	*4 or more*
United States of America					
Ever-married women with and without children under age 18 at home (other than wives, husband present)	64.4	66.7	60.4	50.6	38.7
Married women, husband present	45.3	34.6	28.2	23.2	19.5

SOURCES: Statistiska Centralbyran, *Statistiska meddelanden*, No. B1964:3 (Stockholm 1964); United States Bureau of the Census, *1960 Census of Population*, Final Report PC(2)—6A (Washington, D.C., 1963), table 8.

Table B. Activity rate of ever-married women with children living at home, by marital status, number of children and age of youngest child, United States of America, 1960

Number of children [a]	*Age of youngest child at home*			
	Less than 3	*3-5*	*6-11*	*12-17*
Married, husband present				
1	21.5	32.0	37.5	43.1
4 or more	13.9	22.9	33.5	39.4
Other ever-married women				
1	47.7	68.0	70.4	71.3
4 or more	31.9	41.1	49.4	57.5

SOURCE: United States Bureau of the Census, *1960 Census of Population*, Final Report PC(2) -6A (Washington, D.C., 1963).

[a] Rates for two and three children are intermediate to those shown above.

Interrelationships of manpower policy and population policy

PHILIP M. HAUSER

1. There is a growing awareness in the developing nations of the need for explicit population and manpower policy as elements in national plans for economic development.[1] The object of economic development is, of course, to increase income per capita along with effecting other advances in general levels of living. Since the population is the beneficiary of increases in the levels of living and since a large part of the population, as labour force, is a factor in its achievement, population and labour force policy are necessarily closely interrelated in economic planning.

2. The relationship between population changes and labour force changes is far from simple. In consequence, if efficient development is the goal, it is necessary, among other things, to trace the impact of specific population policies on the size growth, composition and distribution of the labour force; and, *vice versa,* to trace the effect of specific labour force policies on population. Some of these interrelationships are considered primarily by pursuing the former course, that is, by examining the effects on the labour force of selected population changes.

TOTAL GROWTH

3. The developing nations, whether in Asia, Latin America or Africa, are, on the whole, characterized by relatively rapid current and prospective population growth.[2] This phenomenon is not so much the result of explicit national population policies as of the indirect consequence of other national policies, especially those relating to the improvement of health and welfare, which have sharply reduced death rates while birth rates have remained at high levels or even increased. Increased knowledge about the magnitude, courses and consequences of rapid population growth has led demographers, almost unanimously, to advocate policies to reduce current rates of increase. It has been demonstrated, in a number of ways, that success in reducing high population growth rates in the developing regions would increase the prospect of attaining higher living levels.[3]

4. The writer has calculated, for example, that for the developing regions to match the 1962 northern and western European and northern American levels of living (per capita gross national product), respectively, by the year 2000, it would be necessary, given current population trends, for the gross national product from 1962 to 2000 to increase at the following annual rates (geometric):[4]

	Northern and western Europe	*Northern America*
Asia	9.2	11.2
Africa	9.2	11.1
South America	7.3	9.3
Middle America	7.2	9.1

5. The magnitude of this task is evident when it is remembered that no nation has ever

[1] For example, see *Report of the Asian Population Conference and Selected Papers* (United Nations publication, Sales No.: 65.II.F.11); *United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, Geneva, 1963,* 8 vols. (United Nations publication, Sales Nos.: 63.I.21-28) (see papers on human resources, health and nutrition, urbanization and training of scientific and technical personnel); "Inquiry among Governments on problems resulting from the interaction of economic development and population changes", Report of the Secretary-General, 24 November 1964, United Nations documents (E/3895/Rev.1-L).

[2] Report title to be published as: *World population prospects, as assessed in 1963* (United Nations publication, Sales No.: 66.XIII.2).

[3] For example, Ansley J. Coale and Edgar M. Hoover, *Population Growth and Economic Development in Low-income Countries* (Princeton, Princeton University Press, 1958); Ansley J. Coale, "Population and economic development", *The Population Dilemma,* Philip M. Hauser, ed. (Englewood Cliffs, Prentice-Hall, 1963), chap. 4; Philip M. Hauser, "Population and labor force resources as factors in economic development", *Human Resources — Training of Scientific and Technical Personnel,* vol. XI, Science Technology and Development, United States papers prepared for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (Washington, Government Printing Office, 1964), pp. 8-19.

[4] Based on the assumption that world population will total 6.9 billion in 2000, as per projections of the United Nations in 1958; see *The Future Growth of World Population* (United Nations publication, Sales No.: 58.XIII.2).

approached such rates of growth in gross national product over sustained periods of time.[5]

6. How would a restricted growth population policy affect the labour force? Would the effects be consistent with sound manpower policy? The answers to these questions are to be found in the demographic literature. First, a reduction in population growth rate achieved through reduced birth rates would, in a relatively short period (within a generation), lead to a reduction in the growth rate of the population of working age, which would persist for two to three generations after the reduction in fertility. After such a period, the gains achieved in the proportion of the population of working age are exhausted—that is, the rate of increase of persons of working age in the population of reduced fertility becomes stabilized.[6] Secondly, the increase in persons of working age in a population with reduced fertility is stabilized on a lower level, of course, than the rate of growth of persons of working age in a population of undiminished fertility.

7. These consequences are consistent with sound manpower policy. In addition to the gains which accrue from the changing age structure, discussed below, the reduction in the rate of growth of persons of labour force age results over time in an amazingly smaller total labour force. In the models which Coale has constructed, persons of working age (15 to 64 years) in a population with diminished fertility, within sixty years would be about half, and after 150 years, only about 5 to 6 per cent of that in a population with continued high fertility.[7] The deleterious consequences of exceedingly high population and labour force densities in relation to land and other resources is thereby greatly deferred.

8. Thus, a policy designed to reduce rates of population growth by means of lower birth rates has consequences for the size of labour force which are consistent with sound manpower policy to achieve economic development.

9. Population growth rates may be decreased not only by means of family planning, but also through raising the age at marriage.[8] If the latter means is adopted, however, it is likely that there would be some tendency for the labour force to increase by reason of the increased availability of women for work activity. Thus, while the raising of marriage age would, by decreasing population growth, tend to some extent to have the same effect on age structure as family planning, it would probably offset some part of the gains by generating increases in the number of workers.

Age structure

10. A reduction in fertility, by its profound effect on the age structure, has other consequences which bear on manpower policy. The immediate result of reduced fertility is a reduction in the number and proportion of young persons under working age, while the number of persons of working age is relatively little affected. Thus, although the need to increase job opportunities remains the same for about a generation for a population with diminished as with undiminished fertility, the decrease in dependency effected by the decreasing number and proportion of young permits higher levels of capital investment per worker, and, therefore, higher productivity.[9] Moreover, the decrease in the number of mouths to be fed in relation to the pairs of hands to work operates automatically to increase income per capita (*ceteris paribus*). In a population with decreased fertility, within a single generation, the dependence ratio could be only about two thirds[10] that of a population with sustained high fertility.

11. Labour force policy is, of course, concerned not only with the size, but also with the quality of workers, that is, with their education and skill. The development of high-level manpower is a prerequisite to development and requires an explicit policy and a strategic programme.[11] Decreased number and proportions of young enable a nation, from limited savings, to increase investment in human resources per capita—that is, investment in education and skills.[12] Thus, a population policy aimed at reduced birth rates tends to have favourable effects on the quality, as well as on the number, of workers.

12. But a factor must be mentioned which tends to offset part of this gain. To the extent

[5] Simon Kuznets, "Quantitative aspects of the economic growth of nations — I. Levels and variability of rates of growth", *Economic Development and Cultural Change*, vol. V, No. 1 (October 1956), pp. 9 ff.

[6] Ansley J. Coale, "Population and economic development", *Economic Development and Cultural Change*, vol. V, No. 1 (October 1956), pp. 50 ff.

[7] *Ibid.*, p. 50.

[8] S. N. Agarwala, "Effect of rise in female marriage age on birth rate in India", *Proceedings of the World Population Conference, 1965*, vol. II, p. 172.

[9] Ansley J. Coale, *Economic Development and Cultural Change*, op. cit., pp. 53 ff.

[10] *Ibid.*, based on age data, p. 50.

[11] United States of America, *Human Resources — Training of Scientific and Technical Personnel;* see especially chapters by Frederick H. Harbison, Claude H. Ewing and Arthur E. Lawrence.

[12] *The Aging of Populations and its Economic and Social Implications* (United Nations publication, Sales No.: 56.XIII.6).

that younger workers have higher education and skills than older workers, diminution in the number and proportion of young persons in the labour force tends to keep high the proportion of older and, therefore, less educated and skilled persons in the work force.[13] It may be argued, therefore, that optimal policy would aim at balancing the advantages of a decreased dependency ratio against the losses of higher proportions of older and, therefore, less educated and skilled workers.

13. Also relevant to policy determination is the impact of relatively well-educated and skilled young workers on the economy and political situation if limited capital does not permit the generation of job opportunities commensurate with the quality of the labour force.[14]

14. It may be seen that a harmonious balance must be achieved between population, labour force and investment policies. To help planners faced with this problem, there is need for more intensive work than has yet been done in the construction of models interrelating investment, labour force and population factors.

15. Still another labour force gain is achieved by a population policy aimed at decreasing the birth rate. As a result of the changing age structure, a reduction in fertility also increases labour input per capita, as measured by the net effect of age changes on the average labour force participation rate. It has been shown, for example, that a 50 per cent decline in fertility, with mortality constant, could increase labour input per capita by as much as one fifth, on the basis of typical male labour force participation rates in developing nations; or by as much as about one tenth in an area with typical male labour force participation rates in an economically advanced area.[15]

16. Finally, a combination of reduced fertility and reduced mortality to levels approximating those in economically advanced areas would also greatly increase labour force input per capita. For increases in longevity increase the length of working life and thereby increase the lifetime input of each member of the work force.[16]

[13] Nathan Keyfitz, "Age distribution as a challenge to development" (unpublished manuscript).

[14] *Ibid.*

[15] *The Aging of Populations and its Economic and Social Implications* (United Nations publications, Sales No.: 56.XIII.6), pp. 53 ff.

[16] *Ibid.*, pp. 58-59. See also Stuart Garfinkle, "The lengthening of working life and its implications", *Proceedings of the World Population Conference, 1965*, vol. IV, p. 277.

Population distribution

17. The distribution of population, regionally and as between urban and rural areas, also has significant impact on labour force size, composition, quality and productivity. In the development of the economically advanced nations, population became increasingly urbanized through rural to urban migration (as well as immigration in some instances), while the agricultural labour force diminished absolutely, as well as proportionately. Accompanying these changes were great increases in both urban-industrial and rural-agricultural productivity and significant changes also in the labour force participation rates and the occupations of women, as well as of men.

18. At the current time, the developing nations are, in general, characterized by increasingly rapid urbanization even while their agricultural population and labour force continue to increase in size. Moreover, gains in productivity are minimal and swelling numbers of workers are either unemployed or underemployed.[17] Severe problems are generated by the fact that rapid population and labour force growth has not been accompanied by commensurate increase in other factors of production. These conditions are forcing policy determinations in efforts to deal with rural-urban migration flows and rate of urbanization, as well as problems of employment, unemployment, underdevelopment and productivity in both rural and urban areas.

19. Obviously, the reduction of rates of total population growth would favourably affect the problem of population distribution by decreasing population densities and pressures in both rural and urban areas. Moreover, policies designed to improve job opportunities and offering prospects for increased productivity in both urban and rural areas are required, which would exert control over migratory flows and aim at balanced rural-urban and regional development.

20. As a framework for policy in respect of population distribution are the following three premises: (*a*) increasing urban concentration, while generating severe problems, is a necessary condition for development; (*b*) the trend toward urbanization is therefore not to be reversed but utilized in economic development; and (*c*) growing urban influence on rural areas requires increasing co-ordination of urban and rural development.[18]

[17] *Report of the Asian Population Conference and Selected Papers* (United Nations publication, Sales No.: 65.II.F.11).

[18] *Ibid.*, p. 156 *passim*.

21. The adoption of these premises implies policies that: (*a*) aim to achieve population distribution in relation to resources and economic opportunity, which would tend to increase labour productivity; (*b*) shape rather than impede urban development; (*c*) coordinate urban development with the national economic plan; (*d*) plan to control and to improve the absorptive capacity of areas subject to migratory flows by balanced infrastructure investment in relation to intended location and size of industrial capacity; (*e*) effect a pattern of large, medium and small-scale industrial development with regional and urban-rural balance as objectives; (*f*) achieve balance between the social needs of urban dwellers and productive investment needs; (*g*) use development of rural areas to help control rural to urban migration by means of such programme as land reform, improved education, better agricultural methods, rural electrification, improved roads and communication, and decentralized industrial development; (*h*) adopt, as may be indicated, government programmes to influence population flows to new settlement areas or areas bolstered to provide better economic opportunity; (*i*) bring peace to the rural countryside where troubled conditions rather than economic forces push the population to urban areas.

22. Implementation of such policies requires decisions as between centralized and decentralized industry, labour-intensive as against technologically advanced projects, industrial as against agricultural development. Decisions must be made as between projects to improve health and decrease mortality, on the one hand, and those designed to decrease fertility, on the other; between investment in human resources (education and skill) and in technology, industrial or agricultural. Decisions must also be made in respect of measures to deal with short run manpower problems, both rural and urban, and measures aimed at long-term solutions. [19]

23. Much research remains to be conducted to provide clear answers to the questions implicit in policy considerations of the type sketched above. Although it is clear that alternative courses of action would have important consequences for both population and labour force changes, their exact impact remains to be traced.

24. One of the important relationships in respect of industrial and agricultural employment related to population changes has been quantified by A. J. Coale. Noting that economically advanced nations have passed through a phase of development in which the agricultural work force remains constant before it actually decreases, he reasons that among the developing nations there must come a time when the non-agricultural sector of the economy must provide job opportunities sufficient "for the whole increase in the labour force". [20] On the basis of his model of populations with constant and diminishing fertility, respectively, he has calculated the gains to be achieved in the latter instance, as measured by reduced rates of increase in non-agricultural employment required to absorb the total increase in labour force, at varying levels of agricultural employment and over different periods of time. Thus, for example, for a nation with a labour force having 70 per cent in agriculture, the required rate of growth in non-agricultural employment to absorb the total increase in the work force in a population with diminished fertility, after forty to fifty years, is only half that of a population with a high level of undiminished fertility.

25. A penetrating discussion of the interrelations of population growth and the agricultural labour force is given by Ducoff for developing American countries in the perspective of patterns in economically advanced nations. [21]

26. For most developing nations, immigration policy is not of major concern in respect of manpower or general development policy. But in a number of ways immigration policy can, of course, affect labour force size, composition and quality. Developing nations in general, with exceptions, of course, in sparsely settled areas, do not require immigrants to increase labour force size. They may, however, wish to attract certain types of immigrants with badly needed skills, especially in the short run while indigenous skills are being developed. In any case, an explicit policy in respect of immigration should be formulated in accordance with national policy and requirements, and with special attention to its implications for manpower.

Concluding observations

27. Population and manpower policy must be closely co-ordinated as elements in national economic planning. Policies designed to reduce rates of population growth seem, in the main,

[19] *Ibid.*, p. 154 *passim.*

[20] Ansley J. Coale, *Economic Development and Cultural Change*, op. cit., p. 67.

[21] Louis J. Ducoff, "Population growth in relation to the agricultural labour force in developed and some developing American countries", *Proceedings of the World Conference, 1965*, vol. III, p. 363.

to be consistent with desirable manpower policies as they affect growth, density and age structure of the labour force. Policies in respect of population distribution are, in a more complex fashion, related to general economic policy as well as to manpower policy, and much remains to be learned about their interrelationships.

Demographic changes and manpower problems in the Common Market countries of Europe

LOTHAR HERBERGER

INTRODUCTION

1. Basic demographic changes and economic aspects: the manpower problems resulting from demographic changes differ in developing countries from those of industrialized countries. In the developing countries, decreasing mortality rates and constant high birth rates result in a rapid growth of population. In the industrialized countries, the low mortality rates in connexion with relatively low birth rates result in population increases mainly among the older age groups.[1] Thus, population growth in industrialized countries does not necessarily mean an increase of the labour force, whereas in developing countries such increases result in parallel increases in the population of working age. As a result, the developing countries, more so than the industrialized countries, are faced with the problems of providing employment for the growing labour force and with the problem of underemployment.[2]

2. Problems of international comparison: in the author's opinion, the most effective way to collect international comparable data on the labour force is to conduct sample surveys. In these surveys, the questions can be phrased in such a way that they give international comparable data and simultaneously correspond to the national definitions. The first project of such an international labour force sample survey in Europe was a sample survey planned by the Statistical Office of the European Communities, the results of which have been very valuable. It was a simultaneous sample survey carried out for the same reference period for all countries of the European Economic Community (EEC).[3] The analysis of manpower problems in this paper is based on the data of that survey, which was done in 1960.

DEMOGRAPHIC CHANGES FROM 1900 TO 1960[4]

3. General population growth: the growth of the population since 1900 had a different extent in the six countries of the EEC. The growth of population was the largest in the Netherlands (126 per cent) and the least in France (19 per cent). During the same period, the total population of the Federal Republic of Germany increased by 90 per cent, Italy by 56 per cent, and Belgium and Luxembourg by 37 per cent and 32 per cent.

4. Birth and mortality rates: at the turn of the century, the birth rate in the current EEC countries was the highest in the Federal Republic of Germany (34.9 per 1,000 of population) and the lowest in France (21.3). At the same time, Belgium had a birth rate of 28.8; Italy, 32.5; Luxembourg, 29.9; and the Netherlands, 31.6 per 1,000 of population.

5. About 1900, the mortality rate was the highest in Italy (22.0) and the lowest in the Netherlands (16.1). The mortality rate for Belgium was 18.9; for the Federal Republic of Germany, 21.1; for France, 21.9; and for Luxembourg, 21.7 per 1,000 of population.

6. In all countries of the EEC, the birth rates and the mortality rates have decreased during the last sixty years as follows (in per cent of the rate of 1900):

	Belgium	*Federal Republic of Germany*	*France*	*Italy*	*Luxembourg*	*Netherlands*
Birth rate	—41.3	—49.3	—15.5	—44.9	—46.8	—34.2
Crude death rate.	—34.9	—46.0	—47.9	—57.3	—45.6	—52.8

[1] H. Schubnell, "Der trend der bevölkerungsentwicklung in Deutschland", in a report given to the Council of Europe on 14 October 1963.

[2] International Labour Organisation, *Report of the Meeting of Experts on Measurement of Underemployment*, 21 October-1 November 1963, Geneva.

[3] B. Eyquem, *Stichprobenerhebung über die Erwerbsbevölkerung in den EWG-Ländern*, Statistical Information, No. 4 (Statistical office of the European Communities, 1961) pp. 495-509.

[4] Statistical Yearbooks of the respective countries; *Demographic Yearbook, 1960* (United Nations publication, Sales No.: 61.XIII.1); Statistical Office of the European Communities, *Stichprobenerhebung über Arbeitskräfte in den EWG-Ländern*, Statistical Information, No. 2 *bis* (1963), p. 250.

7. Migration: in four countries of the EEC, the component of net immigration contributed more to the total growth of population than the natural growth (Belgium, Federal Republic of Germany, France and Luxembourg). In Italy and the Netherlands, the main component for the total growth is the natural increase. In these two countries, the balance of migration is negative. In the Federal Republic of Germany, the relatively large increase in the number of population was connected with the end of the Second World War. After 1945, about 8.9 million people migrated into the Federal Republic of Germany from their former residences.

8. Age structure: about 1900, the age structure in all six countries had a more or less broad base and the population pyramids show no gaps at this time. Italy was the country with the broadest base. Between 1900 and 1960, the age structure has changed decisively in five of the six countries, as a consequence of migration and changes in fertility and mortality, as mentioned above.

9. The persons between 15 and 64 years of age are important under two aspects: with respect to participation in the labour force, and to the dependency burden. The proportion of the population aged 15-64 years has decreased in France. In the other EEC countries, it has increased. Regarding the proportion of persons 65 years (respectively 60 years) old and older, an increase is noted in all six countries. Except for France, the proportion of persons under 14 years has decreased (see table 1). These changes have led to a change in the dependency burden in all countries of the EEC. The relative increase of the population 15-64 years of age since 1900 is in France less than that of the total population. In the other five countries, the relative increase of this age group exceeds that of the total population.

The labour force structure

10. Labour force participation rates[5]: in all of the EEC countries, the labour force participation rate for men is higher than the rate for women. The highest total participation rate for men, as well as for women, is found in the Federal Republic of Germany. The Netherlands have the lowest rates for both sexes.

11. Differentiating the total participation rate by age and sex, one notes a few interesting differences. The Federal Republic of Germany and Italy have the highest participation rate for men of 14-19 years. The rates for men and women 65 years and older are the highest in France. The participation rates of women show a different pattern in the Federal Republic of Germany (33.1 per cent) and in France (32.0 per cent). Both countries have the highest participation rates for women. In the Federal Republic of Germany, the participation rates for women of 14 to 29 years, in France, the rates for women 30 years and older, are the highest ones in the EEC (see table 3a). Countries with the lowest participation rates for women 30 years and older are the Netherlands and Luxembourg. Countries with either a relatively high dependency burden or with a labour shortage tend to have higher labour force participation rates for youths, the aged and females.

12. The analysis of a future labour force survey of the EEC should pay attention to two aspects: participation rates of married women and of women with children up to 14 or 15 years, a problem which is studied, for example, in the Federal Republic of Germany.[6] Employment of married women and women with children is one feature of industrialized countries, when the manpower shortage has reached a certain point.

13. Economic structure:[7] the main feature of the economic development in the last sixty years is the rather strong decrease of the proportion of the labour force employed in agriculture and the increase of the number of persons working in the other sectors of the economy. The relative increase of the proportion employed in services between 1950 and 1962 is the lowest one in France and exceeds in five of the six countries (except Italy) the relative increase of the proportion working in industry (see table 2).

14. Hours worked per week: the manpower situation—in a broader sense—is also affected by the number of hours worked per week. On the one hand, shortage of manpower can be compensated by a higher number of hours worked per week. On the other hand, manpower shortage can be caused by a low number of hours worked per week. Furthermore, it might be possible that a low number of hours worked per week can be the effect of a large labour force without sufficient places of employment. This last situation is found especially in developing countries.

[5] Statistical Office of the European Communities, *Stichprobenerhebung über Arbeitskräfte in den EWG-Ländern*, Statistical Information, No. 2 *bis* (1963).

[6] H. Schubnell, "Die Erwerbstätigkeit von Frauen und Müttern und die Betreuung ihrer Kinder", *Wirtschaft und Statistik*, No. 8 (1964), pp. 444-456.

[7] Organization for Economic Co-operation and Development, *Manpower Statistics 1950-1962*, Statistical Bulletins (Paris, 1963).

15. In the Netherlands, about 68.5 per cent of the employed work forty-six hours per week and more; in the other countries, this percentage lies between 68 per cent (Italy) and 32.8 per cent (Federal Republic of Germany). In Belgium, it is 35.1 per cent; in France, 54.1 per cent; and in Luxembourg, 52.9 per cent.

16. Second jobs and seasonal employment: the number of persons who have a second job is, to a certain extent, related to manpower shortage. The proportion of persons with a second job is higher in Belgium (4.6 per cent of the employed), in the Federal Republic of Germany (4.1 per cent) and in France (3.1 per cent). The proportion is lowest in Italy (0.9 per cent), in Luxembourg (2.8 per cent) and in the Netherlands (2.6 per cent). In Italy and the Netherlands, the proportion of persons working forty-six hours and more per week is higher than that in other countries. Furthermore, Italy has the highest unemployment rate.

17. In all EEC countries, irregular employment is relatively the highest in agriculture. In Italy, irregular employment is higher than in other EEC countries, as shown below:

Persons who worked regularly (in percentage of employed persons)

	Belgium	*Federal Republic of Germany*	*France*	*Italy*	*Luxembourg*	*Netherlands*	*EEC*
Agriculture etc.	92	95	94	90	97	93	92
Production industry	98	97	98	93	98	97	97
Trade, transport etc.....	98	97	97	97	98	97	97
Services etc.	96	96	96	96	98	95	96
TOTAL	97	97	97	93	98	96	96

UNEMPLOYMENT [8]

18. In all of the EEC countries, unemployment rates have decreased from 1954-1961, as shown in the table below:

[8] Statistical Office of the European Communities, *Stichprobenerhebung über Arbeitskräfte in den EWG-Ländern;* Organization for Economic Co-operation and Development, op. cit.

	Belgium	*Federal Republic of Germany*	*France*	*Italy*	*Luxembourg*	*Netherlands*
National source						
1954..	5.0	5.2	1.6	8.7	–	1.8
1958..	3.3	2.7	0.9	6.4	–	2.3
1960..	3.3	0.9	1.2	4.0	–	1.1
1962..	2.0	0.5	1.2	2.9	–	0.8 (1961)
Sample survey						
1960..	2.5	0.4	1.8	3.2	–	0.9

19. Unemployment rates, as measured in the EEC labour force sample survey, were at the time of the survey the highest in Italy (3.2 per cent) and the lowest in the Federal Republic of Germany (0.4 per cent). In 1954 in the current EEC countries, the unemployment rate was the highest also in Italy (8.7 per cent) and the lowest in France (1.6 per cent).

20. The analysis of the structure of the group of unemployed in the EEC shows two main groups. One group consists of persons who start working for the first time and the second are the people changing jobs. The proportion of people looking for work for the first time therefore is the highest among the younger persons.

21. In all countries of the EEC, except Italy, unemployment lasted less than two months for 40 to 60 per cent of the unemployed. In Italy, 31.6 per cent are unemployed less than two months. This shows that the unemployed are no longer an additional resource for manpower in an expanding economy. The largest proportion of unemployed is mainly replacement for retiring members of the labour force.

FUTURE TREND

22. Growth of population and labour force [9]: the Statistical Office of the European Communities has computed a projection of the population and labour force up to 1970 on the basis of the national data. Comparing the projected growth of the population and the labour force, one finds that, except in Italy and the Netherlands, the relative increase in the population exceeds the relative increase in the labour force. In the Federal Republic of Germany and in France, the dependency burden will increase up to 1970 because of the disproportional growth of the population and the labour force. In the Netherlands, a decrease is expected. This is a result of the current age structure in this country. It has the highest proportion of persons under 14 years. Italy and Belgium also have a relatively high proportion of persons under 14 years. In Italy, a slight decrease of the dependency burden is expected, whereas in Belgium, from 1965 the dependency burden will remain constant.

23. Age structure of labour force: on the basis of this projection for both sexes, a decrease of the proportion of persons in the labour force aged from 20 to 64 years, respectively, will be expected in the member countries of the EEC. An increase in the proportion of older persons in the labour force is noted. Up to the age of 19 years, the tendency is not the same as in all countries. In Belgium, France and the Netherlands, an increase is expected; in the other countries, a decrease. A longer school period is partly the cause of the decreasing proportion of younger persons in the labour force (see table 3*b*).

[9] H. Blanpain, *Faktoren der Entwicklung der Erwerbsbevölkerung in den EWG-Ländern im Laufe der nächsten zehn Jahre*, Statistical Information, No. 3 (Statistical Office of the European Communities, 1961).

ANNEX

Table 1. Age structure of population, 1900 and 1960

Country	Year	Proportion of population by age groups (Percentage of total population)			Persons under 14 years and 65 years and over per 1,000 persons 15-64 years
		Under 15	15-64	65 and over	
Belgium	1900	29.8	63.4	6.8	577
	1960	25.2	65.5	9.3	528
Federal Republic of Germany ...	1900[a]	34.8	60.3	4.9	658
	1960	21.9	67.6	10.5	479
France	1900	26.0	65.5	8.5	527
	1960	26.9	61.2	11.9	634
Italy	1900	34.4	56.0[b]	9.6[c]	784
	1960	24.7	61.7[b]	13.6[c]	622
Luxembourg	1900	31.5	62.6	6.0	599
	1960	21.9	66.8	11.3	498
Netherlands	1900[d]	34.5	59.3	6.1	685
	1960	30.1	61.0	9.0	640

[a] Deutsches Reich.
[b] Until under 60 years.
[c] 60 years and over.
[d] 1909.

Table 2. Change of economic structure

Country	*Change of number of employed persons, 1950-1962, by International Statistical Institute Conference Divisions (1950 = 100)*			
	Agriculture	*Industry*	*Others* [a]	*Total*
Belgium	65.2	104.9	117.2	105.7
Federal Republic of Germany	69.0	144.0	145.7	126.1
France [b]	74.3	109.4	113.8	101.0
Italy [b]	81.2	144.8	131.3	115.7
Luxembourg	–	–	–	–
Netherlands [c]	79.7	117.0	124.7	115.1

[a] Services including trade, transport and commerce.
[b] 1954 to 1962.
[c] 1950 to 1961.

Table 3*a*. Labour force participation rates by sex and age groups

Country	*Labour force participation rates (1960) by age groups*							
	14-19	*20-29*	*30-39*	*40-49*	*50-59*	*60-64*	*65 and over*	*Total*
			Males					
Belgium	36.5	87.0	96.0	94.9	87.9	68.7	17.1	57.7
Federal Republic of Germany	71.8	90.8	98.0	96.4	91.3	71.4	21.3	63.0
France	48.8	74.0	98.2	97.3	90.1	71.0	30.0	56.1
Italy	64.6	86.1	97.6	95.7	90.2	61.4	27.8	60.7
Luxembourg	58.9	96.1	98.1	94.5	91.5	50.0	20.6	59.6
Netherlands	47.9	85.4	98.2	98.1	96.2	85.1	25.5	55.8
European Economic Community	60.0	85.0	97.8	96.4	90.7	69.2	25.6	59.0
			Females					
Belgium	37.0	49.4	34.9	33.6	27.9	13.6	7.9	23.8
Federal Republic of Germany	70.6	64.2	44.3	41.8	34.2	19.9	7.6	33.1
France	43.1	58.2	45.6	50.1	49.0	38.3	13.4	32.0
Italy	45.4	42.8	34.3	33.2	27.4	17.7	7.4	24.6
Luxembourg	55.4	41.5	25.4	25.0	24.0	19.1	8.1	21.9
Netherlands	53.7	44.5	19.1	20.5	18.9	12.8	3.9	19.3
European Economic Community	52.7	53.9	39.4	39.3	35.2	23.8	9.3	28.9

Table 3*b*. Age structure of labour force, 1960 and 1970

Country	*Proportion of the labour force by age groups (Percentage of total labour force)*					
	14-19		*20-64* [a]		*65 and over* [b]	
	1960	*1970*	*1960*	*1970*	*1960*	*1970*
			Males			
Belgium	6.1	8.0	90.4	87.7	3.5	4.3
Federal Republic of Germany	11.1	10.2	85.3	84.8	3.6	5.0
France	7.4	10.1	87.6	83.9	5.0	6.0
Italy	11.8	11.2	84.8	84.7	3.4	4.1
Luxembourg	–	–	–	–	–	–
Netherlands	8.6	9.1	87.9	87.2	3.5	3.7
European Economic Community	–	–	–	–	–	–
			Females			
Belgium	12.7	16.0	80.0	76.9	6.5	7.1
Federal Republic of Germany	17.0	16.4	75.6	74.0	7.4	9.6
France	10.4	14.2	76.9	73.1	12.7	12.7
Italy	19.8	19.5	74.4	73.5	5.8	7.0
Luxembourg	–	–	–	–	–	–
Netherlands	29.4	29.5	65.8	65.6	4.8	4.9
European Economic Community	–	–	–	–	–	–

[a] Females 20-59 years of age only.
[b] Females aged 60 years and over.

Demographic aspects of employment and underemployment in Israel

AVNER HOVNE

1. In 1949, when immigrants added nearly one third to the population of Israel, a large number of immigrants—about one in five—were housed and fed in temporary immigrant camps and were withheld from participation in the civilian labour force. In spite of this, nearly one tenth of the civilian labour force was unemployed in 1949. The unemployment rate was brought down to around 7 per cent in 1950 and 1951, as a result of large-scale housing and other public investment, financed by inflationary means. The depletion of foreign reserves put an end to this, and in 1953, unemployment soared, passing 15 per cent in some months, and averaging 11 per cent for the year.

2. Since 1953, unemployment has continuously declined. On the average, the civilian labour force grew annually by about 4 per cent (slightly more than half as a result of migration), but employment rose at a higher rate. Underlying this rise in employment was an extremely high rate of economic growth, with the gross national product rising by more than 10 per cent, on an annual average. In 1963, the unemployed were 3.6 per cent of the civilian labour force, and the number of the unemployed is now less than the number in 1949, though the civilian labour force is two and one half times its 1949 size.

3. Today, labour shortages cause even more concern (for those concerned with aggregate rather than personal matters) than does unemployment. While the extremely high, unprepared-for migration of 1948-1952 contributed to unemployment then, the much lower—though still considerable—immigration of today contributes more to shortages. New immigrants are now being provided with ready homes on their arrival; and the annual labour input of a new immigrant family is less, on the average, than the labour input in a house and its related amenities. Solutions to this problem which are being attempted are the damping down slightly of general economic activity and the encouragement of more capital-intensive methods of production.

4. However, unemployment was and is disproportionately high among new immigrants. Three fourths of the civilian labour force of Israel consists of immigrants. (Of the remainder, two thirds are Jews born locally and one third Arabs and other non-Jews.) Among the immigrants, less than a third arrived before 1948, and the unemployment rates of these are lowest; the later the year of immigration, the higher the rate of unemployment. Considering only immigrants from the continents of Africa and Asia, the unemployment rate of those who immigrated since 1955 is about 50 per cent higher than of those who immigrated before 1948, comparing identical sex-age groups. A parallel comparison for immigrants from the continents of Europe and America shows the unemployment rate of the more recent immigrants double that of the pre-1948 vintage.

5. There are other significant differences in rates of unemployment for persons in comparable sex-age groups. The incidence of unemployment is about double that of immigrants from Europe and America, both for immigrants from Asia and Africa and for non-Jews. It appears that among locally-born Jews whose fathers were born in Europe or America, or locally, the rate of unemployment is close to that of immigrants from Europe and America, while for locally-born Jews whose fathers were born in Asia and Africa, unemployment is at the higher level.

6. For the whole labour force, unemployment is far more frequent—three times or more—for those who have not completed elementary school as for those who have completed secondary school. This is, by far, the major reason for the differences described in paragraph 5. A second reason for these differences is location: recent immigrants and non-Jews live mainly outside the largest cities. In several of the development areas, which are populated almost entirely by very recent immigrants from Asia and Africa, there are high unemployment and ongoing work relief programmes, despite labour shortages for unskilled as well as skilled labour in the major cities.

7. Rapid growth in particular sectors of the economy has had a marked impact on the

demographic aspects of unemployment. Thus, for the sharp increase in manufacturing output which took place in the late 1950's, almost all the added workers were post-1948 immigrants, the great majority from Asia and Africa. For the sharp increase in building construction in the past few years, a large proportion of the added workers were Arabs.

8. The unemployment rates of the different demographic groups have remained quite constant, in relation to one another, since 1955; almost all have declined to about half. There are two important exceptions. One consists of men aged 45-64 years, whose rate of unemployment has declined to about one quarter of the 10 per cent rate of 1955. Until the late 1950's, low rates of labour force participation and high rates of unemployment in this age group reflected mainly the difficulties of men who migrated when they were no longer young—in many cases from pre-industrial environments—and who lacked relevant work skills. By the early 1960's, these problems were of minor dimensions only. The scope and composition of the immigration has changed; and the men without relevant skills, who immigrated fifteen years ago at the ages of 30 to 49 (so that they are now in the 45-64 age group) find a much higher level of demand for labour than existed formerly. Moreover, they have meanwhile had time to adjust; thousands participated in accelerated training programmes. Finally, several thousands in this age group and older now have regular half-day sheltered employment in a governmental programme.

9. The other major exception to the rule of constant relative rates of unemployment are boys and girls aged 14-17 years, whose rates of unemployment have decreased very little since 1955. This is not attributable to a failure on their part to participate in the general expansion of employment; on the contrary, employment in this age group grew at a particularly rapid rate. The high unemployment rate of the young people—around 15 per cent—was owing to the rapid increase in the number of young people in the civilian labour force, which was itself caused mainly by a bulge in these age groups. In 1959, the population aged 14-17 comprised 9.5 per cent of the population aged 14 years and over; in 1962 they were 11.5 per cent. Moreover, the sharply improving opportunities for employment attracted into the labour force boys and girls who, in the circumstances of the mid-1950's, would not have entered it. This is shown by the fact that, from 1957 to 1962, the numbers in the civilian labour force, calculated as a percentage of the numbers not registered in day-schools, rose from 63 to 80 per cent. (Of the population aged 14-17, the ratio who attended day-schools remained constant at around 60 per cent through this period.)

10. Following are other cursorily summarized demographic aspects of unemployment, with particular attention to the impact of migration. Unemployment is slightly higher among males, in the younger age groups of the population; among females, in the older age groups. Migration has not radically affected the sex ratios of the population. Single men and women are twice as likely to be unemployed as are those of the same age group who are married. The ratios of unmarried persons in Israel are comparatively very low. The rising ratio of boys and girls in the unemployment-prone age group 14-17 years may be attributed, in part, to the high ratio of immigrants from Asia and Africa (whose families are generally much larger than those of immigrants from Europe and America) in the mass migration some fifteen years ago. Migration has had offsetting effects on unemployment among those aged 65 years and over: the percentage of older people among the immigrants has been somewhat less than among the "receiving" population, so that the aging of the Israel population was slowed down; however, recent immigrants aged 65 years and over who participate in the labour force (few do) are particularly likely to be unemployed.

11. The visibly underemployed, i.e., persons working less than thirty hours per week and wanting more work, declined in numbers more sharply in recent years than did unemployment. From 1959 to 1963, it decreased from about 3 to 1 per cent of the civilian labour force (or from one half to one third the number of the unemployed). Most of the visibly underemployed are persons employed in part-time relief work. New immigrants (including women, particularly if they are family heads) are the major participants in relief work programmes, though there are also programmes in Arab and Druse villages and for students at the universities. Quotas of workdays vary, mainly by family size, from fifteen days per month to a full month. The union minimum wage for the occupation is paid. Though today only about 1 per cent of the labour force are involved, large numbers—of the order of 10 per cent of the labour force—had relief work in 1950-1954; they were generally younger and stronger; and more "serious" projects, such as soil conservation and reclamation, were more typical.

12. Invisible underemployment—full-time employment at low-producing work—exists among some farmers. The well-paid wage work in factories and on building sites, which was taken up by recent Jewish immigrants and by Arabs in the last half decade, attracted not only the unemployed, but also led some men to full or partial abandonment of their own farms. The numbers are not large, relatively; agriculture as a whole occupies but 15 per cent of the labour force. Also, farming is far from being a depressed sector. The numbers in farming have more than doubled since 1948, productivity in farming has risen most sharply and all sectors of the farming community have enjoyed rapidly rising living standards. Most apparently underemployed are the Bedouin (who comprise 1.2 per cent of the Israeli population), among whom trucks and tractors are now replacing camels and bullocks, and whose young men are increasingly learning and going into the building trades.

13. Non-agricultural invisible underemployment is probably more serious. It is difficult to estimate the number of full-time employees of factories, offices, and service organizations who are currently redundant for production. The demographic groups most likely to have permanent status in employment ("nails without heads") are early immigrants now getting along in years. Workers who would be ready to move to more needed jobs often find it difficult, and efforts are afoot to ease the institutional barriers.

14. Economically, the most significant group of the underemployed currently is that of persons not in the labour force. These are mainly women aged 35 to 54 years, who might fill serious shortages for teachers, nurses and factory workers if special working hours, household assistance and transportation were more commonly available.

ANNEX

The most important single source, by far, is: Israel, Central Bureau of Statistics, *Statistical Abstract of Israel*, No. 14 (Jerusalem, 1963). The report of the 1961 Census of Population and Housing, other publications and unpublished tables of the statistical bureau were also consulted. The present authors's book, *The Labor Force in Israel* (Jerusalem, Falk Project for Economic Research in Israel, 1961), was used for pre-1955 estimates and for background.

All statistics quoted in the article are subject to sampling error (at the least). The major sources are the Labour Force Sample Surveys, from 1955 to 1963. Since 1958, 1 per cent of households are sampled each quarter-year, and the quarters are averaged for annual estimates. Estimates of the visibly underemployed are based on 1 per cent samples in a single quarter, in each year referred to.

Some estimates are based on a 20 per cent sample of the population at the census. Here, self-enumeration was used and reporting errors are believed to be higher than in the sample surveys.

The definitions of unemployment and visible and invisible underemployment are those recommended by the Eighth and Ninth International Conferences of Labour Statisticians, except that some persons not in the labour force are included among the invisibly underemployed.

The participation of women in the economic activities in the Soviet Union

K. G. ILYINA

[*Translated from Russian*]

1. In its policy with regard to the emancipation of women, the Soviet State has always proceeded on the basis that it is impossible to liberate women and give them equal rights with men without giving the broad masses of women a part to play in social labour. As long as women are excluded from social productive labour and confined to private housework, their dependence and subordinate position in the family and society cannot be ended. The emancipation of women is only possible when they can participate widely in production and housework takes second place, becoming less and less important with time. This becomes feasible with modern large-scale industry, which not only permits the use of female labour but requires it. Private housework is gradually being replaced by social production as a result of the constant development of services for the people, such as public catering (cafeterias, bakeries, dining halls, restaurants, cafés), the development of a system of large laundries and combines for making and repairing outer wear, underwear and so on and the organization of children's institutions (kindergartens and *crèches*) and the improvement of the school system.

2. History shows that from the time when the development of the practical conditions of life in ancient tribal society brought about a change in the relative social position of men and women as a result of a change in the division of labour in the family and the distribution of property, women sank into a dependent condition in the family, and subsequently, in society. As society developed, women's housework began to play a secondary role by comparison with the productive labour of men, which furnished the main means of subsistence.

3. The unequal status of women lasted many centuries. Only the kind and degree of oppression changed. Charles Fourier, the great French scientist and utopian socialist of the early nineteenth century, said: "The abasement of the female sex is an essential characteristic both of civilization and of barbarism, the only difference being that to every vice that barbarism practises in a simple manner civilization gives a complex, ambiguous, two-faced, hypocritical form." In connexion with the fact that the development of capitalist production led to the wide use of female labour, it may be noted that manual labour began to require less strength and skill and in many branches male labour began to be squeezed out by the cheaper labour of women and even children. The participation of women in social production began to increase, but their status continued and still continues in the great majority of countries to be unequal.

4. For many centuries leading thinkers pondered the reasons for the unequal status of women and called for an end to their shameful slavery, considering that this would be a great benefit both for women and for society. Fourier said that the degree of development of any historical age could always be determined by the extent to which women had advanced along the road to freedom, since "the victory of the human race over brutality is manifested most clearly in relations between women and men, between the weak and the strong sex" and that the degree of emancipation of women is a natural measure of total emancipation.

5. Among the active supporters of female emancipation, apart from the utopian socialists, who dreamt of the best possible and most equitable order of society, we may mention many world-famous names, including leading Russian thinkers such as the revolutionary democrat N. G. Chernyshevsky (1828-1889), the well-known teacher, K. D. Ushinsky (1824-1870) and others. Chernyshevsky, making a detailed and critical analysis of the Malthusian population theory in the 1860s, showed, among other things, that an improvement in the status of women must result in a decline in the birth rate, since it is very wearing for women to bear a very large number of children, which they only do when all their natural inclinations are disregarded and they are completely enslaved by men. "How far the number of

births would decline" wrote Chernyshevsky, "if there were reasonably good safeguards of women's independence we cannot say exactly, of course, because not only have we no statistical data on societies in which women have independent status, but there are as yet no such societies." Chernyshevsky considered that society would benefit greatly from the emancipation of women's minds and abilities, which could be used for the common good.

6. Such appeals, however, produced no really effective results until the struggle for women's rights became an integral part of the struggle of all workers against oppression, exploitation and inequality.

7. The founders of scientific socialism, Marx, Engels and Lenin, vigorously defended the rights of working women, regarding their liberation from exploitation and inequality and the ending of their servile status as an essential part of the liberation of all workers. Lenin said: "The proletariat cannot win full freedom unless it wins full freedom for women." In our time women play a leading role in social production and public affairs in many countries.

8. In the developed capitalist countries 30 to 40 per cent of manual and non-manual workers are women. In the United States and the Federal Republic of Germany the figure is 34 per cent, in France and Canada 31 per cent, in Japan 32 per cent, in Finland 39 per cent, in the United Kingdom and Austria 36 per cent and in Norway and Italy 27 per cent. The data on the number of women employed in developing countries (although in many of them there are no reliable statistics as yet, which makes it difficult to determine trends in women's employment) show that the number of women taking part in social production is increasing. Women represent 8 per cent of manual and non-manual workers in Ghana, 9 per cent in the United Arab Republic, 22 per cent in Mexico, 5.4 per cent in Pakistan and so on.

9. The employment rate for women is higher as a rule in socialist than in capitalist countries. In Bulgaria, for example, women represent 38 per cent of manual and non-manual workers, in the German Democratic Republic about 47 per cent of all employed persons, in Czechoslovakia about 45 per cent, in Poland over 40 per cent and in Hungary about 40 per cent.

10. In the Soviet Union the number of women manual and non-manual workers was about 36 million in 1964, or 49 per cent of the total number of manual and non-manual workers employed in the national economy. In addition, about 11 million peasant women of working age were employed on collective farms.

11. A study of trends in female employment in the Soviet Union, of the kinds of work women do and the ways and means by which it has become possible for them to participate widely in social labour and play a big role in the economic and cultural life of the country, cannot fail to be of interest to other countries, and particularly developing ones.

12. The status of women in the Soviet Union underwent a radical change within a very short period, historically speaking. The beginning of the change in the status of the mass of women in the Soviet State was the passing of a number of laws establishing equal rights for women. In the first period after the October Socialist Revolution (1917) decrees were issued on the introduction of equal pay for equal work for men and women, maternal and child welfare and marriage and divorce, together with a number of others establishing equal rights for men and women.

13. On this subject, V. I. Lenin said: "The Socialist Republic of Russia immediately swept away all legal traces of women's inequality without exception and immediately guaranteed women full equality under the law." [1] In order to ensure the practical emancipation and equality of women practical opportunities were created for them to exercise their right to work, so that they could work in any field of the economy in accordance with their desire and inclination. In the first years of the Soviet State, when there was still unemployment, women without husbands were given priority in employment. As a result of the complete and permanent abolition of unemployment in the country in 1930, that is, in the thirteenth year of the Soviet State, employment in any branch of the economy became open to women, like all citizens.

14. To give women a greater role in social production and lighten the burden of housework, to improve their working conditions, to protect their health and that of their children, to raise their level of education and specialized training and qualifications, to make available to them the achievements of science, culture and art—all these matters receive great attention from the Soviet State.

15. Rapid planned development of the economy on the basis of social ownership of the means of production, industrialization and the replacement of a scattered small-scale agricul-

[1] V. I. Lenin, *Collected Works* (Russian edition), vol. XXX, p. 382.

ture by large-scale mechanized farms, which made it possible to overcome the economic backwardness of the country in a historically short period, led to the rapid progress of the whole economy and radically altered the status of women in the Soviet Union.

16. The collectivization of agriculture enabled peasant women to achieve real equality with men and created a firm economic basis for them to achieve in practice the emancipation and equality laid down by law.

17. The constitution of the Soviet Union gives women equal rights in all fields of economic, state, cultural, social and political life. Soviet law guarantees women the same rights as men to work, education, rest, social insurance in the event of illness or maternity and State pensions for disability, old age and loss of the breadwinner. Women get their old-age pensions five years younger than men, and women who have had and raised five or more children, ten years younger, i.e., at fifty.

18. Women in the Soviet Union have equal rights with men as regards pay. In the Soviet economy, the tariff scales and rates and the procedure for payment under the piece-rate system are identical for male and female manual workers. All male and female manual workers with the same qualifications are paid wages on the basis of the same scales for the same quantity and quality of work. The same applies to work paid by the hour. Managers and engineering and technical staff at enterprises, institutions and organizations are paid according to the salary-plus-bonus system. Both men and women receive fixed salary rates established in accordance with the amount and nature of the work, the degree of responsibility they bear, the complexity of the work and the importance of the enterprise in the national economy. The bonus system applies equally to men and women.

19. In the Soviet Union there is not and cannot be discrimination against women seeking employment on the grounds of age or family status. The difficulty encountered in some countries by older women seeking work does not arise in the Soviet Union. They can always find work if they wish and often women who are entitled to receive a fully adequate old age pension continue to work, since they do not want to give up an occupation they enjoy.

20. Marriage cannot be an obstacle to employment or grounds for dismissal, as is the case in some countries.

21. Women in the Soviet Union also have equal rights in the family. Their rights with regard to their children and property and to marriage and divorce are the same as those of men. At the same time the law protects the interests of mothers and children. In its concern for the education of the entire younger generation, the State gives special material aid to unmarried mothers and mothers of large families and helps them raise their children. Special attention is given to all women who are preparing to become mothers or have done so. Regardless of where they work—in industry or on the farm—they are given maternity leave with pay, free medical and prophylactic treatment by hospitals and clinics, nursing homes, women's and children's consultation clinics and so on.

22. As a result of the great amount of systematic work done by trade unions and other social organizations to establish conditions which will enable women to acquire skills and work in the field of their choice, great progress has been made in giving effect to women's right to work and education. The great growth of mechanization and automation of industry, the rise in women's cultural level and industrial skills, radical improvements in working conditions and enterprises for all workers, and particularly for women, and measures to ensure the emancipation of women in everyday life, including the establishment of a wide-ranging system of dining halls, laundries and children's institutions, such as kindergartens and *crèches* and so on, have helped to ensure wide use of female labour and made it possible for millions of women to participate in social production.

23. In Tsarist Russia women had no rights. Eighty-eight per cent of women and girls aged nine or over were illiterate. Only a few women, mostly from the privileged strata of society, were able to receive education at secondary educational institutions and the woman with higher education was a rare exception. The women of pre-revolutionary Russia had no political or economic rights. Under the laws then in force, persons of the female sex were not included in the electoral rolls for election to the State *Duma*. In the country, women did not take part in the village assemblies of peasants, which discussed questions relating to land tenure (land use measures, reallotment of land, use of common land, assignment of duties). Working from morning till night in the fields and at home, the peasant woman did not even have any rights in the family.

24. As for women workers, they were used mostly for work which did not require skill or qualifications. Eighty per cent of all employed women worked as servants, daily workers and farm hands working on landowners' and *kulaks'* estates. Only 13 per cent of employed

women worked in industry and construction (mostly in textiles, sewing and food) and only 4 per cent in education and health. The almost complete lack of any system of industrial and vocational training, the unavailability of general education and the general illiteracy denied women entry into the ranks of skilled labour.

25. The situation of pre-revolutionary women was particularly hard and their rights particularly few in the eastern regions of Tsarist Russia and in the Bukharsky and Khivinsky *khanates*, which now form part of the Central Asian Soviet Republics. The women of the eastern peoples were all, with rare exceptions, illiterate and entirely dependent on their men, although women's labour played a big role in the economies of these peoples. Women not only did housework, but were skilful at weaving carpets and sewing. From the age of nine or ten, however, they wore *yashmaks*. This ugly and unhygienic garment, which is a long sack of grey or dark blue cloth covering the head and the whole figure, with narrow, long "false" sleeves folded behind the back was an outward symbol of women's lack of rights. Outside the home, women could see the surrounding world only through the veil covering their faces. In these regions, girls far under age were sold to men as wives and became wholly their property.

26. Women's harsh situation and lack of rights in Tsarist Russia were aggravated by the general economic backwardness of the country and the extremely low standard of living. The First World War, followed by the foreign intervention and economic blockage of the Soviet Union by other States, weakened the country's economy still further and actually brought it to ruin.

27. Having taken the power into their own hands and beaten off the intervening foreigners and White Guard insurgents, the workers and peasants of the Soviet Union set about reconstructing and transforming the country's economy. By 1926, the ruined economy had been restored to the pre-war level and by 1932 industrial production was 170 per cent higher than in 1913, while the output of the machine-building and metal-processing industries had risen seven times and that of electric power nearly seven times. By 1964 the output of these industries had risen 56, 437 and 225 times, respectively.

28. The total number of manual and non-manual workers in the country had almost doubled by 1932 and had risen by nearly 470 per cent by 1964. The number of women manual and non-manual workers rose at a still more rapid rate. In 1929, 3.1 million women were employed in the Soviet economy; in 1933, 6.7 million; in 1940, 12 million; and in 1964, about 36 million, or 49 per cent of the total number of manual and non-manual workers. The distribution of employed women among the different branches of the economy changed radically. In 1963, 38 per cent of the total number of women manual and non-manual workers worked in industry and construction, 25 per cent in education, health, science and scientific services and the remaining 37 per cent in trade and public catering and in administrative bodies, credit and insurance institutions, and so on.

29. The policy of the Soviet State towards national groups, which is aimed at developing the economies of the national regions and reviving and developing national cultures has created conditions for cultural and vocational growth and for the active participation in production of women in the former national provinces of Tsarist Russia. In the Transcaucasian regions, the number of women manual and non-manual workers was nearly five times higher in 1963 than in 1933 and in the regions of Central Asia and Kazakhstan over nine times greater. At present, women represent 37 to 42 per cent of the total number of manual and non-manual workers in these regions and the great majority of them are employed in industry, construction, education, health, science and scientific services. Such women's occupations as servant, charwoman and hired hand have disappeared into the distant past. The number of women engaged in intellectual work is growing considerably faster than the number of women engaged in physical work. Between the population censuses of 1939 and 1959 the number of women engaged in mainly physical labour rose by 1 per cent (from 45 to 46 per cent) and the number of those engaged mainly in intellectual labour by 21 per cent (from 33 to 54 per cent). The growth in the number of women engaged in mainly physical labour is due mostly to the use of female labour for mechanized work. At the same time as women are being entrusted with the operation of machines, measures are being taken to transfer women to light work from heavy work and work in unhealthy conditions, which they started doing during the war, when they replaced their fathers, husbands and brothers, who were away at the front.

30. The political and economic emancipation of women gave millions of manual workers and peasants in the Soviet Union the opportunity to reach the top in science, art and culture. Millions of women have become managers and organizers of production, for equality between

the sexes in the Soviet Union also means that women have an equal right to participate in the direction of the country's economic and cultural life. On 15 November 1964, 6.6 million women specialists with higher and secondary education were employed in the economy, representing 59 per cent of the total number of managerial and specialist personnel.

31. Women account for 31 per cent of graduate engineers in industry and 17 per cent of graduate engineers in construction. In the Soviet Union, one engineer out of three is a woman (it is not without interest to note, for purposes of comparison, that in the United States the figure is one in a hundred). Forty-three per cent of agronomists, animal specialists and veterinary workers with higher or secondary specialized education, 69 per cent of school directors and teachers, and 75 per cent of doctors in all fields of specialization are women. In the United States, according to the latest published data, the number of women doctors is 15,500, or only 7 per cent of the total. In pre-revolutionary Russia, the number of women doctors in all fields of specialization was only 2,800, or 10 per cent of the total number of doctors, while in 1964 (according to preliminary data) there were 390,000 of them. It must be said that even in the national regions that were formerly the most backward areas of Tsarist Russia, the number of women doctors is now very considerable. In the Kazakh Republic, the proportion of women doctors at the end of 1963 was 75 per cent, in the Armenian Republic, 72 per cent, and in the Uzbek Republic, 65 per cent. The proportion of women among school directors and teachers in 1964 in the same Republics was 62, 54 and 41 per cent, respectively. The percentage of engineers, agronomists and other specialists who are women is also high in the Republics of Kazakhstan, Central Asia and Transcaucasia.

32. Among the women managers and specialists in industry, construction, education and health, there are many former peasants educated at Soviet schools. In addition, women play a big role in the organization of agriculture and the management of collective farms, acting as chairmen and members of the administrations of collective farms, as directors of farm sections and group and brigade leaders.

33. Women occupy policy-making posts in State organs and in trade-union and other social organizations. There are 2,915 women deputies in the Supreme Soviets of the Union and Autonomous Republics, or 34 per cent of the total, more than 815,000, or 42 per cent of the total, in local Soviets of working peoples' deputies, and 390, or 27 per cent of the total in the Supreme Soviet of the Soviet Union. Among the people elected to trade-union organs, from the All-Union Central Council of Trade Unions down to factory committees, there are hundreds of thousands of women. The proportion of women in trade-union organs is 30 to 60 per cent. In a number of ministries, women occupy the position of minister or deputy minister. Thousands of Soviet women are engaged in scientific work. In 1964 there were 230,000 women scientific workers, or 38 per cent of the total. About 1,000 women have the academic rank of academician, active member or corresponding member of the Academy or professor. About 17,000 women have the academic rank of lecturer or senior scientific worker. An obvious example of the technical and scientific achievements of women in the Soviet Union is the fact that the first woman to make a flight through space was the Russian Valentina Tereshkova.

34. On 1 January 1962, there were 698 women writers in the Writers' Union of the Soviet Union, 4,000 women journalists in the Journalists' Union of the Soviet Union, 2,400 women architects in the Architects' Union of the Soviet Union, over 2,300 women artists in the Artists' Union of the Soviet Union and 212 women composers and musicologists in the Composers' Union of the Soviet Union.

35. These figures are striking evidence of the great and ever-growing importance of women's labour in all branches of the economy, and particularly in health, education, science and culture. In such important and responsible fields as the public health and the education of the young, most of the work is done by women.

36. Women's labour services are valued highly in the Soviet Union. This is shown by the fact that between 1918 and 1965, 869,000 orders and medals for valiant labour in industry, construction, transport, communications, agriculture, education and health, and science and art were awarded to women. The title of Hero of Socialist Labour has been awarded to 2,885 women, of whom 24 have been awarded a second "Hammer and Sickle" gold medal.

37. During the Great Patriotic War of 1941-1945, women not only did self-sacrificing work in the rear, but also accomplished heroic exploits at the front and in partisan units. Many women were decorated for their services during the war. In all, including war decorations, over 1 million orders and medals were awarded to women of the Soviet Union.

38. In May 1965, the Supreme Soviet of the Soviet Union, in recognition of the outstanding services of Soviet women in building

communism and defending the fatherland during the Great Patriotic War and of their heroism and self-sacrifice in the rear and in order to mark their great contribution to strengthening friendship between peoples and working for peace, passed an Act making International Woman's Day, 8 March, a holiday.

39. In the Soviet Union, mothers are treated with esteem and respect and are cared for in every possible way by the State. Apart from State allowances and various privileges enjoyed by unmarried mothers and mothers of large families, the latter are also awarded decorations by law. Since the Act was passed, the State has awarded pensions to unmarried mothers and mothers of large families for more than 36 million children. In 1964 alone nearly 6 million mothers received State allowances. The honorary title of Heroine Mother has been awarded to 83,000 women and millions of mothers of large families have been awarded the Mother's Glory Order and the Motherhood Medal. The health of mothers and their children is protected by a vast system of special institutions for maternal and child welfare of which mothers and children, like the population as a whole, can get curative and prophylactic care free of charge.

40. Thus the improvement in the economic position of women is accompanied by a display of concern by the State and by the people as a whole for the welfare of women as mothers. This enables women to make greater use of their rights and to apply their knowledge and talents fully in social labour.

41. The question of the status of women is a question of their legal status, of their labour, of the highly important role in the economic, social and political life of society played by the women manual workers and peasants who make up the great majority of the female population of any country, and in the Soviet Union it has been solved with complete success. The complete elimination of the last traces of women's unequal status in everyday life, the provision of work for women which is comparatively lighter than that of men but equally well paid, the creation of all the necessary social conditions for combining happy motherhood with ever more active and creative participation by women in social labour and social activities, in scientific and artistic pursuits—these are the main goals for the further improvement of the status of women which the Soviet Union has set itself, and it is in the process of achieving them while at the same time carrying out a general programme for further developing productive forces, increasing the productivity of labour and raising the standard of living.

Economic and social factors in ensuring full employment (experience of the Soviet Union)

P. P. LITVYAKOV

[*Translated from Russian*]

I. MANPOWER AND EMPLOYMENT

1. The source from which every national economy draws its work force is the population. That part of the population which possesses the physical and mental qualities necessary for the performance of work constitutes the labour potential of the population or, as it is customarily referred to in the statistical and planning practice of the Union of Soviet Socialist Republics, the manpower of the country. The economically active manpower of a country represents its work force.

2. The work contribution of the population to a country's economy depends upon the character of the economic, social and other conditions which determine the formation of the work force and the manner in which and the extent to which it is used. The age limits within which the members of a country's population make a work contribution to its economy tend to vary, for they cannot possibly be uniform for countries which are at different levels of economic development and in which different social conditions prevail.

3. The bulk of a country's manpower comes from the age group comprising the working-age population. In international statistics, the working-age population usually consists of persons between the ages of fifteen and sixty-four years. In the Union of Soviet Socialist Republics, the working-age population comprises males aged sixteen to fifty-nine years and females aged sixteen to fifty-four years. The basis for the lower age limit is the legal requirement that adolescents under sixteen years of age must complete the course of education in the eight-year school. The basis for the upper limit is the legally prescribed retirement age at which the older members of the work force cease to be gainfully employed.

4. In addition to the working-age population, a country's manpower includes, to the extent of their work contribution, persons who fall outside the aforementioned age-limits, i.e., adolescents under the age of fifteen years (in the Union of Soviet Socialist Republics, sixteen years) and persons beyond retirement age. In the countries with the highest degree of economic development, the proportion of the work force under fifteen years of age amounts to between 0.5 and 1.5 per cent, and the proportion aged sixty-five years and over, to between 4 and 6 per cent. In the Union of Soviet Socialist Republics, according to the 1959 census, the proportion of working adolescents under sixteen years of age amounted to about 0.6 per cent, and the proportion of workers beyond retirement age amounted to more than 3 per cent; in relation to the age limits used in international statistics, the corresponding proportions were 0.2 per cent and about 1 per cent, respectively. In the developing countries, the proportion of the work force under fifteen years of age amounts to between 5 and 10 per cent, and the proportion aged sixty-five years and over, to between 2 and 5 per cent. The extent to which adolescents and persons beyond retirement age participate in a country's economy depends upon various economic and social factors, such as the level of living, the relative economic importance of agriculture, the level of development of small-scale production, the system of education, the status of women and the system of retirement pensions.

5. A correlation exists between population growth rates, the sex-age structure of the population and the proportion of population that is gainfully occupied. From the point of view of the immediate (current) interests of a country, a population structure in which the working-age population is the largest component is the most advantageous. It would, however, be wrong to evaluate the effectiveness of a particular kind of population structure on this basis. The children among the population constitute the potential manpower, the manpower of the future. The past experience of the Soviet Union and other developed countries shows that the problem of increasing the effectiveness of the population structure should not be sought in a limitation of births but

rather in the fostering of economic and social conditions that are conducive to a country's development. Suffice it to say that in the national economy of the Union of Soviet Socialist Republics, about nine tenths of the working-age population (exclusive of persons in military service) are gainfully occupied, the corresponding proportion in the United States of America being three quarters, and in other developed countries, between two thirds and three quarters. There are even greater differences in this regard between the ratios of economically inactive to economically active population. In the Union of Soviet Socialist Republics, for every 100 economically active persons (exclusive of those in military service) there are 120 economically inactive persons. In the United States of America, the corresponding ratio is about 150, and in the European countries it fluctuates for the most part between 105 and 150. In the developing countries, however, it runs as high as 150 to 230. In the latter countries, the high ratio of economically inactive to economically active population is determined mainly by the larger proportion of children in the population, the smaller proportion of working women and a high rate of unemployment. The ratios in the European countries are the result of low population growth rates (0.5 to 1.4 per cent a year, as against 2 to 3 per cent in the developing countries) and the relatively high proportion of working women (one quarter to two fifths). The considerable difference between the ratios for the Soviet Union and the United States is due principally to the differing proportion of working women in the two countries (about one half in the Union of Soviet Socialist Republics, as against one third in the United States) and the absence of unemployment in the Union of Soviet Socialist Republics, the population growth rates in both countries being almost the same. This indicates that, other things being equal, the higher the level of employment of the working-age population, the more economically sound is the ratio of the unoccupied population to the working population.

6. The problem of eliminating unemployment and providing work for the entire population is one of the most important aspects of the general problem of creating conditions favourable to a sustained high rate of economic development (production of national income). The rapid growth of production brings about an increase in employment opportunities in conformity with the needs of the population and facilitates the achievement of full employment. In the Union of Soviet Socialist Republics from 1928 up to the present time, there has been an average annual rise of about 10 per cent in the national income, of about 9 per cent in the labor productivity of the economy as a whole, of 5.5 per cent in the number of economically active manual and non-manual workers and of approximately 1.3 per cent in the size of the working-age population. It is estimated that in the twenty-year period 1961-1980, there will be an annual increase of about 8.4 per cent in the national income, of 7.7 per cent in productivity, of about 1.7 per cent in the number of economically active persons and of 1.3 per cent in the size of the working-age population, the rise in employment opportunities thus outstripping population growth. Manpower needs not met through population growth will continue to be met by drawing upon persons employed in the domestic (household) economy.

7. In the accounting and planning practice of the Union of Soviet Socialist Republics, a distinction is made between employment in the general economy, full-time study, employment in personal subsidiary agriculture and employment in the household economy. Any reference to employment in the national economy includes employment in the general economy and employment in personal subsidiary agriculture. The maximum number of persons that can be employed in the national economy depends on what proportion of the population must be released for household employment and full-time study. In the Union of Soviet Socialist Republics, virtually all members of the working-age population who are capable of working are employed in the national economy. The only exceptions are persons engaged in bringing up children or performing household duties, retired persons and students attending educational institutions. An increase in the number of students is dictated by the interests of economic development, by the need for skilled workers. At the same time, the Soviet State is constantly striving to broaden the ranks of the economically active population by expanding the network of publicly-financed collective child-care facilities (kindergartens, day nurseries, boarding schools, full-time day schools etc.) In this way, the number of persons employed in the household economy can be systematically reduced, and the number employed in the general economy correspondingly increased. In 1928, when the Soviet Union was embarking on large-scale industrialization, the proportion of the urban working-age population employed in the household economy was 28 per cent; today the figure is less than 13 per cent.

8. When the industrialization of the country began in 1928, approximately two thirds of the working-age population were employed in

the national economy. Among the persons not so employed, overpopulation in agriculture accounted for 8 to 9 million (one seventh of the rural working-age population), and urban unemployment for about 1.5 million (9 per cent of the urban working-age population). Thanks to planned management of the economy, the Soviet Union was able within the first two or three years of the first five-year plan to solve the problem of unemployment and rural overpopulation and to provide full employment for the entire working-age population.

II. Determining factors in raising the level of employment

9. The decisive factor in raising the level of employment in the Union of Soviet Socialist Republics was the industrialization of the country. The rapid growth of industrial production and of construction was accompanied by an increase in the number of undertakings and establishments in other branches of the national economy and in the services sector. Industrialization was the basic task in the first five-year plan (1928-1932). What was needed was an industrial structure that would make it possible to transform the entire national economy on the basis of modern technology, to convert the Soviet Union into an industrial country and to lay the economic groundwork for the building of socialism. One of the outstanding features of industrialization was the rapid pace of development of heavy industry, and especially mechanical engineering, as the basis for the technical transformation of the economy and an indispensable condition for ensuring the country's economic independence. During the years of the first five-year plan, basic productive resources increased by 1.5 times in the national economy as a whole, but by 2.4 times in industry and construction. A total of 1,500 large undertakings, serving as a base for the further industrial development of the country, were put into operation, and many small and medium-size undertakings were built. Completely new branches of industry were established, among which were the manufacture of tractors, motor vehicles, machine tools and farm machinery, the chemical industry and the aircraft industry. Other branches, such as the metallurgical industry and the petroleum industry, were completely reorganized.

10. In the initial years of the five-year plan, the mass introduction of new productive capacity was accompanied by a sharp rise in the number of manual and non-manual workers, amounting, in industry and construction, to an average of 1,450,000 workers, or 23 per cent, a year. Along with this huge increase in their numbers, the productivity of the workers also rose. In subsequent years, the rapid growth of industrial production and of other branches of the economy was regularly accompanied by an increase in the labour force. Up to the present time there has been a sevenfold increase in industrial manpower since 1928.

11. A characteristic feature of manpower utilization in the Union of Soviet Socialist Republics since the beginning of the industrialization process has been a simultaneous rise in the urban labour force and a decline in agricultural manpower. Owing to the increased mechanization of agriculture, there was a considerable expansion (37.4 million hectares) in the areas brought under cultivation during the pre-war five-year periods. This, however, did not create any need for additional farm workers but led rather to a sharp decline in their number. From 1928 to 1940, the number of persons directly employed in agriculture declined by about 12 million or, if the elimination of the previous surplus of agricultural manpower is taken into account, by no less than 20 million, representing about one quarter of the total—all this taking place in the context of an expanding agricultural output. During the post-war years, the process of reducing the agricultural labour force was carried still further. As a result, agricultural and forestry workers, including those employed in personal subsidiary agriculture, now constitute 34 per cent of the total labour force, as against 80 per cent in 1928. The increase in urban population attributable to rural-urban migration and to the transformation of rural localities into urban amounted to 24.5 million in the period 1926-1938 and to about 31.6 million in the period 1939-1959. This was considerably greater than the urban population increase attributable to natural growth. The ratio of urban to total population rose from 18 per cent in 1926 to 48 per cent in 1959 and to 62 per cent in 1964. The agricultural labour force is nevertheless still large enough so that, as its productivity rises, more agricultural workers can be transferred to other branches of the economy.

12. In the early years of the pre-war five-year plans, considerable difficulty was encountered in assimilating workers into other branches of the economy, especially industry. Because of the backward state of agriculture in those days, with its predominance of manual labour, that branch of the economy could supply industry with only unskilled workers. In order, therefore, that these new workers might be effectively used in industry, training had to be provided for millions of them within a short time. There were two ways in which this could

be done. The first way was to instruct and train skilled workers beforehand and bring them into industry as needed; the second way was to bring them into industry directly and then instruct and train them on the job. A combination of these two methods made it possible to solve the problem of worker training within a relatively short time, and this has been one of the great achievements of the Union of Soviet Socialist Republics.

13. The solution of the worker-training problem necessitated a substantial increase in teaching staff, and this in turn proved to be one of the social factors in raising the level of employment. There was an especially rapid increase in teaching personnel during the period 1929-1940, when the enrolment in the schools of general education underwent an enormous expansion—from 13.8 million to 35.6 million. This laid the groundwork for the sharp rise in intermediate and higher education in subsequent years and for the emergence of a large body of highly skilled workers. The number of teachers has steadily grown and is now 2.3 million, i.e., 103 per 10,000 inhabitants, as against 24 per 10,000 inhabitants in 1928.

14. Another social factor in the increase in employment has been the improvement of public health services. In response to the need for a constant improvement in medical services so that the expansion and effective utilization of the labour force might be safeguarded, the number of public health workers became steadily larger. In 1928 there were 26 public health workers per 10,000 inhabitants, and today there are 175 per 10,000 inhabitants, this being a more than sixfold increase. One result of this has been that the death rate in the Union of Soviet Socialist Republics has in recent years become the lowest in the world. Especially great progress has been made in reducing infant mortality. It is sufficient to note that in 1963 the crude death rate was only 40 per cent of what it had been in 1940, whereas the infant mortality rate was slightly more than one sixth as great. The expectation of life at birth is, as a result, 1.6 times greater than it was when the Soviet Union was just embarking upon its programme of industrialization and of social and cultural progress. At the present time, the expectation of life at birth in the Union of Soviet Socialist Republics is seventy years.

15. A further social factor in the expansion of employment has been the growth of the services sector. The increase in the number of workers in this sector has helped to ease and shorten the burden of housework for women, to eliminate the disadvantageous position of women in daily life and to provide better servicing and repair facilities for the population as a whole. From 1928 up to the present day, there has been a tenfold increase in the number of persons employed in the services sector per 10,000 inhabitants.

16. Among the social factors conducive to full employment, one of the most important has been the liberation of women from their formerly benighted condition and the granting to them of equal status with men (equal pay for equal work, social insurance etc.). The Constitution of the Soviet State grants and guarantees to women equal rights with men with regard to work and rest, wages, social insurance and education. Under Soviet labour law, pregnant women are exempt from overtime and night work and, in case of necessity, are transferred to less strenuous work. In addition to their regular annual holiday period, women are granted paid leave for a period of 112 calendar days in connexion with pregnancy and childbirth. In cases of multiple or abnormal births, this period is extended. The experience of the Soviet Union convincingly demonstrates that there is no reason why women should not be able to participate in every sphere of human activity. Women constitute 48 per cent of the total manpower of the Union of Soviet Socialist Republics. They account for 58 per cent of the workers with a higher or intermediate specialized education, including 31 per cent of the engineers and 38 per cent of the technicians. More than one third of the industrial managers and specialists and more than 39 per cent of the scientific workers are women. The proportion of women is increasing mainly in those types of activity in which non-manual work predominates (teachers and other cultural and educational workers, physicians and other medical workers, scientific workers, administrative staff, personnel concerned with credit and finance and so on). As regards industrial activity, the number of women performing work with the aid of machinery and equipment is rising at an especially rapid pace.

III. Causes of the expansion in employment

17. The solution of the problem of employment is directly related to the problem of capital accumulation. The growth rates and distribution pattern of capital investments affect and are affected by employment. A characteristic feature of the growth of capital investments in the Union of Soviet Socialist Republics is not only its rapid pace but also, and more importantly, its steadily broader scope. This ensures a systematic expansion of the country's

productive capacity and thus, in turn, the steady absorption of manpower into the national economy on a scale which, even in any particular year, excludes the possibility of relative over-population. A high level of employment makes possible a still higher level of capital accumulation.

18. The main activity under the initial five-year plans (1928-1938) in the Union of Soviet Socialist Republics was new construction. As a result of the renewal of the fixed productive capital, 80 per cent of all production was taking place in newly-built and newly-renovated undertakings even by the end of the second five-year plan. Today, when production has been placed on a firm footing, great benefits are being derived from this renovation and modernization program. This is a result of the high proportion of savings in the national income, which makes it possible steadily to improve the technological efficiency of the existing undertakings and to provide additional employment through the construction of new undertakings embodying the results of the latest technical advances. During the ten-year period 1954-1963, the fixed productive capital in industry and construction increased almost threefold, but the number of workers by only 1.6 times, or by an average of 4.7 per cent a year. For each 10 per cent increase in fixed capital, the number of manual and non-manual workers rose during the period of the first five-year plan by 9.1 per cent, but during the most recent ten-year period by only 3 per cent. As the country's economy reaches an ever higher stage of development, constantly greater importance is attached to increasing the number and proportion of workers employed in th services sector.

19. In this connexion, the proper distribution of capital investments between productive and non-productive activities [1] is of great significance because of its effect on the pace of economic development. The criteria for the allotment of workers between physical production and the non-productive sectors are, on the one hand, the productivity of labour at the present time and rate at which it is increasing and, on the other hand, the urgency of the tasks awaiting solution in the field of social and cultural development, having due regard for the age structure of the population, the supply and demand situation as regards skilled labour, and the capital absorption capacity of the non-productive sectors.

20. The accumulation of productive capital as a component of the national income is 2.5 times greater in the Union of Soviet Socialist Republics than in the United States of America. This is not only conducive to faster rates of economic growth but also makes it possible to carry out a vast program of social and cultural development. An increase in the number of persons employed in such sectors as education and public health helps to raise the level of culture and technical competence of the population and the productivity of labour, to reduce morbidity and to extend the mean length of life. It also creates the conditions for greater manpower mobility, which is necessary for the redistribution of workers among the various sectors of the economy as required by the advance of technology.

21. The funds for the industrialization of the Union of Soviet Socialist Republics were derived from domestic resources; industrialization was achieved by the Soviet people themselves without any outside help. Such a feat was made possible only by nationalizing and transferring to State control the fixed assets of every form of enterprise, by concentrating the financial assets of undertakings and the savings of the people in the finance and credit system and by utilizing all such assets in an effective and systematic manner. These tasks were successfully carried out through the hard work of the entire population, an increase in the level of employment and a rise in the productivity of labour.

22. The entire history of the development of the Soviet economy strikingly confirms that the productivity of labour is the paramount factor in capital accumulation. Even in the early stages of industrialization, more than half of the total increase in industrial production was attributable to this factor—51 per cent under the first five-year plan, 79 per cent under the second five-year plan and two thirds in subsequent years. In agriculture, the entire increase in production was due to this factor. From 1928 onwards, three quarters of the national income for the country as a whole has been attributable to the increase in the productivity of labour.

23. What this means is that a continuing rapid rise in the productivity of labour is, in the final analysis, an indispensable condition for full

[1] In the accounting and planning practice of the Union of Soviet Socialist Republics, physical production includes: industry, agriculture, construction, transport and communications (to the extent that they serve production), trade, public catering, supplying of materials and machinery, purchases by the State and sales. The non-productive sectors comprise: passenger transport and communications (serving the public), education, science, culture, art, public health, housing and municipal services, credit and insurance institutions, and the administrative authorities responsible for the management of the State and the economy and of public organizations.

employment. This statement might at first glance seem to be paradoxical and to run counter to the experience of the developed capitalist countries, where a rise in the productivity of labour ordinarily leads to chronic unemployment. It is often asserted in this regard that a sluggish rise in the productivity of labour creates conditions for bringing additional manpower into the economy and eliminating unemployment. This line of reasoning is apt to lead to the erroneous practical conclusion that in the case of the developing countries it might be more "advantageous" to acquire obsolete equipment so that the productivity of labour would be prevented from rising too quickly and thus aggravating the employment situation under conditions where there was a surplus of manpower. The entire experience of the Union of Soviet Socialist Republics demonstrates, however, that without a steady rise in the productivity of labour no country can accumulate the capital that is necessary for investment and for improving the well-being of its people. The growth of capital investment leads to an increase in production and employment.

24. A basic factor in raising the productivity of labour is the introduction of new technology. Technical progress does not affect all economic sectors and undertakings simultaneously but is realized gradually. As part of this process there is a continuous increase in the demand for workers as new industrial undertakings are built and the existing ones are expanded and as the undertakings and facilities in the services sector become more numerous. Workers no longer needed in one line of activity are assimilated into others. The significance of this is that technical progress in the Union of Soviet Socialist Republics does not lead to unemployment but is merely accompanied by a changing pattern of occupations and skills among the labour force and by a redistribution of workers between undertakings, economic sectors and geographical regions.

25. Rising productivity is a factor in the expansion of employment also because it makes possible a reduction in working hours. Where a reduction in working hours takes place at the beginning of the industrialization phase, as happened in the Union of Soviet Socialist Republics, it offers the possibility of eliminating or alleviating unemployment in a relatively painless way. The reduction of working time by one hour at the beginning of the first five-year plan was sufficient in itself to provide employment for an additional 500,000 workers, this being one of the reasons for the relatively lower rise in the productivity of labour per man-year at that period than in later years. In some sectors the transition to a shorter working day made it possible to introduce additional shifts and thus to increase output through a more intensive utilization of equipment. The further shortening of the working day in the Union of Soviet Socialist Republics in recent years was also accompanied by a substantial rise in employment in the general economy. The greater amount of free time thus made available to the workers offered them additional opportunities for cultural pursuits and the improvement of their skills. The shortening of the working day was carried out without any reduction in wages.

26. The rising level of employment in the Union of Soviet Socialist Republics is accompanied by a steady rise in family income. These two questions are closely related, for rising income is a social factor that exerts a very great influence on the rise in employment. As already noted, full employment of the able-bodied population can only be ensured on the basis of rapid and uninterrupted economic development. The achievement of such development is, however, impossible unless the problem of improving the level of living is solved, for the expansion of the domestic market is an indispensable condition for the steady expansion of production. The higher the level of employment, the higher, in its turn, is the level of the family income.

27. The full and efficient utilization of manpower is one of the most important objectives in planning. Manpower utilization planning is carried out on a scientific basis. An important stage in this process is a pre-planning analysis of the manpower situation in the various regions. The topics analysed are the natural and migratory movement of population, the population structure, changes in the labour force participation rate of various groups, the distribution of manpower among the basic sectors of the economy and the importance to the national economy of the various sources of manpower supply. Special attention is given to the effect of technical progress on the composition of the labour force by occupation and skills and to the consequent redistribution of workers by industry and economic sector. This analysis is taken as the basis for devising solutions to the problems of future manpower utilization peculiar to each region. A factor that must be taken into account in the geographical distribution of industry is whether industrial sites should be near a source of manpower supply or whether population should be transferred to other regions. A characteristic feature of all forms of population redistribution

is the principle of free choice and the combining of personal financial advantage with the social incentives to work. The possibilities of releasing able-bodied persons from the household economy and transferring them to the general economy are also explored. The principal instrument of such planning in the Union of Soviet Socialist Republics is the balances method, which is being constantly improved in response to the demands of a developing economy and to the structural changes resulting from the progress of technology.

Population growth and problems of employment in Asia and the Far East

ULLA OLIN

1. In Asia and the Far East population growth is generally viewed as a deterrent to speedier economic development. The Governments of India and Japan were, in fact, the first in the world to officially take this view of population growth and to initiate policies designed to slow down the rate of growth of their populations. This was shortly after the conclusion of the Second World War. Since that time, several other countries in Asia and the Far East have followed their example.[1]

2. In what manner is population growth considered to act as a deterrent to economic development? The commonly held view is that it will aggravate the problem of diverting funds for investment and depress the average level of living through its demand on the country's resources for basic consumption. It is often feared that the net effect of the consumptive drain of population growth may be a *status quo* or even a deterioration in the level of living. What is not often explicitly stated, but probably sensed, is the fear that continued population growth may, through its adverse effect on economic development, lead to social unrest and possibly to the overthrow of the existing social order. The author of this paper would, at any rate, like to propose that this already is a tangible problem in Asia and the Far East and that it deserves more attention than it has been awarded to date.

3. For a better understanding of the alleged risk of social unrest and its relation to employment problems, it would be helpful to consider for a moment the general "state of mind" in a society in the process of transforming itself from the way of life of a tradition-bound agricultural economy to that of a modern industrial-urban economy.

4. For those sectors of the society directly affected by the transformation, the demands for adjustment and change are profound and incessant. Provided the attempts at industrial development meet with a measure of success, an increasing proportion of the population of such a society lives, as a result, under constant stress. This fact, or the significance of it, appears to be largely overlooked in the current discussion of economic development. It is, however, of fundamental importance as the behaviour of a population under stress is entirely different from that of a population living under stable conditions, a viewpoint that has most convincingly been advanced by A. D. Jonas.[2] Without going into the detailed arguments of Jonas' stimulating and revolutionary book, brief reference will be made to the principle of irritation and counter-irritation as it affects the kind of social situation discussed here.

5. Take a large city in an Asian country today. Its population contains typically a very large number of young in-migrants, preponderantly male, who have come from towns and villages in search of employment and the "new" life. They hope the city will offer them the opportunities they feel are denied them in their place of origin. A few will make good and adjust without undue difficulty to city life. The majority, whether successful in their bid for employment or not, will find city life frustrating. The freedom from traditional bonds is obtained at a price: employment—if secured at all—is not a sure thing; housing is expensive and usually inadequate; in times of trouble there are often no friends and relatives to turn to; wives—if found—may not be able to adjust; the day of work may be long and hard etc. In short, the sum total of frustration (irritation) is staggering. As has been shown in numerous incidents, this is an atmosphere in which any appeal to injustices suffered falls into fertile ground. It makes little difference whether the alleged cause of grievance is imagined or real; the need for an outlet (counter-irritation) to the pent-up frustrations is far stronger than any incentive towards a

[1] Japan no longer suffers from a very high rate of population growth, nor from problems of economic development comparable to those facing other countries in Asia and the Far East. It should therefore be considered as excluded from the following discussion, i.e., the term "Asia and the Far East" should be read to mean "Asia and the Far East, excluding Japan".

[2] A. D. Jonas, *Irritation and Counterirritation* (New York, Vantage, 1962).

rational assessment of the situation, which, in any case, would require the possession of information and a power of analysis beyond what is available to any but the elite of society. This kind of situation is the main explanation for the sporadic outbursts of riots and disorders of various magnitude that have characterized the last two decades in Asia and the Far East. [3]

6. If one considers that a social situation of this type may be found in all urban areas in a country undergoing economic development, it is not difficult to understand why disorders erupt now and then, and why the young male population, particularly the educated sector, usually plays a leading role in the disorders. The young men, who converge on the cities in large numbers, arrive with expectations; they hope to make a place for themselves in the new society they have read or heard about. Instead they find a society where everything is in a state of flux, where—true enough—everything remains to be done, but where useful training and advice for the tackling of the new tasks is very difficult to obtain and where, consequently, many are found wanting. The disappointment is likely to be felt most intensely by those who have invested time and effort in an education and who, moreover, may find a challenge in the opportunity for leadership offered by some "cause" or other. The older members of the population either have found an acceptable place for themselves or are resigned to their lot.

7. For some quantitative measurement of the plight of Asian youth, one would wish to turn to employment surveys. Unfortunately, only a few such surveys have been made, and fewer still contain the detail required for an assessment of the special situation of young persons. Only India appears to qualify in this respect. In view of the basic similarity of many problems of economic development in all the low-income countries, including that of creating sufficient non-agrarian employment opportunities, it does, however, not appear far-fetched to suggest that the picture that emerges for India may be of relevance for the understanding of the employment situation in other countries as well.

8. The most recent Indian survey of employment conditions in urban areas provides a dramatic illustration of the difficulties with which Indian youth is faced. [4] It shows that unemployment of young persons is high in all urban areas, alarmingly so in the four largest cities: Bombay, Calcutta, Delhi and Madras. Furthermore, unemployment among the educated youth is more severe than among the uneducated youth. A few figures may be quoted as illustrations. For all urban areas, unemployment among men 16-17 and 18-21 years of age is 15.9 and 9.6 per cent, respectively; for the large cities, the corresponding figures are 37.2 and 16.2 per cent. Among young men aged 16-21 years, who have at least completed high school, 23.8 per cent are unemployed; among illiterates in the same age group, 2.9 per cent are unemployed.

9. For mainland China, the other (as yet) non-industrial giant of Asia, statistical data on unemployment are not readily available. Frequent references to excessive rural-urban migration, urban unemployment and concern over expressions of dissatisfaction by young people indicate, however, that the problems are similar to those experienced by India. [5]

10. In view of the fact that sporadic rioting is a rather common occurrence among Asian youth, one might raise the question why the possibility of more widespread social unrest is receiving so little systematic attention. The main reason for this state of affairs is perhaps that the entire problem of economic development mainly is approached in "mechanistic" terms: estimates are made of how much domestic capital, foreign exchange, manpower at different levels of skill etc., are needed in order to build an economic machine that may be expected to generate its own continuing expansion, usually figured in terms of an even progression of compound rates of growth. Little is said about what it takes to make men and women behave in such a way that the various targets may be met.

11. Furthermore, there are no historical precedents to follow, although the problem is far from new. Of particular interest in this connexion is the industrial development of the European countries. Although population growth in Europe's highly industrialized countries never was comparable to what is currently being experienced by the majority of countries in Asia and the Far East, unemployment and

[3] *Ibid.*, p. 341 ff., one may find a detailed discussion of this and related phenomena.

[4] India, the National Sample Survey, Fourteenth Round: July 1958-June 1959, *Tables with Notes on Employment and Unemployment in Urban Areas*, No. 85 (Calcutta, 1964).

[5] T. J. Hughes and D. E. T. Luard, *The Economic Development of Communist China 1949-1958* (London, Oxford University Press, 1959), p. 118; Sung Ping, "The problem of employment", *Lao Tung* (Labour), No. 21 (4 October 1957); Robert Trumbull, "Asia's angry youth", *The New York Times* (26 August 1964).

underemployment, along with a high degree of social and political tension, were nevertheless a common experience in these countries during the one or two centuries of transformation that preceded the period of high standards of living only recently arrived at. In more than one instance, the transformation was indeed accompanied by violent political changes. This was so in spite of the fact that a substantial portion of the "surplus" population was drained off by extremely heavy emigration to the new overseas countries, particularly the United States of America. No such safety valve exists for Asia and the Far East today. In general, the industrial development in what is usually referred to as the western countries took place on the basis of a far greater supply of natural resources than those which are available to Asia and the Far East.

12. It would, therefore, be meaningful to express concern for the possibility of widespread social unrest in Asia and the Far East. Furthermore, there are features in the historical background of Asia and the Far East itself that have contributed to the relatively peaceful progress of events to date but which are no longer operative or are likely to disappear within the foreseeable future. Foremost among these is the early stage of industrial development at which most Asian countries find themselves in spite of recent advances. This may, in many instances, be seen against a history of political subjection and economic domination by non-indigenous minority groups, accompanied by exceedingly low levels of living that may not yet have improved perceptively for the majority of the population. Only the latter of these factors is still exerting direct influence, but it may, nevertheless, be of decisive importance, as under-nourishment, resulting in apathy, undoubtedly contributes to "social peace".

13. In view of the large potential for increased agricultural production that may be hypothesized for a country like India, on the basis of existing methods of cultivation and resources, and on the basis of additional areas that may be brought under cultivation and/or irrigation with the advent of economical methods for the desalting of sea-water, a solution to, or vast improvement of, the problem of under-nourishment may soon be within reach. Recent advances in biochemistry, which point to a radically decreased dependence on animal protein for a nutritionally well-balanced diet, reinforces the assumption that under-nourishment may lose its predominance as perhaps the most difficult problem facing Asia and the Far East in the not too distant future. Much as this will contribute to more rapid economic development in the form of increased productivity and initiative of labour, it may also lead to increased social unrest, should the young men and women who may be expected to come to the cities in ever-increasing numbers fail to find productive and meaningful employment.

14. As indicated above, unemployment among urban youth is currently a problem. Assuming that economic development will continue to accelerate, one might hypothesize that this is a temporary phenomenon. Judging from the experience of the industrialized countries, including that of Japan, and considering the likely magnitude of future urban growth in Asia and the Far East, there is, however, little support for such a hypothesis.[6] On the basis of available evidence, it appears more realistic to predict a continuing problem of urban unemployment, particularly among young people, unless ways and means of counteracting current trends can be found.

15. On what principle could policies designed to cope with the problem be based? In line with what was stated in the introduction to this paper, it appears fundamental to realize that there is an irreconcilable gap between the aspirations and actual prospects of Asian youth, which leads to a high, at times intolerable, degree of tension. The root of this problem lies in the vacuum created by the discarding of the traditional value system. Both young and old know or sense that the old ways must be abandoned or changed, but only a small minority of the mature population has a clear conception of what must take its place. The young, who in general tend to welcome the change, are, as a result, left without the necessary guidance by the senior generation.

16. A beginning towards the lessening of tension would be to emphasize in educational programmes and the like that the immediate future is not rosy, that the modernization of the economy will require hard work at low pay,

[6] A comparison of the Japanese experience in regard to the growth of non-agricultural employment during the period 1920-1955 and a set of projections for India indicates, for example, that the demand for new non-agricultural (urban) employment in India during the next couple of decades, even under conditions of relatively modest urban growth, is likely to far exceed the rate of supply for such employment that was generated by the rapid, highly labour-intensive industrialization in Japan during the years referred to. United Nations, "Population growth and problems of employment in the ECAFE regions", *Economic Bulletin for Asia and the Far East*, vol. XII, No. 2 (September 1961), pp. 19 and 21.

often under isolated and difficult conditions etc. This would establish the necessary rapport between the leaders and the youth of the respective countries, which at the moment appears to be lacking.

17. The counterpart to an educational campaign of this type could take the form of various programmes that would offer a challenge to young people to take on their share of development work. One might envisage a "corps of pioneers" for young men and women, in which they would be given an opportunity to try their hand at developing their country's under-utilized resources, whether this involved work with other human beings or the opening up of remote areas. Just as Winston Churchill's famous "blood, sweat and tears" acted as a powerful stimulus (counter-irritant) to Britain's war-time efforts, an appeal to young people's readiness to endure hardship in the interest of their country may arouse their will to play an active and leading role in development efforts. Contrary to common belief, the unavoidable hardship element in any programme of economic development need not be considered as something that had better not be mentioned because of its discouraging effects. Properly understood and handled, it may, through the provision of carefully balanced counter-stress measures, such as hard physical work with specific goals, requiring a great deal of endurance and deprivations; dangerous missions, difficult assignments and so on, act as the most powerful incentive to overcome the difficulties.

18. Apart from the financial resources required for such programmes, their chance of success would seem to depend in large measure on the status that might be conferred on the participants. Not only do the traditional value systems die slowly but they are, as might be expected, coupled with a widespread disdain for many of the basic requirements of industrial society. Skilfully handled, a "corps of pioneers" might prove of great value in evoking a spirit of enterprise in a tradition-bound society. Needless to say, the eventual success of any programme of this type would depend on the opportunities for a responsible career that it might offer.

19. Suggestions along these lines have been made before, and various types of programmes have been tried in different countries at different times, most recently in the form of so-called "peace corps" for assistance by industrialized countries to the countries undergoing industrialization, and in the newly established domestic "youth corps" (resembling the Civilian Conservation Corps of the 1930's) in the United States of America. Of special interest, perhaps, are the labour-intensive development schemes for which mainland China is known. Although available information is very scanty, it appears that these are based to some extent on a successful appeal to young people's willingness to endure whatever hardships are required in the interest of China's future.[7] Any specific suggestions for such programmes would naturally have to be based on careful consideration of the resources and needs of each country. The purpose of this paper is mainly to draw attention to the nature of the unrest that is clearly discernible among Asian youth.

20. As a final remark, it may be of interest to note that the essence of the problem lies in the change of value systems rather than in population growth. Even in the absence of population growth, any rapid socio-economic transformation as profound as the one being witnessed in the developing countries would create the same kind of problem. Population growth is superimposed on the problem of cultural change and represents an additional aspect of the complex and often painful transformation from an agricultural to an industrial economy; as shown in an earlier paper, it is itself likely to be affected in a rather marked way by, among other things, the specific course of industrial development in each country.[8] As so eloquently shown by Coale and Hoover, the extent to which the transformation is accompanied by population growth is, however, of crucial significance.[9]

[7] A recent example of a Chinese settlement scheme was reported by Seymour Topping, "Shanghai youths sent to Sinkiang. China settles border region with 100,000 in year" in *The New York Times* (12 October 1964). The majority of the youths apparently were graduates from middle and technical schools, for whom no work could be found in urban areas.

[8] Ulla Olin, *A Note on Historical Birth and Death Rates and Population Growth,* Population Growth and Economic Development, summary report of a seminar organized by the Institute of Development Economics, Karachi, in co-operation with the Population Council, New York (Karachi, 1960), pp. 269-279.

[9] Ansley J. Coale and Edgar M. Hoover, *Population Growth and Economic Development in Low-Income Countries* (Princeton, N.J., Princeton University Press, 1958).

The influence of cultural and socio-economic factors on labour force participation rates

K. J. PENNIMENT

1. The cultural and socio-economic factors concerned include the following, *inter alia*: laws and regulations on minimum age of leaving school and entering employment; levels of education; work restrictions on aliens, pensioners and other groups; discrimination on the basis of colour, age, marital status, sex, political opinion, religion etc., nullifying or impairing equality of opportunity to work; custom as regards retirement age; degree of urbanization; attitudes as regards women and girls taking work; geographical mobility of population etc. The list is very long and includes some unusual items: for instance, instability of marital unions in Jamaica partly explains the high participation rate of women there.

2. The impact of each of the several cultural and socio-economic factors is not measurable. Chief interest lies, therefore, in the evolution of participation rates. International comparisons of general rates for each sex are of limited value since these are the result of the following, in addition to cultural and socio-economic factors: demographic situation (especially age structure of the population), industrial structure of the economy, level of demand for labour and the concepts and methods utilized for enumerating the economically active population.

MEASUREMENT OF ECONOMICALLY ACTIVE POPULATION

3. One difficulty in studying participation rates is that international comparability of the data is subject to reservations. These have been described in various documents of the United Nations and the International Labour Office. However, two categories, the unemployed and family workers, are prone to under-enumeration in censuses and call for some comment.

4. In enumerating the unemployed, especially in developing countries, it is essential to interpret very broadly the notion "seeking work". In addition, new workers seeking their first job should be included. However, data for economically advanced countries are usually little affected by omission of some unemployed persons.

5. Nevertheless, there will always remain a "fringe" group—mostly women—who cannot be strictly classified as unemployed, although they desired to work and would have accepted work if a suitable job had been offered to them at the time of the census or survey. This fringe group varies from country to country and appears to be very large in some. In Japan, for instance, according to the July 1962 Employment Status Survey, over 900,000 persons (including 327,000 keeping house and 123,000 attending school) were "seeking work" and wanting a main job. Another 172,000 males and 1,049,000 females (mostly housewives) were seeking a side job. Since this survey uses self-enumeration, the notion "seeking work" was interpreted in a quite different manner from that practised in the monthly labour force survey, which yielded an official unemployment figure of 390,000.

6. The lack, or apparent lack, of suitable jobs is the strongest disincentive for members of the "fringe group" to acquire labour force status. Both in economically advanced and in developing countries, populations tend to have lower participation rates when jobs are difficult to find than they would have if jobs were plentiful. This is illustrated by the low participation rates, particularly in urban areas, derived from some surveys in developing countries (cf., Ceylon, paragraph 16). The inverse relationship between unemployment rates and participation rates also has been noted in the regional data for Italy (paragraph 22), in the data for whites and non-whites in the United States of America and in the data for recent and earlier immigrants into Israel.

7. The greatest obstacle to international comparisons of female participation rates is the variation in national practices, as regards enumeration of family workers. Variations in practice from one census to another also hinder trend analysis. In some countries, female family

helpers on farms are entirely excluded (e.g., Australia). The census schedule instructions may lead to under-enumeration of farmers' wives, as apparently happens in Ireland. Arbitrarily excluded by the international definition are family workers working less than one third of normal hours—a group varying greatly from country to country. In France, all persons working at least one hour during the reference week were counted in the labour force survey of October-November 1954 and the estimate of employment in agriculture exceeded the 1954 census figure by about 12 per cent.

Trends since 1950

8. Although job opportunities in economically advanced countries were relatively more plentiful in 1960 than in 1950 and, as a rule, the evolution of age structure of population was not particularly disadvantageous, the male general participation rate most frequently declined. Decreases appear to have been widespread also among developing countries, where they may be largely attributed to growth in the proportion of population aged less than 15 years. Out of twenty-eight countries [1] examined (including ten developing countries), only four showed a higher male general rate: the Federal Republic of Germany, Japan, Portugal and Puerto Rico. Participation rates decreased in twenty-seven cases for men aged 65 years and over, and in twenty-five cases for youths aged 15-19 years.

9. These facts point to earlier retirement practices and longer schooling, which are, to some extent, associated with declining agricultural employment and greater urbanization, as well as with the extension of social security benefits and various other developments, including higher standards of living.

10. As a rule, female participation in non-agricultural employment has increased since 1950. However, half of the twenty-eight countries showed lower female general participation rates, mostly associated, according to census data, with reduced agricultural employment, e.g., in Denmark, Finland, France (1958-1963 surveys), Ireland, Jamaica, Mauritius, the Netherlands, Norway and Portugal. For girls aged 15-19 years and elderly women (65 years and over), participation rates declined in twenty-one and twenty-two cases, respectively.

11. Remarkable increases occurred in the rates for women aged 20-64 years in Japan, Nicaragua and Sweden, and in the following, despite considerable unemployment: Canada, Puerto Rico, the United States of America and Yugoslavia. These, together with Australia, Austria, the Federal Republic of Germany, New Zealand, Panama and Switzerland, showed increases in the general female rate.

12. Although, in some countries, the recent increase in the female general rate has been small, owing to unfavourable evolution of the population's age structure, the participation rates of certain age groups have grown very rapidly. Australia, for instance, has had a rather stable general rate: 1911, 18.2; 1921, 17.1; 1947, 19.0; 1954: 19.0; and 1961, 20.4. In the metropolitan cities (state capitals), which have been steadily acquiring a larger fraction of the total population (1961, 56 per cent), the stability of the general rate between 1911 (23.8) and 1961 (24.0) was remarkable. However, from 1921 to 1947, rates for young women (15-24 years) increased substantially and those for elderly women declined. Since 1947, while the participation rate for girls aged 15-19 years has declined slightly, that for women aged 30-64 years has grown rapidly. From 1911 to 1961, the range of the rates for the several five-year age groups between 30 and 54 years varied as follows: 1911, 16.5-20.0; 1947, 17.1-19.1; 1954, 21.6-24.4; 1961, 24.2-28.1. During this evolution there occurred profound changes in the occupational and industrial structure of women's employment.

Urban and rural rates

13. The urban population commonly shows a lower general participation rate for males than does the rural population. Since nearly all adult males aged 20-60 years are active, the explanation lies mainly in: (*a*) differences in age structure of the two populations; and (*b*) the higher participation rates of youths and elderly persons in rural areas. As regards (*b*), there are both social and economic influences at work. These (which affect also the participation rates of females) include school enrolment ratios, availability of suitable work (especially part-time jobs and light work), practices as regards retirement etc. Highest ages of retirement are usually found among employers and self-employed workers, who tend to become relatively fewer with the progress of urbanization and economic development.

14. Differences between urban and rural rates for females show more variability, relatively and absolutely, than in the case of males. Where agriculture employs relatively few females—perhaps mainly owing to cultural influence, as in certain Moslem countries—

[1] Countries mentioned in the text, plus Algeria, El Salvador, Poland, Trinidad and Tobago, and the United Arab Republic (Egypt).

further urbanization tends to raise female rates. In most developing countries, however, agriculture employs large numbers of women, and the growth of urban population usually has been outstripping the growth of employment opportunities for women in urban areas.

15. In the early stages of economic development, urban employers usually can draw upon a plentiful supply of male labour and males are commonly employed in certain work, particularly in services, which, in more advanced countries, is regarded as primarily reserved for women. Together with a general lack of adequate vocational training, limited job opportunities for urban women tend to result in depressed participation rates, particularly among mature and elderly women. In brief, in the early stages of industrialization, women's participation rates tend to decline. This trend is reversed when female employment (agricultural plus non-agricultural) begins to expand faster than the population. However, the interplay of various demographic, social, cultural and economic factors may result in the general participation rate for females remaining relatively stable over several decades (cf. Australia, paragraph 12).

16. The comprehensive sample survey of Ceylon, 1959-1960, showed female participation rates of 21 per cent (rural) and 11 per cent (urban). Unemployment rates for persons under 25 years—urban, 58 per cent; rural, 31 per cent—were a strong disincentive to young women to look for work. The participation rates for females aged 15-19 years were low. Cultural factors, such as some inclination to keep marriageable daughters at home, the proportion marrying at young ages etc., have some effect; but the low rates at young ages, especially in urban areas, reflected more a deficiency of job openings than a labour supply limited by the cultural and social environment. The rural rate was boosted by the participation of 38 per cent of females aged 25-54 years, owing primarily to large employment of adult women on plantations. Young males of Indian extraction also have high participation rates in plantation zones. Wide regional variations are therefore found in Ceylon.

Regional variations

17. Even in highly industrialized countries, significant regional variations in participation rates are found, especially among females. Only in rare cases can these be explained in terms of cultural and social factors. The regional variations are caused primarily by differences in economic structures, level of economic development and, to a limited extent, demographic structures.

18. Regional participation rates may be computed from results of the labour force survey of the European Economic Community in October 1960. For two countries, the ranges of the rates (percentage of population aged 14 years and over) were: for males, of the Federal Republic of Germany, 71.8 to 80.1; Italy, 74.7 to 82.6; and for females, the Federal Republic of Germany, 22.7 to 45.1; Italy, 13.0 to 37.6.

19. Participation rates were higher in the Federal Republic of Germany than in Italy for each sex and age group, except for youths and girls aged 14 years and for men aged 65 and over. However, because of more favourable age distribution of men in Italy, the general male participation rate was higher there. On the other hand, the female rate was higher in the Federal Republic.

20. The lowest rates in the Federal Republic of Germany referred to males in Schleswig-Holstein (males, 71.8; females, 30.5) and females in Saarland (males, 75.3; females, 22.7). The former is one of the economically less developed regions and has experienced the largest post-war increase in population, owing to post-war immigration. In the Saar, two thirds of male wage and salary earners are employed in heavy industry. The second lowest female rate (27.5) was found in Nordrhein-Westfalen, the most densely populated and, economically, the most developed region. The highest rates were found in Bavaria (males, 78.7; females, 45.1) and Bad-Wurtemburg (80.1, 41.8), which contain some industrial centres, but include some of the least developed areas.

21. In France, the highest rates referred to the Paris region (80.2, 44.5), the lowest to the southern and Mediterranean regions (75.2, 26.1). The highest rates in Italy were found in the progressive agricultural and rapidly industrializing region of Emilia-Romagna, Marche (males, 82.6; females, 37.6). Next highest rates referred to Abruzzi e Molise (81.8, 36.8), a rather poor agricultural region. The lowest male rate related to the Rome region (74.7), where the female rate (21.5) was also low. This region attracts immigrants although it does not have a substantial industrial base and its employment absorption capacity is limited in relation to its manpower potential. Until recently, female participation rates have been extremely low in Sicily and Sardinia, largely as a result of cultural patterns partly derived

from Spanish and Moorish traditions introduced many centuries ago. Rates in 1960 were: for Sardinia, 13.0; and for Sicily, 15.6.

22. In general, low participation rates (particularly for females) were associated with regional unemployment rates higher than the national average. This association was most in evidence in Italy. Emigration abroad or towards more prosperous regions partly explains low male rates.

23. Between 1954 and 1963, unemployment in Italy dropped to low levels. All regions experienced rising participation rates for females and declining rates for males. The female rate in highly industrialized Lombardia was the highest of all regions in 1954, but showed the smallest increase. The proportion of the labour force attached to agriculture declined, owing to the decrease of males, but employment of females in agriculture increased rapidly. For every 100 males in agriculture, there were 25 females in 1954 and 49 females in 1963. The female participation rate rose in Sicily from 7 to 12 per cent of the female population; in Sardinia, from 9 to 14 per cent; in Abruzzi e Molise, from 17 to 25 per cent; and in Emilia Romagna, Marche, from 24 to 30 per cent.

24. Between 1954 and 1963 social and cultural changes were certainly not very significant, although the forces influencing long-term change operate constantly and the rapidity of social change in regions such as Sicily should not be underestimated. However, the evolution described above is primarily the result of economic forces.

Concluding remarks

25. After allowing for differences in age structure of male population, differences in general male participation rates, as well as variations over time, within a country are largely explained by cultural and socio-economic factors. The widespread downward trend noted in recent decades is concentrated among youths and elderly persons and is related primarily to extension of education and earlier retirement. The latter is connected with structural changes in the economy, in the labour force and in society, such as the switch from agricultural to other employment, from self-employment to wage or salary earning and increasing urbanization. Earlier retirement may be stimulated also by technological advances which make retraining necessary for some workers. Higher levels of living, resulting in part from increasing participation rates of women, may also reinforce the trend.

26. Apart from the effects of changes in age structure, extension of education and earlier retirement, differences in the evolution of female participation rates are largely explained by structural changes in national economies and other factors influencing the demand for female workers. In particular, the decline in the relative importance of employment in agriculture and in private domestic service in economically advanced countries has, in many cases, been an important factor in the slow rate of increase of, or has resulted in decreases in, female participation rates in recent decades. However, in economically advanced countries more especially, the demand for female labour in the tertiary (services) sector and for "white collar" workers, in particular, has been growing very rapidly. This, combined with higher educational attainment and more vocational training, which equip more women for various economic activities and stimulate them to seek work, has already resulted in spectacular increases in female participation rates in some countries. Under the conditions of "full employment" which many economically advanced countries have been enjoying recently, restrictions on the entry of women into certain occupations, employers' preference for male labour, discrimination against married women etc., grow much weaker. The outstanding development of recent times has been the increasing propensity of married women to enter non-agricultural employment. This, however, is owing at least as much to economic forces as to change in social attitudes, since the demand for their labour is the main limiting factor.

An aspect of the global view of labour force growth

G. S. REVANKAR

1. In this paper, an attempt is made to estimate the total labour force of the world as of 1960 and to project it up to 1980. Secondly, some observations are made regarding the task of creating employment to meet the growing numbers in the labour force.

2. The population projections made by the United Nations Secretariat [1] are used as the base in projecting the labour force. Age-specific labour force participation rates are computed from the data available in the latest censuses dated around 1960. For about forty-seven countries in the developing regions and about twenty-nine countries in developed regions, the censuses furnish data on economically active population by sex and different age groups.

3. For some countries, the census data on economically active population pertain to a relatively short period of time, such as a day or a week, while for other countries they relate to usual activity. The former type of data are subject to seasonal variations, which may be considerable.[2] In developing countries, which are predominantly agricultural, the female and the younger age group participation rates at a given time may vary greatly from the average. Similarly, in the case of the developed countries, the dominant factor causing seasonal variation is the cycle of school attendance, which releases a large body of students to seek employment during summer. However, in estimating the world labour force, this variation in the size of labour force may be discounted, because, it will be noticed, the months in which the censuses were taken in different countries are spread widely over the whole year. This might assume importance, however, in some of the regional averages if it happened that data for a country with a large population showed a typical pattern.

4. Seasonal variations are by no means the only factor affecting international comparability of census data on economically active populations. Some of the other problems, such as the definition of "unpaid family worker" and the inclusion and exclusion of particular groups, have been discussed at length in other publications.[3] The development of more meaningful regional and global labour force projections will depend, to a large extent, on improvement in the quality and comparability of the available data on economically active populations. Periodic sample surveys, which have been carried out in an increasing number of countries in recent years, can be expected to yield data on labour force composition and variations which will constitute a valuable supplement to the data available from population censuses.

5. The labour force participation rates or activity rates (hereafter used interchangeably) for different sex-age groups by regions are shown in table 1. These rates are weighted averages of actual activity rates of the countries for which data are available in each region. The labour force as of mid-1960, shown in table 2, is estimated on the basis of the participation rates shown in table 1 and on population estimates published in the United Nations report, *World Population Prospects, As Assessed in 1963* (see foot-note 1).

[1] *World Population Prospects, As Assessed in 1963* (United Nations publication, Sales No.: 66.XIII.2). Medium projections are used.

[2] See John D. Durand, *The Labour Force in the United States 1890-1960* (New York, Social Science Research Council, 1948), p. 138. It will be seen from the data that there is a swing in the size of the labour force of about 8 per cent from a trough to a peak during the year in the United States of America.

[3] *Demographic Aspects of Manpower—Report 1. Sex and age patterns of participation in economic activities* (United Nations publication, Sales No.: 61. XIII.4).

Table 1. Labour force participation rates of the major areas, by sex and different age groups [a]

Regions	Age groups							
	10-14 [b]	15-19	20-24	25-34	35-44	45-54	55-64	65 and over
				Male				
Developing								
Africa	31.7	63.7	89.0	96.3	97.4	95.6	90.4	65.2
Asia [c]	31.5	68.8	89.0	96.8	97.4	96.5	89.7	66.5
Latin America [d]	19.4	70.5	93.3	97.1	97.6	96.9	94.1	79.6
Developed								
Europe	7.1	65.4	87.9	95.5	97.1	94.8	81.7	32.1
North America	2.3	43.2	86.2	94.8	95.5	93.3	84.3	30.4
Temperate South America [e]	7.0	61.7	91.6	97.3	96.4	90.9	80.6	51.4
Australia and New Zealand	1.2	68.8	94.8	98.4	98.3	96.5	86.0	25.6
Japan	—	51.6	87.9	97.3	97.7	96.6	86.9	54.4
				Female				
Developing								
Africa	13.0	28.7	35.3	37.4	37.8	35.2	14.9	8.8
Asia	21.2	33.8	38.1	40.0	42.1	39.1	34.0	20.2
Latin America	4.3	19.0	22.7	19.0	19.9	21.6	22.4	19.7
Developed								
Europe	4.5	46.6	55.9	35.8	41.9	37.4	27.9	10.1
North America	0.9	28.2	45.3	34.8	41.7	45.6	34.2	10.1
Temperate South America	2.3	23.5	32.5	25.9	22.4	20.5	15.4	7.9
Australia and New Zealand	1.2	64.3	50.6	24.7	27.1	27.5	17.9	4.2
Japan	—	49.7	69.4	50.7	55.8	54.4	43.3	20.9

[a] The population of countries having census data on economically active population by sex and age as a percentage of total population in each region is as follows: (*a*) developed regions, 63 per cent; North America, 100 per cent; Australia and New Zealand, 100 per cent; Europe, 72 per cent; temperate South America, 22 per cent; and Japan, 100 per cent; (*b*) developing regions, 47 per cent; Asia, 52 per cent; Asia, excluding mainland China, 90 per cent; Africa, 26 per cent; and Latin America, 38 per cent.

[b] Economically active population below 15 years of age is related to the age group 10-14 years.

[c] Excludes Japan, which is a developed country.

[d] Excludes temperate South America.

[e] Rates are for Chile only.

Table 2. Economically active population in mid 1960
(Millions)

Regions	Age groups				
	Under 15	15-19	20-64	65 and over	Total
		Male			
Total developing	34.6	67.1	453.8	20.7	576.2
Africa	6.2	9.2	57.2	2.2	74.8
East Asia [a]	11.6	22.6	168.8	8.6	211.6
South Asia [b]	14.8	28.9	190.5	7.9	242.1
Latin America [c]	2.0	6.4	37.3	2.0	47.7
Total developed [d]	1.7	15.5	189.8	9.7	216.7
Europe	1.3	8.6	108.0	5.4	123.3
North America	0.2	3.2	47.0	2.5	52.9
Temperate South America	0.2	0.9	8.1	0.4	9.6
Australia and New Zealand	—	0.3	3.3	0.1	3.7
Japan	—	2.5	23.4	1.3	27.2
Union of Soviet Socialist Republics [e]	...	...	...	...	51.5
TOTAL OF DEVELOPING AND DEVELOPED	36.3	82.6	643.6	30.4	792.9

Table 2. Economically active population in mid 1960 (*continued*)
(Millions)

Regions	Age groups				
	Under 15	*15-19*	*20-64*	*65 and over*	*Total*
	Female				
Total developing	20.1	30.5	174.0	6.8	231.4
Africa	2.1	4.0	20.3	0.3	26.7
East Asia [a]	7.6	10.8	68.1	3.1	89.6
South Asia [b]	9.9	14.0	77.5	2.8	104.2
Latin America [c]	0.5	1.7	8.1	0.6	10.9
Total developed [d]	1.0	11.9	86.9	4.5	104.3
Europe	0.8	6.9	48.6	2.5	58.8
North America	0.1	2.1	21.0	1.0	24.2
Temperate South America	0.1	0.3	2.1	0.1	2.6
Australia and New Zealand	—	0.3	0.9	0.3	1.5
Japan	—	2.3	14.3	0.6	17.2
Union of Soviet Socialist Republics [e]	...	...	...	...	47.6
TOTAL	21.1	42.4	260.9	11.3	335.7

[a] Activity rates are presumed to be the same as in the rest of Asia for which data are available. In case of mainland China, no data are available; also includes Melanesia.

[b] Excludes Israel and Japan.
[c] Excludes temperate South America.
[d] Excludes the Union of Soviet Socialist Republics.
[e] January 1959.

6. By applying the participation rates, as presented in table 1, to the population projections referred to above, one gets the following labour force projections for developing countries and developed countries:

Table 3. Labour force projections for 1960-1980, by sex and age groups
(Millions)

Regions	*Male*				*Female*			
	Under 15	*15-19*	*20-64*	*65 and over*	*Under 15*	*15-19*	*20-64*	*65 and over*
Developing								
1960	33.9	67.1	453.8	20.7	21.0	30.6	174.1	6.8
1965	39.5	74.1	497.1	24.2	24.4	33.7	190.1	7.8
1970	44.7	86.6	547.5	30.6	27.6	39.3	208.5	9.0
1975	49.6	98.2	570.5	33.3	30.6	44.4	233.3	10.5
1980	54.6	109.0	641.1	38.9	33.7	49.2	261.9	12.2
Developed [a]								
1960	1.7	15.5	189.8	9.7	1.0	12.0	87.0	4.2
1965	1.8	18.7	199.5	10.9	1.0	14.2	80.5	4.7
1970	1.8	18.9	210.8	12.5	1.0	14.1	95.8	5.2
1975	1.8	19.4	223.4	14.1	1.0	14.4	100.8	5.8
1980	1.8	19.6	236.5	15.4	1.0	14.4	103.8	6.4
World total								
1960	35.6	82.6	643.6	30.4	22.0	42.6	261.1	11.0
1965	41.3	92.8	696.6	35.1	25.4	47.9	270.6	12.5
1970	46.5	95.5	758.3	43.1	28.6	53.4	304.3	14.2
1975	51.4	117.6	793.9	47.4	31.6	58.8	334.1	16.3
1980	56.4	128.6	877.6	54.3	34.7	63.6	365.7	18.6

[a] Excludes the Union of Soviet Socialist Republics.

Table 4. World labour force projections for 1960-1980 [a]

	Male		*Female*		*Both sexes*	
	Number (millions)	*Index*	*Number (millions)*	*Index*	*Number (millions)*	*Index*
1960.....	792.2	100	336.7	100	1128.9	100
1965.....	865.8	109	356.4	106	1222.2	108
1970.....	943.4	119	400.5	119	1343.9	119
1975.....	1010.3	128	440.8	131	1451.1	129
1980.....	1116.9	141	491.6	146	1608.6	142

[a] Excludes the Union of Soviet Socialist Republics.

7. The projections are not affected to any sizable extent by fertility assumptions made in the population projections because most of the persons who will be in the labour force in 1980 are already living. But mortality assumptions will have a greater effect and labour force size may be appreciably different if death rates tend to fall more (or less) rapidly than is assumed. Mortality trends are more difficult to foresee in the developing regions, where the mortality rates are still very high; hence, errors are most likely to occur in the projec tions for those areas. The large increase in the population and the labour force observed during the past decade or so is largely attributable to the spectacular increase in life expectancy in developing areas.

8. In these projections, sex-age specific participation rates have been assumed to remain constant up to 1980, but there are reasons for believing that in actual fact they will change over time. Participation rates for the age groups below 15 years of age will probably show a considerable decline in developing areas, owing to, among other factors, increased school attendance. In developed areas, participation of this age group may almost disappear because of the sharp decline in agricultural and other jobs which employ many young people. Similarly, the participation rates in age group 15-19 years are likely to decline in the future, more so perhaps in developed countries because of increasing school attendance. It might be possible to make more realistic assumptions of the future trends in activity rates for these two age groups, based on an analysis of the national programmes, educational and economic, and on other factors, such as the rate of economic growth, industrialization, urbanization etc., affecting participation of these groups.

9. Participation rates of the persons in the age group 65 years and over are likely to fall in developed countries, in general. In developing countries, it is also likely the rates will fall in the near future. On the other hand, because agriculture is the most important source of work for this age group, it may be feared that the rates will increase as the younger people leave the farm for industrial employment, even though there is no positive evidence towards such a tendency.

10. Female participation rates may increase slowly in the developed areas because of, among other factors, greater availability of jobs and the release of women from household drudgery by modern household appliances. It is noticed from the census data that the participation rates of women aged 15 years and over was around 37 per cent in developed, as well as in developing areas. It is likely, though dubious to assume (as many factors influence female participation) that female participation in economic activity might increase slightly in coming years, owing to, among other factors, improved health conditions and the spread of the idea of family planning in developing areas.

11. The participation rates among the groups between ages 20 to 64 years may remain fairly stable, though there may be a slight reduction in the two end groups namely, 20-24 and 55 and over.

12. As mentioned in the introduction of this paper, it is intended to make certain observations regarding the relation between labour force growth and the creation of number of jobs that are required to meet the needs of growing labour force. In this context, the following few observations might be helpful in understanding that relationship. The part of the labour force consisting of employees or wage earners seems to be of importance when one speaks of the creation of jobs to meet the growing labour force. It is felt that it would be inappropriate to equate the increase in the labour force to the number of jobs that are required to be created. The following observations may be pertinent to this contention. From the census data on economically active

population by status of sixteen developing countries,[4] it is seen that only 35 per cent of the economically active population was comprised of employees or wage earners around 1950 and about 42 per cent around 1960, while these percentages in twenty-one developed countries[5] were 64 and 71, respectively. In the case of Japan, these percentages were 36 in 1947, 39 in 1950 and 53 in 1960. It is obvious that these gains in employees or wage earners were owing in part to new entrants into the labour force and in part to the transfer of workers already in the labour force who were self-employed or unpaid family workers or of others who were not classifiable in any of the categories given above.

13. From 1950-1960, in those sixteen developing countries, the labour force increased by 32 per cent while employees increased by 58 per cent; in those developed countries, the labour force increased by 16 per cent while employees increased by 29 per cent; and in case of Japan, the labour force increased by 24 per cent while employees increased by 68 per cent. Further, it is noticed that in those developing countries, the labour force increased by 8.9 million while the employees increased by 5.5 million, that is, about 62 per cent of the increase in the labour force from 1950 to 1960. The figures for the developed countries are increases of 29.7 million in the labour force and 34.0 million in employees, which is a 14 per cent excess increase of employees over labour force increase; and in the case of Japan, increases of 8.4 million in the labour force and 9.5 million in employees, which is a 13 per cent excess increase. It means that 4.3 million more jobs were created in those developed countries than the actual increase in the labour force; and in Japan, 1.1 million more jobs were created. In those developing countries, 3.4 million found their way out as unpaid family workers or as self-employed persons.

14. It is therefore contended that the number of jobs which needs to be created cannot be calculated on the basis of demographic aspects of labour force growth alone. The problem should be studied from other angles, such as the stage of industrialization of the economy, qualitative aspects of the labour force (i.e., educational attainments, skills etc.), the rate of urbanization, earnings in industrial employment vis-à-vis earnings in agricultural employment, the extent of existing underemployment and characteristics of the labour force with regard to its mobility and various other social and economic aspects. A deeper examination of these factors, along with demographic aspects of labour force growth, may give a better understanding of the problem of creation of jobs, in its real perspective.

[4] British Guiana (now the independent State of Guyana), British Honduras, Costa Rica, Ecuador, El Salvador, Federation of Malaya (now Malaysia), Ryukyu, Martinique, Mauritius, Mexico, Morocco, Nicaragua, Panama, Singapore, Thailand and Venezuela.

[5] Argentina, Australia, Austria, Canada, Chile, Denmark, Federal Republic of Germany, Finland, Greece, Hungary, Ireland, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United States of America and Yugoslavia.

Degree of urbanization and patterns of labour force participation

C. M. STEWART

1. A town has been defined as "the physical shell of a close community consisting of durable buildings and permanent ways in which ... men have sought military protection, religious and political association, economic opportunity and cultural stimulus".[1] In almost all developing countries at the current time, a large-scale movement of population from rural areas to the existing towns can be observed and, without doubt, the principal reason for this is the desire for economic opportunity. Conditions may differ between one country and another, but chronic unemployment or underemployment, a low standard of living and poor working conditions are typical of rural areas in many parts of the world and population growth in those areas is increasing the existing pressures to move. Other inducements include the towns' better medical facilities and schools; and, beyond the primary needs, a factor of growing importance is the desire to engage in cultural, artistic and creative activities, and in recreational or vocational pursuits; in short, the desire to live a fuller life.

2. In some parts of the world, there is already a fairly high degree of concentration of the population in urban areas; whereas in others, the formation and growth of towns has scarcely begun. In parts of Africa, for example, less than one tenth of the population currently lives in urban areas; the highest proportion is four fifths for the United Kingdom.[2] Although it might be thought extreme to suggest that a proportion as high as four fifths will in due course be attained in other parts of the world, there are good grounds for expecting the present migration from the countryside to the towns to continue unabated. Sustenance for the growing world population cannot be provided indefinitely by further extension of the area of the earth's surface devoted to subsistence agriculture. The solution lies in increasing the productivity of existing agricultural areas by improved methods of farming, including mechanization, which will result in little or no increase in the numbers engaged directly in agriculture. The population increase must be absorbed in the towns, where some will, of course, contribute to food production indirectly by participating in the manufacture of farming equipment or the final processing and packaging of farm produce.

3. Rural-urban migration in the past has played a major part in the economic expansion and in the rise of per capita income and wealth of all highly industrialized countries. It cannot automatically be assumed, however, that the same benefits will accrue in all the countries now experiencing large-scale migration to the towns. For industrialization to take place, it is also necessary that there be a sufficiency of raw materials and power supplies and that markets be available for the goods produced. Even where these needs are satisfied, there remain difficulties in assimilating into manufacturing industry the immigrants to the towns, whose training and inherited skills relate perhaps to primitive methods of agriculture.

4. In terms of economic development, there is, at one extreme, the rural-domiciled population predominantly engaged in agriculture in which the whole family—young and old, male and female—participates. At the other extreme, one finds the modern industrialized community living mainly in or near towns and working on processes and in circumstances which generally make family participation impossible. Examples of these two types of community would be Thailand and the United Kingdom, in which the proportions recorded as living in urban areas were, respectively, 12 per cent (in 1960) and 79 per cent (in 1951). The distribution of the economically active population in the two countries is given in table 1, which shows clearly the differences between them.

5. In Thailand, in 1960 almost all the adult population, women as well as men, were engaged in agriculture and produced little beyond what was required to meet their own needs. Transport facilities were not generally required for them to get to work or to take their

[1] *Chambers's Encyclopædia*, vol. XIII, p. 701.
[2] *Demographic Yearbook, 1962* (United Nations publication, Sales No.: 63.XIII.1).

Table 1. Economically active population classified by industry
(Percentage)

	United Kingdom, 1951		*Thailand, 1960*	
	Male	*Female*	*Male*	*Female*
0. Agriculture	4.4	0.5	40.3	41.6
1. Mining	3.8	0.1	0.2	0.1
2-3. Manufacturing	25.7	11.7	2.1	1.3
4. Construction	6.0	0.2	0.5	–
5. Electricity, gas etc...	1.5	0.1	0.1	–
6. Commerce	8.2	5.9	2.6	3.0
7. Transport	6.8	1.0	1.1	0.1
8. Services	12.6	11.1	3.3	1.4
9. Other	0.3	0.1	1.4	0.9
	69.3	30.7	51.6	48.4
	100.0		100.0	

SOURCE: *Demographic Yearbook, 1956* (United Nations publication, Sales No.: 56.XIII.5), table 12; and the International Labour Organisation, *Year Book of Labour Statistics, 1964* (Geneva, 1964), table 4.

produce to markets. Few lived in towns and participated in manufacturing and other urban activities, such as the provision of services and the construction and reconstruction of buildings. An important difference between the two communities is in the employment of the female population. In the United Kingdom, less than one half of the female population at the recognized working ages are recorded as being economically active and, of those who are, very few are employed in agriculture, which is mainly a male occupation. In Thailand, on the other hand, it is the custom for most women to be economically active; and in agriculture they provide approximately one half of the total labour force, in which they are nearly all recorded as unpaid family workers, a status almost unknown in the United Kingdom. (Things are changing in Thailand, however; the productivity of farming is being increased by the growing use of tractors, food is exported in large quantities to neighbouring countries and new factories are springing up all over.)

6. This highlights an important difference between the two kinds of communities in the employment conditions for women. It appears that mechanization on the land can have the effect of transforming farming into a predominantly male occupation; and women either remain at home engaged in domestic duties or, where it is possible and not frowned upon, accept paid employment outside the home. This pattern is typical of advanced countries like Australia, Canada and the United States of America, where agriculture is highly productive and employs relatively few people and where, in fact, young women tend to migrate to the towns in search of employment in shops, offices and factories.

7. The figures in table 2 show the progress of urbanization in the United Kingdom to have been, not surprisingly, most rapid following the "industrial revolution".

Table 2. Population of the United Kingdom (excluding Northern Ireland)

	1801	*1851*	*1901*	*1951*
Total population (millions).....	10.5	20.8	37.0	48.8
Number in urban areas (millions)....	3.7	10.4	27.7	39.0
Percentage in urban areas.....	35	50	75	80

SOURCE: *Chambers's Encyclopædia*, vol. XI, p. 80.

8. It is significant that, in the last hundred years, the population in rural areas has varied little from about 10 million, while that in urban areas has nearly quadrupled. The entire population increase has thus been absorbed in urban areas. (A similar feature has been observed in Japan, where, notwithstanding a similar considerable increase in total population

since 1870, the farming population has remained at about 14 million.[3] The growth of urban population in the United Kingdom has not, however, been achieved solely by the migration of population from the countryside to existing towns; in many cases, small villages have grown in size and have been reclassified as urban areas. In considering rural-urban migration, therefore, it should be recognized that one must include not only the flow of population to existing large towns—although in many parts of the world this is very important—but also the formation of new urban areas.

9. Percentages corresponding to those shown in table 2 are also available for many other countries, but reliable comparison is made difficult by the considerable variation from country to country as to the precise meaning of the term "urban". Nevertheless, the selection of figures in table 3 will give some indication of the current position and of recent trends in the percentage living in urban areas in various parts of the world.

10. It is perhaps to state the obvious to point out that, as urbanization advances, so the proportion of the economically active who are engaged in agriculture declines. Statistics relating to the economically active population, as recorded in the 1960 censuses in various parts of the world, are not yet available universally, but the inverse correlation between the proportion employed in agriculture and the proportion living in urban areas can be seen in the selection of data from earlier censuses given in table 4. Since the transition from an agricultural to an industrial community seems certain to have a marked impact on the employment of women, figures are also given of the proportions of women (of all ages) who are economically active and, of those economically active women, the proportion recorded as unpaid family workers.

[3] Shigoo Nojiri, "The true nature and development of industrialization and internal migration in Japan", *Proceedings of the World Population Conference, 1954*, vol. II (United Nations publication, Sales No.: 55.XIII.8), p. 644.

Table 3. Percentage of population living in urban areas

Country	*Year*	*Percentage*	*Year*	*Percentage*
Algeria	1906	17	1960	32
Canada	1901	38	1961	70
Ceylon	1901	12	1946	15
Puerto Rico	1899	15	1960	44
Switzerland	1900	22	1960	48
United States of America	1900	40	1960	70
Brazil	1940	31	1960	45
India	1931	11	1961	18
Mexico	1930	33	1960	51
Thailand	1947	10	1960	12
Tunisia	1931	25	1956	36
Union of Soviet Socialist Republics	1926	18	1959	46

SOURCE: *Demographic Yearbook, 1952* (United Nations publication, Sales No.: 53.XIII.1); *Demographic Yearbook, 1962* (United Nations publication, Sales No.: 63.XIII.1).

11. As urbanization progresses in future and the proportion of the population employed in agriculture declines, the new occupation of the main breadwinner will almost certainly be located outside the home, possibly at some distance from it; and it will no longer be a family enterprise in which all members who are able can participate. For many women, this will mean a change in status from unpaid family worker on the land either to wholly domestic

Table 4

Country	Year	Percentage of population in urban areas	Percentage of economically active population engaged in agriculture	Percentage of economically active females	Percentage of economically active females shown as unpaid family workers
Australia	1951	79	5	27	1
Brazil	1947	69	16	19[a]	1[a]
Canada	1950	64	12	22	3
France	1951	62	25	17	3
Greece	1951	61	18	18[a]	1[a]
India	1954	56	27	30	26
Japan	1950	40	37	13	2
New Zealand	1950	38	48	34[a]	61
Puerto Rico	1951	37	48	13	30
Thailand	1950	36	58	10	20
United Kingdom..	1951	17	73	29	48[a]
United States of America	1953	16(1948)	67	31	59
Yugoslavia	1947	10	85	50[a]	86[a]

SOURCES: for percentage of population in urban areas, *Demographic Yearbook, 1955* (United Nations publication, Sales No.: 55.XIII.6), table 7; for percentage of economically active population engaged in agriculture, *Demographic Yearbook, 1956* (United Nations publication, Sales No.: 56.XIII.5), table 12; and International Labour Organisation, *Yearbook of Labour Statistics, 1964*, table 4; for percentages of economically active females and of economically active females shown as unpaid family workers, *Demographic Aspects of Manpower. Report I: Sex and age patterns of participation in economic activity* (United Nations publication, Sales No.: 61.XIII.4).

[a] Relates to a year between 1953 and 1956.

duties or to paid employee in an occupation unconnected with that of any other member of the family and also located outside the home. It will no longer be possible for the very young or the very old to assist, to the extent of their capabilities, the more able-bodied members of the family. It is one of the still unsolved problems of industrialized countries to find means whereby those of advanced years may be enabled to continue to play an active part in the affairs of the community. Generally, both they and young persons have to seek full-time employment in specialized occupations which make no allowance for the differing capacities of individuals; and the consequence is an increase in the age at which young persons normally begin work and a decline in the age at which work people normally retire, with a sudden rather than gradual transition from school to employment and from employment to retirement.

12. Some idea of the extent of the decline in the proportions of those active at young and old ages which may result with the growth of urbanization and industrialization can be obtained from the figures in table 5, taken from the United Nations report, *Demographic Aspects of Manpower.*[4] The reduced participation rates at the youngest ages are not a bad thing, however; they indicate longer education, which is a good thing in itself and is also necessary in some measure to fit young persons for skilled occupations in industry.

13. Paragraph 11 above gives an over-simplified description of the likely effect of urbanization on the employment of women. It would be impossible to discover a single statistical pattern to fit the past experience of all countries and have a reasonable chance of correctly forecasting the future in any. There are considerable differences between one country and another, for example, in the scope for carrying

[4] *Demographic Aspects of Manpower. Report I: Sex and Age Patterns of Participation in Economic Activity* (United Nations publication, Sales No.: 61.XIII.4).

Table 5. Male labour force participation rates
(Percentage)

	Age groups				
	10-14	*15-19*	*20-54*	*55-64*	*65 and over*
Twenty-one agricultural countries (with more than 60 per cent engaged in agriculture)	24	78	96	92	70
Twenty-one industrial countries (with less than 35 per cent engaged in agriculture)	4	72	96	86	38

on handicrafts or small-scale manufacturing in or near the home; and there are widely differing attitudes towards the employment of women outside the home.

14. There is no very clear-cut pattern in the figures for economically active females shown in the last two columns of table 4. The figures for Thailand relate to a community in which nearly all adult females work as unpaid family workers in agriculture as long as they are physically capable. At the other extreme, the figures for the United Kingdom are known to relate to a community in which the status of unpaid family worker has virtually disappeared, and in which very few women work on the land, but in which nearly all women go out to work in urban areas from the time they leave school until they marry; most give up work on marriage or soon after when they have young children to care for, and this pattern is typical of highly industrialized countries. Many women return to work when their children are older; this is a growing tendency in the United Kingdom at the current time.

15. The proportion of economically active females in countries with a moderately high proportion engaged in agriculture shows considerable variation. This is probably inevitable where small-scale unmechanized farming predominates and where women's duties might include, for example, such chores as looking after livestock, as well as running the home. The distinction between economic and non-economic activity is difficult in such circumstances, and the status of unpaid family worker is particularly difficult to define. No doubt there are significant differences in this respect between one developing country and another, associated with the type of farming or the attitude towards the participation of women in economic activity, but it is worth noting that other studies have observed, for example, that some (although not all) Moslem countries and Latin American countries with a Spanish culture exhibit a relatively low proportion of economically active women[5] and it has been suggested that this results from a cultural bias against the participation of women in economic activity or perhaps against recognizing such participation where it takes place. Care must be exercised in the interpretation of figures of economically active females in countries where economic activity is not clearly established by the payment of wages.

16. Whatever the extent to which the economic activity of women may currently be recorded, with a growing concentration of population in urban areas the formalities of employment become such that a person is either economically active and obviously so (albeit part-time), or is not at all. Taking all things into consideration, the most likely consequence of rural-urban migration on women in developing countries is that many will initially become economically inactive. Indeed, the rate of flow to the existing towns in many parts of the world is such that the male migrants are finding difficulty in obtaining employment, and this situation lends itself to preference being given to men over women in allotting such work as it is available. On top of this are the other obstacles to the employment of women mentioned earlier, i.e., possible bias against women leaving the home to work and the physical difficulty of combining such work with running a home and looking after children.

Conclusion

17. The most obvious consequence of growing urbanization on the pattern of labour force participation is the switch from work in agriculture to other types of occupation. It has also been explained that children and old persons, and women whose household ties make it difficult for them to leave their homes to work, may find it much more difficult to participate in economic activity in urban areas. However, the major problem at the current time is to be found in the very large numbers

[5] *Ibid.*

who are migrating from rural to urban areas and the enormous difficulty in finding work of any kind for even the head of the family, far less for its other members. There seems little prospect that the flow of migrants will be arrested, or even diminished, in the foreseeable future, so the problem is not a passing one for those developing countries which are experiencing population growth—and that is most of them. Although awareness of the problem does not provide a solution, it is a necessary first step to the preparation of plans to meet the needs of the migrants—but the matter is urgent and statistics attempting to measure the flow are almost out of date before they are published.

SUMMARIES OF PAPERS

Demographic studies on occupation in France

J. Bui-Dang-Ha Doan

Since 1961, the Cahiers de Sociologie et de Démographie Médicales have published socio-demographic studies on occupation. They began with the medical profession and the associated ones (dentists, druggists etc.). There are now studies on other learned professions; in the future, other occupational bodies will be analysed.

Demographic studies on occupation illustrate the universality of the models of demographic analysis that just suit to all renewed aggregates. These studies deepen the knowledge of the history of man and particularly the social mobility and social stratification. The processes of career apprenticeship and career entrance do interest the economics of education. The projections in the future of resources and needs of each occupational manpower are more exact than those operated over the whole economically active population.

The first studies on occupational populations in France are driven towards the interrelations between socio-demographic characteristics and spatial distribution of physicians. Other analyses cover the "in-and-out" processes which govern the numerical renewal of the medical body. Resources and needs in medical manpower are estimated for 1970 and 1975. These studies and those analysing other professions disclose many interesting facts which should be starting points for future investigations in sociology, economics, gerontology and demography.

The success of demographic studies on occupation in France are encouraging. It would be desirable if they are undertaken also in other countries; then scientific research has at its disposal fertile points of comparison.

Demographic aspects of unemployment and underemployment with particular reference to India

B. N. Datar

Rapid growth of population in relation to an inadequate rate of economic development calls for major remedial action in a country dependent mainly on agriculture, with "self-employment" as the principal pattern of work. The Indian population is expected to rise to 560 million in 1971 and 630 million in 1976. Owing to the difficulty of providing both for the unemployed and for the new entrants, the employment targets of development plans in India and in many Asian countries are barely sufficient to absorb additions to the labour force.

In India, employment generation has been insufficient even for absorbing the equivalent of new entrants to labour force, for demographic reasons and also because of some shortfalls in development. With the working force rising from 141 million to 188 million, the participation rate increased from 39 per cent in 1951 to 43 per cent in 1961. The increase in working population owing in part to such factors as: (*a*) decrease in the mortality rate in the working age group 15-59; (*b*) favourable age structure of the 1951 population; and (*c*) a better survival rate in the age group 5-15 in the years 1951-1961.

In that period, there was a substantial addition to persons engaged in agriculture. When related to the increase in agricultural production, this suggests an increase in underemployment. Agriculture contributes 45 per cent of the national income of India and provides employment for 70 per cent of the labour force. To improve the rate of development, the working force dependent on non-agricultural activity has to increase.

Over the Second Plan (1956-1961), the level of unemployment in India rose from 5.3 million to about 8 million. The Third Plan (1961-1966) is likely to witness a fresh gap of about 4 million. The supplementary programme of rural works providing for about 100 days work in a year during the off-season will not relieve unemployment. The National Sample Survey Organisation had estimated that in 1961 the persons who were already employed and required additional work would number about 15 million to 18 million.

In the perspective of development (1961-1976) the challenge in the Indian scene seems to be to absorb 70 million persons in the

working force. If the current dependence of 70 per cent on agriculture is to be reduced to 60 per cent, 23 million may have to be added to agricultural occupations. They have to be absorbed at an increasing level of productivity, and development programmes in the non-agricultural sectors have to be so organized as to absorb 47 million persons. To mobilize the resources required for this purpose will indeed be a substantial effort.

Manpower structure in relation to economic growth

K. S. GNANASEKARAN

The following points, summarizing the analysis given in this paper, may be highlighted. However, a great deal of further research must be undertaken, along the lines indicated below, before hard policy conclusions can be drawn.

A reduction in the relative size of agricultural manpower has universally occurred during the course of economic development. The decline has been initiated and sustained by the enormous expansion of employment in the industrial and services sectors. With regard to the structure, this has logically meant radical changes in the relative proportions of manpower employed in different industries. Corresponding to these changes and the rising trend in non-agricultural employment, it is found that the most rapidly growing among the new occupations are the two groups of: (*a*) professional, technical and related workers; and (*b*) craftsmen and production process workers, both involving prolonged period of education and/or training. The implication of these trends, especially for the developing countries, will be that the long-run needs of professional, technical and allied manpower must be assessed well in advance, and necessary steps must be taken to develop and ensure that there shall be the requisite supply of this critical manpower during periods of rapid economic development.

Broadly speaking, on the basis of data for a cross-section of nineteen countries at different stages of economic growth, a 1 per cent increase in professional and technical manpower will be required for a 10 per cent rise in the employment of industry sector. Each professional and technical worker may need the help of seven craftsmen and production process workers.

The results are based on limited data. More detailed analyses, by industry, changes in occupation, over a number of years, would afford deep insights into the structural aspects and likely demand for various types of manpower. This increased knowledge would, in turn, provide the guide-lines for governmental and private action towards the development of manpower for the occupational needs of tomorrow.

Demographic influences on labour force in Austria

JOSEF GRAVOGL

Studying the results of the Austrian population censuses in 1934, 1951 and 1961 the author tried to determine if the labour force has been or is being influenced by the demographic evolution within these three decades. The main results of this research are noted below.

In the last thirty years the total population of Austria did not grow very much, but it did grow continuously. At any time the females had a certain preponderance.

The evolution of the active population was very disadvantageous, not only concerning the categories of the male labour force, but also—with regard to the population in general—the categories of the female labour force.

As the result of the increase of the female labour force and the high decrease of the male labour force, the total labour force in 1961 was lower than in 1934.

Nevertheless, the gross national product has increased continuously. Considering these circumstances, it seems that demographic influences in the labour force cannot have played a great role in Austria.

The planned distribution of manpower on the industrial focal points of socialist construction in the German Democratic Republic, represented as the latest results of public education and internal migration statistics

GERHARD NULTSCH

In the years to come, a decreasing number of workers will be available for the solution of tasks of national economic importance in connexion with the continued construction of socialism in Eastern Germany, as a consequence of the unfavourable age structure of the population.

The most important prerequisite, therefore, for the achievement of the planned rapid growth of material production—especially in the decisive branches of national economy—is

the further rapid increase of labour productivity with a simultaneous rational distribution of labour force in the individual branches and fields of economy.

The rapid increase of labour productivity requires the materialization of the most up-to-date perceptions of science and technology, and their application in production in connexion with a comprehensive raising of the educational standards of the persons employed. Therefore, great efforts are made in Eastern Germany to raise rapidly the level of qualification of the working people, through the expansion of school attendance with a simultaneous close combination of general, polytechnical and vocational education; and through the intensified qualification of working people within the framework of adult education and training at colleges and trade schools.

On the other hand, the growth of the number of persons working in the decisive branches of the national economy is necessary in addition to the increase of labour productivity; according to the location of the centres of these branches, a regional redistribution of the manpower resources available in the individual territories of Eastern Germany must take place.

An important use of internal migration statistics in Eastern Germany is to determine how the migration movement corresponds with the requirements of a planned redistribution of the workers in its intensity, with the direction of the migration currents and with regard to the structure of the migrant persons, according to such criteria as age, sex, vocation etc.

The rational utilization of rural manpower in the Soviet Union

I. S. PASKHAVER

The full and rational utilization of manpower, especially rural manpower, is an important problem of the economic policy of any state. This paper sums up Soviet experience in this field.

Great agrarian overpopulation in Tsarist Russia was a real scourge of the village. Therefore, the problem of the rational utilization of rural manpower came into prominence as soon as the Soviet Republic emerged.

The economic prerequisites of agrarian overpopulation were undermined by the Socialist Revolution of October 1917 which liquidated private property in land and turned over more than 150 million hectares of landowners', monastery, church and crown land into the use of peasants who had little or no land. The system of small peasant holdings, however, made it impossible to completely abolish agrarian overpopulation and ensure a rational utilization of manpower and the high rates of agricultural development.

Agrarian overpopulation and unemployment were completely abolished in the Soviet Union in 1926-1932 following the country's industrialization and the collectivization of agriculture. The process of separation of manpower from the means of production, which is inevitable under the system of small peasant holdings and class stratification of the peasantry and is the cause of agrarian overpopulation, was superseded in the collective farms by the process of integration of manpower with the socially owned means of production.

Full employment of collective farmers on their collective farms or on their personal subsidiary plots of land should not be taken to mean that the collective farms have no reserves of manpower. The latter result from the mechanization and systematic improvement of the organization and technology of agricultural production, which continuously raise the productivity of collective-farm labour, and from the seasonal nature of collective-farm production. The rural manpower surpluses are used in industry and other branches of the national economy.

Soviet experience shows that the high rates of accumulation and extended reproduction typical of planned economy and the reduction of working hours increase the demand for manpower much faster than this demand is reduced by technical progress. That explains why there is no unemployment or agrarian overpopulation in the Soviet Union. The key to the solution of the problem of full and rational utilization of manpower both in country and in town is, first, its planned and organized distribution and redistribution between the different areas and branches of the national economy and, secondly, the full and effective utilization of the working time fund of all workers. The Government regulates this fund for the various groups of workers by taking into account the specific features of production processes and gradually reduces it.

Demographic aspects of labour and employment

SALAMA SAÏDI

Employment is one of the most complex areas of statistics. It requires urgent solutions in keeping with the social and economic cir-

cumstances of the country. It can be analysed by studying rates of activity, unemployment and inactivity, and this reveals that the employment situation not only varies with certain demographic characteristics, but also creates problems which cannot be ignored.

Thus, in Morocco, according to the 1960 census, both male and female activity rates increase with age between the ages of ten and twenty-five, reach their maximum between twenty-five and thirty-five, and decrease at seventy and over. It may be noted that the rate for women is low compared with that for men.

The rates also vary according to geographical areas and activity groups: thus, in rural areas, 85 per cent of the economically active population is employed in agriculture, while in urban areas, manufacturing industries and trade predominate.

However, in both urban and rural areas, employment problems arise; they are unemployment, inactivity and under-employment. These three great difficulties combine to swell the number of dependants, which has risen in Morocco to 2.7 per economically active person. The general level of living is thereby lowered, because per capita income does not increase.

However, it must also be noted that no great unemployment is caused by migration from rural areas (at most 7 per cent of the economically active population). Inactivity predominates in urban areas and under-employment is particularly marked in rural areas. The first is a reflection of the large part of the population which has not yet reached working age, and of the number of women not in employment. The second is due to methods of land cultivation and the fact that land is worked by families.

Lastly, it may be said that the problem of employment will be resolved if these three difficulties are eliminated; in other words, if unemployment and underemployment are removed through preventing migration of the rural population by providing employment locally, and in the towns through the creation of new jobs by low-capital investments requiring a large labour force. Inactivity will also disappear if women are put in employment and there is a corresponding reduction in the numbers of young people who join the employment market each year.

Uses of working life tables in Malaya

SAW SWEE-HOCK

This paper examines two important aspects of the uses of working life tables in Malaya: (*a*) the study of the relationship between the productive and dependent elements of the population; and (*b*) the method of estimating the annual losses from the actual working population and the factors determining these losses.

The first aspect involves an analysis of the total years of life per generation, in terms of the number of man-years spent in productive work and in dependence. Also taken into account is the proportion of men who will never enter the working group (owing to illness, disabilities etc.), which may be derived from the proportion of men in the working population. In Malaya, this amounts to 97.82 per cent, so that 2.18 per cent have never entered the working population or would never have entered it if they had survived.

An analysis of the working population shows that of the total of 557,484 years of life per generation, about 366,669 man-years, or 65.8 per cent, are spent in productive work. The balance, 34.2 per cent, is spent in dependence, which is divided into four components: pre-education, 23 per cent; education, 55 per cent; retirement, 15 per cent; and those never entering work, 6 per cent. It must be pointed out, however, that this analysis is based on a stationary population of one particular generation and that the balancing years of life do not, therefore, reflect the actual relationships in Malaya at the current time with an increasing population.

With regard to the second aspect the total male working population of Malaya in 1957 was 1,634,640. The estimate of those who left the working population is 23,052, of which 74 per cent left on account of death and 26 per cent owing to other causes.

One may say that in 1957 jobs became available through death or other causes for 23,000 unemployed men. Thus, if the total number of unemployed men were known, it would be possible to ascertain the number of new jobs required to solve the unemployment problem.

Dynamics of female participation in economic activity in a developing economy

J. N. SINHA

An attempt is made in this paper to study the relationship between labour force participation of women and economic development, with

the help of international and Indian census data. Unlike the common observation, international data reveal maximum activity rates (even among young women aged 20-24) not in the highly industrialized economies, but in the least developed economies with per capita incomes of less than $100; this is explained by the predominance of household enterprises in which productive work can be conveniently combined with family responsibilities. The rates decline with an increase in income up to $500, but begin to rise with further gains in income. In view of differences in definitions and coverage intercountry comparisons cannot be trusted for any definitive conclusions.

Indian census data show that urban rates are significantly lower than rural rates. Within the rural areas, the rates vary inversely with agricultural prosperity and the proportion of non-agricultural work force. In urban areas, there is a strong negative association between activity rates and the share of organized non-agricultural employment. Labour force participation of women also declines with literacy, but female education above the matriculation level favours higher rates of employment.

Indian historical data reveal a declining trend in female activity rates, which is particularly marked in regard to the non-agricultural working force. This is explained by the progressive replacement of traditional type of consumer industries, food and textiles, trade and personal services by modern forms of wage employment.

Urbanization, the growth of literacy, the increase in organized non-agricultural employment and the rise in levels of living, all point to the prospect of an initial decline. A reversal of trend might follow a rapid increase in higher education and the expansion of service industries—the most promising employers of women; but this may come only at a fairly advanced stage in economic development.

Demographic aspects of the changes in the structure of the population by economic activity in Hungary

EGON SZABADY

On the basis of the data of the population censuses this study analyses the development and structure of the employment of the population of Hungary.

In connexion with the social transformation after the Second World War, the ratio of the earners increased from 42 per cent at the beginning of the century to 45 per cent in 1949 and to 49 per cent in 1960. Owing to industrialization and the transformation of the structure of the national economy, the share of agricultural active earners—which moved between 50-60 per cent from the turn of the century until the end of the 1940's—decreased to 35 per cent. The increase of the number of earners is connected with the growing employment of women (mainly married women). Among women in the productive age, the share of active earners had already surpassed 50 per cent in 1960 (as compared with 55 per cent in 1949). In 1920, 15 per cent, and in 1960, 40 per cent of the married women were gainfully occupied. The economic activization of married women took place irrespective of the number of their children.

The age structure of the employed has changed. The share of the earners under twenty years of age decreased from 23 per cent in 1920 to 11 per cent in 1960 as a result of the general spread of obligatory education and the increase of its duration. In connexion with the aging of the population, the share of earners aged 45 to 59 increased from 25 per cent in 1920 to 34 per cent in 1960. The composition of the gainfully occupied population, by educational level, improved considerably; the share of those not having attended school decreased from 11 per cent in 1920 to 2 per cent.

The concluding part of the paper deals with the special demographic characteristics of agricultural earners.

Technical progress and employment in the Soviet Union

V. N. YAGODKIN

Technical progress and employment are closely connected problems under any social system. But the character of this connexion varies with the social and economic conditions of development of society. The influence of technical progress on employment is therefore a social problem that cannot be solved correctly in isolation from the prevailing socio-economic system.

The report is divided into four sections. The first section discusses the conditions and factors which make it possible to combine technical progress with full employment of all able-bodied people under socialism. These include the rapid, continuous and crisis-free development of socialist production, reduction of working hours, continuous enlargement of the unproductive sphere of the national economy. This section also contains extensive data on

the rising numbers of people employed in Soviet national economy and indices on the utilization of labour resources, which are much higher in the Soviet Union than in developed capitalist countries. The report shows that under socialism the living standard of the population rises with the growth of employment.

The second section investigates the influence of technical progress on the branch structure of the employed in the national economy. Factual data are cited here to show the changes in the structure of labour power in Soviet national economy as a whole and in industry, and in the distribution of the employed between the material productive and unproductive spheres. It also shows the progressive character of these changes. In conclusion, it is pointed out that the branch structure of the employed in Soviet national economy does not form of itself but is planned.

The third section is devoted to a discussion of the influence of technical progress on the composition of the employed by profession (trade) and qualifications. This section shows the principal structural shifts in the composition of persons employed in Soviet national economy by profession (trade) and qualifications. These shifts reveal a tremendous rise in the cultural and technical level of the working people, which is due not only to the development of technology, but also to the socio-economic conditions, in which the technological achievements are applied. The socialist system has turned technical progress into a means of the all-round development of man. The historic experience of the Soviet Union convincingly shows that the raising of the cultural and technical level of the population and the training of skilled workers and highly qualified specialists are the essential requisites of rapid economic development.

The fourth section shows that full employment and the rational utilization of labour power in the conditions of technical progress in the Soviet Union are linked up with the system of planned training of skilled labour. Experience shows that without this system the rational utilization of manpower is practically impossible. This section discusses the main methods used in the Soviet Union for training skilled labour. The experience of the Soviet Union which has, in a short time, built up a ramified and flexible system of training skilled labour for all branches of the national economy and culture shows what a backward and illiterate country can do when it takes the socialist path.

A proposed mass technique to promote fuller utilization of human resources in developing countries

ANTHONY ZIMMERMAN

Military service produces a number of side effects in the service men, which have significance in regard to their future labour efficiency rate. It erodes social barriers; it accustoms the youths to discipline and regularity; it opens up a wider choice of occupation.

This paper probes whether a similar technique could be employed to prepare the emerging labour forces of developing countries and discusses whether it would be a practical method to draft youths at about age eighteen from the villages where subsistence agriculture predominates, and provide them with about two years of education at government camps operated on a basis similar to the military. After training, an effort would be made to send the graduates to locations and occupations which were advantageous from the viewpoint of general economic and social plans.

The system might possibly provide a bypass to the shantytowns and be a sluice-gate to regulate the amount of rural-urban flow, besides providing the new labour force with training, discipline and skills suitable for their future employment. It might also accelerate the diffusion of knowledge about modern agriculture and an application of the same among the villages.

Meeting B.11

DEFINITION AND MEASUREMENT OF ECONOMICALLY ACTIVE POPULATION, EMPLOYMENT, UNEMPLOYMENT AND UNDEREMPLOYMENT

PAPERS

Recent developments in statistical standards concerning the economically active population as exemplified in European censuses of population

LELAND S. ALBRIGHT

1. As indicated in the paper on "The Census Development Programme of the Conference of European Statisticians" prepared for Session B-6, the Conference of European Statisticians adopted in 1959 a set of recommendations concerning the data to be collected and made available by European countries at their next censuses of population, that is the censuses to be taken around 1960. These recommendations are in the form of a "European programme for national population censuses". They comprise a list of basic topics which countries should cover in their censuses, recommended definitions and classifications of each of the basic topics and a standard tabulation programme. The European programme is a regional variant of the "Principles and recommendations for national population censuses" drawn up by the Statistical Commission of the United Nations. The recommendations in the European programme are consistent with those given in the world programme, but they cover a wider range of subjects and are more detailed in a number of respects.

2. In 1961, the Conference agreed that when the 1960 series of censuses had been completed, national statistical offices should be invited to submit reports on the extent of implementation of the European programme. In reply to a questionnaire, reports were received from nearly all member countries. The Secretariat prepared a summary and analysis of the information which showed that the European programme had been implemented to a large extent, particularly for the collection of data on basic topics and the compilation of first priority tabulations. This summary included a number of synoptic tables which later were checked and completed by the national offices concerned. A study entitled *European Population Censuses: the 1960 Series* has been issued recently as *Statistical Standards and Studies — No. 3*. Part one of this study reproduces the European programme and part two contains revised summaries and analyses of the available information concerning national practices in the 1960 censuses. The two parts, therefore, provide a full account of the results of the work done by the Conference to this date.

3. Work has started on preparation of an improved European programme for the 1970 censuses. At its last session in December 1963, the Conference's Working Group on Censuses of Population and Housing reviewed the extent to which countries had implemented the European programme in their 1960 censuses and members of the group exchanged views on experience gained in these censuses. In the light of this review, the Working Group drew up provisional lists of basic topics and additional topics to be included in the 1970 European programme and identified areas in which detailed study is required. Several groups of rapporteurs have been formed to undertake the next stage of the work. One of these groups is studying the subjects of classifications by economic characteristics and dependency statistics. Reports containing first proposals for revised recommendations will be prepared by each of the groups of *rapporteurs* for consideration by the Working Group at its next session in 1966. The Conference is aiming to complete preparation of the 1970 European programme in 1967.

I. Basic and additional topics relating to economic characteristics

4. The list of basic topics in the European programme includes the following topics for which the data to be collected and tabulated relate wholly or mainly to the economically active population: type of activity, occupation, industry, status (employer, employee etc.) and socio-economic categories. The list of additional topics which countries may wish to consider covering in their censuses includes a number of topics relating wholly or mainly to this segment of the population, namely place of work, income, secondary occupation, industry and status, time worked, length of employment or unemployment, household enterprises, farm tenure status and size of enterprise. Data on activity, occupation and industry were collected by all European countries in their last censuses, and data on status (employer, employee etc.) and socio-economic categories by nearly all countries. Place of work is the only one of the eight topics in the additional list for which information was obtained by most countries. Data on this topic were collected by twenty-three of the twenty-eight reporting countries. The topics of secondary occupation, industry and status, time worked, and size of enterprise were included by nine countries. Data on income, length of employment or unemployment, household enterprises, and farm tenure status were collected by a few countries.

5. The Working Group on Censuses of Population and Housing tentatively has agreed on a number of amendments to the lists of basic and additional topics in the European programme for the 1960 censuses. About half the changes incorporated in the provisional lists of topics to be included in the 1970 programme are concerned with the economically active population. It was agreed that the topic "type of activity" in the basic list should refer to current activity (on the day of the census or during a specified week), and that the topic of "usual activity" should be added to the additional list. "Place of work" was transferred from the additional list to the basic list, and "journey to work" was added to the additional list. The topics "household enterprises" and "farm tenure status" were deleted from the additional list because so few countries had included them in their last censuses.

6. Further consideration is to be given to the question of including in the 1970 programme the topic of main source of livelihood, economic activity, unemployment or sickness insurance benefits, scholarship, income from property, old age or other pension, support by another person or other sources. Source of livelihood has been included in the additional list of the draft world programme for the 1970 censuses. Proposals will be made to include it in the basic list of the European programme. This data would provide information on persons whose participation in economic activity is sufficiently important that it constitutes their main source of livelihood, would make possible improvements in the socio-economic classification, and would provide an improved basis for dependency statistics.

II. The definition of the economically active population

7. The European programme recommends adoption of a specific time reference for the census data on the economically active population, and suggests that the time period should be no greater than one year and probably not less than one month, except in the case of countries who, because they collect these data annually or more frequently, may find a one-week period more applicable. However, the majority of countries asked for information on economic activities during a specific short period, that is, they adopted the "labour force" concept. In most cases the data referred to the day of the census and in a few cases to the week preceding the census. In some of these countries modifications were introduced to take account of recent changes in activity or of specified differences between the person's actual and normal activities (notably in the case of persons on compulsory military service). Five countries collected information on "normal" or "usual" activities, that is, they used the concept usually referred to as the "gainful worker" concept. In these cases the time reference to which the data should relate was not specified.

8. The Working Group on Censuses of Population and Housing has agreed that in the 1970 European programme the economically active population should be defined according to the labour force concept, adopted by the Eighth International Conference of Labour Statisticians. This definition should be specified in the basic list by revising the title of the topic "type of activity" to read "type of activity at the day of the census or during a specified week". The Working Group also agreed that usual activity should be placed on the list of additional topics.

9. The European programme recommends that part-time workers should be included in the economically active population if they work at least a minimum period, to be set by each

country, sufficiently long to exclude persons whose contributions are negligible. Most countries appear to have included part-time workers in the economically active population only if they worked for a minimum number of hours during the reference period; however, some countries seem to have included them irrespective of the number of hours worked.

10. Recommendations adopted by the Eighth International Conference of Labour Statisticians stipulate that the category of persons in employment should include all persons who performed some work for pay or profit during the week or day used as a reference period. However, it was pointed out at the last plenary session of the Conference that because a census is carried out by less specialized enumerators or by means of self-enumeration, to include persons who worked less than a minimum number of hours per week or day is difficult. Efforts will be made to improve comparability of the data collected by countries in the 1970 censuses by agreeing on a common standard with respect to the minimum number of hours per week or day that a person must work to qualify for inclusion in the economically active population. Consideration will be given to the question whether a higher limit should be set for unpaid family workers than for other workers and, if so, how great the difference should be.

11. In other respects the definition of the economically active population recommended in the European programme corresponds essentially with the labour force concept as defined by the Eighth International Conference of Labour Statisticians. These parts of the definition generally were followed by countries with exceptions relating mainly to treatment of members of the armed forces and unemployed persons. While most countries followed the recommendation that members of the armed forces should be included in the economically active population, a few classified them as economically inactive or did not include them in any classification by type of activity. National practices with respect to the treatment of unemployed persons differ from the recommendations of the European programme on the following points: (*a*) in some countries all unemployed persons were included in the economically inactive population (where they were sometimes shown as a separate category); (*b*) in one country they were treated as economically active if they had been unemployed for less than four months, and as economically inactive if they had been unemployed for a longer period; and (*c*) in a number of countries unemployed persons with previous occupations were included in the economically active population, but those seeking their first jobs were excluded.

III. The classification by type of activity

12. The European programme recommends the use of a basic classification of the whole population by type of activity. The economically active population should be distinguished from the economically inactive on the basis of length of time worked. A further sub-division of the economically active population into employed and unemployed is recommended on an optional basis. Within the nonactive population the criterion of actual or presumed receipt of a personal income should be used to distinguish independent persons from dependents. Each of these groups is to be further subdivided into a number of optional sub-groups.

13. All countries distinguished in their censuses between the economically active and the economically inactive population. However, various differences exist between countries in the coverage of these groups arising from the differences in national definitions of the economically active population.

14. All countries which included unemployed persons in the economically active population are able to distinguish such persons from employed persons. However, the coverage of each of these groups varied to some extent between countries because of differences in the treatment of certain types of unemployed persons, of members of the armed forces, and part-time workers. As mentioned above, some countries which treated unemployed persons as economically inactive distinguished them separately within this category.

15. Most countries subdivided the economically inactive population into a number of sub-groups. In many cases explicit headings are shown for independent persons and dependents or the sub-groups actually shown can be combined into these two categories. However, nine countries did not sub-divide the economically inactive population, or used a classification which does not permit independent persons to be distinguished from dependents. If the topic of main source of livelihood is included in the 1970 European programme, the existing classification of the economically inactive population could be simplified and improved considerably by deleting distinction between independent persons and dependents.

IV. The classification by occupation

16. Countries are recommended to use an occupational classification which is the same as, or convertible to, the International Standard Classification of Occupation (ISCO) at least to the minor group (two-digit) level. The classifications used in the 1960 censuses by the majority of countries can be converted into the two-digit minor groups of the ISCO either in full or with some exceptions. A few countries reported that their national classifications can be converted into only the one-digit major groups of the ISCO, or are not consistent with the ISCO.

17. The International Labour Office is preparing a revised version of the ISCO. Plans have been made to complete this work in time to use the revised classification in the 1970 censuses.

V. The classification by industry

18. Countries are recommended to use an industrial classification which is the same as, or convertible to, the International Standard Industrial Classification (ISIC) at least to the major group (two-digit) level. The majority of countries either adopted the ISIC for classifying census data on the economically active population by industry or used national classifications which can be converted into the major groups of the ISIC. A few countries reported that some ISIC major groups cannot be derived from their national classifications, or that their national classifications are not consistent with the ISIC.

19. An interim revision of the ISIC is planned in connexion with the review of systems of national accounts and balances which is being undertaken by the Statistical Commission and the Conference of European Statisticians. A full revision of the ISIC is envisaged but may not be carried out in time for the 1970 censuses. If the full revision is not ready, consideration should be given to using the interim revision in the 1970 censuses to secure comparability between the data collected and data on domestic product by industrial origin.

VI. The classification by status

20. The European programme recommends the use of a classification by status consisting of the following basic groups: (*a*) employers; (*b*) own-account workers; (*c*) employees; (*d*)family workers; (*e*) members of producers' co-operatives; (*f*) economically active persons not classifiable by status; and (*g*) independent inactive persons. A further sub-division of the group for family workers into paid and unpaid is recommended on an optional basis.

21. The basic status groups recommended in the European Programme can be derived from the classifications used by most countries in their last censuses. The main deviation is that six countries did not distinguish employers and own-account workers as separate groups. Some significant differences exist in the coverage of the various groups. At least seven countries included paid family workers in the group for employees rather than in that for family workers.

22. The Working Group on Censuses of Population and Housing has agreed that it is not necessary to retain a heading for independent inactive persons in the status classification since this group is shown separately in the classification by type of activity and, therefore, has decided to restrict the scope of the classification to the economically active population. The Working Group has agreed that family workers participating in the activities of producers' co-operatives should be included in the same heading as the members of the producers' co-operatives where they will be distinguished as a separate sub-group. The only other change under consideration is a possible merging of the groups for employers and own-account workers under one heading with sub-divisions for the existing groups.

VII. The classification by socio-economic categories

23. The European programme recommends the use of a socio-economic classification designed to identify different population groups which are reasonably homogeneous. They should be fairly clearly distinguished from other groups in respect to their behaviour which can be used to establish the relationship between the socio-economic position of individuals (and households) and many demographic, social, economic and cultural phenomena. The economically active population is classified into seventeen categories mainly on the basis of occupation, industry and status, and the economically inactive population is classified into four categories for independent inactive persons and five categories for dependents. This classification was developed by the Working Group on Censuses of Population and Housing, and constitutes one of the distinctive features of the European programme.

24. The majority of countries adopted classifications by socio-economic categories in their censuses. Most national classifications are consistent with the basic categories of the classifi-

cation recommended in the European programme, at least in the case of the categories relating to the economically active population. Differences are greater between countries in the treatment of the economically inactive population. The various categories of independent inactive persons are distinguished only in the classifications of a few countries. The dependent population is excluded from the classifications of a number of countries, and only some categories are distinguished in other countries.

25. The Statistical Office of the United Nations, in collaboration with the International Labour Office, is making a study of national socio-economic classifications used in vital statistics and sample surveys of households as well as in population censuses. Full use will be made of results of this study and of the work on the revision of the ISCO and the ISIC in preparing an improved European classification for the 1970 censuses. The question of the uses of data on socio-economic classifications in the past and in the future will be studied further.

VIII. The tabulation programme

26. The standard tabulation programme recommended in the European programme is described in the paper on the census development programme of the Conference of European Statisticians. This tabulation programme comprises 24 first-priority and 18 second-priority tabulations, and includes 6 first-priority and 7 second-priority tabulations of the total population, the economically active population or the population above the minimum school-leaving age by economic characteristics. The first-priority category covers tabulations which are of basic importance and general practicability. The definitions and classifications in these tabulations constitute a set of firm international recommendations which should be followed as strictly as possible. Compilation of the second-priority tabulations is recommended, but definitions and classifications are less categorical and should be considered as general guidance which countries may wish to adapt to their circumstances.

27. All first-priority tabulations relating to economic characteristics were carried out by a majority of the twenty-eight reporting countries. Five of them were compiled in full or in large part by all but one or two countries and the other by twenty-four countries. Three of the second-priority tabulations were carried out in full, or in large part, by all but two to five countries. Only one rather complex tabulation in this group was omitted by most countries. The part of the recommended tabulation programme relating to economic characteristics was implemented to a large extent. Further details are given in *Statistical Standards and Studies—No. 3* concerning the extent to which each particular tabulation was implemented.

28. The Working Group on Censuses of Population and Housing provisionally has agreed that the standard tabulation programme for the 1970 censuses, like that for the 1960 censuses, should comprise two groups of tabulations. The first group, as in 1960, will consist of tabulations of general interest, covering only topics in the basic list, which the majority of European countries will be able to compile without undue difficulty. All countries will be expected to follow the first group as strictly as possible. Whereas in 1960 the second group consisted of tabulations which all countries were expected to compile with flexibility in definitions and classification, in 1970 the second group will constitute an extended (optional) programme and may include tabulations relating to topics from the additional list.

29. The Working Group has not yet discussed contents of the standard tabulation programme for the 1970 censuses, but plans to give preliminary consideration to this question at its next session in 1966. A provisional tabulation programme then will be drawn for detailed examination at the following session of the Working Group in 1967.

Family workers and the definition of the economically active population

MILENKO BAN

[*Translated from French*]

1. The ratio of economically active population to total population is undoubtedly one of the essential indicators of a population's economic structure. Hence the definition of the economically active population has long been on the list of concepts to be standardized at the international level. However, the definition of the economically active population recommended by the Statistical Commission of the United Nations [1] does not ensure the international comparability of data relating to the economically active population. The differences encountered arise from the possibility of variations in the treatment of certain categories of economically active population which are not defined with sufficient precision, particularly the category of family workers.

2. The percentage of a country's population which is economically active depends mainly on the size of the following three categories of population:

(*a*) Persons whose employment status is clearly defined, such as manual workers, non-manual workers, and all own-account workers officially registered as such (including firm-owners);

(*b*) Children under fourteen years of age, who are usually excluded from the economically active population, and persons over sixty-five years of age, who as a rule are no longer economically active;

(*c*) Family workers considered to be economically active.

The following table shows population figures, in terms of the above categories, for European countries with over 1 million inhabitants and some non-European countries, which are listed in order of increasing proportion of economically active population.

3. Even a very general analysis of the data given in this table shows that:

(*a*) The variations in the ratio of economically active population to total population (column (*a*)) are too wide, and consequently the economic structure of the population of the countries concerned, as given, cannot be used for international comparison;

(*b*) The percentage represented by the male economically active population (column (*b*)) is the most stable proportion. In the countries listed, moreover, it bears a clear relation to the age structure: i.e., to the proportionate size of the age group 14 years and under (column (*h*));

(*c*) In most countries, the total percentage represented by the economically active population depends more on the activity rate of the female population (column (*c*)) than on that of the male population (column (*b*));

(*d*) The proportion of family workers is much higher in the female economically active population (column (*f*)) than in the male economically active population (column (*e*)). Since, according to conclusion (*c*), the aggregate activity rate is influenced mainly by the activity rate of the female population, it follows that the activity rate of a country's population depends largely on how the "family workers" is defined.

[1] At its tenth session (May 1958), the Statistical Commission of the United Nations adopted the following definition of the economically active population: "The group economically active population comprises all persons of either sex who furnish the supply of labour available for the production of economic goods and services. It includes both persons employed and unemployed during the time reference period adopted in the census.... The employed comprise all persons, including family workers, who are at work or who have jobs during the specified period, whether they are full-time workers or part-time workers, provided that the latter work at least a minimum period (to be set, by each country, sufficiently low to exclude only those whose contributions are negligible). The unemployed consist of all persons above a specified age who during the reference period are not working and are seeking work for pay or profit, including those who never worked before. The total economically active population is the sum of the civilian economically active population and the armed forces. However, members of the armed forces should be a separate category of the economically active population. The census reports should indicate whether or not they have been included in the economically active population." United Nations, *Principles and Recommendations for National Population Censuses* (United Nations publication, Sales No.: 58.XVII.5).

Country	Census year	Economically active population as percentage of total population			Family workers as a percentage of economically active population			Manual and non-manual workers as percentage of economically active population	Children aged 14 years and under as a percentage of total population
		Total (a)	Male (b)	Female (c)	Total (d)	Male (e)	Female (f)	(g)	(h)
United Arab Republic	1960	30.0	55.1	4.8	18.5	17.8	28.6	49.5	42.8
Mexico	1960	32.4	53.4	11.6	1.0	1.0	0.6	63.7	44.2
Brazil	1950	33.0	56.4	9.6	16.9	16.4	20.0	50.5	–
Pakistan	1961	33.5	55.7	8.8	0.5	0.3	2.0	15.9	44.4
Canada	1961	35.7	51.3	19.8	2.7	2.0	4.2	82.3	34.0
Netherlands	1960	36.4	56.8	16.1	4.8	3.2	10.1	79.2	30.7
Spain	1960	38.1	64.2	13.5	11.1	11.0	11.6	65.7	27.4
Portugal	1960	38.5	66.2	13.1	6.1	6.8	2.8	72.2	34.3
United States of America	1960	39.0	53.7	24.6	1.0	0.4	2.1	87.9	31.1
Norway	1960	39.2	60.6	17.8	2.6	3.0	0.9	78.0	38.7
Ireland	1961	39.3	58.0	20.4	10.6	12.3	5.6	58.7	32.1
Belgium	1961	39.5	56.2	23.6	6.4	5.0	10.8	71.3	23.5
Italy	1961	39.7	60.6	19.6	11.3	6.5	22.8	64.4	24.7
Australia	1961	39.8	59.6	19.5	0.5	0.4	0.8	79.6	30.2
India	1961	43.0	57.1	27.9	–	–	–	–	41.2
Sweden	1960	43.3	60.9	25.7	2.8	2.5	3.7	83.3	22.0
Greece	1961	43.7	59.9	28.1	28.9	14.9	55.0	33.0	26.2
France	1962	41.3	55.7	27.6	8.6	3.4	18.8	71.7	24.8
German Democratic Republic	1960	44.9	54.6	36.9	–	–	–	–	22.8
Yugoslavia	1961	45.0	59.6	31.1	29.2	16.8	53.0	43.7	31.5
Turkey	1960	45.1	51.0	38.9	47.9	20.3	88.0	18.8	41.2
Denmark	1960	45.7	63.7	27.9	6.4	–	18.8	73.8	25.1
Finland	1960	45.7	57.5	34.8	14.9	7.4	26.0	65.7	30.1
United Kingdom	1951	46.2	66.6	27.4	0.2	0.1	0.5	88.3	22.6
Switzerland	1960	46.3	65.9	27.4	–	–	–	85.0	23.5
Japan	1960	47.1	58.5	36.2	23.9	10.6	44.5	53.4	30.0
Poland	1960	47.3	54.7	40.6	32.0	13.4	53.1	46.4	37.8
Austria	1961	47.6	61.0	36.0	13.3	5.3	25.2	71.0	–
Federal Republic of Germany	1961	47.7	64.0	33.2	10.0	3.0	22.3	79.0	22.0
Czechoslovakia	1959	48.0	54.7	41.5	19.9	–	–	61.2	27.2
Hungary	1960	49.0	65.9	33.2	10.0	3.9	21.5	63.7	25.4
Soviet Union	1959	52.2	55.8	49.3	–	–	–	57.8	–
Albania	1955	53.3	60.6	45.7	–	–	–	–	38.9
Bulgaria	1956	54.5	63.3	45.7	–	–	–	36.7	26.6
Romania	1956	59.7	67.2	52.7	8.4	7.5	9.5	31.3	27.8

SOURCES: International Labour Office, *Yearbook of Labour Statistics, 1963 and 1964* (Geneva, 1963 and 1964). *Demographic Yearbook, 1963* (United Nations publication, Sales No.: 64.XIII.1).

4. While the other categories of economically active population can be defined on the basis of definite widely-known criteria which in most countries are regulated by law, family workers represent a category which as a rule is recognized only for statistical purposes. [2] The responsibility involved in making and applying a definition of family workers is all the greater because, firstly, the usual position is that a large number of enumerators have to decide for themselves whether a particular person qualifies for classification as a family worker, and secondly, family workers are included in the economically active population. We feel that this should be taken into consideration in defining the economically active population.

[2] The Population Commission of the United Nations has recommended the following definition for the "family workers" category: "Family worker: a person who does a specified minimum (at least one third of normal working hours) amount of work with or without pay in an economic enterprise operated by another member of his (or her) household." United Nations, *Principles and Recommendations for National Population Censuses* (United Nations publication, Sales No.: 58.XVII.5).

5. There are three factors which call for particular attention in defining the category "family workers" and hence in determining the size of the economically active population: (*a*) the specific time reference period to which the relevant characteristic of the person enumerated apply; (*b*) the length of time for which the person enumerated must have worked if he is to be included in the economically active population, and (*c*) the minimum age at which a person can be classified as belonging to the economically active population.

6. At the population censuses taken in or about 1960, the European countries too failed to achieve a uniform definition of the category "family workers" [3] under the heading "Status". With regard to the time reference period for the data, five countries took into consideration the "normal occupation", whereas the data of other countries refer to the situation existing on the date of the census or during the week preceding it. Only five countries specified the length of working time during that period. In one of those countries, this figure does not imply inclusion in the economically active population. In the other four countries, the prescribed figures were: at least ten hours a week (one country), at least fifteen hours a week (one country) and the equivalent of at least half the normal working time (two countries). No country laid down a specific minimum age in its definition of family workers (the country which did so in its definition of the economically active population did not include a question on "status" in its census programme).

7. The lack of uniformity in the definition of family workers—a category which includes elements of both the economically active and the non-economically active population—means that the concept of the economically active population cannot be satisfactorily defined.

8. In analysing the definition of the economically active population with the aim of ensuring uniform treatment of marginal cases, most of which occur in the family worker group, we feel that this definition should be based on a uniform approach to the following four factors:

(*a*) Minimum age;

(*b*) Pursuit of an occupation;

(*c*) Minimum length of working time; and

(*d*) The time reference period to be taken into consideration.

[3] United Nations, *Statistical Commission and Economic Commission for Europe*, Conf. Eur. Stats. WG/6/94 (31 October 1963).

9. Since the economic characteristics of the population are still on the list of problems which call for international standardization of concepts and definitions to meet the requirements of the population censuses planned for 1970, we feel that it would be useful to study the following considerations in order to find a satisfactory way of dealing with the four factors in the definition of the economically active population which are mentioned above:

(*a*) *The minimum age* represents, in most countries, one of the formal conditions applicable to the main categories of economically active population (employees and own-account workers). There is, therefore, no reason why the minimum age should be neglected in the case of family workers. The age of fourteen years could be taken as a lower limit for the economically active population. In some countries, a lower (or higher) age limit could be applied, but it should in no case be lower than the legal minimum working age;

(*b*) *The pursuit of an occupation* is certainly the basis of the concept of economic activity. It is accordingly a principal condition in any definition of the economically active population. Cases in which the pursuit of an occupation is discontinued for reasons of illness, military service, further education, unemployment etc., should be regarded as temporary withdrawals from economic activity and hence as not affecting the treatment of the person in question from the standpoint of his economic activity. If a person leaves his occupation and does not intend to return to it at the first opportunity, he should no longer be classified as economically active (for example, a working woman who leaves her job to give her full time to housework and the upbringing of her children);

(*c*) *The minimum length of time* which a person must work in order to be included in the economically active population should, in our view, equal at least one half the normal working time in the occupation in question. For some categories of the economically active population (farmers, artisans, seasonal workers and similar workers), the replacement of a specified minimum working time by one half the normal working time in the occupation in question would eliminate the problem presented by the criterion of working time expressed in hours. According to this idea, the minimum working time required in the case of family workers should equal one half the working time of the economically active member of the household whom the family worker assists;

(*d*) *The time reference period* used to identify enumerated persons as economically active requires a different approach in the case of persons fulfilling the formal condition (manual workers etc.) from that required in the case of family workers. In the case of economically active persons other than family workers, it would seem preferable to be guided by the situation existing on the date of the census. According to the principle stated in sub-paragraph (*b*), if on the date of the census these persons have temporarily left their occupation, they are nevertheless classified as economically active, irrespective of the date when they stopped working, which may have been a few days earlier or a longer time previously. For this reason it is not important, for the majority of the economically active population, to record the situation found to exist on the date of the census or during the previous week.

10. The work of family workers may be regular, seasonal, casual or temporary. For this reason we see no point in recording the situation existing on the date of the census or during the previous week. In order to eliminate the influence of casual work, it might be stipulated that family workers should have fulfilled the conditions for inclusion in the economically active population for at least one full month up to the date of the census. In the case of temporary or seasonal work, the full year preceding the census should be taken into consideration. In this case, the conditions for inclusion in the economically active population should be fulfilled, continuously or intermittently, for six months or more than half the season.

Recent progress in underemployment statistics and analysis

KAILAS C. DOCTOR

1. The concept and the related measurement and analysis of underemployment have been influenced in recent years by three major factors. First, the study and discussion of the problems of economic development of the less developed countries has focused attention on how, given the factor endowment of these, to accelerate development in contrast with earlier concentration on the negative approach of surplus labour or population. Reserves of underemployed labour now are seen to constitute not merely a burden but also an opportunity. Secondly, a world-wide evolution is evident in social policy under which the society or public authorities seek to confer, or at least recognize, adequate employment in specified qualitative and quantitative terms as a basic human right—for example, right to work, right to a decent job etc. [1] Such employment standards provide a yardstick for identifying deficiencies in actual conditions of employment. Thirdly, significant changes have taken place in the methods of inquiry. Qualitative appraisal and global approach are yielding increasingly to quantitative analysis and field survey techniques. These factors have contributed in recent years to the design and growth of surveys and studies bearing on underemployment.

2. Economic analysis of underemployment usually centres on the concept of marginal productivity of labour approaching zero. Its notional measurement requires the identification of workers (or labour input) that may be withdrawn from an economic unit or sector without a fall in output under conditions of no change or of specified changes in other co-operant factors. Various refinements are introduced in this analysis at times, such as seasonal variation in labour requirements in agriculture or "disguised unemployment", as during a recession with a low but significant positive labour productivity. While the marginal productivity approach helps in understanding underemployment, it does not lend itself readily to direct measurement. Estimates often are made by an indirect method, and in view of their global character and the underlying assumptions, they may lack operational significance.

3. Efforts have been directed to the development of alternative concepts and measurement which may be more fitted for practical uses. Three pragmatic criteria, namely, utility, objectivity in measurement and operational feasibility, appear relevant to statistics that may be compiled specifically to measure underemployment. The data should have a significant practical use in analysis and preferably an operational use in making or appraising employment policy; the data should represent objective measurement based on observation and experiment and it should be possible to compile satisfactory data at reasonable cost. While the statistics on under-employment reflect the differences in national needs, they make evident the relevance of these guiding criteria. International recommendations on the subject, which draw their inspiration from the experience of various countries and which influence national practices and programmes also emphasise the need for an empirical orientation in this regard.

[1] At the international level, such rights are recognised in various declarations or instruments adopted by competent international organisations. For example, Article 23 of the Universal Declaration of Human Rights adopted by the United Nations General Assembly in 1948 states: "(1) Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment; (2) Everyone, without any discrimination, has the right to equal pay for equal work; (3) Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection; (4) Everyone has the right to form and to join trade unions for the protection of his interests." Article 1, para. 2 of the Convention concerning Employment Policy adopted by the International Labour Conference 1964, states: "(2) The said policy (an active policy designed to promote full, productive and freely chosen employment) shall aim at ensuring that — (*a*) there is work for all who are available for and seeking work; (*b*) such work is as productive as possible; (*c*) there is freedom of choice of employment and the fullest possible opportunity for each worker to qualify for, and to use his skills and endowments in, a job for which he is well suited, irrespective of race, colour, sex, religion, political opinion, national extraction or social origin."

I. International recommendations

4. The Ninth International Conference of Labour Statisticians (Geneva, 1957), which considered the question of the methods of underemployment statistics for the first time at the international level, attempted to elucidate the concept of underemployment and made recommendations concerning definitions and classifications in regard to the visible category of underemployment. [2]

5. The subject was further reviewed by an International Labour Organisation Meeting of Experts on Measurement of Underemployment (Geneva, 1963), which among other things: "identified the following major categories of underemployment but recognized that they do not necessarily cover all aspects of the problem: (*a*) 'visible underemployment', which involves persons involuntarily working part-time or for shorter than normal periods of work; (*b*) 'invisible underemployment', which exists when a person's working time is not abnormally reduced but whose employment is inadequate in other respects such as: (i) when his job does not permit full use of his highest existing skill or capacity; (ii) when his earnings from employment are abnormally low; (iii) when he is employed in an establishment or economic unit whose productivity is abnormally low. Underemployment in the situations (*b*) (i) and (ii) is sometimes referred to as 'disguised underemployment', while that in the situation (*b*) (iii) is described as 'potential underemployment'". [3]

6. Some of the major features of the system just described may be noted: (*a*) the underemployment categories specified are by no means exhaustive but they cover typical situations and problems of underemployment encountered in countries with practices varying over a wide range of social and economic conditions; (*b*) the underemployment categories other than the "potential" are in principle based on characteristics of individuals that can be directly observed or ascertained; (*c*) such characteristics, although they usually have significant economic import, are primarily personal and social and entail no explicit reference to a near-zero marginal productivity of labour; (*d*) the concept of underemployment requires a choice of standards or norms of adequacy of employment in regard to working time, skill, income, productivity etc. The norms may vary according to the purpose of analysis or the subjective judgment of the analyst; (*e*) the notion of underemployment is restricted to the employed persons. The underemployed are distinguished from the unemployed and from inactive persons, who may enter the labour force under certain conditions and whose analysis is important for the wider but more elusive aspects of manpower utilization. Fitting the underemployed categories within the established framework of the classification of labour force categories facilitates a fuller analysis of underemployment.

7. The measurement of visible underemployment requires a comparison of labour (time) units actually worked. Labour force sample surveys provide a convenient means to obtain data and are widely used. As to the skill underutilization aspect of underemployment, a major measurement hurdle lies in forming a precise and operationally meaningful definition of "capacity" or "highest existing skill". Underemployment in terms of low income can be measured relatively easily in the case of wage-earners, but not in the case of others, especially those engaged in subsistence farming for whom data family living surveys may be required. Since labour productivity does not usually lend itself to direct measurement, this dimension of underemployment often is studied best by macro-economic analysis. [4] In agriculture, however, it can be practical to adopt standards of labour (time) units required for specified agricultural operations. One example would be to take adult male labour (time) units for cultivating wheat on one hectare under given technical conditions, and to compare the labour units available with those required to obtain an estimate of "labour force reserves".

[2] International Labour Organisation, *International Standardisation of Labour Statistics* (Geneva, 1959), pp. 48-51.

[3] (*a*) International Labour Organisation, *Report of the Meeting of Experts on the Measurement of Underemployment* (document M.E.M.U./D.4, Geneva, 1963), paragraph 22; (*b*) the following documents were presented to this meeting: International Labour Organization, *Concepts and Methods of Measurement of Underemployment* (document M.E.M.U./D.4, Geneva, 1963); International Labour Organisation; *Selected Recent National Surveys on Labour Force Unemployment and Underemployment* (document M.E.M.U./D.2, Geneva, 1963). These documents and the report of the experts provide information on national surveys and studies and discuss problems in this field; for a fuller account of some of these referred to in the present paper and for others not included here please refer to these documents.

[4] See, for example, the following study which defines and estimates underemployment by comparing existing productivities with theoretical ones in an economic model assuming conditions of "full employment" under "perfect competition": Héctor Correa, *Technology, Employment and Economic Growth*, Conference on Problems of Employment in Economic Development, International Institute for Labour Studies (Geneva, 1963).

8. Since underemployment is a complex phenomenon, its measurement and analysis requires a many-sided approach. This is evident in the conclusion of the International Labour Organisation Meeting of Experts that "it is not now possible to recommend any single method which can be used in all circumstances, and which would thus be suitable to produce comparable statistics for all countries; in general no single criterion is fully satisfactory".[5] This need for a variety of emphasis and approach is reflected in the national statistical programmes and studies bearing on underemployment in different regions. Surveys with national coverage or other wide coverages are often supplemented by limited inquiries or case studies to permit an analysis of particular aspects of underemployment in depth. Major developments in regard to underemployment measurement and analysis in recent years for countries broadly grouped according to the level and nature of economic development will be outlined later.

II. Progress in developing countries

9. A wide-spread and rapid growth of labour force sample surveys has taken place in the countries of Asia and in the Caribbean and the Mediterranean regions. National estimates of visible underemployment within the framework of such surveys have been made in a number of countries. The surveys also have been used in several countries to provide data for throwing light on other categories of underemployment and for contributing in a general way to the analysis of underemployment. Limited but intensive surveys relating to socio-economic conditions, time utilization etc., in rural milieu also have been conducted in some cases. These provide material for studying in depth various aspects of underemployment within a wider framework.[6]

10. Data compiled on visible underemployment usually show the number and characteristics of persons working shorter than "normal" time who are looking for, or would accept, extra work. Such persons generally are classified by the time worked during a brief reference period, such as a week, and in some cases, by the extra working time for which they are available. The latter estimates call for caution because of the subjective elements involved. In most cases, hours have been adopted successfully as the time units of measurement. National practices differ, however, in the choice of "normal" time below which visible underemployment is recognized. In many cases, available data permit making broad estimates of working time lost through visible underemployment.

11. A number of developing countries have attempted to measure seasonal variation in employment which is particularly pronounced in agriculture. Three types of approaches have been adopted. Under the first approach, information is sought on time worked during a relatively long reference period, such as the number of weeks worked during the previous year. Responses to such inquiries are likely to be subject to a lapse in recall. Under the second approach, the survey is designed to provide for the observation of the labour force characteristics of the population on a current basis over the full annual cycle. If the week is chosen as a reference period, for example, and the survey is spread uniformly over the whole year, the data would show the pattern of employment over the year and provide an estimate of the annual volume of employment. Under the third approach, the data based on current activity during a brief reference period are obtained at several points of time over the period of a year, including seasonal peaks and slacks.

12. A number of countries have experimented with labour force sample surveys to obtain data on some aspects of invisible underemployment which can be useful for certain limited purposes. Perhaps the most noteworthy are attempts at the identification of the underemployed on the criterion of abnormally low income from employment. But these attempts at best have achieved a measure of success in respect to wage-earners and urban workers only. In several cases, other criteria have been tried in surveys which appear to fall outside the standard framework. Even if their theoretical significance might at times seem obscure, the facility of observation as well as particular national needs well may have prompted the choice of such criteria. Examples (drawn from the Philippine experience) are the inclusion among the invisibly underemployed of persons working longer than the normal period (forty hours or more per week) who are available for extra work and the identification of the self-employed and

[5] International Labour Organisation, *Report of the Meeting of Experts on the Measurement of Underemployment* (document M.E.M.U./D.4, Geneva, 1963), para. 38.

[6] See J. L. Boutillier and others, *La Moyenne Vallée du Sénégal;* and Mission Socio Economique Centre Oubangui, *L'Emploi du Temps du Paysan dans une Zone de l'Oubangui Central, 1959-1960* (Paris, Ministère de la Coopération, 1962 and 1961).

the family workers who would prefer regular wage employment. [7]

13. In the developing countries, visible underemployment usually makes up only a fraction of the total labour (time) units that would become available for extra work if there were ample employment opportunities and other things remained unchanged. This can be attributed to the wide prevalence of "work-spread" or working at a low intensity, mainly by the self-employed or the family worker, who, because he is free to set his own pace, often is inclined to keep it low and take much longer to do a job than is necessary because he has nothing better to occupy his time. However, any attempt to adjust for "work-spread" would involve assumptions regarding "norms" of labour (time) units required for a given operation or output, and the estimates would include elements other than visible underemployment. From the operational point of view, such adjustment would not be feasible within the framework of a labour force sample survey alone. One would need recourse to methods underlying the estimation of labour force reserves.

14. One may ask why visible underemployment, which usually represents only a fraction of labour (time) units that could become available even under existing conditions, has received such great attention in recent surveys in developing countries. That the relevant data can be obtained as part of a labour force sample survey at little extra cost is undoubtedly a principal contributing factor. In addition, the following three major considerations of its nature and the utility of the related data would also seem to be germane: (*a*) the recognition of visible underemployment as a problem perhaps ranking next in urgency only to that of unemployment; (*b*) the belief that visible underemployment may yield to practicable measures of employment promotion; (*c*) the conviction that the visibly underemployed may contribute extra labour which can accelerate economic development.

15. Substance is given to this viewpoint in recent years by the introduction in a number of countries of programmes of rural works, that is, public projects of minor construction such as roads, canals etc., primarily designed to employ local labour, especially during seasonal slacks. Estimates of unemployment, visible underemployment and related indices of labour availability for local areas as well as other indirect indicators such as crop calendars, distribution of households by size of holding, seasonal migration of agricultural workers, often serve operational uses in determining location priorities, establishing work schedules and other aspects of planning and executing projects.

III. Labour force reserve approach in Yugoslavia

16. Yugoslavia has conducted a variety of studies and surveys in recent years for the measurement and analysis of underemployment geared to her planning needs. In this connexion, the "labour force reserve" approach which has been adopted with success in the agricultural sector deserves special mention. To put this approach in simple terms, the labour (time) units available in agricultural households are compared with the labour (time) units required for the cultivation of their holdings and the difference called the "labour force reserve", in principle is available either for utilisation in other branches of activity or for additional inputs in agriculture itself. [8] Labour availability is estimated from the data on the size and composition of households, local conditions and customs regarding weather, holidays etc. Labour requirements are estimated for each principal crop in the various regions from time-utilization, farm-management or other appropriate surveys. Owing to the seasonality of agricultural operations, two measures of labour units are needed: average number of units required within the year, and the number required when allowance is made for the needs during the peak season. The difference represents the non-removable reserve which can be utilised outside agriculture only during seasonal slacks if agricultural output is to be maintained. Two types of labour force reserve estimates are made: the current reserve under existing conditions, for example patterns and techniques of cultivation used in short-term planning, and future reserves based on assumptions regarding improvements in organization and technology in future years, intended for medium- and long-term planning.

17. The labour force reserve approach as applied in Yugoslavia involves setting up productivity norms. It may lend itself to marginal productivity analysis. Still, it does not suffer

[7] For these and other illustrations, and a discussion of underlying concepts, see International Labour Organisation, *Concepts and Methods of Measurement of Underemployment* (document M.E.M.U./D.1, Geneva, 1963), paras. 80-87.

[8] The labour force reserve approach is briefly referred to in: International Labour Organisation, *Report of the Meeting of Experts on the Measurement of Underemployment* (document M.E.M.U./D.4, Geneva, 1963), paras. 29-30, 52-55, 87-89.

from the drawback of a global approach since the estimating procedures largely take account of varying individual conditions of the micro-economic units. But the calculation of labour force reserve requires varied and detailed data, both general statistical sources, such as population and agricultural censuses and from specialised technical surveys like time-utilization surveys. In particular, the data preferably should be available by fine regional breakdown. Such data are rarely available in most developing countries.

IV. Position in countries with varied economies

18. In several countries with centrally planned economies, underemployment in the dynamic sense that the current low level of labour productivity, especially in agriculture, can be raised by improved techniques and structures seems to be recognized by implication as a problem in discussion of economic issues.[9] But it appears that few studies and surveys have been undertaken for its specific measurement.

19. Among the developed countries of today, Italy and Japan recognized underemployment as a serious problem a decade and a half ago. Although this problem largely has been solved by the process of development, the two countries, in the meantime, have made a significant contribution to the pool of experience and knowledge on underemployment measurement and analysis through surveys and studies on the subject.

20. In Italy, within the framework of a nation-wide inquiry into unemployment and underemployment initiated by the Parliament in 1951, a survey of underemployment in agriculture in the major rural areas of the country was carried out by the National Institute of of Agricultural Economics.[10] The part of the survey related to small family holdings deserves special mention in view of the wide interest in the methodology.[11]

21. This survey covered 101 holdings cultivated by peasant households distributed over different parts of the country and considered typical for the agricultural sector in question in terms of size of holdings, cropping patterns, demographic characteristics of the households etc. The amount of labour (time) units available from the household members during a 12-month period was computed on the basis of empirically established norms such as allocation of women between house-work and farm-work according to size of household, local customs as to holidays, local weather conditions etc. The labour (time) units actually worked (on specified operations) were measured by direct observation or by interviewers' reports for each survey household over the 12-month period. Estimates of total underemployment were broken into "seasonal underemployment" and "disguised unemployment" components and the latter was analysed further into the "removable" and "irremovable" categories.

22. This survey method has the merit of results which are based on observations under existing or actual conditions of selected micro-economic units. By this method, the estimate of total underemployment may be taken to correspond conceptually to that of visible underemployment. The method seems suitable for an intensive study of underemployment in peasant agriculture, but requires detailed observation of individual households over a long period and generally is impracticable for deriving national estimates.

23. Since World War II, Japan has conducted sustained and varied inquiries into the measurement and analysis of underemployment. Interest has been focused on invisible underemployment, for which income, desire for work, productivity etc., have been investigated. Certain aspects of underemployment have been probed by labour force sample surveys although the latter do not attempt to provide definition of underemployment.

24. In the survey of monthly labour force inquiry is made iuto hours worked during the reference week, whether a person wishes to work longer in the same job, to have an additional job or to change jobs and whether or not he is actively seeking another job. Every six months a special survey using the framework of the monthly labour force survey is conducted providing additional data on regularity of work, job satisfaction and income. Every three years, the Employment Status Survey inquires into these jobs, desire for work by housewives and others whose main activity is non-economic. Since this survey has a large sample size (about 200,000 households, eight times the number included in the monthly survey)—its results are available with extensive

[9] See, International Labour Organisation, *Employment and Economic Growth* (Geneva, 1964), pp. 30-31; and M. Pohorille, *Solution of the Programme of Rural Over-population in the Light of Polish Experience*, Conference on Problems of Employment for Labour Studies (Geneva, 1963).

[10] Commissione parlementare di inchiesta sulla dis occupazione, *La disoccupazione in Italia* (Rome, 1953).

[11] Gian Giacomo dell'Angelo, *Note sulla sottoccupazione nelle Abziende contadine*, SVIMEZ (Association for the Industrial Development of the South) Rome, Guiffrè Editore, 1960.

cross-classification of relevant characteristics which facilitate a close study of underemployment.[12]

25. Disguised underemployment also has been measured in Japan from time to time as, e.g., done by the Employment Council in 1958. On that occasion, while income inadequacy was the principal criterion, it was supplemented by other factors such as working hours, personal desires, employment security, working conditions etc., whose importance varied according to the branch of activity (agriculture or others) and the status of the worker (as to self-employed, family worker or employee). The measurement did not involve new field surveys but rather discriminating use of data available from existing sources including the labour force sample surveys mentioned earlier.[13]

V. Surveys in the United States and other countries

26. Underemployment in the form of involuntary short-time work in industry due to insufficient demand for labour, although not a wide-spread problem at the present time, regularly is measured in several countries. The purpose of the survey is to provide a sensitive indicator of cyclical changes in the economy as a whole or particular problems in individual industries. The data on workers on short-time or in partial unemployment in the different countries vary in scope (short-time working compensated, assisted or authorised by the agencies concerned) as well as to source (establishment reports, insurance or placement records). The statistics on the average number of hours worked in industry which are compiled by a number of countries also are relevant to underemployment.

27. Involuntary part-time workers are identified in periodic labour force sample surveys in several countries including Canada, Italy and the United States. As an illustration, in the United States the monthly survey identifies part-time workers as to whether they work part-time for "economic reasons" such as slack work, material shortages or repairs, job changes, or for "other reasons" such as illness, vacation, bad weather, and whether they "usually" work part-time.

28. Rapid technological change and automation often have led to obsolescence of skills and have brought to the fore the problem of skill under-utilization. Interest converges on this problem from the viewpoints of effective utilization of the labour force to stimulate economic growth and provision of full-capacity employment to the individual as a matter of social policy. However, this aspect of underemployment presents conceptual and other difficulties in measurement and has not been the subject of statistical inquiry or quantitative analysis. Exploratory research in this regard recently has been recommended in the United States.[14]

29. Another common problem is underemployment in the economically lagging regions or depressed and backward branches of the economy of a country, such as dwarf farms or coal-mining districts. In the United States, a number of surveys and studies have been carried out in regard to low income families, especially in rural areas. These surveys have approached underemployment primarily from the viewpoint of low income and productivity because related government programmes seek to raise family income to a minimum level that is socially tolerable and to facilitate the transfer of workers from uneconomic units to sectors of higher productivity.[15] Special studies also have been made concerning underemployment

[12] Bureau of Statistics, Office of the Prime Minister of Japan, *Monthly Labour Force Survey: report of the Special Survey of the Labour Force Survey* and *Employment Status Survey, 1962.*

[13] International Labour Organisation, *Selected Recent National Surveys on Labour Force*, Unemployment and Underemployment (document M.E.M.U/D.2, Geneva, 1963).

[14] President's Committee to Appraise Employment and Unemployment Statistics, *Measuring Employment and Unemployment* (Washington, U.S. Government Printing Office, 1962), pp. 58-59.

[15] A large number of studies have been carried out particularly by the Economic Research Service of the Department of Agriculture, United States. Reference is made to Robert B. Glasgow, *The Income Position in the South, in the National Setting* (U.S. Department of Agriculture, Resource Development Economics Division, 1963). In this study, underemployment, as reflected in low income, has been expressed in units of "man-equivalent underemployment". This figure is derived by assuming that the difference between the median income of a selected group (all males twenty-five years old or more in a state who report income in a given year) and a given norm of median income (that for all males in the U.S. twenty-five years old or more who reported income for the same year) after differences in labour earning capacity have been removed by statistical standardization, is due to underemployment. In the example given by Glasgow, the four variables affecting labour earning capacity upon which the population were standardized before comparison to the norms were age composition, educational attainment, labour force participation rate and colour composition. The difference divided by the "norm" gives a proportion which when multiplied by the number of persons in the group under investigation gives a product which is called the man-years equivalent of underemployment.

in economically lagging southern Italy and Sicily.[16]

30. Discrimination in employment on the grounds of sex, age, race etc., which might be reflected in below-norm wages or below-capacity employment of workers is sometimes regarded as a facet of underemployment.[17] This problem usually is analysed with the help of data already available. Since information comparing educational and training qualifications, work experience and current occupation of workers often is not available, special surveys for the purpose may be desirable.

VI. Prospects and needs

31. In a large number of developing countries, the trends in population growth and economic development portend persisting over-all imbalances between labour supply and other productive resources. In consequence, many countries face the prospect of living for a long period with problems of agricultural underemployment and their overspills into non-industrial urban employment. At the same time, a widespread trend is evident towards emphasis on programmes of development and fuller utilization of human resources.

32. These trends point to the need for statistical and research programmes in the measurement and analysis of underemployment in developing countries. A primary task is the development of basic labour force statistics which alone can provide a meaningful framework for analysis. Setting up and strengthening a system of periodic labour force sample surveys, justified by needs and statistical resources, can contribute greatly. Intensive surveys of rural underemployment are needed although national estimates based on such surveys often may not be practicable. Studies on the subject should draw more fully on the flow of information which may become available from various statistical sources such as the population and agricultural censuses, establishment inquiries on employment, wages, hours of work etc., as well as surveys conducted for other purposes such as family living, farm-management, time-utilization and rural-urban migration surveys. Finally, countries need to undertake programmes of research and analysis directed to finding answers to current and emerging problems of underemployment.

33. In the developed countries, it seems likely that programmes to mitigate underemployment, identified on personal and social criteria, such as below-capacity employment or labour income below a socially tolerable minimum, would grow in importance as problems specific to certain employment situations or worker categories attract increasing attention against a background of general improvement in employment. Aspects of underemployment which may call for surveys and analytical studies include under-utilization of skills, particularly workers in economically lagging regions or in backward or depressed branches of the economy as well as workers particularly liable to discrimination in employment. Much exploratory work is needed to develop the methodology for studying certain aspects of underemployment such as below-capacity employment or under-utilization of skills. Moreover, quantitative analysis often would need be supplemented by qualitative appraisal.

34. National action for promoting underemployment measurement and analysis certainly would be stimulated by appropriate initiatives or regional and international co-operation which facilitate exchange of information and discussions on the experience of different countries. National, regional and international agencies concerned can contribute by organizing and participating in such activities as publishing technical materials in this field, holding seminars of specialists etc.

[16] P. S. Labini, *The Problem of Precarious Employment: the Case of Sicily, Conference on Problems of Employment in Economic Development*, International Institute for Labour Studies (Geneva, 1963).

[17] President's Committee, *Measuring Employment and Unemployment*, op. cit., p. 58.

Some views on the collection, analysis and utilization of current employment statistics in an economically less developed country

RUPERT J. HAREWOOD

1. Until recent years, the employment problems of the less developed countries were thought to be of the same nature as the problems of the advanced countries. In consequence, little attention has been paid to developing an adequate theoretical framework about the peculiar nature of the employment problem in less developed countries or in carrying out detailed studies of these problems.

2. Attempts to improve the employment situation in developing countries have proved discouraging in many cases. What these attempts have made clear is that the employment problems of developing countries are fundamentally so different from those of the advanced countries, that the concepts and methodology derived for them in many respects are irrelevant to the problems of the developing countries. As a consequence it is necessary to review the whole approach to the collection and use of current employment statistics in countries economically less developed.

I. THE EMPLOYMENT PROBLEM

3. Especially following the world depression of the late 1920's the employment problem of advanced countries was seen basically as one of cyclical unemployment with the solution to be sought in the control of the trade cycle. Recently the problem of re-absorbing workers displaced by increasing "automation" has become the principal employment problem in some of these countries. In developing countries the problem is one of chronic under-utilization of available manpower; a solution must be sought in economic and social development in the most comprehensive sense.

4. The principal objective of economic development is improving the level of living of the population as a whole by increasing national output and widening the distribution of this increased wealth. As far as employment is concerned, increase of the national output implies better use of available manpower resources, but in the experience of many developing countries this improved use has not resulted in significant increase in the total number of persons employed. For example, it is reported, "Striking increases in productivity have been achieved (in Puerto Rico) and the amount of new capital available each year has progressively increased. So far, however, Puerto Rico's economic development programme has not increased the number of employed nor greatly reduced the number of unemployed."[1] Instead the productivity of labour is increased, especially by shifting workers from the low-productivity traditional sector of small-scale agriculture, petty trading, and personal services to the modern, high productivity sector of mechanized agriculture and highly capitalized industries. In these circumstances, the optimum combination of labour with other available resources could well result, in the short run, in less than full employment.

5. Given the objective of improving the level of living of the population, one finds two distinct, and in part, conflicting employment needs in developing countries. The first is to ensure an available labour force with the skills and characteristics needed to contribute to a rapid and sustained increase in national output. The other is to ensure, through full employment, an acceptable distribution of this increased output in the form of earned income.

6. These needs are conflicting because to ensure skilled labour may result in an efficient, well-organized, well-paid but relatively small force in the highly capitalized modern sector of the economy, while in the traditional sector, low earnings and a large volume of unemployment and underemployment may continue. On the other hand, efforts to speed the distribution of income could result in a brake on industrialization and efficiency, thereby retarding the rate of output.

7. In any case, it is now evident that the ideal of full employment is unattainable in the short run in developing countries with a rapidly growing population. For example, in India

[1] The Committee on Human Resources, *Unemployment, family income and level of living in Puerto Rico* (Puerto Rico, 1959), p. 1.

and Pakistan[2] and Trinidad and Tobago[3] the estimated number of jobs to be created under their respective five-year plans barely would suffice to absorb new entrants to the labour force, and much of the existing unemployment and underemployment still would remain in the final year.

8. In these circumstances, it appears desirable for developing countries to concentrate on increasing output. But the problem of ensuring satisfactory distribution of national output cannot be neglected. The existence of large numbers of persons, who, in the midst of evident rapid economic progress, are unable to share in the increased wealth because jobs are not available, leads to disillusionment, frustration, and economic, social, and political unrest. Governments in developing countries must seek to avoid this problem (*a*) by ensuring an acceptable distribution of the national output even among persons who are unable to obtain jobs; and (*b*) by reducing the demand for jobs as paid employees in the "modern" sector of the economy through finding other economically and socially desirable activities for the surplus manpower.

9. To ensure acceptable distribution of the national output, Governments must utilize the well-known "welfare state" approach of redistributing incomes by providing from public funds as many as possible of the social and economic needs of the country. Publicity should be given to this approach rather than to attempts to create full employment. Alternative activities among persons unable to find employment in the modern sector of the labour force should be encouraged among the existing adult population. This could be done by raising the age for leaving school, increasing school attendance and post-school training, introducing employees' pensions schemes for aged workers, and encouraging useful community service outside normal paid employment: all are desirable objectives. In addition, efforts could be made to encourage emigration though the danger of losing persons with essential but scarce manpower skills and experience is a real one. As a long-term measure, some developing countries are seeking to reduce the rate of natural population increase by alerting the citizens to the problems and fostering family planning measures.

[2] *Employment Objectives in Economic Development* (Geneva, International Labour Office Studies and Reports — new series, No. 62, 1961), p. 36.

[3] The National Planning Commission, *Draft Second Five-year Plan, 1964-1968, Government of Trinidad and Tobago* (Trinidad, 1963), p. 100.

II. The statistical data required for the study of employment

10. We may now consider what current employment statistics should be sought by developing countries. To ensure a well-trained available labour force, the first need is for information on existing and future manpower requirements by the type of skills. This important aspect of manpower budgeting is outside the scope of this paper.

11. Given the manpower requirements, current statistics are needed on the demographic and social characteristics and the employment skills and experience of the adult population, both those economically active and those economically inactive. Data on persons economically inactive is required to indicate existing unused skills, and the likely availability of these persons for future employment. As regards the economically active, data are needed on the extent to which existing skills are being used properly. A need exists to contrast the skills of the worker with the type of work he is doing and the level of his output. An indication of the level of output of workers could be obtained from a careful analysis of the type of occupation and industry, the size of the establishment (number of workers) by which he is engaged, and his income.[4] There are many problems both of concept and of measurement—which need to be overcome before this approach can be adopted generally. Substantial research and experimentation is needed to break away from systems of classifying industry and occupation devised for more developed countries because they do not contribute to an understanding of their peculiar problems.

12. As for the need to ensure an acceptable distribution of the national output, the basic statistics required are data on the distribution of family and household incomes and the factors which affect income distribution. The use of current statistics on unemployment as the only indication of poverty and economic want is largely unjustified. Among other major causes of low family income are: aged or physically disabled head of families, low education of some heads of families and few working members of the family.[5]

III. The definitions and concepts

13. *The economically active populations.*

[4] J. Harewood, "Over-population and underemployment in the West Indies", *International Labour Review*, vol. LXXXII, No. 2 (Geneva, 1960), pp. 103-137.

[5] The Committee on Human Resources, *Unemployment, family income and level of living in Puerto Rico* (Puerto Rico, 1959), p. 1.

The main purpose of the division into the "economically active" and the "economically inactive" sectors would be to provide a first step in analysing the extent to which existing skills are utilized. In developing countries, it is not useful to make this classification on the basis of the activity of individuals over a period as short as a week which is the usual approach in economically advanced countries. Instead the use of a reference period of about twelve months would be preferable.

14. *The measurement of unemployment.* Unemployment should be taken to indicate the underutilization of available manpower time. For this purpose the usual labour force definitions of unemployment are not suitable. It is preferable to begin with a working population, taken as all persons who either worked or had a job for any length of time during a twelve-month period and to classify them on the basis of the number of full weeks they were employed during this period. On the assumption that each member of the working population is available to work for a full fifty-two weeks, the amount of time without a job, perhaps expressed in terms of man-years, would indicate the unemployment or underutilization of manpower. With more detailed study this data could be further subdivided into voluntary and involuntary unemployment from the point of view of the worker.[6, 7]

15. The next step would be to analyse persons not in the working population, separating those persons not available for work such as full-time students, retired persons, housewives unwilling to work, from those available for work the reserve, unused manpower. Persons who wanted work may be shown as a special category of the unused manpower, but the importance of isolating these is probably less than in developed countries because as employment opportunities increase persons with required skills will be employed and these may not be the persons who were seeking work.[8] The analysis of persons not in the working population should be aimed especially at indicating the conditions under which persons with basic education and required skill are likely to join the working population. To avoid confusion, it may be advisable to avoid the term "unemployment" and to use a term such as "the underutilization of manpower time".

16. *The measurement of underemployment.* A number of different approaches to the measurement of underemployment have been attempted or proposed. An approach often used is to measure underemployment in terms of time worked. (This is consistent with the approach for measuring unemployment for persons who worked no time at all usually are treated as unemployed and those who worked for any length of time as employed.) This aspect of underemployment would be covered in the analysis discussed above. More significant for developing countries is finding the extent to which scarce employment skills and experience of the adult population are being misapplied in the sense that persons are not in jobs which allowed them maximum contribution to increasing the national output. Analyses are necessary of the relationship between the training and past experience of workers and their present occupations and the income they earn (using income here as a convenient indicator of productivity).[9] Here again are many problems of concept and of measurement which will require considerable research and experiment above a simple general approach can be devised. It might be advisable here to avoid the common term "underemployment" and to replace it by a term such as "the underutilization of manpower skills and experience".

17. One must stress what is needed in developing countries as not only summary indicators such as measures of "unemployment" and "underemployment" which alone might be misleading or unhelpful but a large variety of data carefully designed to make positive contribution to an understanding and a solution of the peculiar employment problems in each country.

IV. Current employment statistics from censuses and sample surveys of population

18. Since population censuses are taken only at ten-year intervals or less frequently, employment data obtained should be considered by less-developed countries as providing an opportunity for exhaustive analysis of the employment situation (including an indication of long-term trends), as well as benchmark data for subsequent intercensal sample surveys.

[6] W. F. Maunder, *Employment in an underdeveloped area* (Yale Caribbean Series, 1960), pp. 137-163.

[7] J. Harewood, "Employment in Trinidad and Tobago — 1960", *Central Statistical Office Research Papers*, No. 1 (Trinidad, Central Statistical Office, 1963) and *1960 Population Census Research Programme*, No. 5, Jamaica, Institute of Social and Economic Research, University of the West Indies (1963).

[8] J. Harewood, "Over-population and underemployment in the West Indies", *International Labour Review*, vol. LXXXII, No. 2 (Geneva, 1960), pp. 103-137.

[9] J. Harewood, "Over-population and underemployment in the West Indies", *International Labour Review*, vol. LXXXII, No. 2 (Geneva, 1960), pp. 118-124.

19. Sample surveys of population for current employment data are expensive. For this reason very few countries, even developed ones, attempt to carry out such surveys regularly and frequently. Moreover, the use of frequent surveys in developed countries is intended particularly to measure short-term changes in unemployment. For reasons already discussed, large expenditures on sample surveys for this purpose cannot be justified in developing areas.

20. Because of the high cost and because short-term change is not vital, some developing countries make sample surveys of population infrequently, perhaps once every year or two. This approach does not yield useful measures of changes in the employment situation within a period, largely because the surveys tend to be carried out independently with temporary, changing staff and procedures. As a result, apparent changes in the employment situation may be due mainly to sampling and response errors.

21. For these reasons, current sample surveys for obtaining employment data intended to measure changes in the employment situation over a period of even one or two years cannot be recommended. Nevertheless, sample surveys, if differently conceived, can be useful in indicating trends between censuses and in providing detailed empirical data required for serious study and understanding of the employment situation. Inherent in any new approach would be the use of sample surveys to experiment with methodology and concepts for devising a framework and a plan suitable for a particular type of country. Since the surveys would not be primarily concerned with measuring change, the questions could be changed to obtain information on a wide variety of topics over a period of time, and to test alternative approaches.

22. To achieve these ends a small permanent survey staff should be used continuously and the enumeration over a long period should be collated to form a single sample. Thus the enumeration for a six-month period might be taken as a sample. As a guide to changing trends, re-enumeration of the same household at fixed intervals on three or four occasions could be used. By using a method analogous to the "moving average", more frequent estimates could be provided which would indicate trend movements. For example, if the sample period is six months, figures could be provided monthly for the periods January to June, February to July, and so forth; however, this approach would not indicate short-term fluctuations or seasonal variations.

23. In devising the sample scheme, developing countries may find the population census affords, through its enumeration districts, an excellent frame. If the enumeration districts are used as primary sampling units, the problem of the progressive aging of the frame could be overcome by listing all enumeration districts selected in the samples. The population census data also could be used for stratification of the enumeration districts. A sample survey along these lines—*The Continuous Sample Survey of Population*—was started in Trinidad and Tobago in 1963. While it is still too early to assess the success of this attempt, such experimentation is essential.

Assessment of underemployment in non-agricultural industries of the less developed countries

A. J. JAFFE and L. E. QUESADA

1. At the risk of oversimplification, underemployment may be defined as: (*a*) visible, when a person involuntarily works less than the socially accepted "standard" period (hours per week, and weeks per year); and (*b*) invisible, when he works for the socially accepted "standard" period, but at such a low level of labor productivity that he cannot earn the socially acceptable minimum. Since the problem of definition is being considered in detail by Mr. K. Doktor, we shall not pursue it further.

2. The major problem with any definition is that of actually applying it in the collection of statistics. Nevertheless, statisticians in any country may be able to devise statistics collection procedures reasonably satisfactory for that country. There is no guarantee, however, that identical procedures will work equally well in all countries, because socially acceptable standards vary from country to country. Other factors which make "international comparability" a meaningless term are inherent in the section following, "Preconditions under which useful measurement is possible", since these preconditions are never identical in all countries.

3. Furthermore, even within a country, employment norms or standards always are relative, and often are changing. For example, in the United States the normal work week once was sixty hours and more. Today it is 40 hours; and a decade or two hence it will be less. A person is "fully" employed relative only to one who is not as "fully" employed. On the other hand, if identical statistics collection procedures are used in a country for a time, it becomes possible to ascertain whether relatively more or less underemployment exists in one time period as compared with another. By the same token it becomes possible to determine how the relative volume of underemployment in one population sector (age group, province etc.) compares with another at any time. Such information can be useful to policy makers. Whether persons in power will use the information is a question outside the scope of this paper.

I. PRECONDITIONS UNDER WHICH USEFUL MEASUREMENT IS POSSIBLE[1]

4. Under the ideal preconditions to be described it is possible to obtain statistical measures of underemployment useful for policy making. Although these ideal preconditions are never found, reasonable approximations to them may occur. When they do, collecting such data is worth while.

(*a*) All workers are employees, that is, there are no self-employed workers. The reason is that information on time worked is notoriously inaccurate for the self-employed;

(*b*) Everyone who is employed receives his earnings in money, and not in some other form. To the extent that workers receive housing, medical care, food, clothing, or other non-cash payments, it becomes difficult, if not impossible, to determine their precise earnings;

(*c*) The worker should have a well developed sense of time so that he knows how many hours a day he works, how many days a week, and how many weeks in the year. If he only knows that he goes to work in the morning and returns home when there is no more work, it is extremely difficult to determine how much of the socially acceptable "standard" amount of time he has worked;

(*d*) The pay received should bear a high relationship to the amount of time worked. If the worker receives a stipulated daily, weekly, monthly, or sometimes annual pay with little

[1] For further discussion of this general problem, see B. G. Bantegui and G. A. Perez, "Measuring labor force in a transitional economy"; Ajit Das Gupta, "An empirical approach to measurement of underemployment"; and A. J. Jaffe, "Economic development, full employment, and underemployment"; in the *Proceedings of the International Statistical Institute*. Thirty-second Session (Tokyo, 1960). See also *Economic Survey of Trinidad and Tobago, 1953-1958*, Government of Trinidad and Tobago (1959), pp. 110 ff; and the Continuous Sample Survey of Population being conducted by the Central Statistical Office of Trinidad and Tobago. See A. J. Jaffe, "The concept and measurement of underemployment", *People, Jobs and Economic Development* (Free Press of Glencoe, Illinois, 1959), appendix C.

reference to the amount of time actually worked, the measurement of underemployment becomes difficult.

II. Measurements in urban versus rural areas

5. The preconditions just described are more likely to be encountered in urban areas than in rural ones. Without studying each country individually we cannot say that these preconditions necessarily are found in all large cities. We can say, however, that a pattern commonly found in less developed countries is that of an urban work force largely within the money economy, and a rural, or more precisely, agricultural work force which is partially subsistence.

6. The Republic of Panama is a good illustration of this pattern. For analytical purposes we divided the country into two major regions: (*a*) the metropolitan area comprising the two largest cities of Panama and Colon, and their surrounding suburban areas; and (*b*) the interior or the rest of the country. In the entire country half of all employed persons were engaged in agriculture, and half in nonagriculture. Within the metropolitan area 90 per cent of all employed persons (August 1963) were engaged in non-agriculture; of these, more than 80 per cent were employees who worked for money wages and salaries.

7. In the Interior, 80 per cent were engaged in agriculture, and of these workers only about 14 per cent were employees receiving cash. Half of all the persons engaged in agriculture in the interior were self-employed, and another third were unpaid family workers.

8. In the metropolitan area clearly we find reasonable approximations to preconditions (*a*) and (*b*). We think, also, that reasonable approximations to preconditions (*c*) and (*d*) exist since many workers are paid by the hour and the Republic's minimum wage law refers to hourly pay. We cannot compare Panama City with New York or Tokyo, or even San Juan, Puerto Rico. We cannot say how the sense of time (precondition (*c*)), or the relationship between time worked and pay (precondition (*d*)) may compare among these cities. We can conclude only that the preconditions in the metropolitan area are good enough to warrant trying to collect statistics on underemployment—data which would serve to aid making policy decisions for the Republic of Panama.

9. On the other hand, in the interior we do not have a reasonable approximation to these necessary preconditions, except among those engaged in non-agriculture. The necessary preconditions apply nearly as well to these non-agricultural workers as to the working force in the metropolitan area.

10. The urban versus rural contrasts just observed in Panama are not found universally, of course. In Trinidad and Tobago, for example, only about one fifth of the 1960 working population was engaged in agriculture.[2] Three quarters of the working population were paid employees and received money wages and salaries. Apparently preconditions (*a*) and (*b*) are reasonably satisfied for the entire country, especially for the capital city. To what extent preconditions (*c*) and (*d*) are reasonably approximated in Trinidad and Tobago we do not know, although we think that they are approximated sufficiently for the purposes of measuring underemployment in the entire nation. Probably little need exists here to distinguish between urban and rural areas (as there is in Panama) except as one may wish for analytical purposes.

III. Design of the Panama manpower sample survey

11. The recently innovated annual sample survey in Panama took into account factors regarding the way in which the people earn their living. Accordingly, we designed two separate but interrelated surveys: (*a*) a survey of non-agricultural workers in which they were asked a series of questions designed to measure full employment, underemployment, and unemployment during the month preceding the survey, as well as their personal characteristics and related working force aspects such as occupation, industry, weekly earnings, class of worker etc. (*b*) A survey of the self-employed farmers in which they were asked a number of questions regarding their farming operations, size of farm, value of sales, extent of work and earnings off the farm, extent to which other family members assist in working the farm, distance from nearest road over which a wheeled vehicle could pass etc. This information describes working and living conditions of the self-employed farmers. Whether they should be called fully employed or under-employed is immaterial.

12. Workers who lived in the Metropolitan Area were asked only the first set of questions. Those who lived in the Interior and were em-

[2] Trinidad and Tobago, *Research Papers*, Jack Harewood, "Employment in Trinidad and Tobago", No. 1 (Central Statistical Office, Port-of-Spain, Trinidad, December 1963), pp. 77-79.

Employment status of persons engaged in nonagriculture, by sex and age, for the metropolitan area and the remainder of the country: Republic of Panama, 1963 [a]

	Total working force (percentages)	Metropolitan area — employed				Un-employed	Total working force (percentages)	Remainder of country — employed				Un-employed
		Total	Fully employed	Under-employed	Unpaid family workers			Total	Fully employed	Under-employed	Unpaid family workers	
Men	100.0	90.7	71.9	17.7	1.1	9.3	100.0	91.8	69.0	20.7	2.1	8.2
10-19	100.0	73.5	40.9	28.5	4.1	26.5	100.0	92.7	42.7	23.2	26.8	7.3
20-29	100.0	86.8	62.8	22.5	1.5	13.3	100.0	91.5	63.4	25.7	2.4	8.6
30-49	100.0	95.2	79.9	14.7	.6	4.8	100.0	96.0	77.4	17.8	.8	4.0
50 + ...	100.0	94.1	81.4	12.4	.3	6.0	100.0	94.8	75.9	17.3	1.6	5.2
Women	100.0	88.8	69.6	17.9	1.3	11.2	100.0	92.2	69.6	17.0	5.6	7.8
10-19	100.0	81.4	66.5	13.6	1.3	18.6	100.0	80.0	57.0	14.4	8.6	20.0
20-29	100.0	86.5	68.2	17.4	.9	13.4	100.0	94.6	68.9	20.9	4.8	5.5
30-49	100.0	91.7	69.6	20.4	1.7	8.3	100.0	94.6	72.3	16.5	5.8	5.5
50 or more.....	100.0	94.7	76.9	16.8	1.0	5.3	100.0	99.0	84.9	12.1	2.0	1.0

[a] Percentage distributions based on preliminary data.

ployed in non-agriculture or were employees in agriculture were asked the first set together with an abbreviated version of the second schedule if they also operated a farm, however small. Those who lived in the Interior and were self-employed farmers were asked an abbreviated version of the first set of questions and the entire second group of questions. Unpaid family workers were asked only enough questions to ascertain that fact plus their personal characteristics.

IV. Counting the underemployed

13. Counting the underemployed was limited to those engaged in nonagricultural activities and employees in agriculture. These workers numbered approximately 225,000 of a total working force of almost 400,000. Underemployment was defined separately for the employees and the self-employed.

14. Employees: (*a*) those who had worked for fewer than twenty full days in the month preceding the interview, and had sought work; or if they had not sought work actively, had wanted to work more time than was available; (*b*) employees who had worked twenty or more full days but wanted to change jobs for economic reasons, and had earned under 25 balboas per week. (Median earnings were a little under 25 balboas.)

15. Self-employed: (*a*) same as part (*a*) for the employees; (*b*) self-employed who had worked twenty or more full days and wanted to change jobs. All other persons were considered fully employed.

16. In the procedural definition, part (*a*) attempts to measure involuntary visible underemployment, and part (*b*) the invisible component. Most importantly, the wishes of the worker and his attitudes toward his job are crucial elements in whether or not he is considered as underemployed.

17. Preliminary results of the 1963 survey showed that 20 per cent of the non-agricultural employed working force was underemployed. Almost identical results were found in the metropolitan area and the interior, and for men and women. Among men the highest underemployment rates were found among young workers, about 30 per cent in the ages under twenty. Among older workers only half this proportion was underemployed. Among men who had some university education no underemployment existed whereas among those who had no schooling or only some primary education (not more than six years), one quarter were underemployed. Analysis of the rates by industry shows that in manufacturing, for example, approximately 22 per cent of the men were underemployed, and in construction approximately 37 per cent. Clearly, preliminary results agree with whatever knowledge we have of these population sectors.

Labour force statistics

HENRI P. LACROIX

[*Translated from French*]

INTRODUCTION

1. Knowledge of the demographic, economic and social characteristics of the labour force is essential to the work of administrators, planners, economists and managers, whether it is a question of ensuring full employment or deciding on the optimum distribution of labour among economic sector and enterprises, determining and comparing labour resources and needs, following the implementation of programmes once they are underway, determining the best sites for new factories, or contributing effectively to the prevention of industrial accidents.

2. Such knowledge is based primarily on labour statistics. To be complete, these must first of all give figures for the total labour force and its distribution by region, sex, age, type of activity, economic activity, occupation, status and level of skill. These statistics must also provide data on fluctuations in the total labour force and on relative changes in the size of its component groups. They must enable the user to assess the effectiveness with which this labour force is employed by clarifying the problem of underemployment.

I. MAIN CHARACTERISTICS OF THE METHODS USED IN OBTAINING LABOUR STATISTICS

3. Labour statistics are obtained through general population censuses, household sample surveys, permanent registration of labour, surveys at enterprises, specialized censuses, and registration of applicants for employment and at unemployed persons receiving assistance or insurance payments.

4. *The general population census* is a complete and detailed inventory of the demographic, economic and social characteristics of the entire population of a country at a given moment. It is a complex, difficult and costly operation which is, as a rule, carried out only once in ten years; the task of analysis is a lengthy one, and the results are often not published until some time afterward.

5. Census data are gathered either by means of individual questionnaires, which can give only brief explanations of how the questions are to be answered, or with the help of enumerators, who can receive only elementary training because so many of them are needed. The information provided by the census on simple and clearly defined subjects, such as place of residence, sex or age, is therefore more exact than that relating to more complex subjects, which can be properly defined only by means of a series of questions. For example, it is difficult to obtain detailed, precise census figures for the distribution of the population by occupation because of the vague, confused nature of the names given to occupations, and the virtual impossibility of asking the whole set of questions required in order to determine precisely what a person's occupation is.

6. *Household sample surveys* provide statistics on employment, unemployment and underemployment, either regularly or from time to time. They are carried out with the assistance of skilled enumerators who know which questions to ask in order to make a precise determination at the respondent's characteristics, such as his type of activity.

7. The figures obtained are estimates based on analysis of the data provided by a small representative sample of the households comprising the population group covered by the sample. These estimates give only a general picture of the economic and social characteristics of the labour force, but they have the advantage of containing no systematic deviation; a sample survey on the labour force, like a census, covers all population groups whereas other sources of labour statistics omit from consideration a more or less important part of the active population. Since the main results can be obtained rapidly, these surveys can be used to follow closely and detect immediately all changes in the total labour force and in employment and unemployment as well as the main changes or trends in the principal categories of labour.

8. Sample surveys on the labour force are highly flexible. It is possible to vary some of the questions from one sample to another and thus to throw particular light from time to time on a specific subject, such as the professional qualifications of persons seeking work or the length of time they have been doing so. In particular, a survey on the labour force is one of the best means known today of studying visible underemployment, i.e., part-time work, and of providing information on certain features of invisible underemployment, i.e., the inadequate economic and social use of workers' abilities.

9. *Systems for permanent registration of the labour force* are connected with employment control or social security operations. Thus, social security systems have, for their own requirements, files on the demographic, economic and social characteristics of insured persons; analysis of these files can yield very useful periodic information on a significant part of the labour force.

10. The data are obtained through the statements required by law from insured persons and their employers, or from persons subject to employment control, and are therefore subject to the deliberate or inadvertent omissions or inaccuracies invariably found in such statements. The economic and social information obtained is rather scanty and is often limited to the type of activity of the person concerned and the economic sector within which his place of employment falls. Furthermore, these data are usually obtained from forms which remain unchanged in content and presentation for a number of years, so that the type of information cannot be varied.

11. The range of these data obviously depends on the scope of the legislation on which they are based. Social security systems often cover only part of the labour force, such as workers in manufacturing industries; even a highly developed system will omit certain groups such as housewives, unpaid family workers, independent workers, new workers, and persons not yet or no longer eligible for benefits. Where the range of data is sufficiently complete, the information obtained on the distribution of employed persons by industry is relatively accurate and sufficiently comparable from one period to another to provide the basis for employment indicators.

12. *Surveys at enterprises* are one of the most frequently used sources of periodic employment information. The information is gathered through questionnaires sent to a group of enterprises at monthly or quarterly intervals; often the questionnaires relate only to employment, with separate questions for each sex, sometimes subdivided into more detailed categories.

13. The cost of these surveys is low compared to that of other methods of obtaining data on the labour force because they do not require extensive staff or financial resources, particularly when they can be carried out with the assistance of a group of officials, such as labour inspectors, who can ask employers to fill out and return questionnaires. In most cases, however, a reply is not compulsory, and the frequently high proportion of non-replying enterprises complicates the task of preparing usable statistical data and interpreting them.

14. These surveys usually cover all large enterprises and a representative sample of medium-sized ones; in most cases, small enterprises are not included. Thus, the surveys cover only part of the labour force. Apart from the fact that they do not take in independent workers, family workers or, in particular, workers at small enterprises, who in many countries constitute a high proportion of the total labour force, they rarely cover agricultural enterprises and in practice are often limited to the manufacturing industries. The data obtained are used to compute indicators showing employment trends in each of the industrial sectors covered by the survey or to estimate total employment in these sectors.

15. The information provided by *specialized censuses* (industrial, commercial and agriculture) is similar to that obtained through periodic enterprise surveys. However, since the scope of specialized censuses is usually much more comprehensive the statistics which they provide can be used as a comparison base for the information obtained in enterprise surveys; for example, they can be used to obtain adjustment factors for employment series by comparing the results of two industrial censuses with the estimates made on the basis of periodic surveys.

16. Statistics of persons seeking work are prepared by employment agencies, unemployment assistance offices, trade unions and union benevolent funds. These statistics, which are usually limited to certain population groups are often incomplete and lacking in detail. When employment agencies work in close co-operation with unemployment insurance offices, registration being a condition for the grant of benefits, the data cover the same ground as those of the unemployment insurance office. However, if registration is purely voluntary, or if employment agencies do not exist in

certain areas or are not fully utilized by workers or employers, the data are incomplete and even deceptive, because the fluctuations which they show do not necessarily reflect the fluctuations in the actual number of persons seeking work. Moreover, the files sometimes contain requests for employment from persons who have already found work but have not yet been removed from the list, or from persons who have a job but wish to change it. In addition, the range of statistics on unemployment assistance is often limited, because unemployment benefits depend on such factors as the duration of the last job or the length of time the person has been in the locality; in addition, many unemployed people do not ask for the allowance if it is low and if they can find occasional work. Finally, trade union statistics relate only to members of the union and are therefore often very limited in scope; their fluctuations are influenced by variations in the size of the union and therefore reflect actual variations only when the union membership includes virtually all employees in the industry and shows almost no variation.

II. The importance of definitions in labour statistics

17. The task of assembling labour statistics requires personnel and equipment. Statisticians and qualified administrators are needed to prepare and organize the collection of information, and except in a few cases, analysis of the data is greatly delayed, or else rendered impossible or reduced to the simplest terms if there is no mechanical equipment at the very least, adding machines. However, if there is sufficient time and financial resources, enough statisticians can be trained, the necessary machines obtained and the optimum level of equipment and organization finally achieved, so that at a given moment all the economic and social characteristics of each person can be ascertained with the aid, for example, of automatic registration and computers. Furthermore, whatever degree of perfection in organization and mechanization a system of data collection may achieve, definitions adapted to the country's information needs and economic and social structure must still be chosen.

18. Firstly, the range of the results obtained is partly determined by the various methods of obtaining labour statistics. Thus, enterprise surveys can provide information only on the staff of the enterprises concerned, whereas labour registration systems can also cover family workers, independent workers, unemployed persons etc., and a general population census or a sample of the labour force can provide statistical information on the economic activity of the entire population. Hence, the choice of the method to be used depends partly on the purpose for which the data is being collected. If it is to ascertain the productivity of labour in the manufacturing industries or general economic trends in those industries, the information provided by the enterprise survey is sufficient; employment figures taken from a sample survey of the labour force cannot, however, be used in this case. If the purpose is to determine the cost of employment services per person seeking work, then clearly the statistics of the appropriate offices must be used; if the object is a general analysis of unemployment, however, either a sample survey of the labour force or a complete system of labour registration must be used.

19. Secondly, even where it is a question of a single method of collecting data, the choice between the various alternative definitions can have a considerable influence on the statistical results. Since this aspect of labour statistics cannot be analysed here in detail, only one example will be given: the influence of the definitions used in a sample survey of the labour force to determine the type of activity of each member of the population.

20. In a sample survey of the labour force, the total population is divided into employed persons, persons seeking work and persons not included in the labour force, depending on this activity during a given period of time or base period. This distribution depends to a great extent on the base period chosen, which may be a day, a week, a month, or a year. For example, the number of persons employed or seeking work during a given week is increased, in the figures obtained for the period of a year, by the number of persons who were not employed or seeking work during that week but employed or seeking work at a different time of the year. Depending on whether the base week comes at the time of maximum or minimum employment during the year, the differences between the two results will be small or large; they depend on the number of seasonal workers, the number of students working during their holidays, fluctuations in the economic situations, etc., and can be as high as 5-10 per cent of the total labour force.

21. In most countries, the members of the family of the head of a small business will assist more or less actively in operating the business. Which of the members should be regarded as forming part of the labour force? If only paid family workers are included, a large number

of persons who in fact participate in economic activity will be excluded. If only full-time family workers, whether paid or not, are counted, the great majority of family workers will also be excluded from the labour force. If, on the other hand, all those who do any "work" (great or small) in the family business are counted, the total labour force will include a great many persons whose role in the economy is really marginal. Finally, if one uses the international definition of family workers as those who have helped in the work of the family business over a period of at least one third of the normal working period, an intermediate result will obviously be obtained. Since family workers may be very numerous and in some countries may constitute up to 50 per cent of the total labour force, the definition chosen can obviously have a profound influence on the figures for the total labour force.

22. Persons seeking work can be defined in a number of different ways. If anyone willing to work and capable of doing so if a job is offered is regarded as seeking work, many such persons, especially in the case of housewives, will be counted as seeking work, whereas in reality they may not have even thought of doing so. If only persons who have stated that they are seeking work are included, the number of persons counted as seeking work will be much lower. And if only persons who have actively sought work are included, that is to say, those who have registered at an employment agency, placed an advertisement in a newspaper or approached relatives or offices for work, then the survey will certainly include only persons who are in fact seeking work, but those who have not been actively doing so because they knew that there was no work in the area at that time may have been excluded; this may apply, for example, to workers at a large automobile factory which has shut down for a fortnight.

23. Finally, how should persons who have worked part-time during the base period be treated? Should they be classified as seeking work, on the assumption that they would all like to work full-time? Should they all be counted as employed, since they have worked at one time or another during the base period? Should they be divided between the two groups? If so, where should the dividing line be? Depending on the decision taken, and even if a special category is created for these persons, the statistical results will differ substantially.

24. The brief analysis given above shows how greatly the choice of definitions affects results and, consequently, how important it is to give very close study to the concepts and definitions used in surveys designed to provide labour statistics, regardless of the method of data collection chosen.

III. The essential elements of a system of labour force statistics

25. A country's labour statistics and the methods employed depend on the level of economic development, the type of economy, the development of general statistics and, of course, the available financial resources and personnel. Regardless of the country's economic situation, there will always be a need, first, to have a complete and relatively recent inventory of the labour force and its geographical, economic and social distribution at a given moment and, secondly, to be able to follow changes in the size and composition of the labour force.

26. It is therefore essential, as a working base, to have the results of a relatively recent population census. Apart from its role as an inventory, the census serves as a basis for all other surveys of the labour force.

27. As a means of following changes in the size and composition of the labour force over a period of time, sample surveys are useful if the necessary resources are available. These samples provide a condensed but comprehensive picture of the size and distribution of the labour force, because they cover the whole of the population.

28. In countries where there is a system of permanent registration of almost the entire population, it affords a means of obtaining general information on changes in the size and composition of the labour force. Permanent registration provides much more detail on the geographical and economic distribution of the labour force than does sampling, but it is cumbersome to operate because it requires a large, skilled body of local and central administrative personnel.

29. Enterprise surveys, which are inexpensive, are of great value in studying employment trends in the organized industrial sectors. They are essential in highly industrialized countries, since they provide detailed, accurate information on the development of each industry. They will also be of great value in the developing countries once the industrial sector assumes greater economic importance, even if statistically it does not represent a large part of the labour force.

30. Regardless of the administrative organ-

ization for producing labour statistics, close co-ordination between the various statistical systems employed is essential. It is also essential for the surveys to be carried out by qualified statisticians, for otherwise, the preparation of questionnaires will be unsatisfactory, the survey plans will be incorrectly drawn up, the analysis of results will be unduly protracted or not made at all, and the results will probably be of little use. Finally, the definitions and classifications used in the surveys must be established by statisticians who co-ordinate their work as a whole both among themselves and with those who use the results, bearing in mind primarily the nature of the country's economy and its level of development.

Indian experience in recording economically active population: 1961 population census

ASOK MITRA

1. India's experience in recording her economically active population in the decennial censuses may carry several lessons for countries in South Asia and Africa. Her long census history provides a rich quarry and her gradual emergence from a subsistence economy offered scope over the years for a variety of experiments with definition and measurement as well as with different economic classifications. India's industrial development since 1921, particularly its quickened pace since 1947, and the acceptance of planning as the central fact in her life since 1952, underlined the need for flexibility of measuring devices in the various sectors of the economy, chiefly, the subsistence and wage, the unorganized and the organized sectors. Stresses and strains of her changing economic scene called for new experiments in 1961 which might well be regarded as unorthodox by current United Nations recommendations. Finally, the development of the National Sample Survey and other specialized surveys in the decade 1951-1961 threw fresh challenges to the Indian census in 1961 to retain its claim as the single most comprehensive source of information on the economic characteristics of the entire population.

2. The fact that the majority of India's working population was engaged in cultivation and household industry determined the main features of measurement in early Indian censuses. The dependency approach naturally was preferred to the work or employment approach. Further, in a subsistence economy the working force tends to be equated with population of working age, which adds to canvassing and computational burdens in dealing with a largely illiterate population which cannot give ages with accuracy. For broad estimates or national income, as well as for budgetary and administrative allocation, it was convenient to identify the earner or person who obtained the livelihood and his dependents. Using this basis the population can be neatly classified into several groups by broad sectors of the national economy. The determination of livelihood on the basis of usual work made it possible to avoid vexing questions of reference periods. The concept of livelihood, invited an amalgam of occupational with industrial classification. While such a classification serves for a time a predominantly subsistence economy and even seems attractive because of its neat rubric like presentation, it proves unsatisfactory in a wage economy.

3. It may be rewarding to recount some of the special difficulties of the Indian situation as well as those that would be common to most countries in South Asia and Africa. The feature of illiteracy common to many Asian and African countries reduces considerably the worth or usefulness of concepts and definitions of dependency, work, occupation, industry, time reference, employment, underemployment and unemployment. It is not what the census designer wants, but what the head of the household is capable of understanding and presenting in his own way in the space of a few minutes that ultimately matters. In such a situation nuances, which might be good for investigations in depth in small surveys, could prove futile. A second feature common to most Asian and African countries would be the multiplicity in the stages of economic development between one part of the country and another. This renders difficult uniform application of concepts and definitions. To this may be added the multiplicity of social and cultural levels and values. Work to some communities is a matter of pride, to others still a matter of disdain. The problem becomes one of steering clear of both over appraisal and underappraisal. The situation is one which seems to defy application of uniform concepts and units of measurement. Since we are guided by the United Nations recommendations and concepts which are written in the European languages, difficulties arise in achieving correct and uniform nuances in their translation into native tongues. A risk always exists in concepts clothed in European terminology vitiating the measurement in an Asian or African situation. Finally, a difficulty peculiar to India and some other countries is the fact that caste-occupation

contributes to a real differentiation of economic and productive functions in a subsistence economy. In many other parts of the world, economic functions for a peasant household are largely undifferentiated. For example, a European peasant household still mends its agricultural tools and harness, occasionally shoes its draught animal, does odds and ends in carpentry and black smithing, even does its own barbering and laundering. In India, with its rural hierarchical structure and the patron-client relationship between castes which makes mutually supporting work, every large village maintains its own corps of manufacturing, repairing and servicing households. This phenomenon was responsible for long and complex economic classifications in the early Indian censuses. In fact the process of occupational and industrial classification in Indian censuses has been one of progressive compression and abridgement since 1901, instead of elaboration as in many other countries.

4. The first task of the 1961 census was to pull the fabric of subsistence economy into as many pieces as conveniently would allow systematic analysis and to design the dissection so that the pieces would be put together again to provide an integrated picture of the economically active population. This meant the adoption of time references and other concepts that differed for the traditional subsistence and for the modern wage sectors of the economy, in such a fashion that data from the two would dovetail neatly. The second task was to produce statistics of the economically active population which could be used with minimum calibration for the five-year plans and national income estimates. The aim therefore was to obtain a measure of comparability with past data and to outline the areas that could not be compared because of (*a*) real changes in the economy and in the industrial and occupational fabric; (*b*) transition from traditional to modern skills and occupations; and (*c*) the need to break with the past because it was important to provide a benchmark for the future. (The decade 1951-1961 saw the first two Five-year Plans and the preparatory stages of the economic break-through.) A departure was made from orthodox census procedure to devise tools and units for measuring certain types of economic activity—in cultivation and household industry—which elude computation on the basis of the individual but makes sense when the entire household is reckoned as a single economic unit. A similar departure was made from orthodox census procedure in the field of traditional (household) and modern (non-household workshop and factory) sectors of industrial activity. Changes were made also to design a synoptic census of all establishments engaged in the manufacture, repair, or servicing of goods. The aim was to obtain a universe of all types of industrial establishments which would help in the demarcation and measurement of modern and traditional occupations. This system would reinforce and offer comparable data to those provided by the 1961 individual and household schedules. This differentiation of modern and traditional industrial establishments was expected to provide a vital tool for qualitative and quantitative measurement of the economically active population in its transition from traditional to modern skills and organizations.

5. In the 1958 preparatory conferences dealing with concepts, definitions and methods for the 1961 census a decision was made to break with the concepts of dependency, self-support, earning, or non-earning of previous censuses and to adopt the concept of work for economic activity. The concept of work demanded the adoption of different time reference periods for different sectors of the economy. Thus, for the census of industrial establishments the time reference was the average for "last week" (preceding week), but cultivation, agricultural work, and household industry referred to "the last or current working season". For non-agricultural and non-household work in manufacturing, trade and commerce, construction, transport, storage and communication and services, the time reference was limited to any fifteen days preceding the day on which a person was counted. Minimal hours of daily work were for different sectors. Conceptual variations were imperative for rural and urban areas (for example, in household industry) to provide for genuine organizational and scale differences.

6. In addition, it was important to define carefully both single worker (as distinct from United Nations "own-account worker" which may include but not count separately family help in own-account work) and family worker and to stipulate separate time reference periods and other tests for either. Finally, care was taken to avoid overlapping and to obtain exclusiveness in different fields of economic activity. This was further secured by putting four questions in a row of every person on the four main sectors (cultivation, agricultural labour, household industry, non-household industry, profession, trade or service) in the individual census schedule.

7. In the 1958-1960 preparatory conferences and field tests we had some reluctance in

asking about principal work and secondary work because they involved subjective value judgements. Finally we decided to introduce these two concepts in terms of "most time spent" and "next most time spent", because we felt that a cross-tabulation of all four types of work would help indicate geographical areas of economic backwardness, traditionalism, non-differentiation and under-employment on the one hand and specialization, differentiation and development of modern skills on the other. For the first time in the long history of the Indian census the decision was made to discard the single economic classification and use both the Indian occupational and industrial classifications which are substantially the same as the international ones. Great importance was attached to taking a correct count of (1) employers; (2) employees; (3) single workers; and (4) family workers because such a count would assist in the delineation of (*a*) modern, (*b*) traditional, and (*c*) classical occupations. In respect to non-workers an eight-fold classification was adopted as follows: (1) full time students; (2) housewives; (3) fully dependent persons including those permanently disabled from work because of illness or old age; (4) retired persons, rentiers, dividend or royalty earners; (5) beggars and vagrants; (6) convicts in jails or inmates of penal, mental or charitable institutions; (7) persons previously employed, now unemployed and seeking work; and (8) persons seeking employment for the first time. Selective census of higher scientific and technically trained personnel on a special, structured schedule also was decided.

8. Two significant and unorthodox innovations in the 1961 census of India which may prove significant to many countries of South Asia and Africa was the synoptic census of industrial establishments and the adoption of the household schedule. The reason for the household schedule was that in India most of the population lives in rural areas where agriculture is the occupation of the majority and cultivation is conducted by members of a household with, in many cases, household industry as a compulsive adjunct. The household itself, and not the individual, acts as an integral economic unit of production. This reasoning was felt to be particularly valid for households which produce mainly for self-consumption but also for the market. For obvious reasons this population is the most resistant to displacement or transfer because all of its effort, however seasonal, is really needed for certain peak seasons like sowing and harvesting. On the other hand, to bring work from elsewhere to this population to fill its period of unemployment or underemployment is difficult. Before making facile assumptions about marginal productivity of labour in certain situations it was thought worth while to investigate with the help of such a schedule. The aims were to determine (1) the extent of households which produce for self-consumption and those which produce for the market; (2) what may be called "immobile" households, who hold land directly from government (that is, those whose interests are so safeguarded that they will not willingly move); (3) the sector of tenancy households which will be willing to look at different choices; (4) the uncertain sector of "household industry only", to whom choices are likely to be important; (5) the extremely backward sector of low acre-range cultivation combined with short-duration household industry, the anchor of a "way of life" and of underemployment; (6) the relatively well-invested sector of high acre-range cultivation combined with fair duration household industry—the sector of sizeable investment, of reasonably full-time employment, and production with the object of marketing; and finally (7) the watershed of employment of attached hired labour which may be regarded in certain defined contexts as a symbol of production for the market beyond the level of mere self-consumption.

9. This was the conceptual and methodological frame of the 1961 census. It served to bring into relief several problems of measurement of a complex economic situation. In the subsistence sectors of cultivation, agricultural labour, and household industry the 1961 experience confirmed that the working force still tended to be equated with population of working age. The concepts of "single" and "family worker", instead of lowering the overall estimate of workers in these sectors seemed to raise it, particularly in respect to women workers. The 1961 census estimate of women workers for all India in cultivation, agricultural labour and general unspecified or insufficiently described labour was in excess of any previous estimate. Curiously, although the figures for India were proportionately in excess of previous census counts, the estimates of female workers for several large states in the subsistence sectors of the economy in 1961 fell below the 1951 ratios. This leads to two or three conclusions. First, the social texture and social values differ so greatly from region to region that they reduce the worth of a single set of concepts. Second and possibly more plausible, the employment of measurable family help in economic activity varies with the extent of irrigation, multiple cropping and the level

of secondary and tertiary activity. This may be a two-peak phenomenon, depending upon the stage of development of a particular zone. Thirdly, since the family worker is too indispensable in India's life to be ignored and is difficult to displace or to give spatial or occupational mobility, the concept itself should be sharpened with a narrower time reference period. There is a need for more field tests on variant definitions in different areas among different communities. The census of 1961 has confirmed that an all-in count such as a population census is hardly the right tool to measure unemployment or persons wishing to enter employment. The rates that emerged are too low to be reliable. The 1961 census indicates it should be possible to count principal and secondary work in terms of time spent, although more methodological study is needed to find whether earning, in the minds of respondents is directly related to time spent. The three-digit occupational and industrial classifications have proved their usefulness and reliability. Finally, schedules designed to reflect the economic activity of the household as a unit hold promise of much significance for a country where cultivation and household industry are still the major source of work.

10. The 1961 census broke new ground and brought to light unsuspected gaps and fresh problems of comparability and incomplete coverage. It revealed special problems of occupational and industrial classification of ambiguous or insufficiently described returns and showed the need for calculation with the results of a series of annual sample censuses designed for conceptual and methodological experiments.

A comparative analysis of operational definitions of the economically active population in African and Asian statistics

YUKI MIURA

1. Operational definitions of the economically active population used in more than sixty population censuses and surveys conducted in African and Asian countries during the period 1955 through 1964 are reviewed. The principal differences in national practices are found in the following respects (synopses of points (*b*), (*c*), (*d*), (*e*) and (*f*) are given in table 1):

(*a*) Definition of "work" or "economic activity";

(*b*) Formulation of questions on the questionnaire;

(*c*) Reference time period;

(*d*) Limit of amount of time worked above which a person may be classified as economically active;

(*e*) Age limits in enumerating the economically active population;

(*f*) Treatment of certain population groups, such as unpaid family workers;

(*g*) Priority phasings;

(*h*) Treatment of inactive employed and unemployed persons.

Use of specific reference periods for enumerating the economically active population in African and Asian censuses and surveys [a]

Reference period	*Africa*	*Asia*
1 day	Morocco (C), Rhodesia (C), the former Federation of Rhodesia and Nyasaland (C, non-Africans), Zambia (C) (1 week for the unemployed)	India ((S), tenth, eleventh and twelfth rounds)
1 week ...	—	India ((S), eleventh, twelfth and seventeenth rounds), Indonesia ((C), urban), Japan ((C), (S)), Korea ((C) (S)), Pakistan ((C), non-agricultural work only), Philippines ((C), (S)), Singapore (C), Thailand (C)
15 days	—	India ((C), regular employment only)
1 month ..	Ghana (C)	—
1 year	Gabon (C, S), Liberia (C), Mozambique (C, non-indigenous), Seychelles (C), Sierra Leone (C)	India ((S), ninth round) Indonesia ((C), rural), the former Federation of Malaya (C)

[a] (C) = census; (S) = sample survey.

I. DEFINITION OF WORK

2. Conceptually any activity intended to contribute to the national product is regarded as work. It is difficult, in practice, to determine whether work or activities performed by women or children in rural areas should be considered as economic activity; however, no specific provisions in this respect seem to have been made in most African and Asian statis-

tics. In a few cases in Asia, effort has been made to describe activities that constitute work.

3. In most countries in Africa and a few in Asia, terms such as "occupation", "gainfully employed" or "working" are used without precise definition. The decision on whether a particular activity is considered as work or not is left to respondents or enumerators. Women appear to be reported in accordance with social conventions, thus affecting the resulting figure for the female active population. In Thailand, for example, most housewives apparently were counted as economically active, though they did only housekeeping during the reference period.

II. Questionnaire technique

4. The following three criteria for the classification of the population into economically active and inactive emerge in the countries covered (table 1):

(*a*) Occupation: either occupational titles or descriptions of non-gainful activities such as housewife, student, and retired (technique I);

(*b*) A multiple choice item intended for a prior classification into economically active and inactive, normally followed by questions on occupation etc. (technique II);

(*c*) A series of questions to distinguish persons at work, persons having a job but not at work, and persons looking for work with reference to a specific time period (technique III).

5. The majority of African countries and a few Asian countries used criterion (*a*). Various sources of non-comparability in these countries were: (*a*) the judgement as to whether a person has an occupation or not was left to respondents or enumerators; and (*b*) differential treatment of unemployed persons was used. Criterion (*b*) was used in thirteen cases in Africa and four cases in Asia. Although this item was intended to classify persons into (i) working, (ii) not working but looking for work, and (iii) neither working nor looking for work, the sub-items for choice were not the same. It relates to the sector of activity (public, semi-public, private, military, other), or occupation (agricultural, non-agricultural, mixed, no occupation), or status (employer, employee etc.), or activity status (working, not working but looking for work etc.). Criterion (*c*) was used in only a few African countries, but was used more widely in Asia. Generally three types of questions are asked: (*a*) whether a person did some work during a reference period, (*b*) whether a person who did not work at all during the period had a job or business from which he was temporarily absent, and (*c*) whether a person who answered "no" to both (*a*) and (*b*) was looking for work during the period.

III. Time reference

6. In the majority of African countries and a few Asian countries, the classification into economically active and inactive categories was based on each person's activity status without reference to a specific time (table 1). In Ceylon, the "current usual" status was taken without mentioning a specific reference period. In some African countries, although one question related to each person's occupation at the time of questioning, the time reference was not strictly observed at the enumeration.

7. The use of specific reference periods for enumerating the economically active population in African and Asian statistics is shown in the table on page 372. The main features noted from the table are:

(*a*) The reference period of one week was used in a number of cases in Asia, but none in Africa;

(*b*) The reference period of one day was adopted in four African censuses, but in none of the Asian censuses, and in some Indian surveys;

(*c*) In some cases, different time references were used for agricultural and non-agricultural work (India, Pakistan) or for urban and rural areas (Indonesia).

IV. Minimum limit of amount of time worked

8. The criteria for "being at work" used in African and Asian statistics may be summarized as follows:

(*a*) No provisions made: in the censuses not using specific reference periods and four African censuses with the reference period of one day;

(*b*) Specific limit of time worked: Japan, Republic of Korea (census): at least one hour during the reference week; India (National Sample Survey, seventeenth round): at least one day during the reference week; India (census): employed during any of the fifteen days for regular employment, some regular work of more than one hour a day throughout the greater part of the working season for seasonal work; Ghana: at least one day during the month (one week instead of one day for unpaid family workers); Malaya: at least four months, averaging at least three hours a day, during the year (unemployed — looking for work for

at least six months); Gabon: full-time, part-time during the working season or at least thirty days during the year in agricultural work, or at least one day per week on the average.

(*c*) No specific limit of time worked (however short a period): Republic of Korea (survey), Philippines;

(*d*) Person's primary activity during the reference period: Liberia, Sierra Leone.

V. Age limits

9. A lower age limit for enumerating the economically active population was not established in sixteen cases in Africa and two cases in Asia. Such a limit was used, however, in many other countries. Because of the large number of working children in most African and Asian countries, the adoption of a relatively high age limit tends to under-estimate the total economically active population. However, many African countries and two Asian countries adopted 14 or 15 years as the lower age limit.

10. Relatively low age limits were adopted in some countries. Bechuanaland, Liberia, Iran, the former Federation of Malaya, Pakistan, the Philippines and Singapore adopted age 10; Libya, the United Arab Republic and Hong Kong took age 6; and the Sudan chose age 5.

11. No upper age limit was used, except in a few cases where all unemployed persons above a certain age were classified as inactive. In South Africa and Hong Kong, unemployed persons aged 65 years and more than 65 were not classified in the "unemployed" category. The "unemployed" category was limited to those aged 15 to 59 years in the seventeenth round of the Indian National Sample Survey for urban areas.

VI. Unpaid family workers

12. Only Morocco and the Seychelles adopted one third of the normal working time as a criterion for unpaid family workers to be considered employed, as recommended by the International Conference of Labour Statisticians. In both cases, however, no definition of the normal working time was given. In Ghana, unpaid family workers were regarded as employed if they worked for at least one week during the reference month. In the former Federation of Rhodesia and Nyasaland, the limit was twenty hours during the week. Other countries used no criteria for unpaid family workers distinct from those for other workers.

13. Many unpaid family workers and other workers on the fringe of the labour force tended to be excluded from the economically active population in the Sudan and Ceylon, where the "main activity" criterion was used. This was the case for the former Federation of Malaya, where the criterion for being employed was employment for at least four out of 12 months, averaging at least three hours a day.

VII. Priority phasings

14. When a person has more than one activity status and a question on occupation is the only item to classify a person into economically active or inactive categories, as in most African censuses, the priority phasings are not clear, for example, housewives or students who regularly did some part-time work.

15. In the Sudan and Ceylon, data on the labour force participation were obtained by considering each person's main activity. In Ghana, India (National Sample Survey, seventeenth round), Japan, the Republic of Korea and the Philippines where the labour force approach was used, the priority phasings were explicit and the status of being economically active always preceded the status of being inactive.

VIII. Persons with a job but not at work

16. When classification into economically active and inactive groups is based on a person's usual status, as is the case in most African censuses, persons with a job will report their occupation and therefore will be classified as employed, though they are not working at the time of the census. When a person's current status is taken with reference to a relatively short period, special provisions normally are made in respect to the treatment of persons with a job or business from which they were temporarily absent and such persons are regarded as employed, by definition. In Japan, certain restrictions are made for the inclusion of such persons in the "employed" category.

IX. "Inactive" unemployed

17. In Africa and Asia, a number of unemployed persons are not looking for work because of a belief that no opportunities exist in the locality or for similar reasons. While such persons were classified as economically active in India (National Sample Survey, seventeenth round, for urban areas) and the Philippines, they were classified as inactive in Ghana and the Republic of Korea.

X. Relationship between definitions in population censuses and surveys and in establishment statistics

18. Where employment statistics are provided by both population censuses and establishment reporting, the definitions used in the two series need to be co-ordinated. Apart from the fact that persons with multiple jobs are reported by more than one establishment in establishment statistics, the main differences in the definition of employed persons arise from the fact that normally in establishment reporting only those on the employer's books or pay-roll are covered. For example, seasonal workers not working during the off-season are considered as having a job but not at work in some censuses, but in establishment reporting they are considered unemployed.

Table 1 follows on page 376

Table 1. Methods of collecting data on the economically active population in African and Asian censuses and surveys: 1955-1964

Country	Year	Questionnaire technique [a]	Based on classification of economically active and inactive [b]	Time reference	Minimum limit of amount of time worked	Minimum age limit	Unpaid family worker
AFRICA							
Angola (C)	1960	I	Occupation	Time of census	—	—	IN [b]
Bechuanaland (C)	1964	I	Occupation	—	—	10	IN
Cameroun:							
Douala, Ebolwa, Mbalmayo, Yaoundé (C)	1955-1958	II	Occupation (agricultural, non-agricultural, mixed, no occupation)	—	—	15 [d]	IN
Central African Republic (S)	1959-1960	I	Occupation	—	—	14	IN
Congo (Brazzaville):							
Pointe-Noire (C)	1958	I	Actual occupation	Time of census	—	15 [d]	IN
Areas other than Brazzaville and Pointe-Noire (S)	1960-1961	I	Actual principal occupation	—	—	15 Males	(?)
Congo (Leopoldville) (S)	1955-1957	II	Status (OA, EE, UN, NA) [b]	—	—	15 [d]	IN
Dahomey	1961	(?)	(?)	(?)	(?)	15	IN
Former French Equatorial Africa, non-Africans (C)	1956	II	Sector of activity [c]	—	—	14	IN
Gabon	1960-1961	I	Occupation and status	1 year	Full-time; part-time during the season; at least 30 days in agricultural work, or at least 1 day per week average	14	IN
Ghana (C)	1960	III	Q2, Q1 (if NO in Q2) [b]	4 weeks	1 day	15	IN [g]
Guinea (S)	1954-1955	I	Occupation	—	—	14 [d]	IN
Ivory Coast:							
Abidjan (C)	1955	I	Principal occupation	—	—	14 [d]	IN
Abengourou, Agboville, Dimbokro, Man and Bouake (C)	1956-1958	I	Profession or principal occupation	—	—	—	IN
Regional survey (S)	1962	I	Principal occupation	—	—	15	IN
Kenya:							
Towns and selected rural areas (C, S)	1962	II	Status (OA, EE, S, R, O) [b]	—	—	15 [d] Males	IN

Liberia (C)	1962	II	Principal activity (W, H, S, I, R, O)[b]	1 year	—	10	IN
Libya (C)	1964	II	Status (ER, EE, UW, LW, D, NA)[b]	—	—	6	IN
Madagascar:							
Urban (C)	1957-1962	II	Sector of activity[c]	—	—	14	IN
Rural (S)		I	Occupation	—	—	—	IN
Mali (S)	1960-1961	I	Principal activity	—	—	—	IN
Mauritius (C)	1962	II	In employment, or not in employment	Last week for the unemployed	—	—	IN
Morocco (C)	1960	I	Principal occupation	Census date	—	—	IN[h]
Mozambique (C)	1960						
Indigenous		I	Occupation	—	—	—	(?)
Non-indigenous		III	Q2, Q5 (if NO in Q2)[b]	1 year	—	—	IN
Niger (S)	1960	I	Occupation	—	—	14	IN
Nigeria (C)	1963	I	Main occupation	—	—	—[e]	(?)
Rhodesia and Nyasaland, former Federation, non-Africans (C)	1961	I	Occupation	Census date	—	15	IN[g]
Rhodesia, Southern:							
Africans (C)	1962	II	Status (SE, EE, LW, O)[b]	Time of questioning	—	17[f] Males	(?)
Senegal (S)	1960-1961	I	Principal activity	Time of survey	—	14	IN
Seychelles (C)	1960	III	Q2, Q1 (if NO in Q2)[b]	1 year	—	15	IN[h]
Sierra Leone (C)	1963	II	Principal activity (H, H&W, W. O)[b]	1 year	Most of time	10	IN
South Africa (C)	1960	I	Present personal occupation	—	—	—	(?)
St. Helena and Ascension (C)	1956	II	Gainfully employed, or not employed	—	—	—	IN
Sudan (C)	1955-1956	I	Main occupation	—	—	5[d]	EX
Swaziland (C)	1956	I	Occupation	—	—	—	(?)
Tanzania:							
Tanganyika (C):							
Non-Africans	1957	I	Industry	—	—	14[d]	IN
Togo:							
Urban (C)	1958-1959	I	Individual occupation of profession	—	—	14[d]	IN
Rural (C)	1959-1960	I	Principal occupation	—	—	—	IN
Demographic S. (S)	1961	I	Principal occupation	—	—	—	IN

Table 1. Methods of collecting data on the economically active population in African and Asian censuses and surveys: 1955-1964 (*continued*)

Country	*Year*	*Questionnaire technique* [a]	*Based on classification of economically active and inactive* [b]	*Time reference*	*Minimum limit of amount of time worked*	*Minimum age limit*	*Unpaid family worker*
Tunisia (C)	1956	I	Occupation	—	—	—	IN
Uganda:							
Non-Africans (C)	1959	I	Industry	—	—	—	IN
United Arab Republic (C)	1960	II	Employment status (ER, SE, PE, UF, UW, UN, U, NA)[b]	—	—	6	IN
Upper Volta (S)	1960-1961	I	Principal activity	—	—	14	(?)
Zambia:							
Africans (C)	1963	II	Status (SE, EE, LW, O)[b]	Time of questioning. Last week for unemployed	—	15[d] Males	(?)
ASIA							
Ceylon (S)	1959	II	Main activity	—	—	12	EX
China, Taiwan (C)	1956	(?)	(?)	(?)	(?)	12	IN
Hong Kong (C)	1961	(?)	(?)	—	—	6	IN
India (C)	1961	II	Working, not working	20 days for unemployed — for seasonal work, 15 days for regular employment	1 hour a day — seasonal, 1 day — regular employment	—	IN
N.S.S. (seventeenth round) (S)	1961-1962	III	Q2, Q3, Q4 — urban[b] Q2, Q5 — rural[b]	1 week	1 day	—[e]	IN
Indonesia (C)	1958	(?)	(?)	1 week-urban 1 year-rural	—	12	IN
Iran (C)	1956	I	Occupation	—	—	10[d]	IN
Japan (C)	1960	III	Q1, Q2, Q3, Q4[b]	1 week	1 hour	15	IN
(S)	•	III	Q1, Q2, Q3, Q4[b]	1 week	1 hour	15	IN
Korea (C)	1960	III	Q1, Q2, Q4, Q6[b]	1 week	1 hour	13	IN
(S)	•	III	Q1, Q2, Q4, Q6[b]	1 week	—	14	IN
Malaya, former Federation of (C)	1957	II	Position in life (W, LW, H, IN, S, I, O)[b]	12 months	4 out of 12 months, average 3 hours a day	10	IN

Pakistan (C)	1961	II	W, LW, NA [b]	1 week for non-agricultural work — for agricultural workers	—	10	IN
Philippines (C)	1960	III	Q1, Q2, Q3, Q4, Q6 [b]	1 week	—	10	IN
P.S.S.H. (S)	·	III	Q1, Q2, Q3, Q7, Q4, Q6 [b]	1 week	—	10	IN
Singapore (C)	1957	(?)	(?)	1 week	—	10	IN
Thailand (C)	1960	(?)	(?)	1 week	—	11	IN

[a] Questionnaire technique, I, II, III: see paragraph 4 of the text.

[b] Codes used in the fourth column: D — disabled; EE — employee; ER — employer; H — housekeeping; I — in institution; IN — living on independent income; LW — looking for work; NA — not looking for work or inactive; O — other; OA — own account; PE — paid employee; R — retired; S — student; SE — self-employed; U — unable to work; UF — unpaid family worker; UN — unemployed; UW — unpaid worker; W — working; Q1 — main activity; Q2 — did a person work for a specified minimum amount of time?; Q3 — had a job from which temporarily absent?; Q4 — looking for work?; Q5 — reason for not working; Q6 — reason for not looking for work; Q7 — did a person want to work?

[c] Public, semi-public, private, military, other.

[d] No age limit at the enumeration stage.

[e] 15 for the unemployed; 15 for the unemployed in urban areas.

[f] Males born before 1946, that is, males aged 17 and more and part of those aged 16.

[g] If they worked for at least one week during the reference month.

[h] If they worked for at least one third of normal working time.

[i] If they worked for at least twenty hours during the week preceding the census.

(C) = census; (S) = sample survey.

Definition of, and research on, the economically active population

ZDENĚK PAVLÍK

[Translated from French]

1. The classification of population into two groups on the basis of economic activity is a fundamental question for every society, but historically it comes last in the system of economic classifications and raises considerable problems.

2. One aspect of this question can be clarified by a brief historical review of the development of economic classifications. This will be based on Austro-Hungarian statistics and then on the Czechoslovak statistics which are built on them. As in other States, this development is linked with census methods.

3. The population of what is now Czechoslovak territory was first classified by economic groups in the census of 1762; the basis of the classification was social status. As economic activity, in its modern connotation, was of no concern to feudal society, the classification ranked the different occupations according to their social importance rather than their importance for economic development. There was a steady shift toward a capitalist type of classification, as is apparent from the census of 1857. In this classification, the most important groups such as lawyers and notaries, writers, doctors, peasants and artisans were retained, but instead of forming one group as hitherto, the workers were classified according to three economic sectors—agriculture, industry and commerce.

4. This division of the largest group shows that the classification according to economic branches was beginning to gain recognition. It had become fully accepted by 1869, when the first modern census was held in the territory of Czechoslovakia. Individual occupations, as such, remained in the classification but only as sub-groups of the classification by branches. The census questions concerning employment status, branch of activity and occupation were framed accordingly. The question concerning economic activity was originally intended to elicit information about the social structure of the new society. This is apparent from the census of 1890, in which the question was formulated as follows: status in principal occupation (ownership, service or work relationship). The census of 1890 also made it clear that the basic economic classification derived from feudal society had been finally transformed into a classification by industry (precise determination of principal occupation in relation to branch of industry).

5. The detailed classification of individual occupations persisted until the 1930 census, when a new occupational classification was introduced in which a distinction was made between individual and collective activity. Up to the present day, however, the two classifications have, in some censuses, been used together in broad groups.

6. None of these classifications—whether by sector, individual occupation or social group—expressly provides a distribution of population by industry. It must be admitted that while, generally speaking, the population can be classified according to the first two categories, these fail to take into account the groups making up the economically inactive population (retired people, dependants, etc.). This defect detracts from the value of the classifications; persons who are no longer economically active should be taken into account in the occupational groups to which they belonged for most of their lives. This brings us to the heart of the problem: the need to find an independent method of investigating the economic activity. It is my view that economic activity cannot be inferred theoretically from the existing classifications and that, among the various economic classifications, the classification of economic activities occupies a special place and demands the application of special criteria. The concept in practical use today, which relies on the two notions of gainful occupation and labour force, seems to me inadequate. Gainful occupation implies that economic activity is remunerated. This, however, is not always so, and not all activities are of concern to us. From this point of view, labour force is a better criterion for the theoretical determination of economic activity.

7. In my opinion, the main criterion for the theoretical determination of economic activity is the contribution made to society by the

working population, work being understood in a sufficiently broad sense. Social labour (work performed for society) comprises every activity which forms part of the process of economic production and which is, in principle, intended for other persons.

8. The process of economic production consists basically of the activities for the production of material goods and the services related thereto and, in addition, organizational, educational and health activities which to some extent also entail the consumption of material goods. Some of these activities serve the purpose of regenerating the labour force. From this point of view, it does not matter where the work is performed (in a factory, at home). A large proportion of these activities is unremunerated, and what, in theory, has to be determined is whether a person engages in an activity as his principal occupation (work performed for society) or as a recreation (personal activity such as sports, listening to or playing music) which may, though this is not always strictly the case, also help to regenerate his working capacity. The same activity may be work for one person and recreation for another. Work easily merges into recreation, and very often the one does not exclude the other, particularly in artistic and scientific activities. Nevertheless, the difference between work and recreation must not be determined on a subjective basis.

9. I believe that it is very important to bear these theoretical criteria in mind even though they may not appear to be of help in determining the economically active population. It can be seen that this is an extremely difficult and complex question. Throughout history, all human economic activity was performed in the family (communities of relatives), and it was only at a fairly late stage that part of the work intended for society became dissociated from such communities and was concentrated in separate enterprises—at first in workshops and later in large factories. There is no doubt about the character of such work. Many activities, however, are still performed within the family (farming, cottage industries, housekeeping), and according to our criteria some of them will be regarded as work performed for society. Thus, unpaid family workers in agriculture and industry will be included in this group, but housewives who prepare meals will not. A similar difference exists between the education of children in school and their education at home even though there may be ten or more children in a particular family.

10. It is virtually impossible to carry out a precise classification of population on the basis of this theoretical criterion (work performed for society). Such a classification largely depends on the quantity of the work (in relation to its duration), but this ultimately leads to a separate classification of certain groups of the economically inactive population. I believe, moreover, that it is necessary to include in the population census a special question by means of which the degree of participation in work performed for society can be determined. For the purposes of this question, a distinction must be made between the following groups.

1. *Economically active population:*
   - (*a*) All employed persons who work:
     - (i) Full time (average working day);
     - (ii) Half day or more, but less than a full working day;
     - (iii) Less than half a working day;
   - (*b*) Members of producers' co-operatives (who have no other occupation);
   - (*c*) Workers on own account;
   - (*d*) Unpaid family workers coming under subgroups (i) to (iii) of paragraph (*a*);
   - (*e*) Persons who are unemployed, who have been seeking work for more than a month or who are changing their employment:
     - (i) Persons who were previously employed;
     - (ii) Persons who are seeking work for the first time.

2. *Economically inactive population:*
   - (*a*) Persons possessing an independent source of income:
     - (i) Retired persons no longer working;
     - (ii) Persons preparing for an occupation or profession or studying on a scholarship;
     - (iii) Other independent persons who are not working or seeking work (income-recipients, beggars and so forth);
   - (*b*) Dependants:
     - (i) Children under fourteen years of age;
     - (ii) Persons performing household duties without remuneration;
     - (iii) Persons preparing for an occupation or profession and supported by their families;
     - (iv) Persons unable to work;
     - (v) Other dependants.

Groups 2 (*a*) (ii) and 2 (*b*) (iii) include apprentices.

11. It is very important that sufficient attention should be given, first, to the question and, afterwards, to the improvement of census methods. I believe that such improvement will take place along the lines I have indicated. The study of changes in economic productivity, which is a matter of great importance for every society, makes such action imperative.

The range and limitations of the standard definition of active and non-active population and of partial employment in Soviet statistics

V. V. RODZYALOVSKAYA

[*Translated from Russian*]

1. In the majority of foreign countries the basic grouping used in preparing indicators of the economic status of the population is a division of the population into active and non-active. This is also known as grouping by source of livelihood, or grouping by type of economic activity (by participation in economic activity).

2. However, if we consider the concepts of active and non-active population we find that neither term corresponds exactly to the nature of this grouping, since "active population" comprises two population categories differing both in their source of livelihood and in their participation in economic activity, namely, the employed (persons having employment) and the unemployed. The livelihood of the employed is their wages or income, while the livelihood of the unemployed may be either proceeds from the sale of things or savings, grants from the State or charitable societies etc.; the employed, by their work, participate directly in the production of material goods or in non-productive branches, while the unemployed are outside such activities.

3. It is usual to include among the employed any persons who have worked or sought employment during the period under review (including members of the family assisting in the employment). The employed include both full-time and part-time workers, the latter on condition that they have put in a certain minimum of working time. The employed also sometimes include seasonal workers and other sizable population groups working for a particular part of the year. At the same time, persons working for short periods, such as students working during vacations, are not as a rule included among the employed.

4. The unemployed comprise persons who are not working but have looked for work during a fixed period of time, including those seeking work for the first time.

5. The grouping of population into active and non-active, despite the drawbacks noted above, is nevertheless more progressive than the grouping of population into independent and dependent which is still used in some countries. The independent population is taken to include the employed (persons having employment) and the unemployed, and also pensioners, rentiers and other persons who can subsist whether or not they receive assistance from third parties. The dependent population comprises persons living at the expense of others.

6. Until the 1930's, Soviet statistics used the concept of the active and non-active population. In the 1926 population censes, the whole population was divided into active and non-active, depending on the presence or absence of an independent livelihood. Division of the population into active and non-active was essentially division into independent and dependent, since the active population comprised both persons having employment, including members of the family assisting in the employment, and pensioners, grant-aided students, the inmates of children's homes, the chronically sick in hospitals and other dependents of State and public organizations, persons living on unearned income, servicemen and the unemployed. The non-active population included only the dependents of individuals.

7. The disadvantage of this grouping was that among the active population were included various economic groups requiring different treatment: persons having employment, as the economically occupied population, should be studied first of all in terms of their distribution among specific occupations and branches of the national economy, whereas dependents of State and public organizations, as the economically unoccupied population, should be studied according to different indicators.

8. To obtain indicators of the economic status of the population of the Soviet Union, the schedules used in the 1939 and 1959 population censuses included questions on the place of work, occupation and social group, and, for

persons not having employment, on their livelihood.

9. The first grouping used in preparing these indicators was grouping by source of livelihood. From this standpoint, the whole population of the Soviet Union is divided into three basic groups:

(*a*) Persons having employment providing them with wages or income;

(*b*) Dependents of State, co-operatives and public organizations;

(*c*) Dependents of individuals.

10. The livelihood of persons having employment is the wage or income they receive for their work; the livelihood of dependents of State, co-operative and public organizations is the funds allotted to them by these organizations in the form of pensions, grants, appropriations for the maintenance of children's homes etc.; the livelihood of dependents of individuals is the wage or income of the persons on whom they are dependent.

11. In the processing of the 1959 census material, persons having employment were divided into: (*a*) persons employed in social production; and (*b*) members of the families of collective farmers and manual and non-manual workers employed in private subsidiary farming. Dependents of State, co-operative and public organizations were divided into pensioners and grant-aided students.

12. The reason why it was necessary, among persons having employment, to distinguish persons employed in private subsidiary farming is that under Soviet law collective farmers and manual and non-manual workers are ensured the right to have for their personal use a small plot of household land and, as their personal property, a subsidiary husbandry on the plot, a dwelling house, livestock, poultry and minor agricultural implements. Subsidiary farming is engaged in both by members of the families of collective farmers and manual and non-manual workers not employed in social production, and collective farmers and manual and non-manual workers employed in the social economy (i.e., they are employed in subsidiary farming in the time left over from their principal work).

13. In the 1959 census, persons having employment were taken to include manual and non-manual workers of State, co-operative and public organizations; collective farmers (members of agricultural production co-operatives) working on collective farms; craftsmen organized in co-operatives and not organized in co-operatives; individual peasants; persons in the professions; members of the families of collective farmers and manual and non-manual workers employed in private subsidiary farming.

14. Persons having employment were considered to be persons working on the day of the census. Also included were employed persons engaging in spring, summer or autumn seasonal work (for example, peatery, water transport, fishing, and, mainly, agriculture), even if in winter, at the time of the census, they had no other employment. Servicemen were also included among the persons having employment.

15. In the Soviet Union there is a category of persons who, while having a permanent job, receive a pension in addition to their wages. At the time of the 1959 census, the right to receive wages and pensions simultaneously was enjoyed by persons whose earnings did not exceed 100 roubles a month. These persons were grouped with those having employment. At the same time, persons drawing a pension and simultaneously engaging in temporary work were not included among the persons having employment. They were counted as pensioners. The question of working students was dealt with similarly: students with permanent jobs were included among the persons having employment; students engaged in temporary work were included either among grant-aided students (if they received grants), or among the dependents of individuals.

16. Persons who at the time of the census were attending retraining or advanced training courses to which they had been seconded from their place of work are included among the persons having employment. Persons having employment are also taken to include students at factory and works apprenticeship schools (in these schools, which exist at enterprises, the students receive a practical grounding in various specialties under the guidance of experienced worker-instructors). All other students, including those undergoing practical training at enterprises, are included either among State dependents or among the dependents of individuals.

17. Dependents of State, co-operative and public organizations include pensioners, grant-aided students, students at boarding-schools and other educational institutions fully provided for by the State, the inmates of children's, invalids' and old people's homes, and persons in hospitals for the chronically ill.

18. The dependents of individual persons include children who are not working and stu-

dents not receiving grants, old people not working and not receiving pensions, and persons not working in production who are employed in housekeeping and the raising of children.

19. According to the data of the 1959 population census, of the 208.8 million people in the Soviet Union, 109 million, or 52.2 per cent, were persons having employment (including members of the families of collective farmers and manual and non-manual workers employed in private subsidiary farming), 14.1 million, or 6.8 per cent, were dependents of State, co-operative and public organizations, 85.4 million, or 40.9 per cent, were dependents of individual persons and 0.3 million, or 0.1 per cent, were others and persons not indicating the source of their livelihood.

20. Of the persons having employment, about 63 million were manual and non-manual workers of State, co-operative and public enterprises and organizations and also persons hired by citizens' collectives (carpenters, stovemakers and other workers employed in individual construction and repair); 32.3 million were collective farmers working in the public sector of collective farms; 300,000 were individual peasants and craftsmen not organized in co-operatives; 3.6 million were serving in the Soviet Army, and 9.9 million were members of the families of collective farmers and manual and non-manual workers employed in private subsidiary farming.

21. In 1959, by comparison with 1939, the proportion of persons having employment had risen from 51 to 52.2 per cent, the proportion of dependents of State, co-operative and public organizations from 2.3 to 6.8 per cent, including a rise in pensioners from 1.3 to 6 per cent, and the proportion of dependents of individual persons had declined from 46 to 40.9 per cent.

22. The increase in the proportion of the population having employment resulted mainly from the induction of women in to social production, which was made possible by the uninterrupted growth in the number of crèches and kindergartens, boarding schools, public catering and domestic service enterprises and other similar organizations reducing the time spent by women on housework and the care of children. The proportion of women among persons having employment (apart from the members of families of collective farmers and manual and non-manual workers employed in private subsidiary farming), was 43 per cent in 1939, and 48 per cent in 1959. The number of women dependent on individual persons had declined from 50 per cent of all women in 1939 to 44 per cent in 1959.

23. The increase in the proportion of pensioners from 1.3 per cent in 1939 to 6 per cent in 1959 took place thanks to the improved pension scheme introduced in 1956. In the Soviet Union all men reaching the age of sixty and completing twenty-five years of work and all women reaching the age of fifty-five and completing twenty years of work are entitled to an old age pension. In addition, the pension legislation provides for a five- to ten-year reduction in the pensionable age for persons employed in hot workshops, underground work or other jobs with arduous and injurious working conditions. Women who have borne five or more children and raised them to eight years of age may also retire on reaching the age of fifty. In the census 12.4 million pensioners were registered for whom the pension was their main livelihood. Pensioners holding permanent jobs at the time of the census were counted as persons having employment while pensioners living in families where the main source of livelihood was wages of members of the family in excess of the pension, indicated this source of livelihood. In the Soviet Union, the total number of pensioners provided for by the State and collective farms at the beginning of 1959 was about 20 million, and 26 million at the beginning of 1964, or 11 per cent of the total population.

24. For the purposes of planning and the evaluation of plan implementation, data concerning the number of persons having employment in periods are derived from the returns submitted by enterprises, institutions and organizations, while the number of collective farmers is estimated from the annual returns of collective farms.

25. All enterprises, institutions and organizations are required to prepare labour returns and submit them to the statistical authorities (returns concerning the number of manual and non-manual workers and the wage fund), most enterprises and institutions belonging to branches of material production submitting such returns monthly; enterprises and institutions of non-productive branches as a rule report once a quarter.

26. In the returns of industrial enterprises, construction projects and other productive units the number of workers is indicated by categories. Thus, for example, the returns of an industrial enterprise will distinguish between industrial production personnel and personnel employed in non-industrial organizations. The category "industrial personnel" is

in turn broken down into manual workers, apprentices, technological engineers, non-manual workers, junior service personnel, armed guards, watchmen and industrial firemen.

27. Non-industrial personnel comprise workers in transport, non-industrial units, residential and municipal services, subsidiary agricultural enterprises and agricultural procurement enterprises, the major maintenance of buildings and installations, and kindergartens.

28. Data concerning the number of manual and non-manual workers included in the labour returns are obtained from lists of all workers maintained by every enterprise, institution and organization (workers on establishment). The manpower establishment of an enterprise includes workers actually at work, on assignment, on leave, or absent from work because of sickness, in connexion with performance of State or public duties, for valid personal reasons with the permission of the administration, and so forth.

29. The returns of enterprises indicate the number of workers on establishment at a particular date and also the average number over the period under review (month, quarter or year). The former is an indicator of the number of workers on establishment at a particular date during the period under review, for instance, on the first or last day of the month.

30. The number of workers on establishment on any particular day of the period under review varies, as a rule, with the withdrawal of workers for various reasons and the hire of new ones. For a more accurate determination of the number of workers in an enterprise over any period, therefore, the dated figure is not sufficient, since such indicators can not take into account changes occurring in the remainder of the period under review. To determine the number of workers over a period (month, quarter, year) the average number of workers on establishment is calculated. This figure is also necessary for computing the average wage, labour productivity, the rate of manpower turnover and other indicators.

31. The average number of workers on establishment during an accounting month is calculated by adding the number of workers on establishment on each calendar day of the month, including holidays and days off, and dividing the result by the number of calendar days in the period under review. The number of workers on establishment on a day off or holiday is taken to be equal to the number of workers on establishment the preceding working day.

32. The average number of workers on establishment over a quarter is determined by adding the average number for each working month in the quarter and dividing the result by three, and the average number on establishment over the year by adding the average number for each month and dividing the result by twelve (months).

33. To determine the average number of workers on establishment at enterprises, a daily attendance record is kept.

34. The number of persons having employment registered in the census is greater than their average annual number as derived from current returns. There are two reasons for the difference: first, difference in the coverage of the census and of current returns; second, some difference in the method of calculating the number of persons with employment used in the census and in current returns.

35. In the census the number of persons with employment was taken to include not only manual and non-manual workers, collective farmers and craftsmen, who are also taken into account in current returns, but also persons hired by citizens' collectives (carpenters, stove-makers and other workers employed in individual construction and repair), who are not covered by current returns. When the average annual number was derived from current returns, persons seasonally employed in agriculture, in seasonal branches of industry (for example, industries dealing with sugar, fish, fruit and vegetables, peat), in construction, in seasonal trade (the sale of soda water, ices, vegetables and fruit), only the time worked was taken into account; in the census, on the other hand, seasonal workers were included in the total number of persons with employment, irrespective of the time worked.

36. According to the 1959 census, as already indicated, there were 63 million manual and non-manual workers; but calculated on an average annual basis (i.e., not including persons not covered by current returns), the figure was 59 million. In the case of collective farmers, the difference between their numbers under the census and the average annual number is considerably greater than in the case of manual and non-manual workers, since agriculture is one of the most seasonal branches of the national economy; in addition, members of the families of collective farmers devote considerable time to housekeeping and private subsidiary farming in addition to their work in the public sector of the farms. According to the census there were 32.3 million collective farmers employed in the public sector, whereas

the number of collective farmers calculated on an average annual basis was 24.5 million.

37. In bourgeois statistics there is a category of the partially employed, which normally includes all persons working an incomplete day or week in the period under review. The partially employed include population categories which differ in their economic nature. For example, the partial employment of agricultural workers is explained basically by the seasonal character of agricultural work, which is a result of natural conditions and at present unavoidable. Among the partially employed there are not a few persons who themselves wish to work less than full time, such as housewives and students. Lastly, the partially employed here include persons who work an incomplete working day or week because owing to unemployment they cannot find work for a full working week and are in reality partially unemployed.

38. In the Soviet Union there are no "partially employed" as understood in capitalist countries, since in the Soviet Union there is no one completely or partially unemployed. Every citizen of the Soviet Union has a right to guaranteed work and to remuneration in accordance with the quality and quantity of his work. The right to work is ensured by the socialist organization of the national economy and the steady growth of productive forces. On the whole the demand for manpower in the Soviet Union exceeds the supply.

39. At the same time, there is in the Soviet Union a category of persons who do not work the whole year round, but only part of the year. These are mainly seasonal workers, i.e., workers employed in branches with a seasonal production cycle. In the interseasonal periods seasonal workers prefer, as a rule, not to work; if they wish, after finishing their work in a seasonal branch they may take work in enterprises of other branches.

40. In the Soviet Union there is also a comparatively small number of temporary workers. This category includes persons who take work for a set period not exceeding two months, persons working for longer than two months being counted as permanently employed. Temporary work is usually engaged in by pensioners, students and housewives who, because of their family circumstances, do not want a permanent job.

41. Collective farm workers, being employed on the farm all the year round, may work an incomplete day or week between their periods of work in the fields.

42. A number of Soviet theoreticians have recently suggested that pensioners and housewives be given the right to take part in social production for half the working day.

43. With a view to fuller study of the degree of utilization of labour resources and the discovery of additional manpower reserves for the uninterrupted expansion of social production, proposals are now being considered for the inclusion in the schedule of the next population census in the Soviet Union of questions concerning the character (permanent, seasonal, temporary) and duration of the work done by those employed in seasonal branches and in temporary work. The inclusion of such questions will allow the comparison of census data with current statistics on the number of workers.

44. It follows from the above that the concepts of active and non-active population cannot be used in Soviet statistics. No analogy can be drawn between the active population and persons having employment since the former category includes the unemployed and the latter covers only the employed. There have been no unemployed in the Soviet Union for over thirty years now and never will be, since the conditions giving rise to unemployment, above all the private ownership of the means of production, have been eliminated.

45. Another reason why the category of the employed among the active population cannot be fully equated with our group of persons having employment is that the former includes all partially employed persons, i.e., the partially unemployed too, whereas in the Soviet Union, as already noted, there are not partially unemployed because every person working in a seasonal branch has the opportunity to take work in enterprises of other branches during other periods of the year.

46. From the difference in the basic economic grouping used in the statistics of capitalist countries and in the Soviet Union there follows a difference in the indicator of utilization of labour resources. Here *bourgeois* statistics apply an indicator of manpower utilization, expressed as the ratio of the number of employed to the total active population; in the Soviet Union the indicator of utilization of labour resources is the ratio of the number of persons having employment to the total labour resources.

47. Labour resources in the Soviet Union include:

(*a*) The population of working age (men aged sixteen to fifty-nine and women aged sixteen to fifty-four) excluding non-working pensioners in that age bracket;

(*b*) Older working persons (of pensionable age);

(*c*) Working juveniles up to sixteen years of age.

48. The 1959 census showed the population of working age in the Soviet Union to be 119.8 million, or 116.5 million excluding non-working pensioners in that age bracket. There were 10.7 million older people working (men aged sixty and over and women aged fifty-five and over); 5.9 million people were employed in State, co-operative and public organizations and 4.8 million in private subsidiary farming. There were only 600,000 working juveniles up to sixteen years of age, of whom 80 per cent were employed in light agricultural work, mainly on collective farms at harvest-time, and 20 per cent were apprentices in factory and works schools or undergoing other types of production training in industry and other branches of the economy.

49. The total manpower resources of the Soviet Union (including servicemen), according to census data, amounted to 127.8 million (61 per cent of the country's population). For the study of the utilization of labour resources in the Soviet Union, balances of labour resources are drawn up, giving the total labour resources and dividing them into three basic groups: (*a*) persons having employment; (*b*) full-time students of working age; and (*c*) able-bodied population of working age engaged in housekeeping and raising children at home.

50. In the balance, the category of persons with employment is broken down among individual branches of the national economy.

51. Balances of labour resources are prepared in the Soviet Union for the country as a whole, and for individual Union and Autonomous Republics, territories and regions.[1]

52. Of the labour resources counted in the census (127.8 million), 109 million persons have employment (including those employed in private subsidiary farming), 5.8 million people of working age are studying full-time, and 12.8 million are employed in housekeeping and raising children at home (89 per cent of them being women).

53. The level of utilization of labour resources was thus better than 85 per cent. If the 5.8 million students of working age are also taken into account, then the rate of utilization of labour resources rises to almost 90 per cent (97.5 per cent of the male labour resources and 84 per cent of the female).

54. Although the concepts of active and non-active population do not correspond to the categories used in Soviet statistics, in comparing the results of censuses held in the Soviet Union and the capitalist countries data concerning the employed population among the "active" can be roughly compared with data concerning persons having employment, including the members of the families of collective farmers and manual and non-manual workers employed in private subsidiary farming.

55. The indicators of utilization of labour resources are also roughly comparable. As an example, here is a table comparing these indicators as derived from the population censuses held in the Soviet Union in 1959 and in the United States of America in 1960 (in percentages of the total):

	Soviet Union	*United States*
All labour resources (excluding servicemen)	100	100
Of which:		
Persons having employment.	84.9	71.0
Full-time students of working age	4.7	5.7
Persons of working age employed in housekeeping and raising children at home..	10.4	19.8
Completely unemployed	–	3.5

56. Since in the Soviet Union seasonal workers are included among those having employment, whereas in the United States seasonal workers not working at the time of the census are counted with those not belonging to the labour force, the United States figures have been corrected accordingly. Comparison of the data shows that in the Soviet Union the percentage of those employed is 13.9 per cent higher than in the United States, while the percentage of persons of working age employed in housekeeping is almost twice as big in the United States as in the Soviet Union. The proportion of full-time students in the Soviet Union is somewhat smaller than in the United States, but here it should be borne in mind that in the Soviet Union wide use is made of evening classes and correspondence courses and that most students combine their studies with work. In the census these students were counted as having employment. In the 1963-1964 school year, over 64 million people in the Soviet Union, or a third of the population (not counting children of pre-school age), were receiving education in various forms.

[1] See paper by A. F. Ulyanova, "The methods of drawing up the current and planned balances of labour resources in the Soviet Union", *Proceedings of the World Population Conference, 1965*, vol. III, p. 97.

57. In conclusion, it should be said that although the concepts of active and non-active population as used in international statistics have been considerably clarified in recent years, they are still marred by a certain vagueness. With a view to a more correct breakdown of population by livelihood, the population should be divided into the economically occupied and unoccupied population. The statistical authorities of most socialist countries have adopted this grouping. It has been decided to include in the category of occupied population: (*a*) hired labour; (*b*) persons working on own account (individual peasants, merchants, persons in the professions, artisans, taxi-drivers, etc.); (*c*) members of agricultural and non-agricultural production co-operatives; (*d*) assisting members of the family (only persons regularly assisting the head of the household in his main employment); (*e*) members of the family employed in private subsidiary farming; (*f*) servicemen. The rest of the population will be included with the unoccupied: (*a*) dependents of individuals; (*b*) dependents of State, public and co-operative organizations; (*c*) persons living on unearned income.

58. In the capitalist countries entrepreneurs, too, should be treated as a separate group in the occupied population. The unoccupied population in these countries should also show the unemployed as a separate group and the group of persons living on unearned income should include rentiers.

59. Such a grouping of the population into occupied and unoccupied would facilitate comparison between the data of socialist and capitalist countries.

Definition of the working population

ALFRED SAUVY

[*Translated from French*]

1. In the census of every country, the inhabitants are asked a question about their activity, which almost always means economic activity.

I. ECONOMIC OR NON-ECONOMIC ACTIVITY

2. When Hillary, for example, climbs with great effort to the summit of Everest, he is not classified as an economically active person, for no economic activity is involved; this would only be true if, upon his return, he gave lectures on his climb for a fee or if he sold the publishing or film rights to a story about it.

3. Similarly, a mother who brings up eight children is not considered economically active, no matter how hard she works, for this is not an economic activity.

4. There is also the case of a student who may work night and day to prepare for an examination but is still considered economically inactive.

5. This distinction is apt to lead to erroneous conclusions. The case is often cited of the man who, by marrying his servant, reduces the economically active population by one unit, although his wife's activity remains completely unchanged.

6. Although this is an extreme case, it is of no great significance. On the other hand, the fact that the working day of the economically active person is becoming shorter while that of the economically inactive person (housewife, student, etc.) remains the same means that the census gives a progressively less accurate idea of the economic activity of the population as a whole.

7. Anomalies of this kind are difficult to avoid in a census. There is thus an obvious need for inquiries on the way in which persons of different ages and conditions use their time throughout the day.

II. CHANGING BEHAVIOUR OF CENSUS RESPONDENTS

8. More recently, other difficulties have appeared in the highly developed countries which lead to errors of interpretation and make it hard to determine the true dimensions of the economically active population.

9. Unearned incomes are becoming increasingly common in those countries. Elderly and disabled persons receive pensions, some married women receive a family allowance, students receive scholarships, convalescents a daily allowance and so on.

10. The person receiving such income often has the right to supplement it by earned income, for example a salary. In certain cases, however, this practice is prohibited or restricted. Very often, the person concerned is not fully familiar with the laws governing his situation and in his uncertainty fears that he may lose his unearned income or be fined if he is found to be engaged in a gainful activity.

11. This very understandable tendency has the effect of distorting the census data on the economically active population. Since the activity rates for males aged twenty-five to fifty-five years are very close to unity, the differences from one census to another (with the exception, of course, of variations in the total population itself) can originate only in such other "marginal" categories, as married women, elderly persons and young people, whose situation with regard to economic activity is not clearly defined.

12. Formerly, in doubtful cases, respondents had a tendency to say that they were economically active, for the economically inactive person was often considered idle and lazy and was even regarded by the authorities as a suspicious character. It was therefore advisable to say that one had an occupation, even if it was exercised only occasionally or sporadically.

13. Today the situation is just the reverse; there is no longer any risk in saying that one is economically inactive, since that inactivity is remunerated and even confers a certain dignity. On the other hand, for the reasons mentioned above, there is a risk—or at least the person concerned may believe there is—in saying that one is economically active.

14. As a result of this development, the decline in the activity rates recorded in marginal areas is unreal or only partly real. It is due in some measure to a change in the behaviour of the census respondents. This trend is bound to become more pronounced with time as unearned income becomes more widespread but is incapable of covering growing needs and as the health of older persons improves.

III. Economic activity in fact and according to law

15. A distinction thus has to be drawn between fact and law. Taking these two factors into account, the population may be divided into three categories:

Economically active in fact, with no unearned income;

Economically inactive according to law (with unearned income), but actually economically active;

Economically inactive both in fact and according to law.

16. Economic activity includes part-time activity. It may be assumed, however, that a person working less than a minimum period, for example one hour a week, should be considered economically inactive or as economically active but unemployed.

17. In practice, it would be very difficult in a census to classify the population according to the three categories mentioned above, at least as long as the respondents were not sure that they ran no risk in stating that they were economically active. Actually, in most countries, this latter condition is fulfilled, for even if a person works illegally, the census is anonymous and is undertaken for statistical purposes only. What counts here, however, is not the situation as it really is but as it exists in the respondent's mind. There is always a lurking fear that there will be some contact between the census authorities and the authorities disbursing the unearned income.

IV. The consequences

18. In any case, these marginal persons are in general not very productive, on the one hand because they work only part-time and on the other because they are usually engaged in minor occupations with low productivity. Even when justified, however, their exclusion from the economically active population makes it appear that the productivity of the nation as a whole is increasing faster than it really is.

19. Census results also tend to be an unreliable indicator of current trends where they are used to measure the burden which the economically inactive population imposes on the economically active population. Total unearned income alone should be taken into account, irrespective of whether the income recipients are economically active or not.

20. When exclusion from the economically active population results simply from an inaccurate reply, the apparent increase in productivity is purely fictitious. This leads to over-optimistic forecasts, which may seem to be confirmed as long as the trend continues, but may some day be suddenly found inaccurate, without the cause being clearly understood.

V. The remedy

21. It may seem surprising that in highly developed and highly organized societies, with a closely-knit network of social security and various kinds of data control, it is still necessary to resort to the primitive operation of counting all the inhabitants at a given date, but no country has considered it possible to do otherwise.

22. Frequent inter-censal surveys of employment based on a sufficiently large sample would, however, provide a partial solution and might even permit a classification into the three categories mentioned above, subject to the indispensable condition that respondents would be assured that their statements would be treated as confidential.

Socio-economic characteristics of the economically active population

STÉFAN STANEV

[*Translated from French*]

1. The problem of the employment and utilization of labour resources is a matter of interest in many quarters. This interest has recently increased because of the many studies carried out on the conditions and factors of economic growth and because of the expanding role of the State in economic and social affairs.

2. The definition of the economically active population has been influenced primarily by the need to determine the proportion of the population employed in socially useful activities. Although it is doubtless influenced by other considerations as well, the economic and social substance of the problem reduces itself in the final analysis to the question of the extent and manner of utilization of a country's manpower resources.

3. Questions relating to the income and requirements of the population are in our view of a secondary nature. They are determined by the manner of utilization of manpower resources and the extent of participation of the population in socially useful activities.

4. We know that in certain countries the element of income is stressed in obtaining a complete picture of the means of existence of the population. It seems to me, however, that this emphasis to some extent displaces the balance of the problem.

5. In Bulgarian statistics, the "economically active population" is understood to mean all persons engaged in a socially useful activity for which they receive remuneration or income.

6. The decisive element of the definition is employment, which includes any activity in the above-mentioned sense, irrespective of its nature, that is to say, without regard to its objective, whether it be the creation of material goods or the provision of productive services or other services in the fields of administration, education, public health, and so forth.

7. The fact that a wage or income is received is evidence that the activity is socially useful and is carried on systematically and professionally.

8. The economically active population may be approached from two angles, depending on whether the statistical characteristic relates to a strictly fixed moment of time or to a given period of time. In the first case, the economically active population consists of all persons who were employed on the date of the inquiry and received remuneration for their work.

9. In the case of certain productive activities which are usually of a seasonal nature—such as the foodstuffs industry, agriculture, and to a certain extent construction and logging—it frequently happens that the date of the statistical inquiry falls outside the working season. In that case, Bulgarian statistics also include as economically active all persons who, while not employed at the time of the inquiry owing to the seasonal nature of their work, had been engaged in that work during the season preceding the inquiry.

10. A preliminary step in studying the socio-economic characteristics of the economically active population is to compare the economically active population with the country's manpower resources. The purpose of this comparison is to enable us to determine to what extent manpower resources are utilized in the country as a whole and in its territorial subdivisions, breakdowns being made by urban and rural populations, men and women, different social groups, and so forth. This brings into relief the most important economic characteristic of the population and enables us to measure the principal source of economic development, to bring to light various social aspects of employment and, in particular, to enrich the concept of the economically active population.

11. In the People's Republic of Bulgaria this comparison is carried out on the basis of the results of the population census, and also, for shorter time-periods, on the basis of the manpower balances.

12. The comparison necessitates a clearer definition of the category "Manpower resources". The definition is based on a breakdown

of the population by age-groups, numbers of persons fit for work, numbers of retired persons of working age, and numbers of gainfully employed persons not of working age. "Manpower resources" may be defined more specifically as follows:

(*a*) Persons of working age (men, 16 to 59 years inclusive; women, 16 to 54 years inclusive);

(*b*) Unemployed persons of working age;

(*c*) Retired persons of working age: various categories of retired persons;

Manpower resources (persons of working age): (*a*) — ((*b*) + (*c*)).

(*d*) Employed persons not of working age.[1]

Total manpower resources: (*a*) — ((*b*) + (*c*)) + (*d*).

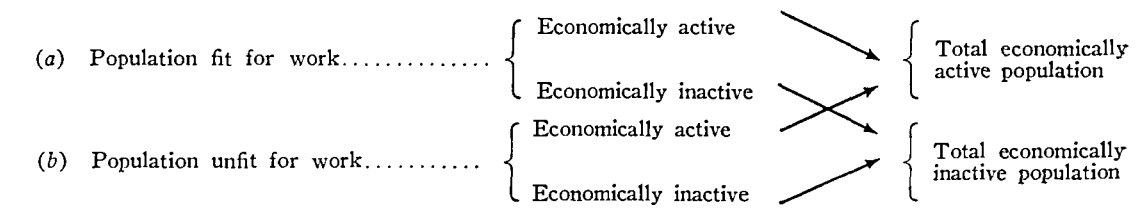
[1] Employed persons not of working age are found mainly in agriculture, especially on the subsidiary plots of co-operative farmers, workers and employees, and on private farms.

13. The comparison may be made on the basis of absolute figures or of the average annual size of the economically active population. In comparing absolute figures, military personnel must be deducted from the total manpower resources in order to obtain the figure for available manpower resources.

14. Total manpower resources less persons performing their regular military service equals the available manpower resources.

15. The available manpower resources are compared with the total active population in order to determine the degree of utilization of the country's actual potential.

16. Comparison on the basis of the absolute figures enables us to distinguish several groups which characterize the structure of the population from the standpoint of its fitness for work and socio-economic utilization. These groups are the following:



17. But while comparison of the economically active population with available manpower resources does make it possible to determine the extent of utilization of these resources, it does not give an accurate picture of the real reserves of working time which society could use under different conditions.

18. From this standpoint, a more complete estimate may be obtained by comparing the available manpower resources with the average annual economically active population.

19. A fundamental aspect of the characterization of the economically active population is its distribution into social groups. By means of this distribution the statistical services are able to define the social structure of the economically active population, to observe any changes that may take place and, lastly, to determine the changes in the social structure of the population.

20. The criterion on the basis of which the various social groups are distinguished is a complex one. It includes the position of the members of the group in social production, their relations with the means of production, their role in the social organization of labour and the manner in which they secure a share of the social income. It is obvious that this criterion embraces all the essential elements which determine social differences, so that a detailed picture of the structure of society is obtained.

21. On the basis of this criterion, Bulgarian statisticians divide the economically active population into the following social groups:

(*a*) Workers;
(*b*) Employees;
(*c*) Co-operative farmers;
(*d*) Co-operative craftsmen;
(*e*) Non-co-operative farmers;
(*f*) Non-co-operative craftsmen;
(*g*) Private merchants;
(*h*) Persons in the professions.

22. The category "workers" includes all persons who are directly involved in the production, transport and sale of material goods, whether these activities are carried out in state industrial enterprises, factories, state agricultural farms, tractor stations, construction companies, transport and commercial enterprises or in state establishments, social organizations or service enterprises.

23. One of the characteristic features of this category is its direct relation to the production and circulation of material goods.

24. However, the category is not defined exclusively by this characteristic. The type of ownership determining the place of individuals in the social organization of labour and the manner in which the share of the social income is obtained also play a role.

25. The category "co-operative farmers" comprises all members of co-operative farms, together with members of their families working in the socialized sector, whether the productive work they do is agricultural or industrial, connected with construction, or of some other nature.

26. The category "co-operative craftsmen" is similar socially to the category "co-operative farmers". It includes members of various kinds of co-operatives in the fields of industry, fishing, construction, and the like.

27. The category "employees" comprises persons working in State enterprises or in establishments concerned with administration, technical organization, planning, assessment and supervision of economic activity, and persons working directly in the service of the population (public health, national defence, and so forth). This category includes persons working in agricultural or other co-operatives in jobs connected with the administration, technical organization, planning, assessment and supervision of economic activity.

28. It is obvious that employees differ from manual workers by the place they occupy in the social organization of labour.

29. The categories "non-co-operative farmers" and "non-co-operative craftsmen" include respectively persons owning private farms and principally engaged in agriculture, and persons carrying on their business in the private sector.

30. More specialized but equally important is the comparison of the economically active population by social groups with social distribution of the total population.

31. Closely related to, but still different from, the characterization of the economically active population by social groups is its classification according to the types of enterprises worked in. It has already been stressed that the form of ownership of enterprises plays an important role in the differentiation of social groups. However, it shares this role with other important characteristics constituting the fundamental criterion.

32. The classification is established according to the form of ownership of enterprises.

33. The fundamental categories are the following:

(*a*) Persons employed in establishments and enterprises owned by the State;

(*b*) Persons employed in agricultural, industrial and other co-operatives;

(*c*) Persons employed in subsidiary farm plots of farmers, workers, employees and co-operative craftsmen;

(*d*) Persons employed in private farms, craft workshops or commercial enterprises.

34. This classification of the economically active population enables us to determine the relative weight of each social sector in the field of socially organized useful labour.

35. An important feature of the socio-economic characterization of the economically active population is its classification by fields of activity. For this purpose the population is divided into the following two principal categories:

(*a*) Persons employed in the production of material goods;

(*b*) Persons employed in non-productive activities.

36. By means of this classification we can determine the proportion of the economically active population engaged in the production of material goods and the national income, and the proportion engaged in non-productive but socially useful activities.

37. This characterization of the economically active population in the People's Republic of Bulgaria is based on data supplied by the population census, and on current data collected for the compilation of the manpower balance.

38. The distribution of the economically active population by field of activity is combined with its distribution by branches of the national economy.

39. The basis used for this grouping is the standard classification by branches used for the balance of the national economy. This classification divides the economically active population into groups of major branches of the national economy and into branches, subgroups, and different types of production (specific forms of activity).

40. The principal branches of the national economy are the following:

(*a*)	Industry;	
(*b*)	Construction;	
(*c*)	Agriculture;	
(*d*)	Forestry;	
(*e*)	Transport;	Productive sector
(*f*)	Communications;	
(*g*)	Commodity circulation;	
(*h*)	Other branches of material production;	
(*i*)	Construction and public works;	
(*j*)	Sciences and scientific services;	
(*k*)	Education, culture and arts;	Non-productive sector
(*l*)	Finance, credit and insurance;	
(*m*)	Administration;	
(*n*)	Other branches in the non-productive sector.	

41. Each of these major branches of the national economy is divided into branches, sub-branches and specific types of production. For example, "industry", one of the major branches of the national economy, is divided into sixteen branches, which in turn are divided into fifty-eight sub-branches, and so forth.

42. A similar grouping of the economically active population by occupations has been carried out on the basis of the population census data. A detailed classification and nomenclature of occupations comprising tens of thousands of specific occupations is used.

43. The grouping of the population by occupations provides a very detailed picture of the social distribution of labour.

44. Particular importance attaches to the classification of the economically active population by levels of education. A survey of specialists with secondary and higher education by groups of specialities is carried out in Bulgaria every year. Specialists having completed their secondary and higher studies are also enumerated periodically, by age and year of graduation.

45. Plans are under consideration to compile an annual balance of specialists on a regular basis from the beginning of 1966.

46. Specialists with secondary and higher education and specialized training are also classified by branches and sub-branches of the nomenclature, positions held, and so forth.

47. Comparison of the categories "speciality acquired in higher or secondary educational establishments", and "position held" is of special interest, providing an indication of how the various specialized skills are utilized in the national economy.

48. In this connexion again, we should also mention that a classification of employed persons is made by length of on-the-job training.

49. In addition, the economically active population is classified on the basis of group statistical data obtained by combination of the categories mentioned above and of others such as sex, age, length of annual paid holiday, and so forth.

50. Also of special interest is the category "amount of remuneration received", by branches and sub-branches, which provides a broad statistical characterization of the economically active population for the country as a whole and by territorial divisions.

SUMMARY OF PAPER

Attempt at research into the outside activities of members of farm households

G. THEODORE

[*Translated from French*]

The author sets out the considerations which have directed attention towards the non-agricultural income and, hence, activities of the members of farm households. The statisticians who endeavour to study and describe these non-agricultural activities can approach the subject from three aspects:

(*a*) The income derived from non-agricultural activities;

(*b*) Working time devoted to various activities;

(*c*) Determination of the existence, nature and scope of the non-agricultural activity, by means of censuses or sampling procedures.

In support of the first approach, the author cites various examples relating to the United States, Belgium, Senegal, Ghana and the Sudan.

The third method poses problems with regard to definitions, the criteria to be applied to various activities, and the population to be surveyed, quite apart from the psychological and technical obstacles which such a study will encounter.

The author also remarks that, depending on the region, it might be useful to study the "symbiosis" of a wage-earning group for which supplementary agricultural activity may be either an anchoring factor or a stabilizing factor. He adds that, from a psychological and sociological point of view, the isolation of the agricultural population has long been deplored. The trend towards participation in other activities may, then, contribute to an awareness of the general problems of the nation, although this hypothesis calls for certain reservations.

The paper ends with a detailed statistical study based on a survey of agricultural patterns completed in France in 1964. The author concludes by recommending that, in a study of the problems of the twofold activities of the agricultural labour force, particular attention should be given to the geographical aspects, the question of age and the question of the nature and extent of the non-agricultural activity.

Meeting A.8

DEMOGRAPHIC ASPECTS OF URBAN DEVELOPMENT AND HOUSING

PAPERS

Age structure and number of dwellings in the Netherlands

L. H. J. ANGENOT

[*Translated from French*]

1. In studying the correlation in past years between population growth in the Netherlands and the size of the housing stock, one is struck by the fact that the housing stock has increased at a more rapid rate than the population. It follows that the average number of occupants per dwelling has been decreasing. What is more, the decrease has not been of minor proportions.

2. In the years 1899, 1909 and 1930, there was a sufficient surplus of vacant dwellings in the Netherlands for the number of occupied dwellings to be regarded as quantitatively equal to the population's needs. In 1920, as a result of stagnation in the building industry caused by the First World War, the supply was barely sufficient. A surplus of only 9,000 dwellings, which, moreover, were unevenly distributed, signified a housing crisis. The deficit for 1920 is estimated at 60,000 dwellings.

3. In the years preceding the last war, there was a large surplus of dwellings, but the war turned this into a deficit. For a long time, only rough and widely divergent estimates of the size of the deficit were available.

4. Arrangements were therefore made at the time of the census of 31 May 1960, in which the enumeration of dwellings was completed, to carry out a survey of the demand for independent dwellings among households sharing common dwellings and among persons living alone. By thus determining the needs of households and persons living alone, it was possible to arrive at a figure of 190,000 for the deficit. If we add to that a normal surplus of 60,000 vacant dwellings, we obtain a total of 250,000, which, added to the number of occupied dwellings, gives the desirable number of dwellings in 1960 as 3,064,259.

5. Data concerning the families and dwellings enumerated in the census years 1899, 1909, 1920, 1930 and 1960 are given in table 1.

Table 1

	Census dates				
	31 Dec. 1899	*31 Dec. 1909*	*31 Dec. 1920*	*31 Dec. 1930*	*31 May 1960*
I. Number of inhabitants	5,104,137	5,858,175	6,865,314	7,935,565	11,461,964
II. Number of persons occupying dwellings	—	—	—	7,688,903	11,122,240
III. Number of dwellings	—	—	1,508,779	1,935,442	2,823,685
IV. Number of occupied dwellings	1,088,736	1,267,284	± 1,500,000	1,885,567	2,811,602
V. Number of vacant dwellings	Sufficient	Sufficient	± 9,000	49,875	12,083
VI. Deficit of dwellings	—	—	± 60,000	—	± 192,657
VII. Number of occupied boats and caravans	10,669	12,544	22,012	18,827	23,841
VIII. Desirable number of dwellings [a]	1,111,500	1,292,600	1,591,000	1,923,000	3,064,259

Table 1 (*continued*)

	Census dates				
	31 Dec. 1899	*31 Dec. 1909*	*31 Dec. 1920*	*31 Dec. 1930*	*31 May 1960*
IX. Number of inhabitants / Number of dwellings [I/III]	—	—	4.55	4.10	4.06
X. Number of inhabitants / Desirable number of dwellings [I/VIII]	4.59	4.53	4.31	4.13	3.73
XI. Desirable number of dwellings per 1,000 inhabitants	218	221	232	242	268

[a] The desirable number of dwellings includes 2 per cent vacant dwellings.

6. In 1960, a further survey was carried out in order to determine the size of the deficit.

7. The decrease already observed between 1899 and 1930 in the ratio of population size to number of dwellings has persisted over the last thirty years. The question now is whether this trend will continue and, if so, what is the limit towards which the ratio will move in the future. It is an important question, since, obviously, this decrease implies a substantial demand for housing. This is of particular importance in the Netherlands, whose relatively small area is expected to be occupied by a population of 20 million by the year 2000. A difference of 0.1 person more or less per dwelling already implies an increase or decrease of 200,000 in the demand for dwellings. Efforts are being made to define the relationship which population structure by sex, age and family status bears to quantitative housing requirements.

8. Here we have to rely on past data, such as those provided by the censuses and enumerations of dwellings and families carried out in 1899, 1909, 1920, 1930 and 1960.

9. The census data for those years give us the distribution of the population by sex, age and family status. The enumeration of families and dwellings provides information on the number of households occupying independent dwellings. The unmarried group (which comprises bachelors, spinsters, widowers, widows and divorced persons) can be broken down into:

(*a*) Unmarried persons who are heads of households and occupy independent dwellings, such as a widow with her children or the manager of a guest house and his guests;

(*b*) Unmarried members of families of which they are not the heads; a very large proportion of this group consists of children;

(*c*) Unmarried persons who live alone in independent dwellings.

10. For the year 1960, when the post-war housing crisis was still acute, we must add to the number of families, of unmarried persons who are heads of households, and of unmarried persons who live alone and occupy independent dwellings those who were not occupying dwellings but were looking for them. These data were obtained by means of a survey which was carried out at the same time as the enumeration of dwellings in 1960.

11. Lastly, there is a very small group of married people who live separately and require independent dwellings which they occupy either alone or with households of which they are the heads.

12. The demand for housing among unmarried persons comes from the adult group in this category. We shall define this category for statistical purposes by dividing unmarried people into those aged 25 years and over and those under 25 years.

13. For the population as a whole, virtually the entire demand for housing is accounted for by three groups:

(*a*) Married couples;

(*b*) Unmarried persons who are heads of households;

(*c*) Unmarried persons living alone.

14. Married couples account for more than 80 per cent of the demand. Their number represents nearly half the number of married persons. In 1899, 1909 and 1960, 96.6 per cent of married couples desired independent dwellings. In 1920 and 1930, the percentage was 97.5. If we let m represent the number of married persons, the demand among this group can be expressed as $\frac{m}{2} \times 0.966$ or $\frac{m}{2} \times 0.975$.

15. We shall let n represent the number of unmarried persons aged 25 years and over. Some of these persons are heads of households, whether or not of their own families. The demand for housing in this group was equal to $n \times 0.225$ in 1930 and $n \times 0.205$ in 1960.

16. The demand for independent dwellings in the group of persons living alone is less stable than in the other groups. It was $n \times 0.142$ in 1930 and rose to $n \times 0.211$ in 1960.

17. It must be noted that the demand for housing is proportionately higher in the major towns than in the country as a whole. In 1960, Amsterdam had the highest percentage, 34 per cent, which was in linear correlation with the number of inhabitants of various towns, as is shown by the following table:

	Per cent	*Inhabitants*
Amsterdam	34	864,747
Rotterdam	32	729,030
The Hague.....	29.8	605,136
Utrecht	25	285,021

18. For localities smaller than Utrecht, the figure was close to the average for the country as a whole, i.e., 21.1 per cent.

19. Total housing demand in the Netherlands in 1960 can be expressed by the equation:

$$H = \frac{m}{2} \times 0.966 + n\,(0.205 + 0.211) - f,$$

in which f represents households not living in houses but in boats or caravans. In 1960, f was equal to 23,841.

20. In 1930, housing demand was:

$$H = \frac{m}{2} \times 0.975 + n\,(0.225 + 0.142) - f.$$

21. For the years 1899, 1909 and 1920, the distribution of demand among groups of unmarried persons presents some difficulties, but it has been found quite possible to use, for the thirty-year period, the sum of the parameters for 1930, i.e., $0.225 + 0.142 = 0.367$.

22. The results of the computations for the years 1899, 1909, 1920 and 1930 are given in tables 2 and 3. There is a striking similarity between the figures in the last two columns.

Table 2

Date	$\frac{m}{2} \times 0.966$	$n \times 0.367$	f	H	*Number of dwellings actually occupied*
31 December 1899....	809,374	291,126	10,669	1,089,831	1,088,736
31 December 1909....	958,350	324,894	12,544	1,270,700	1,267,254

Table 3

Date	$\frac{m}{2} \times 0.975$	$n \times 0.367$	f	H	*Number of dwellings actually occupied*
31 December 1920..	1,195,137	374,287	22,012	1,547,412	[a]
31 December 1930..	1,476,677	422,658	18,827	1,880,508	1,885,567

[a] Estimated demand in 1920: 1,560,000.

23. The corresponding figures for 1960 are shown in table 4. The number of dwellings needed, as computed from the very extensive survey carried out at the time of the census, is given in the last column.

Table 4

Date	$\frac{m}{2} \times 0.966$	$n \times 0.416$	f	H	*Number of dwellings needed*
31 May 1960.....	2,465,113	575,070	23,841	3,016,342	3,016,500 [a]

[a] Computed from the survey.

24. If the housing stock is to be truly adequate to the needs of the population, there should be a 2 per cent surplus of vacant dwellings. The desirable stock is therefore equal to 1.02 *H*.

25. Housing requirements are a function of the number of adults. For over a century, this number has been increasing in relation to the total population, as is shown by the changes in the form of the population pyramid. This explains the increased demand for housing in relation to population growth.

26. It is possible, with the help of demographic projections, to compute the future distribution of the population by age and sex.

27. By means of the *H* formula, as defined above, it is possible to determine the housing requirements of the population of the Netherlands. This figure, we repeat, is a function of the number of married persons and of that of unmarried persons aged 25 years and over.

28. Marriage rates are an uncertain factor. After the war, there was a slight but continuous decline in the average age at marriage.

29. The average number of occupants per dwellings is partly a function of the birth rate. A high birth rate, other things being equal, produces a relatively higher occupancy rate than does a low birth rate.

30. The Netherlands has a high birth rate. The net reproduction rate is 1.50, and the intrinsic reproduction rate is 0.0137. We shall now compute the level towards which the desirable occupancy rate of dwellings will tend, assuming that the birth rate remains at the present level, that the death rate is equal to that of the years 1956-1960, and that there is a masculinity ratio of 1.05 among the newborn.

31. The age distribution of the population is computed on the basis of Lotka's equation:[1]

$$c_\rho(a) = b_\rho e^{-\rho a} p(a).$$

32. It gives a picture of a population of stable structure with 443 married persons and 126 unmarried persons aged 25 years and over for every 1,000 inhabitants.

[1] A. J. Lotka, "Analyse démographique", *Théorie analytique des associations biologiques*, part 2 (Paris, Hermann, 1939), p. 68, equation 146.

33. Assuming that for every 1,000 inhabitants there are two occupied boats and caravans, we obtain the following values for substitution in the *H* formula:

$$m = 443$$
$$n = 126$$
$$f = 2$$

34. As regards the parameters, the following may be noted: over a period of sixty years, housing demand among married couples remained virtually constant at a level of 96.6 per cent. This percentage can be expected to hold good in the future. For demand among unmarried persons who are heads of households, the figure regarded as appropriate is 20.5 per cent, which relates to the year 1960.

35. The situation is different in the case of persons living alone, whose demand for independent dwellings has been shown to increase with the degree of urbanization. In view of the population growth taking place in the Netherlands and the country's small size, we must expect the level of demand in this group to continue rising, eventually reaching 30 to 40 per cent. We shall take the figure of 35 per cent, which is approximately that of Amsterdam for the year 1960.

36. On the basis of these assumptions, the desirable number of dwellings per 1,000 inhabitants will tend towards:

$$1.02 \times \frac{443}{2} \times 0.966 + 126 \times (0.205 + 0.350) - 2 = 288.$$

The corresponding number of occupants per dwelling is 3.46.

37. These are, of course, the average values for the country as a whole. In some large towns, where the reproduction rate is markedly below the average for the country, the figures arrived at for the desirable housing stock exceed the level of 288 computed above.

38. This result is not equivalent to a projection: the assumption that the intrinsic reproduction rate will remain at its present high level probably puts future natality too high. It is therefore estimated that the figure of 288, representing the desirable number of dwellings per 1,000 inhabitants in the Netherlands, will be slightly exceeded.

Demographic aspects of city planning and housing construction

V. F. BOURLIN

[*Translated from Russian*]

1. Any consideration of the impact of the emergence and growth of cities on demographic processes must be based on study of the entire process of economic development in the country concerned and must be accompanied by analysis of political and historical factors. Study of the development and distribution of productive resources is especially important to a proper understanding of these processes.

2. The discovery and exploitation of natural sources of raw materials and fuel causes numerous small urban centres to spring up in those areas where extractive industry is developing. If the availability of these resources also leads to the appearance of manufacturing industry, such urban centres often develop into large cities.

3. Later, as communications improve and industrial development is promoted in certain areas by the operation of a number of factors (the availability of cheap labour as a result of high population density, the development of cottage industry, the availability of skilled personnel, the proximity of power sources etc.), the centres of manufacturing industry start to move away from raw materials sources and urban centres emerge outside the areas of extractive industry.

4. The development of industry produces a rapidly increasing need for additional manpower, which is recruited from rural localities, thus increasing the population of the cities and urban-type settlements.

5. The processes of industrialization and urbanization assume different forms under different historical and socio-economic conditions.

6. Industrial development in Russia before the October Socialist Revolution of 1917 occurred at a time when the peasant masses were suffering impoverishment and economic ruin, particularly in the overpopulated agricultural areas. Some peasants moved to the underpopulated southern areas of Russia, where they were hired as agricultural labourers by large landowners and wealthy peasants, but most sought work in the factories, mines and oil fields and thus added to the urban population.

7. As a result of this movement of the rural population to industrial centres, the urban population of European Russia tripled between 1863 and 1913—a period during which the country's total population doubled. During that time, the urban population of European Russia increased from 10 per cent of the total to 15. The population of the large cities, especially the commercial and industrial centres, rose more rapidly than the urban population as a whole; while the over-all urban population tripled during these fifty years, the population of those cities which at the beginning of 1914 had 100,000 or more inhabitants increased by a factor of 4.2. The population began to be heavily concentrated in the large cities; the number of cities with 100,000 or more inhabitants rose from three in 1863 to twenty-eight by the beginning of 1914. St. Petersburg and Moscow, each with a population of more than 1.5 million, became the leading industrial centres. By the beginning of 1914, more than 20 per cent of the urban population of European Russia was concentrated in these two capital cities.

8. A significant aspect of the increase in the population of large cities during this period was the fact that it was attributable more to an influx from outside than to natural growth. The natural population growth of St. Petersburg and Moscow, for example, was not more than 20-25 per cent of their over-all population growth during the late nineteenth and early twentieth centuries. The remaining increase in the population of those two industrial centres was the result of an influx from rural areas.

9. A characteristic feature of the growth of large cities as a result of industrial development was the movement of population into outlying urban districts, working-class suburbs and settlements situated near the urban industrial areas.

10. The impoverished peasants who came to the large cities to take employment in factories settled in the poor outlying districts and in suburban areas, where rents were lower than in the central city. Many of them built their own makeshift structures or dugouts and similar shelters in the outskirts of the city. In Moscow, to cite an example, the population of the central and outlying sections showed the following changes:[1]

[1] A. G. Rashin, *Naselenie Rossii za 100 let* (The population of Russia over a hundred-year period), p. 117.

Table 1

	Population on basis of censuses and estimates (in thousands)			*Growth rate of population (as a percentage of preceding year)*		*Population of outlying districts as a percentage of*	
	In central city	*In outlying districts*	*Total*	*In central city*	*In outlying districts*	*Total population*	*Population of central city*
1871	262	340	602	—	—	56.5	129.8
1897	357	685	1,042	136.3	201.5	65.7	191.9
1907	383	967	1,350	107.3	141.2	71.1	252.5
1912	436	1,182	1,618	113.8	122.2	73.1	271.1
1917	514	1,530	2,044	117.9	129.4	74.8	297.7

11. Over a period of forty-five years, the population of Moscow increased by 240 per cent, the central city showing a rise of 100 per cent and the outlying districts a rise of 350 per cent. Thus, the population of the outlying districts rose from 56.5 per cent of the city's total population in 1871 to 75 per cent in 1917. The same situation prevailed in St. Petersburg and other industrial centres of pre-revolutionary Russia.

12. During this period, all sorts of cheap lodging houses and barracks-like dwellings were to be found in urban working-class districts, and city slums made their appearance. In Moscow in 1912, for example, 325,000 people were sleeping on plank beds, sometimes two and three to a bed, in tiny rooms where the most elementary hygienic facilities were lacking. That is how many workers lived in the cities of pre-revolutionary Russia. The mine workers of the Donets basin and the Krivoi Rog area lived for the most part in dugouts and similar shelters.

13. Poor housing conditions, together with poor food and heavy work, were among the main factors contributing to the high disease and death rates among the poorer groups in the urban population.

14. The over-all death rate in the outlying districts of Moscow and St. Petersburg was more than twice as high as in the central city; the death rate from dysentery was almost seven times as high in the poorer districts as in the central city, while the death rate from typhus was 9.5 times as high.

15. This sharp contrast between living conditions in the central city and the outlying districts is to be found in many large industrial centres of western Europe, Asia and America.

16. In these cases, persistent unemployment and high rents tend to perpetuate the crisis in housing.

17. The industrialization of Russia after the October Socialist Revolution assumed a special character. The revival and rapid development of industry, far from being accompanied by the economic ruin of the poor peasants, occurred in conjunction with a strengthening of the peasant economy, followed by the complete reorganization of agriculture on the basis of the technological advances made possible by urban industry. Over a period of fifty years, the following changes occurred in the size and composition of the population of the Union of Soviet Socialist Republics:

Table 2

	Population (in millions)			*Percentage distribution*	
	Total	*Urban*	*Rural*	*Urban*	*Rural*
1913	159.2	28.5	130.7	18	82
1939	190.7	60.4	130.3	32	68
1959 (census figures for 15 January)....	208.8	100.0	108.8	48	52
1964 (1 January).....	226.3	118.6	107.7	52	48

18. Between 1913 and 1964, the total population increased by 42 per cent, the urban population rising more than 300 per cent while the rural population showed a decline of 18 per cent.

19. During this period, backward agrarian Russia was transformed into an industrial country whose industries were equipped with the most advanced technology and whose agriculture had achieved a high degree of mechanization. Gross industrial production was fifty-two times as high in 1963 as it had been in 1913. Production was 400 times as high in the engineering and metal-working industries and 200 times as high in the chemical industry and the rubber and asbestos industry; electric power production had increased by a factor of 200, petroleum production by a factor of twenty, pig iron production by a factor of fourteen, and cement production by a factor of thirty-four.

20. Industrial development of this kind called for a large supply of manpower. Since the dispossession and impoverishment of peasant farms had ended after the Revolution, all peasants had received land and rural living conditions had begun to improve, industry could no longer count on a spontaneous influx of new labour from the villages. Of decisive importance in supplying manpower for industry was the creation of large agricultural enterprises—collective and state farms—and the mechanization of agricultural work, which freed a large part of the able-bodied adult population in rural areas for other work. The State began an organized effort to recruit people who wished to take jobs in industry and construction, and collective farms released those peasants who expressed a desire to work in the city. There was thus a planned, organized movement of part of the rural population to cities and urban-type settlements.

21. As we have already seen, the rural population declined by almost 23 million between 1913 and the beginning of 1964. However, that did not cause a drop in agricultural production. On the contrary, the reorganization, mechanization and electrification of agriculture and the utilization of technological advances brought about an increase in production and in the marketable portion of production. Gross agricultural production in the Union of Soviet Socialist Republics increased by 130 per cent between 1913 and 1962, while the marketable portion rose from 32 to 55 per cent of the total. Grain output was 148 million tons in 1962 as compared to 86 million in 1913, while the respective figures were 47.4 million and 11.3 million for factory-processed sugar beet, 9.5 million and 5 million for meat (carcass weight), and 63.9 million and 29.4 million for milk.

22. As a result of the increased production thus achieved through higher labour productivity, socialist agriculture was able to provide an ever-increasing supply of food for the general population and of raw materials for industry.

23. Industrial development in the Soviet Union has been accompanied by a much more rapid increase in the number of urban centres than was the case in Tsarist Russia. In the twenty-five years between 1939 and 1964 alone, the number of urban centres increased from 2,762 to 5,079, i.e., by more than 80 per cent, while their total population nearly doubled. As at 1 January 1963, there were 178 cities in the Union of Soviet Socialist Republics with a population of more than 100,000, including twenty-eight with a population of 500,000 or more.

24. The industry and, at the same time, the cities of the eastern regions of the Soviet Union have developed at a particularly rapid pace. Between 1939 and 1964, when the urban population of the entire country increased by 96 per cent, the population of the cities of the Volga region, the Urals, Kazakhstan, Central Asia and Siberia showed increases of 100 per cent or more. Thus, the increase registered between 1939 and 1 January 1964 was 112 per cent for the city of Sverdlovsk, 138 per cent for Kuibyshev, 189 per cent for Chelyabinsk, 143 per cent for Omsk, 151 per cent for Novosibirsk, 174 per cent for Krasnoyarsk, 208 per cent for Karaganda, 173 per cent for Alma-Ata, 259 per cent for Dushanbe, 268 per cent for Frunze etc.

25. During the period of Soviet industrialization, the exploitation of mineral deposits, the construction of industrial enterprises and the opening up of new regions resulted in the emergence of such new cities as Karaganda, Magnitogorsk, Novokuznetsk, Komsomolsk on the Amur, Angarsk, Norilsk, Igarka, Volzhsky, Novokuibyshevsk, Vorkuta, Bratsk and Divnogorsk.

26. Urban housing conditions, far from declining as a result of the tremendous surge of industrial construction and the rapid rate of urban growth, have shown improvement year by year.

27. Soon after the Revolution, the urban slums inherited from Tsarist Russia were eliminated and action was taken to wipe out the differences between housing conditions in the

central and outlying districts of cities by redistributing dwellings among urban inhabitants. A programme of housing construction unprecedented in scope and speed of execution then got under way in the Soviet Union. The volume of this construction is apparent from the following figures showing the development of the urban housing inventory:

Table 3. Housing inventory in millions of square metres of surface area (at end of given year)

	1913	*1940*	*1952*	*1958*	*1962*	*1963*
Total urban housing inventory.....	180	421	557	832	1,074	1,128
Urban public housing inventory.....	—	*267*	*371*	500	*670*	715

28. While the urban population increased by 300 per cent between 1913 and 1963, the urban housing inventory increased by 530 per cent. It should be noted in this connexion that many millions of square metres of housing space were destroyed by the Nazi invaders during the War for the Fatherland of 1941-1945. The volume of housing construction has been particularly great in recent years. Whereas during the pre-war five-year plans an average of 9.8 million square metres of surface area was brought into occupancy each year in cities and workers' settlements, the annual average was 46.1 million during the years 1954-1958 and 80.3 million during 1959-1963.

29. Soviet housing construction is greater than that of any other advanced country. The following figures are for dwellings built per 1,000 inhabitants:

	1957	*1962*
Federal Republic of Germany..	10.5	10.0
France	6.2	6.6
Italy	5.6	7.2
Soviet Union	10.8	11.6
United Kingdom	6.0	6.0
United States	6.1	7.3

30. A large part of urban public housing is built on the sites of older housing which has been torn down or in new areas and is provided with all communal facilities. Large housing developments, complete with schools, hospitals, cinemas, kindergartens and crèches, are going up in the outlying districts of cities. Thus, the differences between the central and outlying districts are gradually being wiped out not only in terms of available housing space but also as regards the type of construction, the aesthetic quality of streets and buildings, the provision of cultural and welfare facilities etc.

31. Efforts to improve urban living and working conditions have been supplemented by a broad public health programme, including the construction of hospitals, health centres, sanatoria, maternity homes, and women's and children's consultation clinics, the training of medical personnel and measures to provide medical institutions with the latest instruments and equipment.

32. Of tremendous importance in raising the level of public health has been the fact that all medical care has been available free of charge to the entire population since the very first years of Soviet rule.

33. At the end of 1963, the Soviet Union had ninety hospital beds and 20.6 doctors (not including dentists) per 10,000 inhabitants as compared to thirteen hospital beds and 1.5 doctors in 1913. The Soviet Union has more doctors in proportion to its population than do the advanced countries of western Europe and America. In 1961, the United States had twelve doctors per 10,000 inhabitants, the Federal Republic of Germany had fourteen and France had eleven.

34. The improvements in material and cultural living standards and the advances made in public health have brought about a decline in the death rate, a rise in life expectancy and a high rate of natural population growth in the Union of Soviet Socialist Republics.

35. The growth of the urban population tends to produce substantial changes in the demographic, cultural and socio-economic indicators for the population as a whole, since these indicators show marked differences between urban and rural inhabitants.

36. One of the principal demographic indicators is the birth rate, which is, of course, lower among urban than among rural inhabitants. This is attributable to a number of causes, including the fact that more urban than rural women take gainful employment and perform public duties, that urban women marry later, that more urban women attend secondary and higher educational establishments, and that contraceptive devices are more widely used in the cities.

37. As the following figures show, the difference in the urban and rural birth rates existed in pre-revolutionary Russia just as it has in the Soviet Union.

Table 4

Year	Number of births per 1,000 inhabitants		Number of rural births per 1,000 inhabitants in proportion to number of urban births (percentage)
	In cities and urban-type settlements	In rural localities	
1913	31.7	49.1	154.9
1926	34.1	46.1	135.2
1928	30.2	47.5	157.3
1955	23.5	27.4	116.6
1959	22.0	27.8	126.4
1961	21.2	26.5	125.0
1962	20.0	24.9	124.5

38. Between 1913 and 1962, the difference between the urban and rural birth rates declined by a factor of more than 3.5. In the future, as socialism develops into communism, the socio-economic and cultural differences between urban and rural areas will gradually disappear and the birth rate differential will, as a reflection of those differences, obviously disappear at the same time.

39. There are substantial differences in the age structure of the urban and rural populations. The following table shows (as percentages of the total) the three main age groups in which the population of the Soviet Union was distributed according to the figures for the censuses of 1926, 1939 and 1959:

Table 5

	1926		1939		1959	
	Urban	Rural	Urban	Rural	Urban	Rural
TOTAL POPULATION	100.0	100.0	100.0	100.0	100.0	100.0
Below working age	31.6	41.4	30.9	40.8	27.5	33.1
Of working age (16-59 for men, 16-54 for women)	61.1	50.1	61.8	49.9	62.2	53.0
Above working age	7.2	8.5	7.3	9.3	10.3	13.9

40. A smaller proportion of the urban than of the rural population is below or above working age, and the working-age group is larger in the urban than in the rural population.

41. The lower urban birth rate causes a decline in the below-working-age group. The higher proportion of persons of working age in urban areas is largely attributable to migration, since it is a well-known fact that migrants from rural to urban localities tend to include a higher proportion of persons of working age.

42. The great majority of industrial, construction, transport and communications enterprises, the largest commercial enterprises, higher and secondary specialized educational establishments, scientific research institutions and the highest organs of state administration are concentrated in the cities.

43. This has brought about differences in the employment and, hence, in the socio-economic structure and educational level of the urban and rural populations.

44. According to the figures for the 1959 census, persons engaged primarily in manual work comprise 69 per cent of the working population in the cities and 88 per cent in rural areas, while the respective figures for those engaged primarily in non-manual work are 31 per cent and 12 per cent; 82.5 per cent of all urban workers and 16.9 per cent of all rural workers are employed in material production, industry, construction, transport and communications, while 6.3 per cent and 78.9 per cent, respectively, are employed in agriculture and 10.4 per cent and 3.4 per cent, respectively, are employed by commercial or public catering establishments, in procurement, or in the supply and sale of materials and equipment.

45. Of the urban working population, 66 per cent are manual workers, 30.5 per cent are

non-manual workers and 3.3 per cent are collective farmers, while the respective figures for the rural population are 31.9 per cent, 10.5 per cent and 57.3 per cent.

46. The following table shows the contrasting educational levels of the urban and rural populations according to the figures for the Soviet censuses of 1939 and 1959:

Table 6

	Urban and rural population combined	*Urban population*	*Rural population*
Number of persons per 1,000 inhabitants having:			
A complete higher education:			
1939	6	16	2
1959	18	32	6
An incomplete higher education, a secondary education or an incomplete secondary education:			
1939	77	162	37
1959	263	344	188

47. At the beginning of the 1914-1915 academic year, i.e., before the Revolution, there were 105 higher education establishments with a total of 127,000 students in what is now the territory of the Soviet Union. At the beginning of the 1963-1964 academic year, the Soviet Union had 741 higher educational establishments with a total of 3,258,000 students. During the same period, the number of specialized secondary educational establishments increased from 450 to 3,625, i.e., eightfold, and the number of students attending them from 54,000 to 2,981,000, i.e., by a factor of fifty-five; the number of students attending general schools of all types increased by 360 per cent. This expansion of general and specialized education in the Soviet Union has raised the educational level of the population. In the number of students attending higher educational establishments per 10,000 inhabitants, the Soviet Union has out-distanced the most advanced Western countries. It graduates almost three times as many engineers as does the United States.

48. Although the gap between the educational levels of the urban and rural populations of the Soviet Union was narrower in 1959 than it had been in 1939 and will continue to decrease with the building of a communist society, the 1959 census figures showed that the number of persons with a higher education per 1,000 inhabitants was still 5.7 times as great in the urban as in the rural population and the number with a secondary education 1.8 times as great.

49. The concentration of the urban population in a few very large cities is a process which occurred at one time in pre-revolutionary Russia and is still occurring at an accelerating pace in many of the countries of western Europe, America and Asia. It is particularly accentuated in the industrially advanced countries, where a substantial part of the entire population is crowded together in a few large cities. Thus, 14 per cent of the population of Japan lives in Tokyo and Osaka, the country's two largest industrial centers, 15 per cent of the population of the United Kingdom in London and its suburbs, 16 per cent of the population of France in Paris and its suburbs etc.

50. The concentration of masses of the population in large cities, which results from the uneven distribution of industry, has in its turn the effect of hampering the rational development of industry, preventing the proper utilization of manpower resources, and complicating the task of providing communal facilities and creating normal sanitary and hygienic conditions for the urban population. This is apparent, in particular, in the growth of slums, the substandard nature of much of the available housing and the deterioration of housing conditions in many large Western cities.

51. In the Soviet Union, before the Second World War and especially during the post-war period, substantial success has been achieved in overcoming the uneven distribution of industry and, at the same time, of the urban population. As a result of the rapid development of industry in the eastern regions, the population of the Urals, Siberia, the Far East, Central Asia and Kazakhstan increased from 22.9 per cent of the total population in 1939 to 28.6 per cent in 1959. This process will continue in the Soviet Union under conditions of planned economic development of the formerly backward regions of the country through the utilization of new sources of raw materials and power. The urban population of these regions will increase as the older cities develop and new cities and urban-type settlements emerge.

52. The introduction of new technology will make it possible for part of the able-bodied population of the old industrial areas to be released and added to the manpower resources of the new regions.

53. This will be accompanied by an effort to limit the growth of the larger cities by curtailing and, in the case of some branches of industry, halting the construction of new enterprises in those cities. New enterprises will be built in smaller cities, where the emergence of satellite towns will help to restrict the flow of population into the large cities. The same end will be served by the transfer from large to medium-size and small cities of some existing enterprises, educational establishments and scientific research institutions which are not directly connected with the main sectors of local industry and of the urban economy.

54. Study of the demographic aspects of city planning is of great importance for the developing countries. At the present time, the urban population still represents a very small proportion of those countries' total population. Whereas that proportion is 50 per cent in Europe, 64 per cent in North and Central America and 72 per cent in Australia and Oceania, it is only 19-22 per cent in Asia and Africa.

55. The developing countries still constitute a raw materials base for the industrially developed countries, supplying them, for the most part, with agricultural products for industry. The developing countries are at present making a great effort to develop their own industry.

56. Industrialization, as we have seen, leads to increased migration, an increase in the urban population and, at the same time, in the number of women employed in social production, a rise in the cultural level of the population etc., and this ultimately produces a change in one of the main demographic indicators, that is to say, a decline in the birth rate. That fact should be kept in mind in making long-range population projections and in planning economic and social development.

Effects of migration on the growth and structure of population in the cities of Latin America

ZULMA CARMEN CAMISA

[Translated from Spanish]

1. The results of the last two population censuses taken in most Latin American countries around the years 1950 and 1960 indicate the rapid population growth in the big urban agglomerations. It has been estimated that by the end of the decade there were twenty population clusters of over 500,000 inhabitants with a total of 34 million people, that is, approximately 16 per cent of the population of the region. During the inter-censal period the rates of growth of some of those population clusters exceeded 6 per cent per year. Similar or even higher rates of growth have been observed in a few cities which have not yet reached half a million inhabitants. These facts underline the importance of migration to the cities as one of the processes which may accelerate the rate of increase of their populations.

2. This paper attempts to measure the net migration which took place during the decade 1950-1960 in six urban agglomerations of Latin America situated in countries at different levels of economic development: Greater Buenos Aires in Argentina,[1] Greater Santiago in Chile, the Metropolitan Area of Caracas in Venezuela, the Federal District of Mexico in Mexico, the City of Panama in Panama and Guyaquil in Ecuador. The results obtained should be regarded only as an approximate assessment of the effect of migration, since the estimated net migration is a residual which is directly affected by all the errors and discrepancies in the basic data.

3. The procedure known as the "survival ratio technique" has been applied: it calls for the tabulation by sex and age of the total population of the country and the population of the area under study at the beginning and end of the period. That information was obtained from the relevant census results. As used in this study, the technique means that the survival ratio of the country's population computed for the decade also represents the mortality level of the population of the city in question during the same period.

4. The survival rates for each age group made it possible to estimate the net migration, differentiating between the observed and "expected" population in each age group in 1960. However, the total figure for each age group does not include the net migration of persons who were under 10 years of age in 1960, a fact which detracts somewhat from the results obtained. Table 1 shows the age structure in 1960 and the distribution by sex of migrants in the last decade estimated for each area.

[1] In this paper, the term Greater Buenos Aires refers to the city of Buenos Aires together with the parts of the province of Buenos Aires officially designated as Greater Buenos Aires.

Table 1. Six urban clusters of Latin America: percentage distribution by age of net migration during the period 1950-1960 and number of males for every 100 females in each age group

Age in 1960	*Greater Buenos Aires (Argentina)*[a,b]	*Greater Santiago (Chile)*[a]	*Metropolitan area of Caracas (Venezuela)*[b]	*Federal District of Mexico (Mexico)*	*City of Panama (Panama)*	*City of Guayaquil (Ecuador)*[a,b]
	Percentage distribution by age Migrants of both sexes					
10-60 and over	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
10-14	10.8	8.4	8.5	21.5	11.3	20.9
15-19	13.5	19.4	17.4	21.8	26.9	23.4
20-24	14.7	23.3	23.3	24.0	23.5	19.1
25-29	14.0	17.8	18.0	13.3	11.6	8.1

Table 1. Six urban clusters of Latin America: percentage distribution by age of net migration during the period 1950-1960 and number of males for every 100 females in each age group (*continued*)

Age in 1960	*Greater Buenos Aires (Argentina)* [a, b]	*Greater Santiago (Chile)* [a]	*Metropolitan area of Caracas (Venezuela)* [b]	*Federal District of Mexico (Mexico)*	*City of Panama (Panama)*	*City of Guayaquil (Ecuador)* [a, b]
30-34	12.5	8.7	11.7	10.4	7.7	11.5
35-39	12.4	4.5	7.7		5.6	
40-49	8.6	7.2	7.3	2.3	5.7	7.6
50-59	7.7	5.5	4.2	1.9	3.7	3.0
60 and over	5.8	5.2	1.9	4.8	4.0	6.4
	Number of males for every 100 females					
10-60 and over	*99*	*68*	*103*	*91*	*63*	*83*
10-14	103	60	66	90	57	73
15-19	80	52	91	57	50	74
20-24	91	62	163	72	67	82
25-29	126	91	137	119	100	118
30-34	120	121	129	258	94	94
35-39	112	91	118		91	
40-49	86	69	42	407	51	95
50-59	71	62	33	158	35	89
60 and over	100	41	20	52	30	76

[a] Since the inter-censal period did not correspond exactly to the decade under review, the population enumerated had to be projected so as to include the period 1950-1960.

[b] The results of the last census used in estimating the number of migrants are taken from samples.

5. In the Federal District of Mexico, Guayaquil and the City of Panama, the greatest volume of migration occurred among persons under 25 years of age, who represented 60 per cent of the total number of migrants. For Greater Buenos Aires, they represent under 40 per cent. That area shows a somewhat uniform migration structure by age up to the age of 40. On the other hand, the relative size of the different groups in the other areas varies more markedly.

6. The masculinity ratio among migrants indicates differences in sex distribution by age, but they are not uniform in the areas considered. Generally, a higher selectivity is found in the migration of women. However, there is a predominance of male migrants between 20 and 40 years of age in the Metropolitan Area of Caracas and between 25 and 40 years of age in Greater Buenos Aires. This is because the estimated net migration includes both nationals and foreigners and the masculine selectivity characteristic of international migration raises the general migration index in the areas under consideration. On the other hand, it is difficult to explain the factors which may account for the excessively high figures obtained for the Federal District of Mexico in the age group between 30 and 60, although they might be due to errors in the basic data, mainly in the structure of the female population enumerated in 1950.

7. The effect of the sex and age structure of migrants on the population of each area may be measured by comparing each migrant group with the population of the same age (see table 2). A significant example is the Metropolitan Area of Caracas where the net masculine migration represented approximately 64 per cent of the total number of men between the ages of 20 and 24 enumerated at the beginning of 1961. For that same age group, the proportion of migrant women in the total number of women enumerated was 48 per cent.

8. A rate of increase as a result of migration for the period 1950-1960 was computed by establishing the ratio between the estimated number of migrants and the population obtained as an average between the total population at the beginning of the decade and the population over the age of 10 at the end of the decade. That rate was reduced to an average annual rate on the assumption that the distribution of migrants was uniform throughout the period of migration. The rates obtained may be compared with the rates of total increase in the area concerned:

Table 2. Six urban clusters of Latin America: percentage representing net migration during the period 1950-1960 of the population of the same sex and age in 1960 and average yearly rates of increase as a result of migration during the same period

Age in 1960	Greater Buenos Aires (Argentina)		Greater Santiago (Chile)		Metropolitan area of Caracas (Venezuela)		Federal District of Mexico (Mexico)		City of Panama (Panama)		City of Guayaquil (Ecuador)	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Percentage representing net migration during the period 1950-1960 for the population in 1960												
10-60 and over	*20.3*	*19.7*	*15.0*	*17.6*	*34.5*	*33.6*	*19.0*	*18.4*	*14.3*	*20.5*	*25.2*	*27.5*
10-14	23.8	23.9	7.9	12.8	17.4	24.9	24.3	25.9	10.3	17.1	27.6	35.7
15-19	28.1	33.4	18.9	29.7	43.7	44.3	22.7	33.8	25.0	39.3	36.4	42.6
20-24	31.7	34.2	29.0	36.2	63.8	48.0	31.0	37.0	30.0	37.2	38.3	39.3
25-29	30.7	24.4	29.3	25.3	52.9	42.7	25.5	18.7	21.6	18.8	22.0	17.0
30-34	27.2	22.1	16.5	11.3	36.6	32.6	16.0	5.7	14.5	14.0	17.2	17.1
35-39	26.0	23.2	9.2	8.2	29.1	28.2			10.6	11.5		
40-49	10.0	10.9	7.8	9.1	11.7	27.6	6.5	1.4	4.7	9.2	17.4	17.1
50-59	9.6	13.1	8.1	10.5	10.5	27.6	5.6	3.1	4.5	11.8	10.4	11.7
60 and over	9.6	8.3	7.1	11.0	5.8	14.9	10.3	13.1	4.4	11.9	24.8	25.1
Average yearly rates of increase as a result of migration during the period 1950-1960 (per 100 persons of the age shown in 1960)												
10-60 and over	*2.1*	*2.1*	*1.5*	*1.9*	*4.0*	*3.9*	*2.0*	*1.9*	*1.5*	*2.2*	*2.8*	*3.1*
10-14	2.7	2.7	0.9	1.4	1.9	2.9	2.7	2.9	1.1	1.9	3.2	4.3
15-19	3.2	4.0	2.0	3.5	5.5	5.8	2.5	4.0	2.8	4.9	4.2	5.3
20-24	3.7	4.1	3.2	4.4	9.2	6.4	3.6	4.5	3.6	4.7	4.6	4.9
25-29	3.6	2.8	3.3	2.9	7.1	5.3	2.9	2.0	2.5	2.1	2.4	1.9
30-34	3.1	2.5	1.7	1.1	4.4	3.8	1.7	0.6	1.6	1.5	1.8	1.8
35-39	3.0	2.6	0.9	0.8	3.3	3.1			1.1	1.2		
40-49	1.0	1.1	0.8	0.9	1.2	3.1	0.6	0.1	0.5	0.9	1.8	1.8
50-59	0.9	1.4	0.8	1.0	1.0	3.1	0.5	0.3	0.4	1.2	1.0	1.1
60 and over	0.8	0.7	0.6	1.0	0.5	1.4	0.9	1.1	0.4	1.1	2.3	2.4

	Average annual rate of increase, 1950-1960 (per 100 inhabitants)	
	Total	*As a result of migration (over 10 years of age in 1960)*
Metropolitan Area of Caracas	6.2	4.0
City of Guayaquil	5.4	2.9
Federal District of Mexico	4.6	2.0
City of Panama	4.0	1.9
Greater Santiago	3.8	1.7
Greater Buenos Aires	2.9	2.1

As was to be expected, the cities whose population has grown most rapidly have the highest rates of increase as a result of migration. Greater Buenos Aires is a special case in that its population growth is attributable mainly to this factor.

9. Table 2 shows the estimated rates of increase as a result of migration by sex and age group. They allow for the fact that migrants who in 1960 were between $x + 10$ and $x + 14$ years of age come from cohorts who were 10 years younger in 1950. The rates computed refer to ages in 1960. The areas studied have one common feature: the marked selectivity of young adults. However, within the group, the structure varied according to sex and to area.

10. The highest rates of the group of cities are those of the Metropolitan Area of Caracas. The maximum rate (9.2 per cent annually) applies to men who were between the ages of 20 and 24 in 1960. That rate indicates that out of every 100 men who were between 20 and 24 years of age at the end of the decade, approximately nine represent the positive annual balance of those entering and leaving the area between 1950 and 1960.

11. It should be noted that, generally speaking, in the Metropolitan Area of Caracas the masculine rates for each age group between the ages of 15 and 40 are higher than the masculine rates in the other areas. The same is true of feminine rates estimated for age groups between 15 and 60. The highest female rate, both for the area and for the whole group of female migrants, occurs in the group between 20 and 24 years and amounts to 6.4 per cent annually; then it declines up to the age of 40 and remains constant thereafter at the relatively high figure of 3.1 per cent annually.

12. The area with the second highest migration rates is the City of Guayaquil where migration is already marked from the age of 10 onwards and higher among women than men.

13. Another striking feature is the relative uniformity in the rates obtained for Greater Buenos Aires: they fluctuate between 2.7 and 3.0 per cent for men under 40 and between 2.7 and 4.1 per cent for women of the same age group.

14. The 1960 census results made it possible to analyse the over-all effect of net migration in Greater Buenos Aires up to the time of the census, a distinction being made between native Argentinians and foreign migrants.

15. Out of the 7 million persons enumerated in Greater Buenos Aires in 1960, only 49 per cent were natives of the area. Of the remaining 51 per cent, 57 per cent were Argentinians born elsewhere in the country and 43 per cent were foreigners.

16. The effect of differential migration as regards sex may be seen from the following masculinity ratios:

	Males for every 100 females, 1960
Total population enumerated in 1960	98
Native population	100
Net migration of Argentinians	87
Net migration of foreigners	109

17. The results obtained indicate the importance of migration in the cities of Latin America. The differential features observed in the six urban clusters are an incentive for a much more detailed analysis of this process. It would be useful not only to extend the analysis to other urban centres, but to complement it with an investigation of the causes of the migration process.

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Induction effects in the growth of large agglomerations

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[*Translated from French*]

I. THE FUNCTIONS OF THE ACTIVE POPULATION IN A LARGE AGGLOMERATION

A. *Total population and active population*

1. The growth of large urban agglomerations is the result of present-day economic and technological conditions. Production activities which are strictly confined to a given place, such as mining and agriculture, are suffering a relative loss of importance, while activities which are fostered by the proximity of the people they serve (trade and services in particular) are providing an increasing amount of employment.

2. Let P be the total population of an agglomeration and A the employed active population.

3. As a general rule, A and P are linked by relatively stable demographic and social relationships and, save in exceptional cases, the economic functions of the town are closely related to the size and distribution of A. In certain cases, however, the inactive population can have a true economic function, as, for example, when it contains a large number of retired persons with relatively high incomes. This can occur when living conditions (climate, urban facilities) are particularly attractive in the town concerned. We then find that the ratio of active population to total population is abnormally low, and this ratio will vary because of economic change much more than because of demographic change. Except in these particular cases, however, the activity rate of an agglomeration evolves very slowly.

B. *The structure of the active population*

4. A preliminary analysis divides urban activities into those which produce goods for export from the town and those whose function is to satisfy directly the needs of the town's population. However, a sharp line cannot always be drawn between these two types of activities. While it is obvious that the retail food trade is generally a local activity and that the automobile industry is an "exporting" industry (in the sense that it sends its goods out of the agglomeration), classifying other activities, such as certain types of wholesale trade and certain food industries, is not quite so easy.

5. Let E be the exporting active population, i.e., that portion of the active population producing goods which will leave the agglomeration.

6. Of the active population which works more or less directly to satisfy the needs of the local population, we shall single out that portion whose activity is linked to urban growth, which we will call the active population concerned with growth and designate by the letter G. The remainder of this group will be called the induced population and designated by the letter I. We then have the following equation:

$$A = E + I + G$$

C. *The functions of the exporting active population:* E

7. While the major part of the industrial population of towns has an exporting function, the same is true for an appreciable portion of commercial and service activities. Detailed analysis of these activities brings us to a consideration of urban hierarchical functions and specializations. Leaving aside the political capital of a country, where there are obviously activities of a very special type, we can distinguish three different functions in a large agglomeration: the national, the regional and the local.

8. The local function is exercised within a radius of fifty kilometres. It includes specialized commercial activities (for example, trade in industrial goods) and private and public services (for example, general hospitals and specialized educational establishments).

9. The regional function, strictly speaking, is exercised only in very large towns—those which in France are known as regional capitals. These towns have management functions (they are the sites of the head offices of enter-

prises and the regional offices of large companies) and highly specialized activities (there are, for example, research offices of various kinds). The regional zone of influence embraces several zones of local influence.

10. The national function is much more varied. It is not strictly essential to the urban function, but in practice it always exists, either because it was the original cause of the town's development or because it arose as a result of urban concentration.

11. In this paper, we shall consider only the exporting active population as a whole; however, any study of the growth of a particular town should deal separately with its local, regional and national functions.

D. *The functions of the induced population:* I

12. This segment of the active population provides services to the population of the agglomeration itself. It includes the major part of retail trade activities, but not all of them.

13. A portion of retail trade meets the needs of the population which is within the town's zone of local influence. If tourism is a major factor in the agglomeration concerned, it, too, will foster the development of commercial activities.

14. On the other hand, the induced population is not confined to persons who are engaged in retail trade or providing direct household services. In a large agglomeration, trade and services of these kinds are sufficiently extensive to promote the establishment of other induced activities, such as wholesale trade, industrial services, and maintenance and repair activities. Indeed, certain industrial activities are induced by a large, concentrated market; this is particularly true of the food and clothing industries.

15. We may assume, as a first approximation, that the extent of these activities is largely proportional to the total population of the agglomeration: P. However, it must be borne in mind in more detailed analysis that this induced population is in fact dependent on the agglomeration's level of consumption and, hence, on its population and standard of living. The size of I also depends on its productivity, which is generally low where the general standard of living is low.

16. Thus, the actual size of the induced population may vary considerably, and its evolution depends on trends in productivity, in the population of the town and in per capita consumption.

17. It will, however, be practical as an initial approach to assume that the size of the induced active population varies in proportion to that of the total population.

E. *The functions of the active population concerned with growth:* G

18. We are concerned here with the active population induced by the growth of the agglomerations, which includes a large segment of the active population engaged in housing production, but not all of it, since the maintenance and reconstruction of old housing can employ large numbers, even in an agglomeration with a constant population. The spread of the town also involves public works: the construction of urban roads and of electric, water-supply and telephone systems.

19. Many activities are probably affected by urban growth in actual fact, but we have been able to show the latter's influence on only the building industry and public works (see part II, section C). We shall proceed on the assumption that the population concerned with growth (G) varies in proportion to the change of the total population (dP).

20. It must be realized that this means disregarding two factors: first, variations in productivity in the building industry and, secondly, the fact that housing or facilities may be completed behind (or ahead of) schedule.

21. However, the effect of productivity growth in the building industry is unquestionably very much diminished—or even nullified—by the growth of consumption per dwelling unit, i.e., through improvements in housing and related facilities as the town develops. Variations in the state of housing in relation to needs represent only temporary trends which may well have a substantial effect on the development of a particular agglomeration but can be disregarded when studying a long-term growth model.

22. Thus, the assumption of a proportionate relationship between the active population concerned with growth (G) and the change of the total population (dP) reflects a rather theoretical situation and disregards the discontinuities which actually occur. It can be modified when a particular town is under study but can be used for the purpose of determining an over-all pattern.

II. Measurement tests

A. *Area of observation*

23. These tests are designed to measure the two coefficients of proportionality:

(*a*) The coefficient linking the induced active population (*I*) to the total population (*P*);

(*b*) The coefficient linking the active population concerned with growth (*G*) to the annual variation in the total population (*dP*).

24. For purposes of the tests, a study was made of the distribution by economic activity of the forty agglomerations in France with more than 100,000 inhabitants. The actual statistical population of the agglomerations varies from 97,000 inhabitants (Besançon) to 7.4 million (Paris). The employed active population varies in relation to the total population from 27 per cent (Bruay-en-Artois) to 48 per cent (Paris). The most frequent figure is approximately 40 per cent.

25. The data were taken from the 1962 general population census (using a sample fraction of 1/20).

B. *Measurement of the relationship between* I *and* P

26. For the purpose of determining this relationship, it was assumed that the active population in each branch of activity represents the sum of the induced population and the exporting population. By computing the ratio in each town between the population engaged in any given activity and the total population, a set of forty ratios was obtained for each branch of activity. These ratios are highest where the exporting population is largest.

27. Given the diversity of the economic structures of the forty agglomerations studied, it can be assumed that the lowest ratios occur in cases where the exporting population in a given activity is virtually non-existent. If the ratios are listed in increasing order of magnitude, we also note that there is a clear division, the location of which varies according to the activity concerned, between the seventh and eleventh ratio.

28. In addition, it was observed that most of the ratios were abnormally low in eleven agglomerations; these were either highly industrialized agglomerations dominated by the coal or the iron and steel industry or towns in which the navy and merchant marine played a dominant role (chiefly Brest and Toulon). The general activity rate of these towns is, for the most part, abnormally low.

29. The special activities of the agglomerations in question probably bring about a decrease in the induced population, which is due in particular to the existence of communal services connected with the dominant activity. In addition, some of these agglomerations (Bruay-en-Artois, for example) are not really large towns at all, and their urban facilities are situated in neighbouring agglomerations.

30. The ratio finally adopted was that for the first quartile (between the tenth and eleventh agglomerations as listed in ascending order of magnitude), except in the case of engineering industries, for which the ratio for the seventh agglomeration was adopted because there was an extremely clear-cut line of division, and in the case of the building industry and public works, for which the ratio for a stable population was used (see the following paragraph).

31. A reduction of 10 per cent was then made in the ratios for surface transport, non-food trade (wholesale and retail), services to private individuals and public administration in order to eliminate any trace of local influence on these activities in which local influence is particularly strong.

32. The following rates were obtained per 1,000 inhabitants:

Building industry and public works	20
Engineering industries	7
Engineering and electrical repairs	3
Food industries	7
Clothing	5
Leather and furs	1
Wood and furniture	2
Printing and reproduction industries	2
Surface transport	12
Agricultural and food trade (wholesale)	4
Agricultural and food trade (retail)	13
Other wholesale trade	7
Other retail trade	18
Hotel industry	8
Commercial and industrial agencies	1
Banking and insurance	5
Services to companies	2
Domestic services	9
Services to private individuals	25
Water, gas, electricity	3
Communications, radio	4
Public administration	25
TOTAL	183

SUMMARY

Building industry and public works	20
Industry	27
Transport	12
Trade	42
Services	57
Public administration	25
TOTAL	183

It is thus apparent that:

$$I = 0.183\ P$$

C. *Measurement of the relationship between* G *and* dP

33. A systematic effort was made to find whatever correlations might exist between the ratios studied above and the annual rate of population growth of the agglomerations, the latter being measured from population changes between 1954 and 1962. The only correlation observed relates to the building industry and public works. For this activity, the number of members of the active population per 1,000 inhabitants varies in a definitely linear manner with *dP*, following the progression: 20 + 0.7 *dP*.

34. Accordingly, 20 was taken as the induced population in the building industry and 0.7 as the ratio between the active population concerned with growth and the annual population increase.

$$G = 0.7\ dP$$

D. *Over-all results*

35. The results obtained can be summarized in the following equations:

$$A = 0.4\ P$$
$$A = E + I + G$$
$$I = 0.183\ P$$
$$G = 0.7\ dP$$

in which P = the total population of the agglomeration
A = the employed active population
E = the "exporting" active population
I = the "induced" active population
G = the active population "concerned with growth".

The numerical values obtained for the coefficients are obviously given as examples. They can vary and must be adapted to each town studied. The values used here will enable us to construct a growth model, and in any case the qualitative results will still be valid since the coefficients can vary only within relatively narrow limits.

III. CONSTRUCTION OF A GROWTH MODEL

A. *Exporting population* (E) *constant, cœfficients constant*

36. If we eliminate P, I and G from the equations in part II, section D, we obtain the basic equation:

$$A = 1.85\ E + 3.22\ dA,$$

in which dA is the annual variation in the active population, corresponding to dP, which is the annual variation in the total population.

37. If E is constant, then the only appropriate solution is:

$$A = 1.85\ E$$
$$dA = 0$$

The active population is constant, and, hence, so is the total population.

B. *Exponential increase of* E, *coefficients constant*

38. We assume that the exporting active population (E) increases by g per cent annually (constant rate).

39. The basic equation is still valid:

$$A = 1.85\ E + 3.22\ dA$$

We find that the exponential increase of A and P is at the same annual rate of g per cent. The active population concerned with growth remains proportional to the total active population, for example, the exporting active population (E) increases by 2 per cent annually. We then find that A and P increases by 2 per cent annually and the distribution of the active population is as follows:

$$E = 0.507\ A$$
$$I = 0.458\ A$$
$$G = 0.035\ A$$

This distribution remains constant throughout.

C. *Effects of increases in the induction cœfficients*

40. If consumption increases at a higher rate than productivity, the induction cœfficients will also increase.

41. If we assume, for example, that the induction cœfficient of I increases by 1 per cent annually, then the growth rate of the total population (P) is substantially higher than that of E.

42. Thus, if E increases by 2 per cent annually, the total population will increase by approximately 2.7 per cent annually. If the annual rate of increase of E is only 1 per cent, then that of P will be 1.8 per cent.

43. These are approximate results, since the actual growth of P is at a slightly higher rate than that of exponential growth; the exact figures should therefore be calculated for each specific case.

The urban growth of Cap-Vert, Dakar

OUMAR DIA

[*Translated from French*]

1. Recent studies by the National Statistical Service indicate that by 1980, at its present rate of growth, the population of Dakar will reach the figure of 1.3 million, representing a quarter of the total population of Senegal. This is, however, simply an extrapolation of the historical growth rate. The use of direct surveys as a working method calls for a more analytical approach, in which the two factors entering into the growth rate—natural growth and migratory movement—must be measured. First of all, however, we must define the present geographical limits of the Cap-Vert region, which is a wider and demographically more important area extending well beyond Rufisque.

POPULATION GROWTH IN THE NEW TERRITORY (EMBRACING DAKAR AND FIFTY VILLAGES)

2. The new reorganization of the national territory places the far limit of the "Greater Dakar Commune" at Sebikotane.

3. According to the findings of the 1960-1961 surveys, the population of Cap-Vert in July 1961 was 443,580, including 45,640 non-Africans, in an area of 550 square kilometres with a density of 807 persons per square kilometre. While the population of the country's urban areas numbers approximately 705,000 and represents 23 per cent of the total population, Cap-Vert alone accounts for 12 per cent of that total. However, it must be borne in mind that Dakar has been in existence for barely seventy-five years. Its annual growth rate, which has been remarkably stable since 1890, is between 6 and 7 per cent. In twenty years, at this rate, Dakar will have a population of 1.275 million, representing a quarter of the total population of Senegal. The only data available for measuring the natural movement of the population of Cap-Vert are the birth rate (45 per 1,000) and the death rate (8.6 per 1,000). The relevant coefficients are computed from the balance of births and deaths of the total population without taking the age structure of the population into account. Studies have shown that the Cap-Vert pyramid based on those coefficients has all the characteristics of a population with heavy immigration in the age groups between twenty and forty-five years, which are, of course, the reproductive generations.

4. The following figures, based on surveys carried out by the Senegalese Statistical Service, show the extent of migration into Cap-Vert from other regions as at 1 July 1961:

Table 1. African population by age and place of birth

Age	*Place of birth*		*Total*
	Cap-Vert	*Other regions* [a]	
Under 1 year	16,100	680	16,780
1-4 years	58,800	6,580	65,380
5-9 years	52,540	9,340	61,880
10-14 years	27,300	8,080	35,380
15-19 years	14,800	14,240	29,040
20-29 years	22,200	48,980	71,180
30-39 years	17,000	39,680	56,680
40-49 years	11,340	19,560	30,900
50-59 years	6,760	10,640	17,400
60-69 years	3,440	4,720	8,160
70 years and over	3,000	2,280	5,280
TOTAL	233,280	164,780	398,060

[a] Casamance, Diourbel, Fleuve, Eastern Senegal, Sine Saloum, Thiès, foreign or unreported.

5. Further evidence of this numerical trend can be found in the vital statistics recorded at Dakar for the African population only:

Live births	
1961	19,005
1962	19,978
1963	21,807
Deaths: up to 1 year	
1961	1,697
1962	1,664
1963	1,809
Deaths: all ages	
1961	5,199
1962	4,786
1963	5,286

6. The number of registered births thus increased by nearly 15 per cent between 1961 and 1963. The total number of deaths cannot be regarded as a good indicator of mortality because of the large proportion of adults in the population owing to constant arrivals from up-country areas, but this is not true of infant mortality (the number of deaths under one year per 1,000 live births).

7. The infant mortality rate can be computed by means of various formulas which will not be described here. Only the comparative results are given below:

INFANT MORTALITY RATE AT DAKAR
(AFRICAN POPULATION)

Number of deaths per 1,000 live births

	1961	*1962*	*1963*
Annual rates			
First method	89	83	83
Second method	92	85	85
Average monthly rates			
First method	95	85	86
Second method	93	84	85

8. The results are thus quite consistent with each other. The present rate can be taken as 85 per 1,000. This gives us a highly satisfactory over-all level of mortality, since the infant mortality rate of 85 per 1,000 can be taken to reflect a life expectancy at birth of about 60 years. The death rate at Dakar is greatly below that for Senegal as a whole.

9. It may be noted that the infant mortality rate at Dakar for the period 1942-1945 was 175 per 1,000. Thus, infant mortality was cut in half in some twenty years' time.

10. Natural growth and migratory movement are accordingly the two causes of the increase in the population of Cap-Vert.

11. It is clear from the foregoing that different forecasts can be made for the size and structure of Cap-Vert's population by the year 1980. The minimum estimate calls for a population of 900,000 while the maximum figure is between 1.2 and 1.3 million. The various forecasts can be regarded as plausible, the degree of their validity being likely to depend above all on the power of attraction of the secondary urban centres. This in turn will depend on the latter's absorptive capacity, and if nothing is done in this regard it is likely that the rural population will not be attracted to the secondary centres and will migrate towards Dakar.

12. It may be noted that the distribution of Cap-Vert's working population over 14 years of age was as follows on 1 July 1961:

(*a*) Africans, male: 113,580, out of 853,220 for Senegal as a whole;

(*b*) Africans, female: 110,600, out of 930,540 for Senegal as a whole.

13. The effects of the increase in population are particularly evident in education and in the social behaviour of children and young people. The increase is bound up with the collapse of traditional social institutions and a loosening of family ties. It is also the result of economic changes which are accompanied by changes in cultural patterns. New needs create urgent problems of education and child health care.

14. To combat disease and ignorance, Senegal allocates a large part of its budget (6,600 million out of a total of 40,200 million francs CFA in 1962-1963) to education and public health.

15. According to data issued by the Ministry of National Education, school enrolment for Senegal as a whole is 35.3 per cent. It is 75 per cent in the Cap-Vert region (444,580), whereas in the urban area of Diourbel, with a population of 503,106, it is only 16 per cent. The proportional enrolment of girls is twice as high in Cap-Vert as in Diourbel.

16. The increase in the younger population of Cap-Vert creates a danger of neglect, which will grow with the years. For the economist as for the educator, the two most effective means of controlling and maintaining the integration of young people into society are education and vocational training carried out on the basis of careful planning.

Problems encountered in forecasting housing demand in an area of high economic activity: headship rates in relation to age structure, fertility, education and socio-economic groups

D. E. C. EVERSLEY and VALERIE JACKSON

1. The need to forecast future housing demand has led to a good deal of work on the rate of household formation. Most of this consists of attempts to analyse total future populations by the probable composition of family units and household groups not organised into families. Until the Housing Report based on the 1951 Census [1], no precise information was available as to the propensity of different groups of the population (according to age, sex and marital condition) to form independent households. The 1951 census, however, made it possible to calculate headship rates (i.e., the proportion of each age group returned as heads of households), which varied from 97.3 for married males aged 60 + to 3.64 for single, widowed and divorced persons of both sexes aged 15-39.

2. The principal commentaries on these figures have been those of Cullingworth [2] and Needleman. [3] On the basis of this work more recent British forecasts of future demand have been made. [4] It is here intended to examine the basis of these forecasts.

3. Until this detailed information became available, it was usual to base the analysis of needs on a complex dynamic calculation of the changing household composition, over time, of a hypothetical stationary population, according to current and expected trends in mortality and fertility. [5] Indeed, at that time, official expectations [6] were still that the post-war boom in the birth rate would soon subside, and that eventually there would be a smaller total population. Moreover, no special assumptions were made about expected levels in the standard of life, so that no demands were made on the total housing resources other than the implied requirement that each family unit should have its own dwelling, of a size and type appropriate to its need.

4. The later analyses, however, were made in the light of the facts as they were seen in 1961: a rapidly growing population, which had already exceeded the expected 1971 total and was likely to continue to grow, possibly at an increasing rate; rapidly rising standards of living and consequent changes in space demands; immigration on a larger scale than previously envisaged, and internal redistribution of the population, with movement away from the fringe areas and into the large conurbations and their immediate vicinity.

5. Under these circumstances, the approach of the investigators was quite different: dividing present and expected future populations into the groups by age, sex and marital conditions, headship rates were calculated for 1951 and projected into the future on various assumptions. The general basis of this work was the belief that the rate of household "fission" which had taken place since the beginning of the century would decline. It was supposed that much of the drop in average household size, from 4.36 in 1911 to 3.01 in 1961, was due to declining fertility, i.e., fewer children per household, [7] and that since this drop would not continue and might in fact be reversed, the rate of fall would henceforth be much smaller.

[1] United Kingdom, *Census, 1951: England and Wales: housing report* (London, 1956).

[2] J. B. Cullingworth, "Household formation in England and Wales", *The Town Planning Review*, vols. XXXI-XXXII (1960-1961), pp. 5-26; and J. B. Cullingworth, *Housing needs and planning policy* (London, Routledge & Kegan Paul, 1961).

[3] L. Needleman, "A long-term view of housing", *National Institute Economic Review*, vol. XXVIII (1961), pp. 19-37.

[4] O. W. Roskill, *Housing in Britain* (London, Town & Country Planning Association, 1964).

[5] S. P. Brown, "Analysis of a hypothetical stationary population by family units", *Population studies*, vol. IV (1951), pp. 380-394, and Ruth Glass and F. G. Davidson, "Household structure and housing needs" *Population Studies*, vol. IV (1951), pp. 395-420. These calculations are still essential in estimating the housing demand of a given population. Cf. London County Council, *The planning of a new town* (London, 1961).

[6] United Kingdom, Royal Commission on Population, *Report* (London, H.M. Stationery Office, 1949).

[7] L. Needleman, op. cit., p. 20.

Thus, Needleman estimated that whilst in fifty years there had been a decadal average fall of household size of 0.27 persons per household, the next twenty years would see a fall of only 0.04 persons per decade, or on his "maximum assumptions", 0.08 persons per decade.

6. Since these papers were published, more information from the 1961 census has come to light, and it is also possible to make some international comparisons. Both approaches lead to the conclusion that existing accounts greatly underestimate the likely rate of new household formation. In order to test the earlier figures, we first applied the actual and hypothetical headship rates given to the age structure of a number of areas within the West Midlands. We found very considerable variations within the region, suggesting that national average figures provided little guidance for future trends. The best way to summarize our results in outline is to say where the different areas stood, in 1961, in relation to (*a*) the 1951 national headship rates; (*b*) Needleman's "medium" assumptions for 1980; (*c*) his "maximum" assumptions.

7. From table 1 it emerges that although all the areas had progressed, i.e., considerably from the 1951 pattern, they had not all done so equally. The region as a whole, after ten years, had progressed nearly half-way towards the thirty-year "medium" target, the three industrial counties just under halfway, the conurbation just over a third, and Birmingham just one third. This of course is a reflection of overcrowding and land shortage at the centre, and a comparatively much easier housing situation in the outer fringe areas. (It must be remembered that differences in age and sex structure are fully discounted by this method, except for the percentage of children under 15, with which we shall deal below, and that this refers exclusively to private households, i.e., takes no account of variations in institutional populations.)

8. We then examined the newer areas of the conurbation only, i.e., the relatively favoured outer-residential suburbs (with a population about 15 per cent of the conurbation total). The situation there was that by 1961 the number of households was already 75 per cent of the way between 1951 and the 1980 medium assumptions. Breaking this down still further, we found that some areas known to us to contain relatively the highest income groups had in fact already surpassed, in 1961, the 1980 targets. At the other extreme areas with particularly depressed social characteristics achieved less fission by 1961 than 1951 national headship rates would have inferred.

9. At this stage, we tested whether these results were related to the known fertility of the newer residential areas. Our first approach to this question was to take merely that proportion of the population which did not enter into the headship rate calculations (i.e., those under 15). We then found that within the whole group the proportion was 24.6 per cent and household size 3.112. One area had a considerably higher proportion of children (29.7 per cent) and a household size of 3.302, another a very much lower proportion, 21 per cent, and a household size of 3.034. But a number of other areas with child populations within a fraction of one percent of the average for this type of area had quite substantial variations in household size, so we decided to apply correlation tests to this and a number of other variables to all 24 districts within the conurbation.

10. We regarded household size in 1961 as the dependent variable and related several other variables to this. These are set out in table 2 with the correlation coefficient between household size and each variable and an indication of the significance level reached. The percentage of population aged 60 years and over showed the closest correlation with household size and the fertility ratio coefficient also reached the 1 per cent level. Following this the correlation with the percentage of persons under 15 years is significant at about the 2½ per cent level. Thus far it seems that demographic factors show closest correlation with household size but the two remaining significant factors indicating educational and socio-economic status are each significant at about the 3 per cent level, with values of -0.480 and -0.470, respectively. The conclusion at this stage must be that both factors are important and that further analysis is needed to make finer comparisons.

11. We therefore set out a more detailed estimation procedure which excludes the effect of interdependence between variables, in so far as this is possible in the current experimental position. We considered at this stage only those variables showing significant correlation with household size in 1961 and furthermore we excluded two variables on the score that they correlated closely with another variable included in the analysis. By excluding the data on socio-economic groupings which was highly correlated with that on terminal educational age ($r = 0.958$) we have sought to avoid the logical difficulties associated with interdepen-

dence in a situation which cannot be subjected to the desirable randomized experimentation procedures. Similarly, the information on percentage of population under 15 years is excluded because it is closely associated with the percentage of population of 60 years old and over ($r = -0.856$).

12. Thus a partial regression system was drawn up relating household size in 1961 to the following three variables:

(*c*) The fertility ratio;

(*d*) Terminal educational age;

(*e*) The percentage of population 60+ years.

Here we have four variables which are mainly independent of each other (there is room for some small amount of interdependence between variables (*b*) and (*c*), but on the whole the requirements of independence between variables hold).

13. Using a linear multiple regression system we found a multiple regression coefficient of 0.869, which thus explains just over 75 per cent of the variation in household size and is highly significant. This value of R exhibits a fairly good degree of fit when we consider that there are some authorities within the study area where land shortage creates conditions which are particularly adverse to household fission, although the demographic and social features of the area would lead us to expect fission there.

14. The partial regression equation is as follows:

$$Y = 2.827 + 0.653\,X_c - 0.051\,X_d - 0.027\,X_e$$

where Y = household size and the X subscripts indicate the variables referred to immediately above. All the partial regression coefficients are significant at beyond the 0.1 per cent level and the mean values of Y and the three independent variables are 3.182, 1.285, 2.067 and 14.048. Using the average values of X_c, X_d and X_e to estimate average household size we find that the fertility ratio and the percentage of population 60+ years are the variables which make the most substantial contributions ($Y_e = 2.827 + 0.653 \times 1.285 - 0.051 \times 2.067 - 0.027 \times 14.048 = 2.827 + 0.839 - 0.105 - 0.379 = 3.182$). Although all the partial correlation coefficients are significant the contribution of terminal educational age is small because the percentage of persons educated to this level is only about 2 per cent on the average for the study area.

15. When we say "small contribution", we mean this of course in relation to the present population whose terminal educational age reaches 20+ years. But there are particular areas in the conurbation where the percentage of these persons is already considerably higher, and for every one percent increase here we shall expect average household size to fall by —0.05 persons. In other words, if the proportion of the population of terminal education age 20 plus reaches 5 per cent instead of the present average of 2 per cent, then we shall expect average household size to decline by 0.153 persons, an increase to 10 per cent infers a fall in average household size of 0.408.

16. We are also expecting the percentage of the population in the sixty-plus group to rise, and as we have seen, this will also affect household size considerably: If the proportion of population in the sixty-plus group rises by 1 per cent, household size will fall by 0.027 persons per household. Thus if the population in that group rises from the average of 14.05 per cent to 20 per cent, we shall expect household size to fall by 0.16 persons.

17. On the other hand, the high regression coefficient of 0.653 for X_c has to be interpreted in terms of how much variation we can expect in the fertility ratio and the measure is so defined that the extent of expected variation must be small. Within the study area the highest value occurring for the fertility ratio was 1.454 and this occurred in a designated "overspill" area: even if average fertility reached this high level, and we think this is unlikely, average household size would only increase by 0.11 persons per household.

18. It now appears that terminal educational age and the aged population will have more affect on average household size than changes in fertility. We have already referred to the high correlation between educational and socio-economic status. A second partial regression system using the latter measure instead of the former, variable "*f*" instead of variable "*e*" in the first notation, gave a similar regression equation where the effect of socio-economic status is even more important than educational status was previously ($Y = 2.905 + 0.608X_c - 0.088X_f - 0.028X_d$. All regression coefficients significant beyond 0.1 per cent; $R = 0.855$).

19. To sum up this part of the analysis: the areas which now have the smallest household size are those with most children or fewest old people, those with the highest proportion of persons in the two top socio-economic groups and of persons with higher education. But it is the proportion of the latter types which is increasing most rapidly, and it is in

the areas where they are concentrated that the new pattern is most visible. Whilst in the long run there may be some slight increase in fertility, and a slow aging of the population, we shall almost certainly see a much faster rise in the proportion of those in professional and managerial occupations, and, most of all, of those who receive further education. The effects of these various factors we have measured, and we now understand even from our limited local British experience why household size is falling so rapidly.

20. We further note that for the West Midlands, in 1951, headship rates for some of these groups were already well above the national average: e.g., over 83 per cent for widowed and divorced females 40-59 (nationally 77.6 and thought by Needleman to be incapable of higher demand rates). There is, in fact, no natural maximum rate for any particular group. The headship rate for the single widowed and divorced group of both sexes (25-39), nationally, was 11.9 per cent in 1951 and is assumed to rise to 30 per cent by 1980. But this is a large group (1,378 m. in 1980) and such lower headship rates imply that the remainder will all be able to find lodgings in private households, or continue to live with their parents. With the tendency towards smaller dwellings we see both in this country and in Sweden and Germany, this assumption is by no means justified. Increasing incomes also mean that fewer people will want to take lodgers even if they can find room for them.

21. At this stage, we extend our analysis to Sweden and the Federal Republic of Germany. We had begun to form the hypothesis that given higher living standards and the availability of suitable dwellings for the elderly, single persons and small households, the degree of sharing and lodging which still obtained in England would soon resolve itself into separate households. We therefore applied the British 1951 and 1980 medium and maximum headship rates to the age, sex and marital structure given in the Swedish and German censuses [8] of 1960 with the following results:

22. From table 3 we see that Sweden's average household size of only 2.843 persons (2.75 in densely populated areas) is not, as has been assumed, mainly or wholly due to a small birth-rate, but to much higher headship rates amongst the eligible adult population. Germany has just surpassed the total to be expected on the 1980 British maximum headship rate assumptions, and has a household size of 2.9 persons, but here differences in fertility are even less important.

23. In fact, Swedish population under 15 was about 27 per cent of the total, the figure in Germany was 22 per cent, and in the West Midlands conurbation 23.3 per cent. In other words, Sweden, despite a higher proportion of children, has smaller household size than either Britain or Germany, and it is hard to resist the conclusion that this is due to their general standard of living, and to the availability of suitable small dwellings for those who wish to have them.

24. Certain practical conclusions emerge from this work:

(*a*) Projections of household on the basis of a stationery population are in any case ruled out;

(*b*) Projections based on assumptions of a declining rate of fission are open to doubt when substantial middle-class housing areas in an industrial region had, by 1961, practically attained the degree of fission envisaged for 1980;

(*c*) This progress has been attained despite the fact that in the region as a whole there were severe housing and land shortages so that fission has been inhibited severely except for a relatively small section of the population;

(*d*) Analysis of household sizes shows that whilst a very high child population certainly leads to larger households, and a very old population to small ones, the main determinant of household size will be income and status, and educational attainment. This suggests that if a large part of the population attains, by 1980, the real income enjoyed by the professional and managerial classes in 1961 (which on the basis of a 4 per cent annual increase in national productivity it should do), we can expect fission to accelerate;

(*e*) In particular, if land is made available and the rate of housebuilding is accelerated, fission will also accelerate, and we can expect household sizes more nearly like those attained in Sweden and West Germany.

25. We still wait full analysis of the 1961 census to see what the effective headship rates were in different areas, but the global results given here indicate the trends quite clearly.

[8] Federal Republic of Germany, Statistisches Bundesamt, *Statistisches Jahrbuch fur die Bundesrepublik Deutschland, 1963* (Wiesbaden, 1963), beilage, pp. 5-6; Statistika Centralbyraan, *Statistik Årsbok för Sverige, 1963* (Stockholm, 1963), table 240.

Table 1. Estimated number of households (in thousands); 1961 population subjected to various headship rates

Area	*1951 national headship ratcs*	*1961 actual headship ratcs*	*1980 "medium" assumption*	*1980 "maximum" assumption*	*1961 [a] achieve-ment in terms of 1980 medium assumption (Per cent)*	*1961 [a] achieve-ment in terms of 1980 maximum assumption (Per cent)*
Midland region	1,409	1,469	1,536	1,589	47	33
Counties of Warwick, Worcester, Stafford	1,284	1,339	1,401	1,448	47	33
Birmingham [b] conurbation ...	698	721	761	787	37	26
Birmingham City	327	337	356	370	33	23
New conurbation	100	108	110	113	74	58
Solihull [c]	28.4	30.3	31.0	31.8	74	51
Stourbridge	13.2	14.1	14.4	14.8	76	56
Sutton Coldfield [c]	21.6	23.6	23.6	24.3	100	75
Tipton [d]	11.0	10.8	12.1	12.4	–23	–17
Bilston [d]	9.8	9.6	10.6	10.9	–31	–21

[a] The change from 1951 to 1961 is expressed as a percentage of the total expected change for 1951 to 1980 on both assumptions.

[b] I.e., the continuously built up area which forms the industrial centre of the Midlands.

[c] Residential suburbs of Birmingham under separate administration.

[d] Old industrial settlements in the Black Country.

Table 2. Correlation coefficients and significance levels: Midlands 1961

Independent variables	*Correlation coefficients*	*Significance levels (Per cent)*
(*a*) Ratio; 1951 household size to 1961 household size	0.188	Not significant
(*b*) Percentage of population under 15 years	0.498	2½
(*c*) Ratio; population under 15 years to female population 15-49 years (fertility ratio)	0.541	1
(*d*) Percentage of population 14+ years with terminal educational age 20+ years...	–0.480	3
(*e*) Percentage of population 60+ years...	–0.554	1
(*f*) Percentage of male population in the Registrar-General's socio-economic groupings I and II (mostly managerial and professional classes)	–0.470	3

Table 3. 1961: age, sex and marital structure in Sweden and Germany subjected to British headship rates

	Actual households	*On Great Britain, 1951*	*On Great Britain, 1980 medium*	*On maximums*
		(in thousands)		
Sweden	2,582	2,167	2,296	2,388
Sweden: densely populated areas only	1,939	1,605	1,745	1,754
Federal Republic of Germany (excluding Berlin)	18,370	16,261	17,693	18,328

The demographic distinctiveness of recently settled areas as exemplified by the Polish western and northern territories

LESZEK KOSIŃSKI

1. This discussion is limited to the area incorporated into Poland in 1945, frequently referred to as Oder-Neisse area and former Free Corridor of Danzig. The area of 103,000 square kilometres amounts to one third of Poland's territory.

I. TOTAL GROWTH OF POPULATION

2. The pre-war population of 8,900,000 included a Polish minority estimated by Polish sources at 1,250,000. Official pre-war German statistics indicated a sudden drop in the number of Poles, in contradiction to the results of post-war verification as well as confidential data found after the war.

3. The population of this area increased during the war as a result of the concentration of Germans evacuated from the bombed territories and of prisoners and forced labourers. At the end of 1944, evacuation and a flight of the German population began. In addition, war activities during the winter of 1944 caused serious losses. Planned mass transfer of Germans organized according to the Potsdam Agreement in 1945 to 1949 included approximately 3,000,000 from the whole of Poland. Remaining Germans gradually left thereafter. The total number of Germans in Poland was estimated to be approximately 3,000 in 1962.

4. The area has been resettled almost completely. The former population was represented by Poles, former German citizens who were subject to verification (more than one million). Many inhabitants of the overpopulated rural areas and destroyed towns and cities of Central Poland, repatriates from the Soviet Union (especially from the former Polish eastern territories) and re-emigrants from western and southern Europe especially France and Germany moved rapidly to the western and nothern areas.

5. Initially immigration formed the main component of population growth. In 1946 the housing capacity of the heavily destroyed area (rural areas 28 per cent, towns and cities about 50 per cent) was exhausted. Nevertheless, immigration continued strongly until 1949 and arriving Poles replaced departing Germans. Demographic phenomena reflected the territorial origin of the population which varied in different parts of the area.

6. After 1950, natural increase was the chief factor in the total growth of the new population, which amounted to 8,200,000 by 1963.

II. AGE STRUCTURE AND NATURAL INCREASE

7. The demographic distinctiveness of the newly settled area was reflected especially in the age structure. After the period of resettlement was complete, the population of the northern and western area was characterized by a high proportion of young adults and children born after the war.

8. It should be emphasized that the age structure of the population in 1950 varied according to the territorial origin of the population and the economic character of the area. Territories inhabited by the indigenous population had a lower proportion of young adults and younger children. This reflects the fact that during the war, only an insignificant decline of fertility occurred but after the war, because of the low proportion of young adults (especially men) post-war compensation processes hardly occurred. The areas settled by the repatriates arriving as family groups also had higher share of older adults and children of seven to eighteen years old. The areas settled by the persons from Central Poland had the most distinctive "pioneer" age structure which varied according to the economic character of the area.

9. The favourable age structure contributed to the high natural increase The only exception were the areas with a high share of indigenous population which had lower crude birth rates although the age-specific fertility recently has been higher in these places. As a result the northern and western territories experienced a fast growth of the young population at the relative expense of the adults. The process of aging was relatively slow. The proportion of

men is still higher in these territories than in the rest of the country.

10. The rate of natural increase has recently declined in all the country; the drop has been caused by the decrease in birth rates. Even in 1963 the northern and western territories still had higher rates of natural increase. This was caused by higher birth rates, reaching in some areas to 49 per cent. High fertility not only reflected a favourable age structure but also higher fecundity. The number of births per 100 women in the reproductive age reached 16 in *voivodship* Szczecin in 1950 to 1951. Standardized ratios of fecundity are also higher in the west, both in urban and rural areas; as a result, gross reproduction rates are highest particularly in the rural areas.

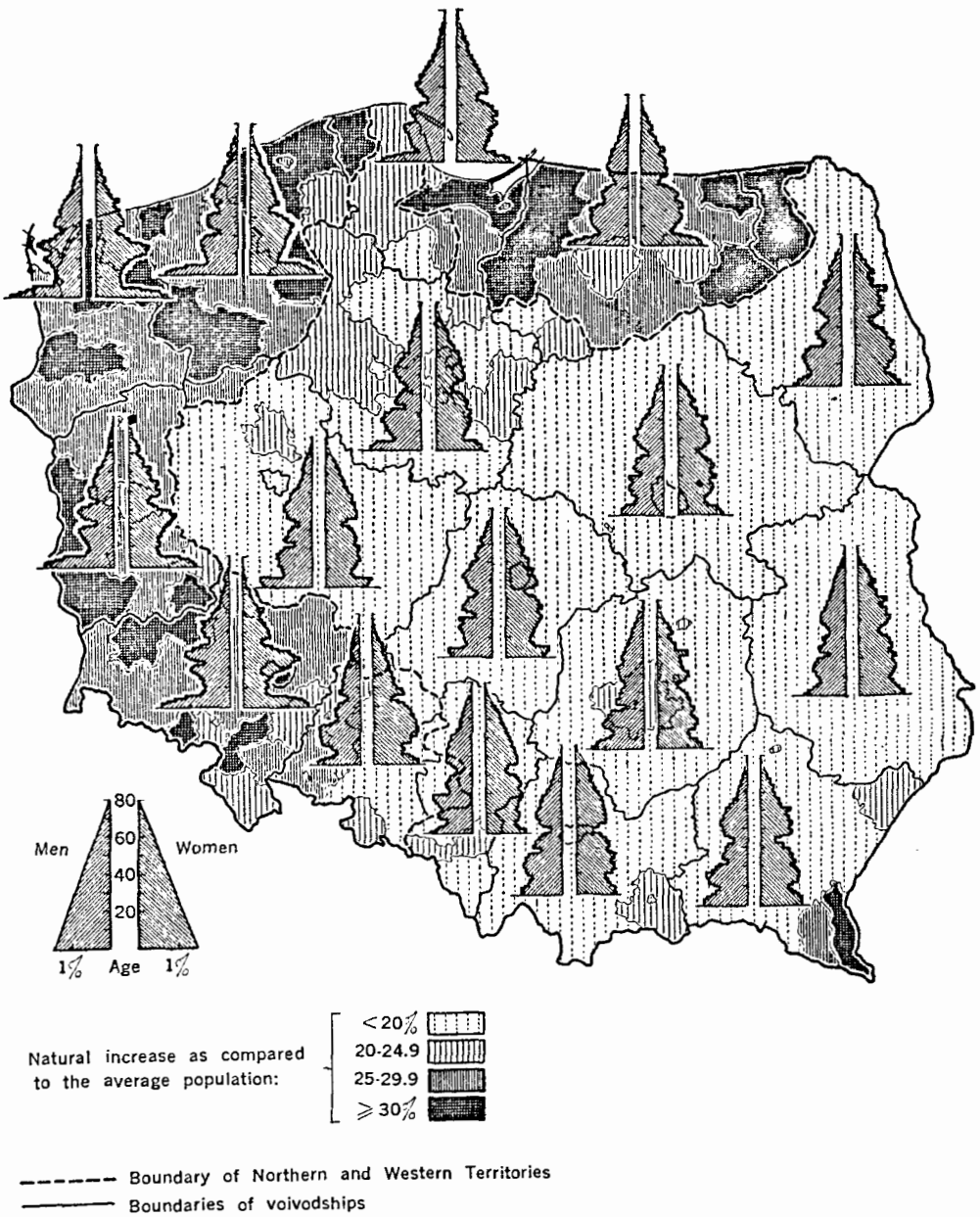

Figure 1

Age and sex structure in 1950 and natural increase during 1951-1960

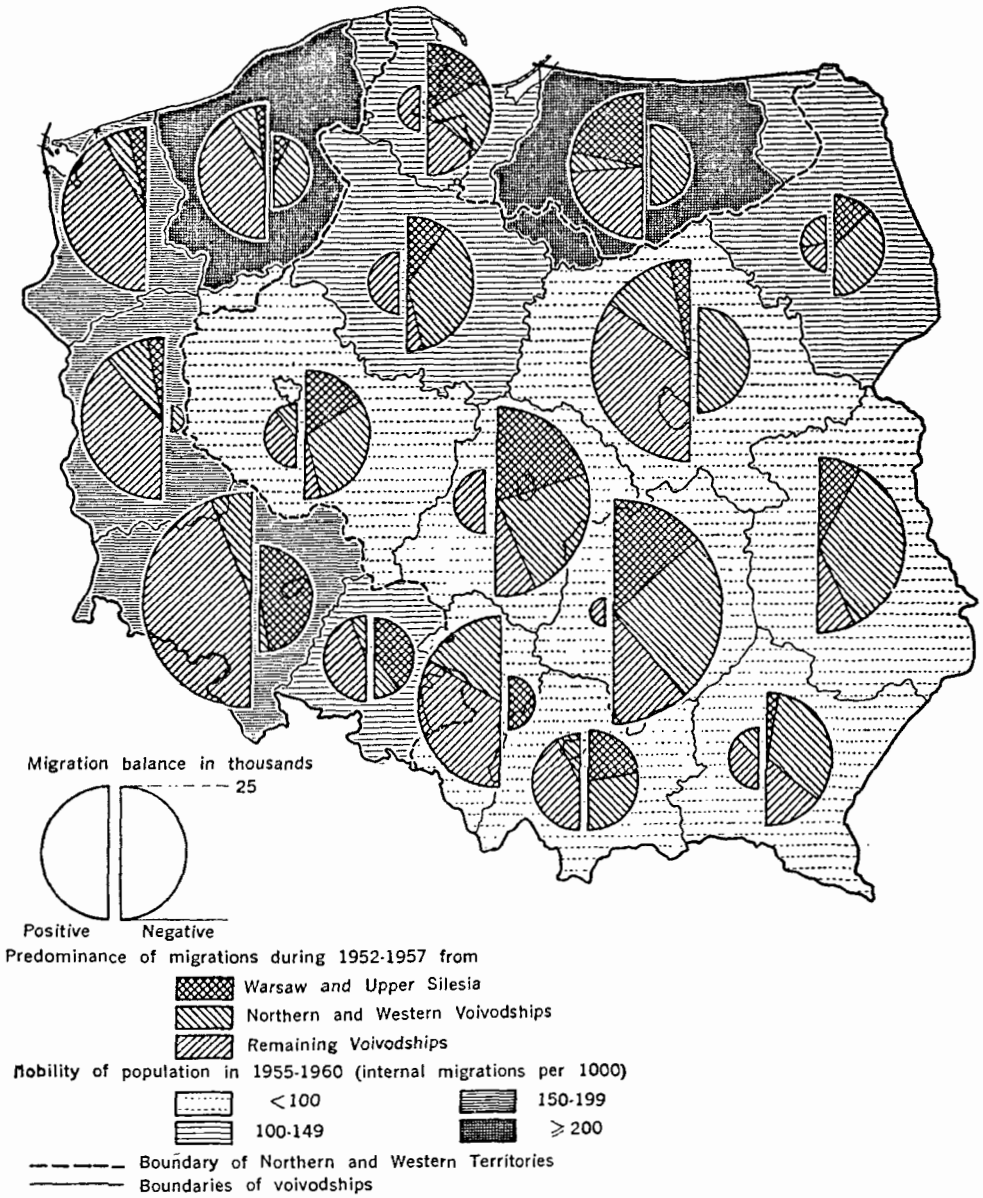

Figure 2

Mobility of population and directions of internal migrations in Poland

11. The high level of fertility can be explained by the compensation processes which continued for a long time. On the other hand, there is no doubt that an important role was played by the structural changes of the society which occurred with great intensity in the northern and western territories. The policy of the state assisted a rapid compensation for the war losses by favouring bigger families (family allowances, paid maternity holidays etc.).

III. Mobility of population and internal migrations

12. As could be expected, the general mobility of population was much higher in the recently settled area. Analysis based on migrations among the administrative units of the lowest rank showed that the northern and western territories were characterized by migratory gains whereas the central and eastern voivodships showed migratory losses.

This phenomenon reflects the spatial pattern of the Polish economy.

13. In the eastern and central voivodships the mobility of the population remained on the steady level of about 50 to 70 per thousand whereas in the northern and western ones the mobility was decreasing from above 200 per thousand to 150 per thousand. Nevertheless, differences of mobility among various *voivodships* are still quite substantial. Migration net balances in most cases do not exceed 10 per thousand and as a result have not influenced demographic trends in any major scale. This was true even in cases when the migration balances were relatively high.

14. Inter-*voivodship* movements prove the attraction of the northern and western areas. Newcomers originate mainly from the center and the east of the country. Although recently settled areas do experience occasional losses, the migration is to other western regions or main urban and industrial centres, Warsaw and Upper Silesia.

15. Recent external migrations (repatriation from the Soviet Union and departures of Germans or members of separated Polish families) were strongest in the west. Net loss of 95,000 was concentrated entirely in the northern and western territories. It is, however, hardly 1 per cent of the total population and even in *voivodships* mainly affected (Katowice and Opole) migrational losses did not surpass 4 per cent.

IV. Urbanization and industrialization

16. The area under discussion is experiencing a strong development of mining and manufacturing industries in contrast to the pre-war period when it was an agricultural appendix of Germany. Increasing industrialization is reflected in the increase of number of towns and urban settlements and their character. The total number of the population of the western territories is now slightly lower than before the war, but the urban population is 12 per cent higher. (Number of urban population: 1939, 4,215,000; 1946, 1,925,000; 1963, 4,702,000.) As a result the share of urban population is substantially higher: 58 per cent in 1963 as compared to 47 per cent in 1939 and 38 per cent in 1946. All larger towns, except not fully reconstructed Wroclaw (80 per cent destroyed), have more inhabitants than in 1939. Urbanization is especially rapid in the industrialized south. It should be stressed that the urban population of western and northern territories includes 31 per cent of the urban population of the entire country, although the proportion of the total population (urban and rural) is much lower, only 26 per cent.

V. Conclusions

17. The resettlement of a large area by a new population has caused a special demographic situation. Population is younger here and more dynamic. Although the differences between this area and the rest of the country are decreasing, the distinctiveness of the area remains. Increasing industrialization and urbanization undoubtedly will slow the reproduction of population. On the other hand, growing towns will attract population which will increase mobility. The supply of manpower will be extremely large, which should influence decisions pertaining to the location of new investments.

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A new type of urban housing in France: the large housing projects

YVES LACOSTE

[*Translated from French*]

1. Since about 1954, a considerable part of the growth of French towns, and of the greater Paris area in particular, has been taking place in new forms, notable for their originality and their great size and generally known as "large housing projects" (large complexes of tenement houses). These are residential units, each of several hundred dwellings. Most of these units comprise more than 1,000 dwellings; some ten of them already comprise more than 10,000 dwellings each. Thus, the city is no longer growing exactly as it once did—through the gradual juxtaposition of small housing operations, each of some twenty or thirty dwellings; it is growing through a process involving the erection of very large residential units in very short periods of time. The large French housing projects, which are similar in several respects to those which have been built in Italy, Great Britain, the Netherlands, Scandinavia, the people's democracies and the Soviet Union, are one of the forms of a mass urbanism which reflects the importance of the city as a phenomenon and the accelerated growth of cities in modern civilization.

2. In France these large housing projects stand out very sharply from the other forms of urban landscape because of the great size and modern architectural style of their buildings, which are either four-storey buildings several hundreds of metres in length or fifteen- to twenty-storey towers. The originality of the silhouette of these large residential units is due not only to the size and style of the buildings but also to their layout: the buildings are separated by large lawn, garden, and automobile parking areas, and this open and bold town-planning contrasts sharply with the traditional type with its dense mass of small buildings packed one against the other along the streets.

3. We need to find a minimum quantitative threshold on which to base an objective definition of the large housing project as a type of urban housing. The large housing project is defined for the most part by reference to a qualitative criterion—that of relative autonomy. The two types of criteria, it may be observed, are today rather closely linked. The large housing project is a mass of dwellings organized as a single complex. This unity of organization derives not only from the town-planner's over-all plan but from the presence of community services (schools, shops, social centre etc.). The first units, built about 1955 and 1956 under the influence of a narrow conception of housing inherited from the individualistic tradition of detached apartment-block and villa construction, had hardly any such services; they had to be installed as well as possible later on. Today, ideas of housing have broadened considerably, and schools, shops and community services are regarded as indispensable complement to dwellings; more and more frequently, the installation of community services accompanies the construction of any body of dwellings of more than a given size. These various services are generally absent, or of small extent, in housing units of less than 1,000 dwellings (or approximately 4,500 inhabitants), since there would not be enough users to make them economic. It must be noted, however, that in France the autonomy of the large housing project has, up to the present, been viewed only in terms of some aspects of consumer and educational activities. In the main, the working members of the large housing project are not employed on the spot, and travel a greater or lesser distance to work; the large housing project still plays a very large part in the dormitory town phenomenon.

4. The large housing project, then, is a relatively autonomous residential housing unit, composed of apartment-houses, constructed in a short time as part of an over-all plan, and comprising more than 1,000 dwellings. Theoretically, the many unorganized conglomerations formed by the fortuitous or intentional combination of adjoining small real estate operations must be excluded from the category of genuine large housing projects, designed as such. These masses of dwellings came into being anarchically, in the absence of any over-

all plan, and in most cases lack the necessary community services. It is difficult to take a census of these large fortuitous groups, since administratively they are recorded only as separate small operations.

5. At the beginning of 1963 there were 187 fully completed large housing projects (each comprising more than 1,000 dwellings), making up a total of 228,000 dwellings housing more than 1 million persons (an average of four to five persons per dwelling). There are fifty large housing projects in the greater Paris area; these make up a total of approximately 100,000 dwellings, or 43 per cent of the total number of dwellings built in France as part of large housing projects.

6. What are the reasons for the emergence of this new type of urban housing, the large housing project, after 1954? To answer this question satisfactorily, we must first recall the very serious housing shortage which has existed in France for many years. The large housing project arose as a means of alleviating this shortage.

7. The shortage became so serious that, private enterprise having proved incapable of solving it alone, public or semi-public organizations were compelled to take large-scale action: they tried to reduce the gap between the price an average household could pay for housing and the amortization of the average construction price by lowering the latter. They had recourse to three principal methods which explain several important features of the large housing projects:

(*a*) The use of funds obtained at low interest, and accordingly from non-profit institutions;

(*b*) The reduction of land purchase costs by the use of areas to some extent neglected by land speculators and by building tall structures occupying much less land than individual dwellings;

(*c*) The use of large-series construction methods: the scale of the operation permits better site organization and the employment of various high-productivity methods (the use of heavy prefabricated parts, for example).

8. The large project is a type of urban housing by means of which certain poorly housed or homeless social classes may be provided with relatively satisfactory housing thanks to the reduction in building costs made possible by the use of a small area of inexpensive land, the application of large-series construction methods, and the use of funds not advanced for profit-making purposes.

9. The large housing project is not an architectural or town-planning ideal but an expedient designed to alleviate a very serious housing shortage. Nevertheless, such projects are being violently criticized. The newspapers print numerous articles on what is called the "tragedy" of the large housing projects, which are pictured as dreary barracks and the haunts of *blousons noirs* (young hooligans). Their residents are said to suffer the evils of cramped accommodation, deficient school and shopping facilities, and overcrowding and isolation alike. There is no doubt that the large housing projects are not perfect and little doubt that the first to have been built are particularly defective. But what is really surprising is that every feature of the large housing projects should be thought to be negative despite the defects of the old type of housing. In a period of serious housing shortage, these new, sanitary apartments, which all have central heating, bathroom, and individual toilet, and enough rooms for the size of the family (family with one child: two rooms and kitchen; with two children: three rooms and kitchen; with three children: four rooms etc.), and which thus provide living conditions much better than those offered by most of the former dwellings, are denounced, at times in really passionate terms. The most serious aspects of the housing shortage (the many slums, the miserably inferior equipment provided, the unfair rents exacted for sub-leases and furnished apartments) are on the whole less vigorously criticized than the defects of the large housing projects, although these offer a means of alleviating the housing shortage for the social classes which suffer its effects most severely (young couples, large low-income families).

10. However, there is much evidence to show that those who live in the large housing projects are not so dissatisfied with their housing. For example, a poll of the tenants at Sarcelles (a large housing project of 10,000 dwellings to the north of Paris) showed that 77 per cent of the 1,200 heads of families questioned were satisfied with their housing; on the other hand, they criticized the transportation services and the shopping facilities. Many similar examples could be cited. [1]

11. Just as there is an automatic prejudice in favour of the small one-family house surrounded by its little garden—to such an extent that the sociologist Henri Lefebvre can speak of the "one-family house myth"—so, conversely, the large housing projects are the victims

[1] The author, who has been living for six years in a large housing project, shares this opinion.

of a prejudice, a myth, in this instance of a pejorative kind, which did not come into being by chance. Very large real estate operations of this kind do not favour the interests of the speculators; they are too costly for many small building companies; and they are carried out by a small group of powerful architects. Real estate agents, small businessmen, notaries, architects etc., favour a building policy which encourages the proliferation of small-scale operations, and they constitute a "pressure group" which wages an active campaign against large housing projects designed to slow up, if not to stop, their construction.

12. What are the principal charges made against the large housing project? First, that it is too large. However, matters are no better —and are often worse—in smaller groups of housing, which lack social and shopping facilities. Certainly, the first large housing projects erected about 1956 and 1957 lacked facilities in the early years of their existence. Today, residents in most large housing projects are better provided with individual and community services (mainly social and school facilities) than the average French citizen. There is still some shortage of shopping facilities; but the shortage is much worse in small one-family house districts. The other defects for which the large housing projects are criticized are just as characteristic of other forms of modern housing: the noise, the overcrowding, the cramped living space are disadvantages which exist in old buildings and small modern buildings as well as in buildings in large housing projects. The large housing project has, as it were, been made the scapegoat for the sins of modern building methods (poor quality, small dimensions)—sins which are equally present, level for level, in one-family houses, small buildings, and the huge buildings of large housing projects. Yet there are some large housing projects of good quality.

13. We must also reject out of hand a charge frequently made against the large housing projects: that their residents live in social isolation, that there are no social relations such as exist in the old urban districts. We must bear in mind the newness of the large housing projects: in most cases, residents have lived in them for only two or three years and still do not know each other well. As time passes, there are obvious signs of increasing social integration (greater participation in group activities, local political affairs, sporting and cultural events).

14. Some authors think that large housing projects encourage the development of mental disturbances, nervous depression and neurasthenia, particularly among women residents. Undoubtedly, such problems do exist among the occupants of large housing projects. However, it remains to be proved that age group for age group the proportion of sick persons is greater in the large housing project than in other types of housing in the older parts of the cities and their suburbs. In point of fact, psycho-sociological studies carried out in large housing projects have focused attention on a situation which is not peculiar to this particular type of housing but is actually characteristic of the great majority of people living in large French towns and cities. Their living conditions are very difficult and trying to the nerves: daily working hours are too long, output rates have been pushed to high levels, daily travel time to work is excessive, and consequently family dissociation takes place. The last two factors are particular accentuated in the suburbs, which is precisely where the large housing projects are built.

15. The principal cause of the sense of frustration experienced by people living in the large housing projects is the boredom of the women, who either spend all day alone in their homes or have to add exhausting travel to the already heavy burden of combining jobs with maternal duties. Another contributory cause is the absence of the men, who leave home early in the morning and return late and tired in the evening. These problems affect all suburban residents (i.e., three quarters of the population of greater Paris, for example) whether they live in small one-family houses or in large housing projects. In the latter case, however, the problems are usually greater, because of the conditions in which large housing projects are established. They have to be built on inexpensive land, and since they comprise several hundred, if not several thousand, dwellings, vast vacant sites are needed. Such large inexpensive sites are only available at fairly large distances from the centre of town, and generally at some distance from the main traffic arteries, whose immediate surroundings have usually been built up for several decades. The residents of large housing projects therefore generally have particularly serious transportation problems. In the great majority of cases, the sites of large housing projects have been selected according to the land available, without regard to the transportation problems that the choice may entail. The carelessness, the result of the survival of narrow ideas of town-planning, has serious consequences. In greater Paris, a number of large housing projects are more than an hour away from the centre of the

city, and more than two types of transportation have to be used to reach them. It is easy to understand the sense of isolation felt by the people living in such projects and the growth in automobile ownership; in some large housing projects the private automobile is the only acceptable means of transportation, although it is very costly and very slow because of traffic congestion. These transport problems particularly affect women responsible for the care of children, and as a result a sharp decline is taking place in the number of employed women, with repercussions on household finances.

16. As a great many investigations have shown, the problems which most concern people living in large housing projects are those of transportation; and next in importance comes the inadequacy of facilities in relation to numbers of residents. This inadequacy stems from lagging investment and a lack of co-ordination between the programmes and approaches of various administrative departments.

17. Most of the criticisms advanced against large housing projects relate to their size; the main cause of the frustration felt by residents, some believe, is the very size of the projects—the number of dwellings concentrated in them. The projects are said to be defective because they are too large. To be sure, some large residential units are faced with great problems; but, for the most part these are large housing projects in which community facilities are manifestly inadequate in relation to the number of residents. In many cases the trouble is not that the projects are too large but that they are inadequately equipped. On the other hand, the problems besetting any project comprising a small number of dwellings are no less troublesome, for the number of tenants or co-owners is not large enough to support the requisite services and facilities. Among large housing projects of various sizes built at the same time the proportion of defective units is undoubtedly greater in small operations than in very large housing projects.

18. Although they have their defects, large housing projects seem to be the most effective present answer to the housing shortage. It is estimated that 8 million dwellings will have to be built before 1980 to meet the requirements of economic and social demographic evolution. This is a large figure when it is considered that only 3 million dwellings have been built in the last twenty years and that in 1961 the total number of urban dwellings was 12 million. A massive housing effort will therefore have to be made in the next few years, and at present it seems very probable that large housing projects will play an essential part in that effort. In point of fact, the number of such projects now being constructed or planned is already very large. In four or five years' time, according to estimates, there will be approximately 480 large housing projects embracing more than 1 million dwellings, or nearly 5 million residents.

Demographic indicators helping to determine the demand for housing and their practical use

G. D. PLATONOV

[*Translated from Russian*]

1. Housing construction is undertaken on a large scale in every part of the Soviet Union. During the last six years of the current seven-year plan, more than 12 million new, well-equipped dwellings have been built in cities and rural localities with State funds or through private financing by workers, and more than 3 million new houses have been built on collective farms (by the farms themselves, by collective farmers and by rural professional workers). This has resulted in better housing conditions for more than 70 million people. In 1964 alone, houses with a total surface area of 73.6 million square metres were constructed. In the socialist planned economy, the volume of construction is planned for each year as well as for the immediate future and more extended periods. Houses with a total surface area of 84 million square metres will be built in 1965.

2. One feature of the housing situation in the Soviet Union is the construction of houses in accordance with standardized designs, on a planned basis, so as to permit the use of industrial methods in construction. Housing is provided to all workers on an equal basis: the size of the unit allocated to any given family is determined by the prescribed norm for living space per person and by the composition of the family.

3. Of great importance in large-scale housing construction and standardized designing is the preparation of basic scientific documentation for the projected housing developments and the various types of dwellings and houses. Demographic indicators are one of the main elements in this documentation. The scientific documentation for the planning and design of housing obviously must be based on reliable statistical data for the given period and calls for sufficiently detailed, accurate forecasting.

4. The architects and designers are primarily interested in information on the age and sex distribution of the population, which provides the basis for determining how much housing of various types is to be built and what cultural and welfare facilities will be needed.

5. The most important task of the designers is to study the various types of family composition in terms of size, age and relationship and their housing requirements (the number, type and size of rooms needed).

6. In 1960, the Housing Section of the Leningrad Branch of the Academy of Building and Architecture of the Soviet Union subjected the data of the 1959 census to further processing as the basis for the selection of housing types for future construction. It made use of census forms completed for the residents of large blocks of housing in the heavily built-up old section of the city and in the most typical areas of new large-scale construction. The selection of areas was made with due regard for the fact that the occupants of the older housing were more stable. The population structure of the newly built-up areas depends on the types of housing introduced and the system of floor space distribution used.

7. A total of some 20,000 families (more than 60,000 persons), representing about 2 per cent of the population of Leningrad, were studied. The results of the study were very similar to those obtained from the centralized processing of the Leningrad census data, which were later published by the Central Statistical Office of the Soviet Union. Table 1, below, shows the age structure of the population (in percentages) on the basis of the 1959 census data.

8. The age structure of the population is not the same in the old and new sections of Leningrad. The proportion of children up to ten years of age and of young people is substantially lower in the older housing than in the areas where there has been new construction. This is because large families are given preference in the allocation of new housing.

9. The nature of urban family distribution is well known: in large cities, there is a pre-

Table 1

Age groups	Findings of centralized processing		Findings of sample processing for Leningrad		
	Urban population of the Soviet Union	Leningrad	Average	Areas of older housing	New areas
0-9	19.7	13.0	13.7	11.5	17.0
10-19	15.1	13.3	12.4	12.6	11.9
20-59	57.4	65.0	65.0	65.8	64.2
60 and older	7.8	8.7	8.9	10.1	6.9
TOTAL	100	100	100	100	100

ponderance of relatively small families and of individuals, with a smaller proportion of large families; in small cities, the opposite is true. In Leningrad, the proportion of individuals and two-member families is particularly high (representing 50 per cent of all families and individuals), while large families (with five or more members) make up only 8 per cent of the total number of families and individuals.

10. Following is the percentage distribution of family sizes as reflected in the data for the 1959 census:

Table 2

Number of family members	Findings of centralized processing		Findings of sample processing for Leningrad		
	Urban population of the Soviet Union	Leningrad	Average	Areas of older housing	New areas
2	27	34	34	36	30
3	29	34	35	33	38
4	23	21	20	20	20
5	12	8	8	8	8
6 or more	9	3	3	3	4
TOTAL	100	100	100	100	100

11. Urban families in the Union of Soviet Socialist Republics have an average of 3.5 members, while in Leningrad the figure is 3.1 (in the new areas, 3.2).

12. The most common type of family (representing about 70 per cent of the total) comprises a single married couple and may include other relatives in addition to children. This means that the determination of housing requirements should be based primarily on surveys of these families. A breakdown of families by number of children has shown that families with one or two children should be regarded as the basic family type in Leningrad, where they represent 55 per cent of all families.

13. The most important criterion of comfortable accommodation in a dwelling is the degree of separation of sleeping areas. This means that there should be a common room containing no sleeping areas and that there should be separate bedrooms for married couples (who may keep a child up to seven years of age in the same room with them), for each adult member of the family, and for children of the same sex or children of different sexes where the youngest is under seven years of age. Hence, one of the decisive indicators in determining types of housing is, in addition to family size, the composition of the family.

14. The population of large cities has been found to comprise approximately twenty-five characteristic family types (in terms of age, sex, and family relationships), ranging in size from two to six members. When a special breakdown of families was made on the basis of bedroom requirements, it was found that many different types of families had the same requirements. It was successfully shown for the first time, on the basis of a substantial sample for Leningrad (20,000 families), that, in this regard, most family types can be combined into several categories. At the same time, the pro-

portional size of these categories was computed in relation both to the number of families of various sizes and to the number of families of all types. It was established, in particular, that three-member families in Leningrad could be divided on this basis into three main categories: 30 per cent (families consisting of a married couple and a child not more than seven years of age) required a single bedroom, 50 per cent (families consisting of a married couple and an older child or other relative) required two bedrooms, and 20 per cent (families consisting of three persons of differing sex and age, e.g., a mother, an adolescent son and an adult daughter) required three bedrooms. Two-member families were divided on this basis into two categories, four-member families into three categories and five-member families into four categories. The various types of families and their bedroom requirements are shown in figure 1. It should be noted that a smaller family which is more complex in its composition requires more rooms than a larger family of simple composition (e.g., one consisting of parents and children).

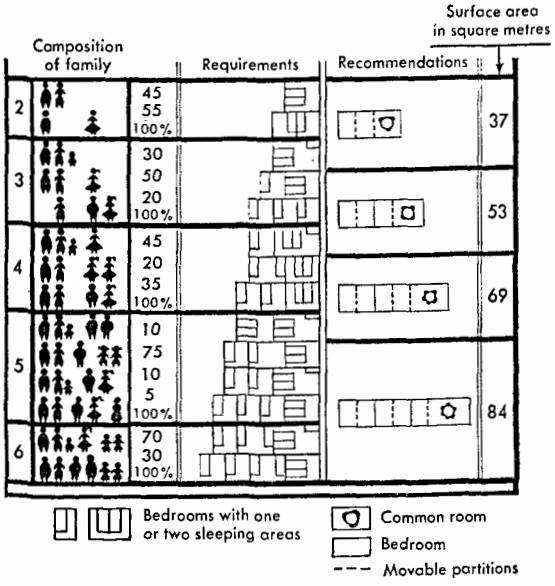


Figure 1

NOTE: requirements as regards type of dwelling (number of bedrooms and sleeping areas) are in accordance with age, sex and relationship of members of family (left). The small human figures depict "collective" types of family members with a view to showing how the family is accommodated in bedrooms and those cases in which members must have separate sleeping accommodations. Recommendations are for range of dwelling types on the basis of an average of twelve square metres of surface area per person. Dwellings of the same type are intended for occupancy either by small families of complex composition or by large families of simpler composition.

15. By dividing families into categories, it was possible to make soundly based recommendations for the most efficient types of mass-produced dwellings.

16. In determining the structure of dwellings, account must be taken of the manner in which a family's housing requirements change as time goes on. In this connexion, an attempt was made to observe the changing composition of a representative family consisting of five persons (parents and children), and it was found that housing (i.e., room) requirements changed eight times in the course of forty years of married life. By employing certain planning methods which allow for possible changes in family composition, it is possible to provide for the family's comfort over a long period and satisfy all its requirements by making not eight but seven, or even as few as five, changes in the structure of the dwelling (figure 2). In this way, the number of different types of mass-produced dwellings can be reduced.

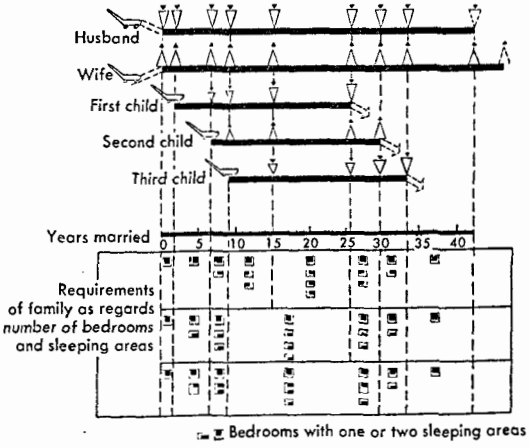


Figure 2

NOTE: schematic presentation of the development of a "representative family" — its housing requirements and the room "mix" which satisfies those requirements. In theory, dwellings with from two to five rooms (I) are needed in order to provide all members of the family with comfortable bedroom accommodations at the various stages in the family's development. Efficient planning of the structure of dwellings, some increase in the size of bedrooms, and the use of movable partitions (shown by the broken line) will make it possible to reduce the optimum number of rooms from five to four (for the period when the family is at its largest) and prolong the time during which it can be comfortably accommodated in the same dwelling (II and III). Note should be taken of the length of time for which the dwelling's room "mix" satisfies the family's requirements.

17. The types of housing required by small families differ from the ordinary dwellings intended for medium-sized families in that they have not only a smaller number of rooms but also somewhat less extensive facilities, since the housekeeping activities of many small fami-

lies are on a limited scale. The relatively high cost of placing these groups in ordinary dwellings and their special living requirements make it necessary to build specialized housing for them.

18. The above-mentioned sample data on the age distribution of the population and on family types provided the basis for recommendations on the required volume of construction of such specialized types of housing as youth hostels, hotel-type housing and homes for the aged.

19. In addition, a study was made of large families, which require dwellings with a large number of rooms and substantial living space. When such families prove unstable their dwellings must sometimes be assigned to more than one family. The problem of building dwellings for families of this type cannot be dealt with properly without first determining the extent to which large families remain stable over a period of time.

20. In 1961 the Statistical Department of the Leningrad Financial and Economic Institute joined with the Housing Section of the Leningrad branch of the Academy of Building and Architecture in supplementing and defining more precisely the data previously obtained on large families and also attempted to determine how family members themselves expected their families to develop in the future. It was found that, in the two years that had elapsed since the census, the composition of large, complex families (670 in all) covered by a sample survey had undergone substantial changes indicative of instability. The changes affected 57 per cent of the families, and in only 22 per cent of the total sample were they the result of births or deaths. Marriages and divorces had virtually no effect on the size distribution of the families. As a result of these changes, the number of members of the large, complex families covered by the survey declined by an average of 0.5. As regards other causes of change, forty-one families (6 per cent of the total) broke up primarily because new housing became available or because members moved to other cities, while 129 families (19 per cent of the total) in effect kept separate budgets at the time of the survey and therefore could not be regarded as single families. Five hundred families (75 per cent of the total) had continued to keep a joint budget, and their structure had undergone little change between the census and the time of the survey. Thus, the survey found that, in a period of two years, one fourth of all large, complex families had in effect broken up. In addition, every adult member of the family was given an opportunity to indicate, by completing a special questionnaire, what types of dwellings he thought should be designed in the future, i.e., whether dwellings should be designed for families of complex composition or for the separate families resulting from the break-up of complex ones. Two hundred and ninety-five replies were received from 113 families. Ninety-four per cent of the respondents favoured separation. Nearly 60 per cent felt that dwellings should be designed and built with a view to occupancy by parents and children until the latter married, while only some 25 per cent thought it desirable for parents and younger married couples to live together and recommended that appropriate types of dwellings should be designed for that purpose.

21. It should be noted that the questionnaires essentially bore out the conclusions drawn from the findings of the direct survey. On the whole, it can be said that housing should henceforth be designed on the assumption that families consisting of three married couples, two married couples of the same generation or a single married couple with grandchildren and other relatives will separate.

22. In number and in terms of their architectural features, the various planned types of housing will obviously have to ensure that the needs of the population are satisfied to the greatest possible extent in both the near and the more remote future. The large housing developments and entire cities which are now in the planning stage will take a long time—in some cases, decades—to complete. Hence, the designs must provide a proper foundation for the most effective future organization of all the varied types of public services. This is not possible without taking account of the patterns of demographic development. The Statistical Department of the Leningrad Financial and Economic Institute made short- and long-term estimates of the future size and age-sex, and family structure of the population of Leningrad. In so doing, it took account of the fact that, on the one hand, the age-sex structure and movement of the population, among other factors, are responsible for changes in family size and composition and, on the other hand, family structure itself depends on the marriage and birth rates. No consideration was given to temporary changes in family compositions resulting from the departure of family members for purposes of employment, study or the performance of public functions and civic obligations.

23. The distribution of the population by families of various sizes was determined by

making appropriate extrapolations for five-year periods on the basis of actual data for the entire city. Account was taken of such factors as the movement into families of persons who had previously been living separately, additions to families resulting from the mechanical movement of population, the break-up of complex families, the formation of new married couples, the birth of children to young couples etc. Particular attention was given to the effect of higher living standards, especially the provision of a separate dwelling for every family, on family size and structure and on possible future changes in the process of family separation. It was assumed that the breaking up of complex families would proceed in an uneven fashion in the course of four five-year periods, increasing in a geometric progression (as the effect of improved housing conditions increased).

24. These long-range estimates brought out the following trends in demographic development: a substantial levelling off in the male-female ratio in the middle age groups, an increase in the proportion of children, a gradual increase in the older age groups, and a rise in average family size from 3.2 in 1960 to 3.9 in 1980.

25. What is the practical impact of demographic data on housing construction? On the one hand, as we have said, the age-sex structure and size of the population provide the basis for proper urban planning. On the other hand, trends in family size and structure determine the types of housing which must be designed and the quantitative indicators to be supplied in planning residential construction, especially the different data used for different climatic zones, regions and large cities.

26. Study of the age-sex structure of the population makes it possible to determine the requirements for pre-school institutions and schools with the necessary degree of precision and to correct these indicators in the light of local conditions of various kinds. Such analyses permit not only a determination of the required number of places in kindergartens, creches, and schools but also proper planning of the number and sizes of children's playgrounds, sports facilities, adults' rest areas etc. in a given residential area or micro-area.

27. Analysis of the composition of the adult population shows that its age characteristics affect or directly determine the requirements for various types of housing, for equipment and facilities, and for retail outlets and communal services (including the distance at which such facilities and services are situated from people's homes).

28. The apportionment of construction between apartment buildings and specialized types of housing (hostels, hotel-type housing and homes for the aged) is determined on the basis of the age composition of such segments of the population as individuals and small families. The following apportionment of housing, reckoned in terms of surface area, is specifically recommended for the city of Leningrad for the period just ahead (all figures are percentages):

Table 3

Type of housing	*Individuals*	*Families consisting of 2 persons*	*Families consisting of 3-6 persons*	*Total*
Apartment buildings	0.5	8.0	73.0	81.5
Hotel-type housing	5.2	10.0	—	15.2
Hostels	0.6	0.2	—	0.8
Homes for the aged	0.7	1.8	—	2.5
TOTAL	7.0	20.0	73.0	100.0

29. Study of the internal structure of families and of their room requirements has shown that dwellings built in the years to come will have to have more rooms than is the case today. As regards the family structure of the population of Leningrad, it will require a basic dwelling type with two or three bedrooms, i.e., three, four or more rooms. Analysis of demographic data, study of families' room requirements (see paras. 13-15) and the use of special planning techniques in housing have shown that five or six types of dwellings can satisfy the requirements of families of every size and composition. This is in keeping with the present-day emphasis on standardization and industrialization of construction. Standard layouts for these larger, more comfortable dwellings, with stationary and movable parti-

tions (see the right-hand portion of figure 1), have accordingly been worked out for the designers.

30. It has become a required procedure in the Soviet Union to take demographic data into account in preparing sets of standard designs for houses and dwellings. The specifications of dwellings are determined by family structure, and an appropriate dwelling in terms of number of rooms and size is designed for each type of family. It is already possible today, on the basis of demographic data, to determine the required indicators for the distribution of various types of housing in any residential area, microarea or city whose construction is envisaged.

31. In designing practice, several different methods are employed in the planning of housing developments on the basis of the given demographic parameters. Designers sometimes try to create a "universal" type of house which will accommodate families of any size in the proportions in which they occur in the development as a whole. A variety of dwellings with one, two, three, four or more rooms are designed for each section of the house or for the entire house. Construction of the necessary number of houses ensures conformity with the given demographic indicators. In practice, however, it is not possible to design a house containing all types of dwellings. Hence, one or two other types of houses are usually added; these are the so-called "compensatory houses" (generally containing dwellings for individuals and small families), which also differ from the regular type in size and height and serve to diversify the architectural style of the housing development.

32. Another approach to the problem of housing types is to design buildings with a limited range of dwelling types which are, as a rule, intended to accommodate only one or two types of families. In these houses, the dwellings are kept as structurally simple as possible and the size assortment of the main structural elements is limited. The task of assembling such buildings is much simpler. In addition, the space arrangement of the building is predetermined by the structure of the single-type dwellings and therefore has certain specific features.

33. In our opinion, the second approach is more progressive and affords greater possibilities for the creation of modern housing developments. It should also be remembered that the various sets of standard designs are used in large areas whose demographic characteristics sometimes differ widely. Here, too, the advantage lies with the second method, since it is more adaptable.

34. The necessity of adapting the assortment of housing types to demographic characteristics also produced a new approach to space arrangement in which, while complying with the basic structural specifications, it is possible to provide a given type of house with an apartment "mix" which is "flexible,"i.e., which can, if necessary, be substantially changed.

35. Leningrad architects have succeeded in developing types of buildings which can contain dwellings with a small number of rooms, dwellings with a large number of rooms or any combination of the two. They have also created types of houses having different numbers of stories and intended for occupancy by the same types of families, i.e., interchangeable buildings whose size will depend on the space requirements.

36. Most of the sets of standard designs now in use call for dwellings having one less room than the number of persons in the family —an arrangement which makes for substantially less comfort of accommodation. It has been shown previously that a comfortable dwelling is one in which the number of rooms is the same as the number of persons in the family. Through experimental designing and construction, it has been possible to work out many dwelling variants in which the common room is kept free of sleeping areas and all members of the family have individual rooms in which to sleep or otherwise spend their time. The housing designs of the Leningrad Design Institute, which provide for these structurally more progressive types of dwellings, are already being used. These dwellings provide more comfortable accommodation for families of any composition, and they will be even more comfortable if the living space norm is increased.

37. The principle of "flexible" planning plays a major role in enhancing the functional qualities of housing. It is obvious that "rigidly" planned dwellings are not usually able to satisfy all the specific needs arising from changes in a family's structure and from differing tastes and habit patterns.

38. The principle of "flexible" organization of housing is being introduced in order to make it possible for families of the same size but different composition to make use of a dwelling of any given surface area by changing its layout during their occupancy in whatever manner suits them. Small rooms can be combined to form a larger one, large ones broken down into small ones etc., thus postponing the

"functional aging" of the dwelling. The various alternative layouts are worked out on the basis of study of the characteristics of families of differing size and composition.

39. Planning of the layout of existing and new housing must be carefully geared to family structure. This not only ensures comfort of accommodation but also increases the efficiency of capital investment.

40. Long-range planning is particularly complex, since the planners must allow for a steady rise in the population's standard of housing accommodation, trends in population structure, possible changes in older housing and a number of other factors.

41. Modern computing techniques serve to simplify the task of preparing an optimum plan for housing construction which ensures the best possible housing conditions for families of various types at a minimum expenditure of financial and material resources.

Relationship between urban commercial, banking, cultural and health services and the total population of the agglomeration

MICHEL ROCHEFORT

[*Translated from French*]

1. A characteristic of the town considered as a centre providing services for its inhabitants and those of the surrounding area is its possession of certain services which ensure this relational function. Whether we look at the range of commercial and banking services, at the number and variety of cultural and educational establishments or at the quality of health services, we find that towns differ in the quality and number of the services which they provide. On the one hand, the small local centre only provides its inhabitants and those of its immediate surroundings with the usual services: essential shops (fabrics, clothing, shoes, hardware), a branch bank or paying-in point, a secondary school, general medical practitioners etc. On the other hand, the large regional centre provides its inhabitants and those of a large surrounding area with a very great diversity of shops of all kinds, including the most unusual, and has the head offices of banks, a university and many medical specialists. Attempts to measure the extent of these services, which have been made in France as part of the studies on the improvement of the urban infrastructure, enable us to classify towns in terms of their function as centres providing services. A question which then arises is that of the relationship between the value of these services and the size of the total population of the towns which have been classified in this way. This is not the place for a general study of this relationship for all towns in France. We shall deliberately omit Paris and the medium-sized and smaller towns and merely attempt to deal with the problem as it concerns the principal towns of France, for which there have been two successive attempts at classification in terms of various types of services.[1] We shall take two different approaches, from which it will be seen, first of all, that the relationship between the total population and the level of services of the principal towns is greatly distorted, and, secondly, that there is a fairly constant relationship in such towns between the value of services and the total population, despite some striking exceptions.

[1] J. Hautreux and M. Rochefort, "Les métropoles et la fonction régionale dans l'armature urbaine française", *Revue Construction*, No. 17 (Paris, Ministry of Construction, October 1964).

I. EVIDENCE OF DISTORTION AS BETWEEN THE CLASSIFICATION OF TOWNS BY TOTAL POPULATION AND THE CLASSIFICATION BY LEVEL OF SERVICE

2. We should first briefly summarize the methods used to obtain the two classifications of the principal French towns in terms of their levels of services. In each case, the point of departure was a very extensive listing of towns which, in one way or another, could play an important part in the country's system of services. Each town was given a mark for each category of services denoting its position in terms of a number of elementary criteria which were taken to express the required level of services. The first step was to single out those towns which had the functions of "regional metropolises" and whose services were such that, at least in certain fields, they did not have to rely in general on the national capital. The initial list of forty-two towns was reduced to a list of eight well-equipped towns and twelve incompletely equipped towns by ascertaining, in each of the towns, the number of trades present out of a list of twenty-seven "very unusual" trades, which were chosen after a series of analyses, the size of wholesalers in staple goods, the number of head offices of banks and regional headquarters of companies, the number of professional consultants, the scope of administrative functions, the extent of university services, the number and variety of medical specialists, and the quality of cultural, artistic and sports services, all the factors being assessed in terms of a large number of basic criteria; this enumeration represents only a part of the factors which were considered in classifying the towns.

3. At a subsequent stage, the point of departure was a list of 205 towns classified in the same way according to the availability of certain facilities and services which, while a little more usual than those mentioned above, nevertheless characterized the regional level in the country's system of public services. This second classification made it possible to single out, in addition to the eight "regional metropolises" at the higher level with a complete range of the more usual services, ten regional centres and twenty-four towns with incomplete regional functions. It should, however, be noted that both classifications show, in particular, a gradual decrease in services and that the categories mentioned were established only by means of an assessment based on more clearly defined discontinuities between two towns which were next to each other in the general list. In order to study the distortions between these two lists and the list which is based only on the total population of towns, we shall take only the top twenty towns on the first list of towns with a high level of services and the thirty-four towns which, on the second list of towns with a regional level of services immediately follow the first eight towns which are acknowledged to be superior.

4. Let us first compare the top twenty towns in France in terms of total population and the top twenty with a high level of services. The two lists are as follows:

Classification by total population	*Classification by level of services*
1. Lyons	1. Lyons
2. Lille-Roubaix	2. Marseilles
3. Marseilles	3. Bordeaux
4. Bordeaux	4. Lille-Roubaix
5. Toulouse	5. Strasbourg
6. Nantes	6. Toulouse
7. Rouen	7. Nantes
8. Strasbourg	8. Nancy
9. Nice	9. Grenoble
10. Saint-Etienne	10. Clermont-Ferrand
11. Lens	11. Nice
12. Grenoble	12. Dijon
13. Le Havre	13. Saint-Etienne
14. Toulon	14. Rennes
15. Nancy	15. Rouen
16. Valenciennes	16. Metz
17. Mulhouse	17. Limoges
18. Clermont-Ferrand	18. Tours
19. Rennes	19. Montpellier
20. Dijon	20. Reims

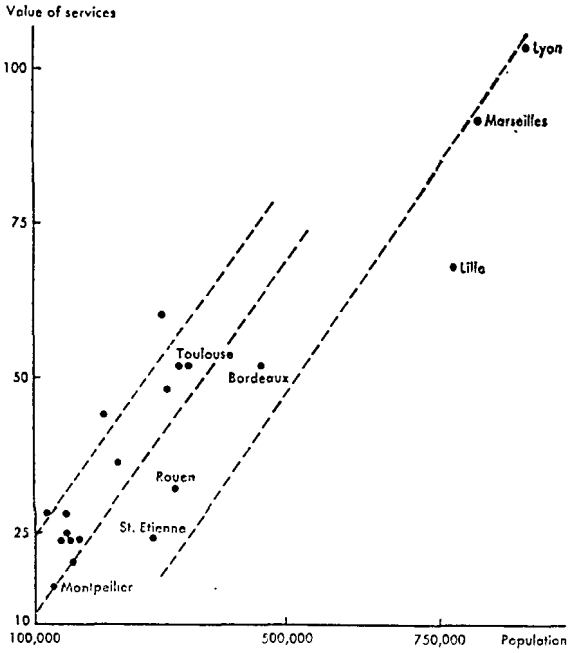
5. These lists show, first of all, that there are many discrepancies in the order of towns. Some towns are higher up in the list by level of services than in the list by total population; thus, Strasbourg is fifth in terms of services and eighth in terms of total population. Nancy eighth and fifteenth, and Dijon twelfth and twentieth. Other towns show the opposite kind of discrepancy; Rouen, for example, is seventh in terms of population and fifteenth in terms of facilities. In addition, the towns which are eleventh, thirteenth, fourteenth, sixteenth and seventeenth in terms of total population do not appear in the list by level of services, while the last five towns in the latter list do not appear in the list by total population.

6. We may conclude from this that there is no direct relationship between the two phenomena; the conclusion is the same if we compare the list by total population with the list by regional-level services. Obviously, industrial and port functions and other special functions may cause the population to grow and create towns which are large in terms of total population but do not necessarily possess a high level of services in the country's system of public services, the distribution of which is decided by more complex factors.

7. It may be asked, however, whether the possession of a high level of services does not presuppose a certain population level and whether there is not a correlation between the order of towns in the list by level of services and the order of those same towns in the list by total population. To get a close view of the problem, we shall use only the figures obtained for commercial, banking, cultural and health services; the problem will be approached first in terms of the top twenty towns with a high value of services and then in terms of the thirty-four towns with regional-level services.

II. The relationship between the value of services and total population in the top twenty towns with a high level of services

8. The point graph (graph I), which was plotted by placing the total value of the four types of services considered on the ordinate and the total population on the abscissa, shows that the two factors progress at a fairly constant rate in relation to each other. To be sure, the points are quite widely spaced on any given horizontal line, but it can readily be seen that there is a central strip, from Montpellier to Toulouse-Nantes, in which total population and the value of services progress at the same rate. On each side, towns are spaced along straight lines which run in the same direction as the central strip. Three are just to the left of the strip and have values for services which are very clearly related to the size of their



Graph I

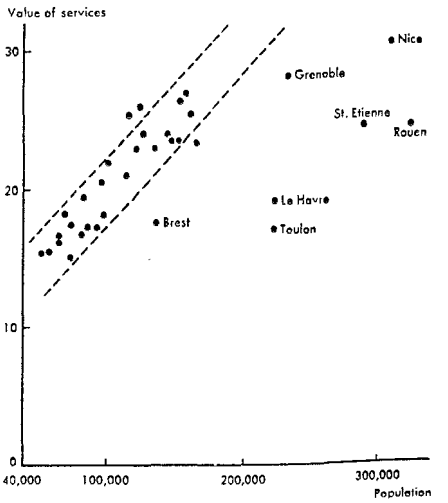
total population but which are slightly higher in terms of total population than the average. These towns are Limoges, Nancy and Strasbourg, and it is difficult to interpret this discrepancy. On the other hand, the six towns to the right of the central strip, with a total population which is above the average for their services, are either large industrial centres or ports: Saint-Etienne, Rouen, Bordeaux, Lille, Marseilles and Lyons. In any case, the variations in the extent of activities other than those forming part of public service functions, which are shown in the relative value of services, are less important than the ratio of the value of services to the size of the total population. We can therefore say that there is a fairly constant relationship, albeit a rather sophisticated one, between the value of services in towns with a high level of services and the total population of the agglomerations possessing such services.

III. The relationship between the value of services and total population in the thirty-four towns with regional level services

9. Graph II, plotted on the same basis as graph I, is even clearer. Twenty-four towns are in the central strip, and the value of their services increases proportionately to the size of their total population. Three towns are very close to the strip and call for no special comment. On the other hand, seven towns are situated at quite a distance to the right of the strip, although as a group they retain a certain relationship between total population and the value of services. These towns have particularly advanced industrial or port functions: Grenoble, Saint-Etienne, Brest, Le Havre, Toulouse, Rouen and Nice, in the latter of which the fact that population exceeds services may be set against a very high percentage of older persons in the age pyramid of the agglomeration. We can thus see that the towns representing the regional level of urban infrastructure in France are generally characterized by some degree of balance between the size of their total population and the quality of the services they possess for carrying out their regional functions. This balance is based on a measure of harmony between the value of their public service functions and the extent of their industrial production functions or their specialized public service activities.

10. While less clear, this balance can also be distinguished, as we have seen, in towns which have a high level of services in the urban infrastructure of France. The quality of the services providing the basis for social relationships seems therefore to presuppose that the agglomeration possessing such services has a certain population level.

11. All this opens up a broad avenue for research, since, if we go beyond simply noting the over-all level of commercial, banking, cultural and health services and the total population of agglomerations, we can look for organic relationships in each category of service



Graph II

activities between each level of services and the size of the total population of the agglomeration possessing such services. To be sure, these services are used not only by the population of the agglomeration but also by the surrounding area. This, however, opens up a further avenue for research to determine the relationship between the two population masses; each type of research would shed light on the other, since they would analyse the human and economic make-up of the central agglomeration and its surrounding area.

Urbanization of population in Czechoslovakia

VLADIMÍR SRB and MILAN KUČERA

1. Czechoslovakia is a country with high industrialization and a low proportion of the population employed in agriculture, forestry and fishery. Concentration of population, however, has not yet reached the degree which is usual in other highly industrial countries. In 1921 the percentage share of the population living in the communes of over 2,000 inhabitants amounted to only 43.1, but 38.0 per cent of the population depended upon agriculture. While with increasing industrialization, particularly in the period after World War II, the numbers of the agricultural population dropped to 32.9 per cent in 1930 and to 24.9 per cent in 1950, the share of the population living in the communes of more than 2,000 inhabitants has increased relatively slowly, 47.4 per cent in 1930 and 51.2 per cent in 1950. To 1961 the share of agricultural population has shown a further decrease to 19.3 per cent; but the proportion of the population living in communes of over 2,000 inhabitants already has attained 57.5 per cent. The number of the population in communes of more than 2,000 inhabitants grows, as a result of both the demographic development (natural and migration growth) and administrative measures (unifying of communes); the latter effects, however, are less important than the others.

2. In recent years, acceleration of urbanization of the population has been noted. This swiftness is due to the fact that housing construction is highly concentrated in towns, centres of industry, with the aim of placing the place of residence near that of work. It does not mean, however, that construction has ceased in the countryside (for example, in the years 1960-1963 about 25 per cent of all dwelling units have been built in communes to 2,000 inhabitants), but the exodus from rural areas is of such an importance that the numbers of the population in small communes have begun to decrease both relatively and absolutely. This process continues even though the total number of the moving population is slowly diminishing (table 1), and the unifying of communes is expanding. The communes are being unified to allow the larger communes to be equipped with modern dwellings and a sufficient number of facilities. Such improvments become profitable in residential quarters of more than 2,000 inhabitants only.

Table 1. Volume of the internal migration in Czechoslovakia in 1950-1964

Quinquennial mean	*Annual mean*	*Per 1,000 population (annually)*
1950-1954	619,881	48.9
1955-1959	435,709	32.7
1960-1964	395,000	28.5

3. In the period 1955 to 1959, migration movements developed in such a way that the immigration rate increased from smallest communes to larger ones, 10,000 to 50,000 inhabitants (table 2). As the emigration rate was similar, the migration increase grew from smallest communes to larger ones, reaching a maximum in communes of 10,000 to 50,000 inhabitants.

4. Negative migration balance is shown by rural communes to 2,000 inhabitants only. As the natural increase in these communes exceeded the migration decrease, the population increase was recorded in absolute numbers even in the smallest communes (more than 2.8 per 1,000 inhabitants).

5. During the years 1960 to 1962, migration was characterized as follows: although the intensity of emigration decreased in smaller communes, the immigration rate dropped at the same time so that contrasts in the migration of small communes and small towns, on one hand, and of large towns, on the other hand, increased. Migration losses were shown not only by communes to 2,000 inhabitants, but also by larger residential quarters, among them small rural towns with 2,000 to 5,000 inhabitants. All communes of more than 5,000 inhabitants speeded their growth by migration. At present, speedy growth has been revealed in towns of 50,000 to 100,000 inhabitants (in the period 1960 to 1962, 28.2 per thousand

Table 2. Survey of the internal migration in the years 1955-1962 by size groups of communes

Size group of communes	Absolute numbers			Per 1,000 population (annually)		
	Immigrants	Emigrants	Migration balance	Immi-grants	Emi-grants	Migration balance
Annual mean 1955-1959						
Below 2,000	184,006	225,951	—41,945	30.1	37.0	—6.9
2,000-4,999	68,087	66,361	1,726	34.0	33.1	0.9
5,000-9,999	38,105	33,717	4,388	38.2	33.8	4.4
10,000-19,999	39,119	28,443	10,676	47.0	34.2	12.8
20,000-49,999	45,695	33,344	12,351	47.0	34.3	12.7
50,000-99,999	19,343	14,837	4,506	35.8	27.5	8.3
100,000 and over	41,354	33,056	8,298	21.9	17.5	4.4
Annual mean 1960-1962						
Below 2,000	130,709	199,587	—68,878	22.3	34.1	—11.8
2,000-4,999	66,197	67,631	—1,434	30.4	31.1	—0.7
5,000-9,999	43,683	35,090	8,593	37.5	30.1	7.4
10,000-19,999	40,308	27,700	12,608	41.3	28.4	12.9
20,000-49,999	50,267	30,593	19,674	47.3	28.8	18.5
50,000-99,999	24,271	12,371	11,900	41.9	21.3	20.6
100,000 and over	41,661	24,124	17,537	21.3	12.3	9.0

annually). Large towns show a slower growth (an increase of only 10.5 per thousand) in the same period.

6. The statistical compilation of data on the internal migration in Czechoslovakia allows analysing formation of the urban population according to various sizes of communes and towns. We are giving here changes in the process of formation of the urban population for the periods 1955 to 1959 and 1960 to 1962 when the urbanization process was speeded (tables 3 and 4). During the years 1955 to 1959, the smallest communes, up to 2,000 inhabitants, have shown the losses (in favour of the totality of larger communes) by migration (about 42,000 or 6.9 per thousand annually). The country-side has become a population reservoir for immigration into towns of all sizes. It contributed (in absolute and relative

Table 3. Migration between the size groups of communes in the years 1955-1959 (annual mean)

Size group of immigrants commune	Size group of emigration communes							
	Total	Below 2,000	2,000-4,999	5,000-9,999	10,000-19,999	20,000-49,999	50,000-99,999	100,000 and over
Increase (decrease) due to the migration in communes lefthand from (in) communes above								
Below 2,000	—41,945	—	—9,998	—6,751	—7,720	—8,605	—3,794	—5,077
2,000-4,999	1,726	9,998	—	—888	—1,931	—3,307	—562	—1,584
5,000-9,999	4,388	6,751	888	—	—687	—1,051	—341	—1,172
10,000-19,999	10,676	7,720	1,931	687	—	187	—254	405
20,000-49,999	12,351	8,605	3,307	1,051	—187	—	—15	—410
50,000-99,999	4,506	3,794	562	341	254	15	—	—460
100,000 and over	8,298	5,077	1,584	1,172	—405	410	460	—
Increase (decrease) due to the migration per 1,000 population in communes lefthand								
Below 2,000	—6.9	—	—1.7	—1.1	—1.3	—1.4	—0.6	—0.8
2,000-4,999	0.9	5.0	—	—0.4	—1.0	—1.6	—0.3	—0.8
5,000-9,999	4.4	6.8	0.9	—	—0.7	—1.1	—0.3	—1.2
10,000-19,999	12.8	9.3	2.3	0.8	—	0.2	—0.3	0.5
20,000-49,999	12.7	8.8	3.4	1.1	—0.2	—	—0.0	—0.4
50,000-99,999	8.3	7.0	1.0	0.6	0.5	0.0	—	—0.8
100,000 and over	4.4	2.7	0.8	0.6	—0.2	0.2	0.3	—

Table 4. Migration between the size groups of communes in the years 1960-1962 (annual mean)

Size group of immigrants communes	*Size group of emigration communes*							
	Total	*Below 2,000*	*2,000-4,999*	*5,000-9,999*	*10,000-19,999*	*20,000-49,999*	*50,000-99,999*	*100,000 and over*
Increase (decrease) due to the migration in communes lefthand from (in) communes above								
Below 2,000	−68,878	—	−15,340	−12,447	−12,274	−12,849	−6,670	−9,298
2,000-4,999	−1,434	15,340	—	−2,652	−2,678	−5,348	−2,529	−3,567
5,000-9,999	8,594	12,447	2,652	—	−1,225	−2,094	−1,296	−1,890
10,000-19,999	12,608	12,274	2,678	1,225	—	−1,252	−794	−1,523
20,000-49,999	19,674	12,849	5,348	2,094	1,252	—	−639	−1,230
50,000-99,999	11,900	6,670	2,529	1,296	794	639	—	−28
100,000 and over	17,536	9,298	3,567	1,890	1,523	1,230	28	—
Increase (decrease) per 1,000 population in communes lefthand								
Below 2,000	−11.8	—	−2.6	−2.1	−2.1	−2.2	−1.2	−1.6
2,000-4,999	−0.7	7.0	—	−1.2	−1.2	−2.5	−1.2	−1.6
5,000-9,999	7.4	10.7	2.2	—	−1.0	−1.8	−1.1	−1.6
10,000-19,999	12.9	12.6	2.7	1.3	—	−1.3	−0.8	−1.6
20,000-49,999	18.5	12.1	5.0	2.0	1.2	—	−0.6	−1.2
50,000-99,999	20.6	11.5	4.4	2.2	1.4	1.1	—	−0.0
100,000 and over	9.0	4.8	1.8	1.0	0.8	0.6	0.0	—

values) to the migration growth of small rural towns (of 2,000 to 5,000 inhabitants), which have drawn about 10,000 inhabitants. By contrast, these small towns contributed to larger towns, mostly towns with 20,000 to 50,000 inhabitants. Already in the period 1955 to 1959, a regularity may be observed that smaller communes contribute to a migration growth of all other (larger) communes. In this period, only two exceptions must be made: middle-sized towns have shown such an attractiveness as to draw off a part of the population of towns with 20,000 to 50,000 inhabitants and large towns of more than 100,000 inhabitants. Towns of 10,000 inhabitants were at that time seats of district bodies. (In 1960, territorial and administrative reorganization reduced the number of seats of district bodies to about one third.)

7. Between the years 1950 to 1961, the numbers of the population dependent on branches other than agriculture, forestry and fishery, increased by 1,858,000 persons. An increase was shown above all by the population dependent on industry (by 1,051,000, that is, 29.2 per cent). This growth was due to further industrialization accompanied by intensive housing construction in several industrial centres. Economic reconstruction and the concentration of industry during the period 1960 to 1962 brought about changes in migration movements which were manifested in an increasing intensity of emigration from rural communes. In this period, emigration affected even small rural towns, with the numbers of emigrants exceeding those of immigrants. The annual diminution by migration in communes to 5,000 inhabitants amounted to about 70,000 inhabitants; the natural increase, however, was sufficient to cover this decrease in communes of 2,000-5,000 inhabitants, so that the population is still growing (both in absolute and relative values). In the communes up to 2,000 inhabitants, however, the population recorded a rapid diminution (in relative numbers).

8. In the period 1960 to 1962, regarded as a period of increasing contrasts in the migration character of rural and urban areas, formation of the urban population has been completed. All larger communes already have drawn their population from all groups lower in size than the communes which gained population. In stagnating communes, the decrease in population was hastened; on the contrary, in communes which were attractive migration centres, the population increase was more brisk. The towns of 50,000 to 100,000 inhabitants became the centres of migration regarded as the most attractive and these drew the population coming from several towns which had ceased to be seats of regional bodies (the number of regional seats in 1960 dropped from 19 to 10 only). The concentration of housing construction also was an attraction.

9. The structure of migrants by sex was characteristic for both these periods. In the period 1955 to 1959, when the socialization of the Czechoslovakian villages already had been

completed, mainly women who had been relieved for industry lived there. Women prevailed in the migration increase in all communes, beginning with those of 5,000 inhabitants (table 5). In the period 1960 to 1962, when the exodus from rural areas increased, affecting even the communes of 2,000 to 5,000 inhabitants, the losses of the population by sex in the smallest communes have been smoothed. The prevailing departure of women passed also in communes of 2,000 to 3,000 inhabitants. In larger communes in medium-sized towns, males prevailed slightly (as to the migration balance). In larger communes females prevailed slightly, but in a relation considerably different from the preceding period 1955 to 1959.

Table 5. Migration balance of size groups of communes by sex (annual mean)

Size group of communes	*1955-1959*		*1960-1962*		*Percentage of males*	
	Males	*Females*	*Males*	*Females*	*1955-1959*	*1960-1962*
Below 2,000	—19,697	—22,248	—34,665	—34,213	47.0	50.3
2,000-4,999	1,061	665	—443	—991	61.5	30.9
5,000-9,999	2,135	2,253	4,400	4,194	48.7	51.2
10,000-19,999	5,102	5,574	6,436	6,172	47.8	51.0
20,000-49,999	5,965	6,386	9,792	9,882	48.3	49.8
50,000-99,999	2,106	2,400	5,915	5,985	46.7	49.7
100,000 and over	3,328	4,970	8,565	8,971	40.1	48.8

10. These data allow one to appreciate the elements in the urbanization of the population in Czechoslovakia. General laws are known, it is true, beginning with the rise of towns, particularly in the period of the first and the second industrial revolutions in the nineteenth century. The present time, however, provides several new elements in the formation of urban population, especially regarding the speed of urbanization and influences of administrative changes in the country etc. As for Czechoslovakia, it is important that a planned economy allowed the rise of excessively large towns (with more than 300,000 inhabitants) to be regulated and prevented. This regulation is in accordance with the recommendations of urbanists that from the point of view of economic and sanitary facilities, a large town should not exceed 300,000 inhabitants. As a typical feature of the residential structure in Czechoslovakia it may be stressed that even the so-called village has not a pronouncedly agrarian character, since communes to 200 inhabitants have no more than 50 per cent of the population employed in agriculture. In communes of 1,000 to 1,999 inhabitants, the agricultural population is only 26.4 per cent. Small communes in Czechoslovakia are mainly "night-shelters" of the population making daily journeys to industrial and administrative centres. In 1961, the wage and salary earners driving outside the commune of their residence amounted to 42.8 per cent.

11. The fact that not only the agricultural population lives in villages in Czechoslovakia may be seen from the age structure, which is similar in both rural and urban areas (table 6).

Table 6. Age structure of the population in 1961 (per 100 population)

Age	*Size group of communes*					*Types of communes*	
	Total Czecho-slovakia	*Below 2,000*	*2,000-9,999*	*10,000-49,999*	*50,000 and over*	*Towns*	*Rural communes*
0-14	27.3	27.7	28.9	28.2	23.3	26.3	28.1
15-29	20.6	20.8	21.1	20.6	19.3	20.1	21.0
30-44	19.2	17.4	19.2	21.3	21.8	21.1	17.5
45-59	19.2	19.2	18.0	18.1	21.8	19.6	18.9
60-74	10.9	11.7	10.2	9.5	11.4	10.5	11.4
75 or more	2.8	3.2	2.6	2.3	2.4	2.4	3.1

12. The rural population shows an increasing fertility and a somewhat lower mortality by specific rate. For creating the age structure, more importance is given to past and present migration movement (mainly from smallest communes to towns) than to fertility. The more aged population stays in the country while the younger one (at the age of the

highest economic activity) is concentrated in towns, above all, in large towns. The percentage of children is given not only by a different level of fertility, but also by a relative share of the population at reproduction age. In the 1961 census, apart from the classification of commune by size groups, a scale in respect to urban and rural population has been used. The age structure in cross-classification of the basic groups of communes and types of population shows a preponderance of the youngest and oldest age groups in the country, and predominance of the population at the productive age in the towns. This dichotomic classification obviously proves more convenient for an unambiguous demographic characteristic of both types of population.

13. In connexion with economic plans, particularly regarding mechanization of agriculture, a decrease of the population in small rural communes is to be expected to 1970, when towns will absorb the manpower gradually relieved from agriculture. After 1970, a trend is expected corresponding approximately to the development at the beginning of the nineteen-fifties era.

Demographic aspects of housing conditions in the Federal Republic of Germany *

HILDE WANDER

1. Many housing problems confronting the Federal Republic of Germany today have their origin in the past. Housing shortage, although extremely aggravated through World War II and its aftermath, nevertheless was no phenomenon confined only to the post-war period. Reduction of building activity due to war and inflation, coinciding with a sudden increase in the number of new marriages, produced a remarkable scarcity of housing as early as the beginning of the 1920's. In spite of substantial public subsidies in support of housebuilding, production of new houses remained insufficient throughout most of the interwar years. A disproportionately rising demand for dwellings in conjunction with a rent policy offering little attraction to private investors are among the most important reasons that kept the housing supply steadily below demand. Hence, the loss of 2.2 million housing units during World War II reduced a supply which was already too small.

2. While housing supply developed largely in accordance with economic and political circumstances, housing demand predominantly was determined by demographic changes affecting the number and composition of households. Economic factors, such as income, although important to the quality of housing demanded, have influenced quantitative needs more indirectly. By stimulating or delaying the decision to marry and establish households, by promoting or impeding internal migration and social change, economic conditions mainly have induced temporary fluctuations and regional discrepancies in housing demand rather than affected ultimate overall requirements. In German census, definition of "household" has not been consistent over long periods of time. To avoid difficulties in statistical comparison and to eliminate temporary non-demographic effects upon housing needs in the following analysis all married men, one third of single persons twenty-five years and over, and three fourths of the widowed and divorced population have been considered as heads of households, while the remaining population was assumed to be household members not exerting separate demand.[1] The increase in the number of households over five decades, assessed in this way and compared with population growth and actual housing supply, is demonstrated by figure 1.

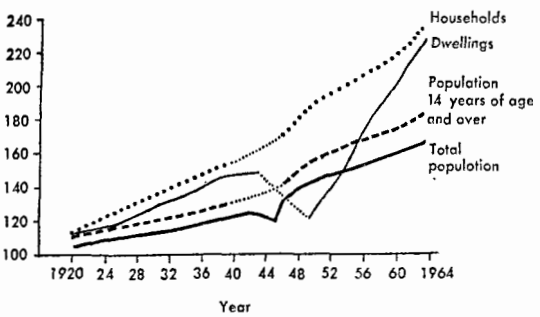


Figure 1

Development of population and housing, the Federal Republic of Germany, 1920 to 1963 (1910 = 100)

3. Since 1910 and probably for some time before that period the demand for housing as suggested by the estimated number of households steadily has advanced more quickly than total population and often more quickly than adult population which, in a proper sense, is the source of household formation. In 1962, about 65 per cent more inhabitants and roughly 90 per cent more adult persons were living in the Federal Republic of Germany than had

* In this paper the territory studied is meant to comprise the area of the Federal Republic excluding Saarland and West Berlin. Most pre-war data presented in this paper are estimates based upon ratios pertaining to the total of the former German States and Prussian Provinces which are now partly or wholly included in the area of the Federal Republic. Data for intercensus years have been obtained by way of parabolic interpolation.

[1] The number of households so estimated agree almost completely with the census returns of 1939, 1950, and 1961. Estimates for 1910, 1925 and 1933 are approximately 10 per cent higher than census data. Therefore, actual increase in the number of households was somewhat larger than shown in the diagram.

lived in the same area in 1910.[2] The total of households had grown by more than 130 per cent.

4. Investigation into reasons for the disproportionate rise in the number of households showed marked differences in development before World War II and after it. Contrary to the fact that marriage and household formation occur exclusively in adult life, investigations showed the increase in adult population as such contributed comparatively little to the increase in households during most of the inter-war period. Before the middle 1930's, when adult population expanded slowly because of frequent losses through migration or because of small natural additions, changes in sex and age distribution in favour of persons in marriageable age were the predominant cause of increased household formation. In the period 1925 to 1939, for instance, only 44 per cent of the incremental number of households was due to the larger total of adults as compared with 60 per cent which resulted from changes in sex-age composition. Shifts in civil status, induced mainly by falling mortality, tended to depress rather than to inflate housing demand throughout most of the inter-war period. Propensity to marry earlier, although discernible since the early 1920's, was not yet strong enough to compensate for the decline in demand resulting from the smaller proportion of widows. Marriage frequency temporarily was reduced during the Great Depression (see table 1 for details).

[2] Persons fourteen years and more than fourteen years old.

Table 1. Increase in the estimated number of households in the Federal Republic of Germany before and after 1939 by causation

(Per cent)

Causation of increase	*Before 1939*			*After 1939*	
	1910-1939	*1925-1939*	*1933-1939*	*1939-1961*	*1950-1961*
Total increase	53.6	23.5	8.3	46.7	18.2
Annual average	1.49	1.52	1.34	1.76	1.53
Increase due to:					
Population growth [a]	39.1	44.2	71.5	81.1	70.6
Changing sex-age distribution [a]	63.6	60.1	24.6	10.4	18.7
Shifts in civil status by sex and age [a] thereof	—2.7	—4.3	3.9	8.5	10.7
Change in the proportion of married persons [a]	3.1	2.8	—	12.4	28.1

[a] Increase due to specific causes, here given as per cent of total increase, deduced by way of standardization.

5. After World War II, household formation assumed a different pattern. Population growth, accelerated by the influx of millions of refugees, accounted for more than 80 per cent of all households added during 1939 to 1961, a period almost equal in length to that of 1925 to 1939. Changes in sex-age distribution, on the other hand, were responsible for only 10 per cent of the accretion, while shifts in civil status instead of impeding household formation as previously contributed as much as 8.5 per cent to the estimated increase in households. This increase was a consequence of earlier marriage as well as of higher proportions of widows and divorcees. In contrast to the disproportionate rise in the number of widowed household heads which reflects exclusively the impact of war, changes in marriage intensity seem to denote more than compensation for household formation delayed by the war. The fact that marriage frequency among young persons tended to increase even in years of scarce employment and unfavourable living conditions suggests secular change. In 1950, for instance, when neither jobs nor food were yet sufficient, marriage rates of males of all ages and of females under twenty-three years nevertheless were materially higher than in 1938 when early marriage was encouraged by various means of financial support. Economic prosperity during recent years undoubtedly has stimulated this general process of change. Concerning this period 1950 to 1961, as much as 11 per cent of the total increase in households was caused by shifts in civil status (see table 1 for more details).

6. Contrary to the rapid increase in the number of households, the average size of a household declined. Due to falling fertility, the

proportion of children under fourteen years of age, equalling 32 per cent in 1910, has shrunk almost continuously. This proportion which reached its lowest point (19.5 per cent) in 1955 and has only slightly recovered. The average number of persons per household developed accordingly. In 1910 a household consisted of 4.7 members on an average. In 1939, the average was 3.1 and in 1961 only 2.9 members. In consequence, the average size of dwelling necessary to accommodate a household at stable standards has dwindled. Considering that every single housing unit should comprise a kitchen and adequate sanitary facilities for common use, the demographically induced shift toward smaller families and dwelling means a rise in building costs which add to the general increase in factor prices.

7. Similar to over-all housing demand, regional requirements largely have been governed by demographic factors. Internal migration, mainly directed from rural into urban communities, thereby has played a prominent role. Migration which is the most significant agent of growth in all places of more than 5,000 inhabitants tends to gain in importance with increasing community size, and to diffuse the demand for additional housing. In the period 1950 to 1961, the group of cities[3] many of which were heavily destroyed during the war, derived almost 77 per cent of its population growth from migratory movements, against 11 per cent arising from natural increase and 12 per cent from including communities which had passed the mark of 100,000 inhabitants after 1950. Communities of less than 2,000 inhabitants, on the other hand, experienced migration losses more than twice the volume of natural increase. In consequence, building activity in urban centres, although on an average much greater than in small communities, remained insufficient to meet requirements. While, in general, housing supply related to population tends to improve with community size, the number of dwellings per household is clearly biased the opposite way reflecting the selective effect of migration in favour of unrelated individuals and small young families. According to the Housing Sample Survey of 1960, which gives detailed information on the type of households and dwellings, the average number of household members passed gradually from 3.5 in villages to 2.5 in cities of 500,000 people or more. The number of persons per family-household declined in a similar order, namely from 3.8 in villages to 3.0 in large cities, while the proportion of unrelated household heads moved regularly from 12.2 per cent in the lowest to 32.4 per cent in the highest rank of communities.

8. Although smaller family size in urban places means relatively more households, housing demand has not been inflated accordingly. It is true that the percentage of households sharing a dwelling with another household is on an average much higher in cities than in rural communities. In 1960, for instance, one fifth of all households in places of 500,000 inhabitants and more were subtenants; compared with one seventh in communities of less than 5,000 inhabitants. Since many unrelated household heads, such as students and young workers not living with their parents do not wish for a separate apartment or house, but prefer to rent a room, regional discrepancy in housing demand is actually much smaller than suggested by the different number of households. If subtenants not looking for dwelling are subtracted from the total of households in 1960, the average gap between dwellings and households narrows from 19 to 6 per cent in cities and from 14 to 4 per cent in places with less than 20,000 inhabitants. This qualification does not alter the fact that in cities dwellings are still more crowded than in the countryside due to the smaller number of rooms per dwelling. In spite of the higher proportion of adults among city dwellers, only 84 rooms were available for every 100 persons, in cities in 1960, compared to 89 in places of less than 20,000 people.[4] Since 1960 average conditions have improved further. Yet, important differences still persist among individual communities reflecting specific preferences in migratory movements. According to official estimates at the end of 1962 there were still seventeen cities with a housing deficit of more than 10 per cent, among them two with a deficit of almost 30 per cent. Internal migration by creating steadily new demand in the main centres of housing shortage has aggravated the housing problem, although by promoting economic progress, this migration has contributed to its solution through providing the means for accelerating building activity.

9. On the background of demographically determined changes in the number, size and regional distribution of households, the enor-

[3] Unless specifically stated, the term cities, means communities with 100,000 inhabitants and more.

[4] This figure excludes kitchens. Ratios pertain to conventional dwellings and in residential buildings. Because of the higher percentage of provisional dwellings, average supply of rooms was likely to be more unfavourable in cities than indicated above.

mous achievement in the field of housebuilding after the war becomes evident. Not only was it necessary to reconstruct millions of dwellings destroyed by bombs and to provide new homes for the refugees, but also to satisfy a rising demand resulting from changes in population structure and internal movements and to meet normal replacement requirements from prewar times. Since 1950, housing supply has expanded about three times as quickly as demand. Now the total dwellings available are almost equal to the number of households in need of a dwelling.[5] However, it is known that many of the dwellings built before World War II or shortly after it do not comply with modern requirements. A surplus is needed to make regional and partial housing markets more flexible. As a result of rising income, social change, and internal migration, demand for housing is no longer exerted only by families who are still subtenants or live in provisional dwellings, but also by many occupants of so-called conventional dwellings who are looking for improved accommodations. A rather heterogeneous housing supply is confronted by a demand from persons becoming increasingly quality minded. Demand tends to concentrate on the small stock of lodgings equipped with a bathroom and central heating, while only a remarkable share of modern dwellings is available to certain groups of households because these quarters were built by private or public employers for use of their own work-force.

[5] Households expected to prefer to remain subtenants are excluded.

Population, urban growth and regional development

ERNEST WEISSMANN

I. GREAT MIGRATION OF THE TWENTIETH CENTURY

1. The current explosive growth of cities and metropolitan agglomerations is a new phenomenon. The world is now rapidly changing from an agricultural and rural society to a highly urbanized one and industry is becoming the chief source of livelihood for progressively larger populations. Everywhere people are on the move in pursuit of better life that science and technology made possible and that high productivity and better health and nutrition made probable. They also seek universal education and the use of mass media of communication, aspirations common to all mankind. In our time, the city embodies the basic conditions for the fulfillment of these aspirations. Consequently, it attracts with elemental force populations that insufficient land and conditions of tenure barely could sustain in the past and whom new agricultural technology now has made superfluous. The present migration is the largest society has ever experienced not only in absolute numbers, intensity and concentration but also in that it is universal and has conditioned significantly the distribution pattern of production and people and has unleashed a chain of drastic social changes.

2. Economic and social factors have motivated rural-urban migration in the past and they continue to motivate it now. There are, however, fundamental differences in the two situations. The industrial revolution of the nineteenth century in Europe and North America proceeded at a relatively moderate pace, not without shock, to be sure, nor without hardships for the emerging industrial worker. But, in the main, the market has regulated economic development; industrialization and urban growth occurred in the most advanced areas and world trade favoured new industrial countries. As cities grew, a new urban structure took shape gradually. Now, the headlong rush to the capitals and the great metropolises of Africa, Asia and Latin America is massive and rapid in the developing countries; their natural resources are still under-developed; their tools of production and capital resources are grossly inadequate; and their terms of trade so adverse that they must pay increasing quantities of primary commodities for a diminishing volume of capital goods and other needed imports from their more-industrialized trading partners.

3. Similar differences continue to influence the pace and character of urbanization. In the highly developed countries, industrialization and general economic growth tend to create new jobs in step with urbanization. Indeed, many highly industrialized countries must now import foreign labour. The developing countries, however, appear to be already "over-urbanized", meaning that their industry and related activities cannot employ all men and women who migrate to their cities. Economic and social problems and problems of administration and government multiply in these countries as masses of uprooted rural people, unskilled and uneducated, converge on the capitals and other metropolises.

II. SPONTANEOUS URBAN GROWTH

4. The interaction of economic development, technological progress, population growth, urbanization and human condition is evident. Relatively inexpensive health and sanitation measures are keeping alive more rural people. Fewer farmers can now produce more food, but they need more land. As a consequence, the "push" away from the country and "pull" to the city generate a rapidly swelling stream of migration. At the same time, industry, transport, commerce and most other sectors need fewer people to make more implements for work and for improved living conditions. The more conspicuous symptoms of this situation in pre-industrialized and in many industrial countries are inadequate shelter and communal services in many cities, frequent absence of safe water and sanitation, filth and squalor in expanding areas, and a growing rate of disease and mortality. The intense physical congestion and social tension in metropolitan slums and shanty towns of the pre-industrialized countries are rapidly approaching a state of a crisis which may not only distort projected patterns of the economics,

but also delay or even reverse their development. The newcomer to the city rarely finds employment sufficient to improve his condition. In fact, he may shift from rural subsistance to an urban life below the humblest concept of human decency. Almost never does he become a full member of his chosen community nor do its institutions serve him well.

III. Developing countries

5. The case of the rural migrant against the city government emerges clearly and simply in this dispatch:[1] "Seven thousand 'paracaidistas' ('paratroopers'—a colloquial term for squatters) invaded half-a-dozen tracts of land south of the harbour. The owners requested the federal troops to expell the invaders, but the authorities seem to be unable to act. The situation is serious and violence is feared since the 'paratroopers' are armed. When the men leave their shacks to go to work, women take their posts with rifle in hand. . . . Word reached neighbouring communities and factories that building sites can be acquired at a price of 125 pesos. An 'office' was set up, funds were collected from interested families and plots of 100 to 150 square meters staked out. An avalanche of buyers appeared and innumerable shacks and shanties sprung up overnight where the land was barren for many years."

6. In many metropolitan areas, squatter settlements and shanty towns already shelter one quarter to one half of their total population. In most Latin American countries, for example, the population grows at the annual rate of 2.5 to 3.0 per cent. Their rate of urbanization is about double (4.0 to 6.0 per cent), but their slum and shanty town dwellers grow at the staggering rate of 12.0 to 15.0 per cent. Since the annual growth of their economics barely reaches the level of 2.0 per cent in most of these countries, an inevitable consequence of the current urban explosion is a further decline of their lowest income groups, the slum dwellers and squatters.

IV. Industrial countries

7. The lot of slum dwellers and migrants in the industrialized countries is hardly better than in developing countries. Although the calorie intake may be higher in absolute terms, and housing and other essential amenities more easily available in the adopted towns, these things remain beyond reach at the economic levels at which the migrants are compelled to exist. Populations of already urbanized countries have become highly mobile. Here, because of fundamental economic and social changes associated with automation of industry, mechanization of agriculture, expansion of service sectors, computer programming and multiplication of power, the remaining rural people and those living in stagnating small towns move to great metropolitan belts, or they shift from one metropolis to another. As conditions deteriorate, industries, businesses and higher-income families move to new suburban communities in search of a more congenial environment; and the labouring migrant and newcomer take over the decaying central areas abandoned by the more affluent citizens.

8. Since 1800 the pace of urban growth has slackened in industrial countries. When their growth had expanded a little more than two and one half times by 1950 when centres with more than 5,000 persons already contained more than one half of their total population, metropolitan cities of more than 100,000 for almost one fourth of their total. In some countries, urban population has grown as a result of the amount of the national increase. This seems to occur when four fifths of the population lives in urban agglomerations with more than 5,000 inhabitants. In such "fully" urbanized countries, about one third of the population resides in cities with more than 100,000 people. About one half of the people lives in cities with more than 20,000 inhabitants.[2] At this point, urban problems assume a different character. In the mature industrial culture, Governments are no longer concerned with size and explosive growth, but rather with demands that a new mode of living makes. Examples of this change are the massive emergence of private motor cars and suburban communities, the population shifts within metropolitan regions, and the consequent need for readjustment and rationalization of physical arrangements in the city itself and its region.

9. In addition to these basic changes in the character of urbanization, there is also a migratory movement from country to country. In Europe, at present a massive shift of migrant labour to the affluent north is taking place. Germany, for instance, "plays host to more than one million 'guest workers'; France employs one and a half million; Britain at least 800,000. Without the Italians and Spaniards, Greeks, Turks and Moroccans, France could not have increased the gross na-

[1] *Ultimas Noticias*, dispatch from Vera Cruz (Mexico City, 5 May 1965).

[2] *European Seminar on Urban Development Policy and Planning*, United Nations Document ST/ECE/HOU/9.

tional product by 35 per cent since 1958; Germany could not have enjoyed an annual rate of growth in excess of 5 per cent in several recent years; and Switzerland would have been in desperate shape for one out of every three employed persons in that small country is foreign.... The large-scale migration produces reciprocal advantages as well as grievous social problems.... The Southerners go north for higher wages and a chance for a better life after they have returned home with their earnings. They agree, at least in the beginning, to take the hard, unpleasant jobs discarded by natives who have been upgraded to better paying, more agreeable work. ... Some foreign workers realize their dream.... A much higher percentage, however, have a dismal time—separated from their families, isolated from the local population, living in virtual ghettos either in the slum sections of big cities, in shanty towns or in bleak barracks maintained by their employers...." [3]

V. American dilemma

10. In 1960 about two thirds of all Americans inhabited "standard metropolitan areas"; and the population of the United States is expected to double by the end of the century. A second America, almost entirely urbanized, must now be built in forty years. How will that be done? According to what pattern of settlement? To what standards for utilities, power, transport and cultural amenities? At what cost, from what sources and in what order of priority? The technical, economic and human resources needed are staggering even for this highly advanced country.

11. In the meantime... "American cities are decaying faster than they can be rebuilt. The tax base of the city is eroding as industry moves to the suburbs. A significant part of the white population is also moving to the suburbs while the cores of our cities are filling with negroes, as the migration from the south steadily rises. The cost to the cities to adjust the migrants to a new kind of existence infuses additional burdens upon the cities' tax base. Taxes are also rising in the suburbs to pay for the high costs of municipal services spread over large areas of low population density. Open space is being consumed at a terrifying rate so that suburbs once in open country are now surrounded. Travel time to the city has multiplied as the expressways get clogged during the rush-hours." [4] Every American metropolis must expand as a projected 45 to 50 million people are added to suburbia by 1980. The New York region, for example, is growing along major transportation arteries. The axis of growth extended five miles in 1900, twenty-five miles in 1960, and may become fifty miles in 1985. Under the current low density pattern as much land must be developed in twenty-five years as in the entire history of the region.

VI. World-wide urban crisis

12. The outlook at the beginning of the second half of the twentieth century is indeed grim. Many highly industrialized countries are slow to use their resources for creating a desirable environment for living and one conductive to economic growth. The developing countries, on the other hand, lack the necessary resources for such creation. Failure to act has already brought about an urban crisis in every part of the world threatening human progress. In many areas, rapid growth of population and slow economic progress are causing a rapid expansion of blight and decay, which, with delinquency, vice and social maladjustment, have become the urban setting for "marginal" populations. The cities with 100,000 inhabitants or more have grown from 15 million to nearly 314 million in 1950, or more than twenty times in 150 years. [5] In the year 2000 about 60 per cent of the world population probably will be urban. A tolerable urban environment will need to be provided in five decades for thirteen times as many people as was built in the previous 150; or, the rate of construction in the next fifty years must average almost forty times that of the past; a task hardly conceivable with the resources and productivity of the developing countries.

13. The terminology itself applied by many to this phenomenon conveys the notion of acute danger and imminent catastrophy. "Over-population" is invoked as the cause for impending famine when individually developing countries cannot produce enough food to match their population growth. Similarly, "population explosion" is blamed for the inability of their

[3] Irwin Ross, "European Slogan — Go North, Young Man" (*New York Times Magazine*, May 1965).

[4] Berhard Weissbourd, *Segregation, Subsidies and Metropolis: with Comments*, Occasional paper No. 1 on The City (New York, The Centre for the Study of Democratic Institutions, 1964.)

[5] In Europe, the increase was for the same period from 5 million to 118; in Asia from 10 to 106 million. At the same time, the population residing in all cities in the world with over 20,000 people rose from 22 million to 502 million. *European Seminar on Urban Development Policy and Planning*, op. cit.

economies to reach the "take-off" level. Instead of devising ways of attaining and maintaining a sufficient rate of growth of 5 per cent set as a goal for the United Nations Development Decade, many influential writers blame the current growth of population for the vicious circle of "poverty that breeds more poverty". In the developing countries incomes are low, consumption relatively high, and savings very low indeed. To reach a sufficient rate of economic growth necessarily will require a long and hard national effort.

VII. Implications for national development

14. This is the profile of the urban crisis in the world. The size and urgency of the job to be done and the magnitude of the resources the developing countries will require to close the gap between population growth and economic development imply that they will need massive external assistance both technical and financial. The mobilization of their own resources will not suffice.

15. The world's known resources are unevenly distributed among continents and nations. Capital resources and technology, their essential counterparts in the development process, have grown into a pattern even more unbalanced. Illustrations of this phenomenon are that only one fifth of the earth's population lives in industrial countries; that agriculture tends to be less advanced in countries where it still remains the chief source of livelihood; and that the gap between the living conditions in the industrial countries and the rest of the world continues to widen.[6] In a group of 100 "under-developed" countries (excluding China, the other socialist and all industrialized, free-enterprise countries) with a population of 1,250 million, fifty-two countries with nearly three quarters of the total population, had a yearly income of less than 100 dollars per person (according to estimates of the United Nations for the years 1955 to 1957, they included Burma, India, Indonesia, Nigeria, Pakistan and Thailand). Another twenty-three countries with one sixth of the total population of the group (including Brazil, Iran, the Philippines and the United Arab Republic) had a per capita income of more than 100 but less than 200 dollars. Only twenty-five countries with less than 10 per cent of all residing in developing areas had an annual per capita income of more than 200 dollars.[7] The comparable amounts in 1957 for the United States of America, the United Kingdom and France were 2,500, 1,200 and 1,100 United States dollars respectively.[8]

16. How did the factors of population and economic growth affect urban concentration in the now industrialized countries?[9] Until the beginning of the machine-age, no country had attained a continuity in its economic progress. The differences in the levels of living among countries consequently were not great. The population of the world since has increased more than two and a half times, has multiplied by more than ninefold, and has increased per capita income about four times. While the economic growth of the pre-industrial countries, due to their colonial status and low per capita incomes, remained slow even after independence, the population of the industrial countries has nearly trebled and their output increased over 20 times. Their "population explosion" was supported by an "economic explosion" and consequently the per capita output rose more than seven times. The share of agricultural output fell from about fourfold with a per capita availability of about one half higher. The industrial output on the other hand, increased 30 to 40 times with a fifteenfold per capita rise.

17. The distribution of world income was altered considerably by these trends. About 1850, the countries that are now industrialized had one fourth of the population and produced one third of the world output. In 1960 they had only a slightly higher share of population, but they produced nearly 80 per cent of world income. Only in the last 100 years have the industrial countries out-distanced the pre-industrial ones in the struggle against poverty. In terms of annual rates, however, this growth seems almost modest when compared with recent achievements. The annual increases were 2.8 per cent for total income, 0.9 per cent for population and 1.8 per cent for per capita income. The fairly small arithmetical difference between the growth rates for population and total income was, of course, magnified in terms of per capita output by a secu-

[6] Ernest Weissmann, "The complementary nature of European resources — a basis for developing regional co-operation"; vol. I, *Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources* (United Nations publication, Sales No.: 50.II.B.2).

[7] Paul Hoffman, *One hundred countries — one and one-quarter billion people*, Committee for International Economic Growth, Albert D. and Mary Lasker Foundation (Washington, D.C., 1960).

[8] These countries reached the level of 200 US dollars per capita income a year as early as 1832, 1837 and 1852.

[9] This analysis is based on S. J. Patel, "Economic distance between nations", *The Economic Journal*, vol. LXXIV, MacMillan (Journals) Limited, (London, March 1964).

lar, though periodically depressed, development.[10]

18. How long and how intensive will be the development needed to bridge the gap between the industrial and the developing countries? A recent analysis showed that the current gap between India and the United States in total commodity output could be overcome in eighty years at an annual increase of 3 per cent in Indian per capita output; in sixty years at 4 per cent and in fifty years at 5 per cent. The transition from abject poverty to relative affluency would require five decades at a per capita growth rate of commodity output of approximately 5 per cent yearly.[11] Higher rates of growth have been achieved and sustained in a number of countries with socialist and free-enterprise economies. The resulting rise in their levels of living combined with intensive education always have been accompanied by lower rate of population growth achieved by choice. Can we expect people, illiterate and allegedly in a state of apathy, to be aroused to a sophisticated understanding of the interrelationship of their country's economy and the size of their own family? This seems unlikely. But is it proposed as an alternative to understanding, education and economic growth that family planning and birth control be enforced?

VIII. Urban and regional development

19. The prospect of an increasingly rapid industrialization of the world accompanied by an explosive and chaotic urban growth represents a new challenge to development planning generally and to environmental planning and development particularly. The recognized purpose of development is social improvement; but human progress is not an automatic consequence of economic development. The term "plan" was defined as follows: (*a*) a model of an intended future situation with respect to: (i) specific economic and social activities; (ii) their location in a given region; (iii) land areas required; and (iv) the structures, installations and landscapes required for these activities; and also (*b*) a programme of action and pre-determined co-ordination of legislative fiscal and administrative measures, formulated with a view to achieving the situation represented by the model.[12] The essential feature of both these definitions is the commitment to improve the human condition and to raise the level of living through development and change.

20. The different geographical regions of a country vary with respect to economic, technological and human resources, their productivity, and the levels of living. Once those differences are recognized, national development policy must strike a balance between two extreme positions: (*a*) to equalize as soon as possible the living conditions in all areas (at the expense of total economic growth) and (*b*) to favour areas most likely to grow rapidly and to use the resources gained for eventual progress everywhere. If so conceived, regional planning could help to guide urbanization, industrialization and internal migration in a balanced way.

21. To facilitate the direction and pace of regional development, suitable processes and procedures are needed, including (*a*) appropriate territorial and administrative integration of the region in tune with its economic and social integration; (*b*) balanced integration of the different development activities in the region and continuous evaluation of their social and environmental implications; (*c*) integration of professional and managerial leaders involved in regional planning through research and training designed to identify their role in development and their contribution to it; and (*d*) co-ordinating information and communications among these leaders as well as between these leaders and the average citizen with the help of the press and other mass communications media.

IX. Elements of a policy on urbanization and regional development

22. In most great cities of the world, urban services and facilities already have reached the breaking point. Their "external economies" would now have to be recreated at high costs. A national policy of public investment designed to create the infra-structure necessary to support national development could evolve a pattern of settlement which may bring the benefits of industrialization and the advantages of urban ways to backward rural areas. The following kinds of programmes could be carried out: (*a*) creation of alternative industrial and commercial centres in the wider regions of metropolises to reduce the physical congestion and other problems besetting central cities; (*b*) through adequate public investment, establishment of economic opportunities and social services in developing regions to deflect the

[10] S. J. Patel, "Economic distance between nations", *The Economic Journal*, vol. LXXIV, MacMillan (Journals) Limited (London, March 1964), pp. 122-125.

[11] S. J. Patel, op. cit., pp. 127-129.

[12] United Nations, *Metropolitan Planning and Development*, New York, ST/TAO/Ser.C/64.

stream of rural migration from the already congested areas; (*c*) strengthening the economies of smaller industrial and commercial cities and expansion of industrial job opportunities in rural areas to minimize migrations; and (*d*) redevelopment of the existing great cities by reinforcing their economies through higher industrial productivity and by improving their physical and social environments.

23. In view of the complexity of the regional development process, much research will be needed to make correct decisions possible at the right time and to select valid methods of implementation. Comprehensive training and research guides must provide the necessary factual basis and scientific guides for national, regional and local policy. The desire of people to improve their conditions of life cannot be arrested nor can migration be turned back. The question is rather how can developing nations acknowledge this shift of population and use it as an aid to development. In industrial countries full advantage should be taken of new technology in transport, services and utilities, and construction to rejuvenate the cities and build new ones, to restore to them the air and nature and to lighten the citizen's burden of urban living and commuting. These improvements could return beauty, sanity and efficiency to our cities. Action cannot wait for in our time cities must progress or nations may perish.

24. A far-reaching change, inconceivable only a short while ago, is taking place in the outlook on world problems. It is now recognized that all people must manage to live together and share the resources of the earth; that the general impoverishment of any area is a matter of concern to all areas; and that the technical experience, knowledge and wealth of our society must somehow aid communities that are less advanced and less well-equipped than others. Indeed, some one has suggested that our century may be remembered, not as an age of political conflicts or technical inventions, but as an age in which society dared to think of the welfare of the whole human race as a practicable objective.[13]

25. This concept and the unity of purpose on which it must rely are being tested daily through international co-operation. Humanity must forge the necessary tools for this unprecedented undertaking. A change in attitudes and values concerning development is a prerequisite. For the sake of economy we still are accepting all kinds of restrictions on freedom and violations of human dignity. This attitude may have been justified in an era of scarcity. It must not continue at a time when the world has reached the threshold of plenty. The dilemma for the affluent countries is, to define the levels of living they desire as a society as well as the contribution they wish to make to the development of a viable world economy or to continue to arm in the vain hope of isolating themselves from human suffering and inevitable social change.

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[13] *Preliminary Report on the World Social Situation*, p. 3 (United Nations publication, Sales No.: 52. IV.11).

Some implications of recent changes in urban and rural settlement patterns in Latin America *

MARSHALL WOLFE

1. The rapid and concentrated character of city growth in Latin America has for some years attracted international attention.[1] If the larger centres continue to grow at present rates, averaging about 5 per cent annually, their populations will double every fourteen years; the metropolitan area of Mexico City will reach 15 million inhabitants in a little more than twenty years, while such cities as Lima and Santiago will approach 6 million. The preponderance of the capital cities over the smaller urban centres will be maintained or strengthened. Declarations concerning the need for comprehensive planning to deal with this phenomenon abound, but one finds remarkably little evidence of progress towards the application of such planning, even towards consistent national decisions on the main lines of policy. Economic planners and physical planners continue to go their separate ways; municipal legislation and administrative systems become more complicated but are not reformed systematically. Programmes intended to meet specific problems such as the universal housing shortages are embarked upon, once irresistible pressures have built up, without reference to either economic or physical planning criteria.

2. The following trends in the settlement patterns of the great cities (here presented in highly simplified form and on the basis of information that is far from adequate) derive from the present combination of piecemeal public action with the struggles of families belonging to different classes of the urban population to solve their own problems of livelihood and shelter.

3. The affluent groups, those able to meet the costs of their own housing under the typical circumstances of inflated land prices and expensively inefficient construction techniques, are moving out of the central parts of the cities, usually in a fan-shaped pattern branching from a few main traffic arteries leading in one direction from the centre. The resulting low-density suburbs commonly have their own municipal governments, have more adequate resources to meet infrastructural needs than other parts of the urban area, and have a natural interest in maintaining their physical and administrative separateness from the residential areas of other urban groups.

4. In the central parts of the cities many older buildings, including former houses of the affluent groups, are being converted to single-room occupancy or are being taken over by small industries while other buildings of this type, along with older slum housing, are being demolished and replaced by commercial buildings and luxury apartments. The lower and lower-middle income groups continually enlarged by migrants, become more and more overcrowded and on an increasing scale make their way to the periphery.

5. The trends noted above are similar to processes in the great cities of Europe and North America. The centrifugal movement of the lower-income groups, however, takes different forms. These derive partly from the poverty and low housing standards of the families concerned, partly from geographical characteristics of the cities, and partly from the limited capacity of the city administrations to enforce regulations or to provide low-cost housing. The huge settlements that are now springing up in the peripheral zones not preempted by the affluent groups can be classified into major types to be described in the paragraphs to follow.

(*a*) Illicit shantytowns without tenure rights

* The generalizations in the present paper, for which space does not permit the inclusion of supporting evidence, are derived from studies which are being carried out by the Secretariat of the Economic Commission for Latin America, but are made on the personal interpretation of the author.

[1] The principal compendium of information and policy recommendations derives from a 1959 regional seminar co-sponsored by the United Nations, the Economic Commission for Latin America and UNESCO. See *Urbanization in Latin America*, UNESCO (Paris, 1962). More recent statistical information and a discussion of the implications of present trends may be found in "Geographical distribution of the population of Latin America and regional development priorities", *Economic Bulletin for Latin America*, vol. VIII, No. 1, pp. 51-63 (1963).

or prior organization of their occupants. These settlements house the most impoverished and marginal elements, but quantitatively they represent a less important part of the problem than sometimes is assumed;

(*b*) Settlements originating in organized occupation of land by large groups of families. Such occupation has become the most important mode of low-income resettlement in several of the great cities in which zones of publicly-owned agriculturally worthless desert land are near, as in Lima and Mexico City. Settlements of this kind are characterized by relatively systematic self-selection of families and the maintenance of vigorous extra-legal community organization for the purposes, first, of resisting eviction and obtaining official recognition of tenure rights, second, of exerting pressure on authorities to provide urban services and, to a lesser extent, of meeting settlement needs through communal labour and monetary contributions;

(*c*) Settlements originating in the subdivision and sale to individuals of privately-owned land. These settlements are occupied by regularly-employed workers and lower-middle class groups who are able to pay for small plots and who have some hope of setting aside enough from their income to build substantial houses on them. Under typical circumstances in which rural municipalities adjacent to the great cities are overwhelmed by the urban sprawl, however, they get little effective protection or guidance in their efforts to house themselves. A good many sub-divisions do not conform to legal requirements or city regulative plans; the original title may not be clear; the seller is likely to evade obligation to provide minimum urban services, and the municipal administration is neither willing nor able to provide them. The difficulties and the needs for defensive organization of the occupants of this type of settlement may become quite similar to those of the settlements stemming from organized seizure of land;

(*d*) Settlements originating in public programmes intended to alleviate the housing shortage or eradicate shanty-towns through the provision of cheap "minimum" houses or plots of land plus aid in self-help construction. This type of settlement has had minor importance until recently because most public housing programmes have been on a small scale and directed to the lower-middle income groups. Since 1959, however, such settlements have grown to enormous size in Santiago. They are likely to come to the fore in great cities of other countries undertaking crash programmes of housing directed to groups with incomes below the minimum needs to support amortization of costs of conventional housing.

6. The numbers of families living in the different types of peripheral settlement cannot be estimated reliably. Any present estimate would soon be made obsolete by the rapid growth now under way. Housing censuses distinguish the number of "improvised" dwellings and shacks and dwellings lacking minimum urban facilities such as piped water and electricity, but such dwellings are found in all types of settlements in varying proportions. The criteria used by different public agencies often result in wide discrepancies in estimates of their numbers.

7. The peripheral settlements have sought cheap land or waste land that might be occupied without reprisal; zones of higher priced private land adjoining the older urban centre often are by-passed both by the families seeking land and by the public housing agencies. Co-ordination of settlement location with the location of industries is rare, except in the occasional cases of housing built by industries for their workers. Continual expansion of the "urbanized" zone under such conditions is placing an increasingly unmanageable strain on the cities' capacity to meet even their most urgent needs for infrastructural investment, transport, and social services.

8. All peripheral settlements presumably have populations more youthful than the rest of the city, since young couples with growing families are naturally the most highly motivated of all the population to escape from the congested slums of the urban centres. The settlements founded by public housing agencies, in which most of the occupants are selected by point systems giving heavy weight to family size, have particularly high proportions of young children resulting in immediate overcrowding of the small houses. This age distribution has implications that in the long term may be even more ominous than the often described physical evils of unplanned urban sprawl. Even the better peripheral settlements represent a drab environment segregated from the city proper and lacking most of the stimuli associated with urban life. Many women and children rarely leave this environment. The new generations growing up in it have only the most limited formal education followed by an aimless adolescence and face the prospect of adult life limited to insecure low-wage jobs in the urban economy. The educational systems and the social structure of the cities, whatever opportunities for upward mobility they may offer to groups starting higher on the ladder,

provide very little chance for youth from the peripheral settlements to emerge from their marginal status. These youth form new families at ages as low as seventeen, and either will increase overcrowding in the tiny houses of their parents or compel further expansion of the settlements. A high proportion of urban children and youth are being brought up under conditions that hardly could be less compatible with the requirements of economic development or effective participation in national life.

9. Half or more than half of the population increase in the great cities derives from migration into the cities and a similar proportion of the annual natural increase in the rural population is moving out of the countryside. It does not follow, however, that the peripheral settlements are occupied mainly by uprooted peasants. The often repeated generalizations on the "lure" of the great cities to rural migrants need be viewed with caution. Available evidence suggests that the overwhelming majority of the persons who move to the settlements, except for some of the more precarious illicit shantytowns, have lived in the city for some time; otherwise, they would be unable to buy plots of land, organize themselves for land seizures, or qualify for public housing. Moreover, the majority of migrants into the great cities appear to come from the smaller urban centres, whether or not they are of ultimate rural origin. The peripheral settlements can be viewed as the last stage in a complicated and imperfectly understood series of migratory pressures starting in the countryside.

10. If one starts at the rural end of the process, the relevant factors in highly simplified terms will be outlined here.

(*a*) The numbers of families of resident workers on the large cities, although continuing to account for a major part of the rural population, are stationary or declining throughout the region. Mechanization of agriculture, shifts in commercial crops, and landowners' fears of the resident workers' claims to land in case of tenure reform laws are among the reasons. Consequently, one finds growing numbers of landless workers, dependent on seasonal employment, living in clusters of shacks along the roadsides or on the peripheries of small towns and provincial cities. In spite of their rootlessness, most members of this group are inhibited from moving to the great cities or to pioneer zones by their complete lack of education and previous lack of opportunities to acquire initiative;

(*b*) The nuclei of small cultivators are undergoing a multiple squeeze from population increase, deterioration of their land through unavoidable over-use, and declining opportunities for seasonal labour on the large estates. This group is higher in initiative than the resident workers or the landless workers. Its initiative takes many forms: petty shopkeeping and liquor-selling; organized demands for division of the land of the large estates, in some areas reaching a point of chronic violence; migration and land-clearing in the tropical interior of the continent (where, unfortunately, the squatter-settlers cannot avoid reproducing the pattern of subsistence cultivation, destructive land use, and conflict with large holders); temporary migration to work in plantations, mines and highway projects, as well as in urban unskilled jobs; and, finally, permanent migration to the towns and cities;

(*c*) The commonest rural-agricultural settlement in most of Latin America, whether of resident workers, landless workers, or small cultivators, is a small and loosely organized cluster of families, constituting a primary neighbourhood, and usually found in combination with still more dispersed settlement by single families. Large agricultural villages deserving the name of "community" can be found but are not typical. Present rural trends, in spite of population increase, seem to be in the direction of greater dispersal and impermanence of rural settlement. At the same time, irregular "line settlements" strung out along the roads seem to be gaining importance. Rural settlement patterns and trends present obvious difficulties for bringing public services to the countryside, the attainment of an effective network of rural schools or the improvement of housing. Experiments in the concentration of rural settlement in planned villages have been made here and there, but both the high expense and the preferences of the rural families seem to stand in the way of duplication of this policy on an important scale;

(*d*) The small towns that are the traditional administrative, marketing, and servicing centres for the rural neighbourhoods, have never carried out these functions effectively; in most of the region they are now stagnating and in danger of losing the few functions they have. The affluent groups that have provided leadership in them are deserting them for the cities, or their children are doing so, along with many of their artisans and workers. In parts of the region they are being replaced by families of landless rural workers for whom the town is simply a base for job-seeking—a process that has been called "ruralization" of the towns. In general, small towns are growing no

faster than the rural population and, like rural neighbourhoods, many of them are hampered by a distortion in age structure stemming from the differential migration away from them by young adults. A strategy for the selective revitalization of the towns, so that they can function effectively as community centres for their rural hinterland, offer permanent jobs for a part of the population leaving the land, and a degree of preparation for urban life for other migrants who will use them as way stations, obviously is needed. Only sporadic and one-sided efforts have been made to the present.

11. The cities that lie between the extremes of the great agglomerations and the small local centres show diverse trends that cannot be discussed in this paper, but one finds a general lack of effective regional planning defining their functions within a national urban network. Regional plans have been limited to a few "regions" offering special opportunities for resource development or special problems of poverty. In the former instances, the population movements stimulated by development projects and the resulting needs for urban infrastructure have rarely been taken into account. (The Guayana programme in Venezuela is the major exception.) The regional centres in which important new industries—steel, petroleum products, fish processing in the Pacific coastal ports—offer expanding job opportunities, face the same problems as the great cities, frequently in a more intensified form because of their small initial size and very rapid growth. Some new industrial centres, lacking any provision for public housing or controls of land use, are physically hardly more than agglomerations of shantytowns.

SUMMARIES OF PAPERS

Urbanization in Africa and its influence on the ethnic processes

B. V. ANDRIANOV

The growth of the urban population in Africa, which has been particularly rapid since the Second World War, especially in the newly-liberated countries, is evidence of profound economic and social transformations, which have changed the face of the African continent. The disintegration of clan and tribal social institutions, the mixing of the various tribes and the intensification of ethnic processes are an important result of the urbanization of African countries.

During the past ten years the share of the urban population in Africa as a whole has increased from 10 to 20 per cent. But it is much higher in a number of countries—in the Union of South Africa, 46.3 per cent (1960); in the United Arab Republic, 37.7 (1960); in Tunisia, 35.6 (1956). The share of the urban population is the lowest in countries with a poorly developed industry, in which the colonialists gave attention only to tropical crops and cattle breeding (in Ruanda and Burundi, 2 per cent, in Uganda, 2.4 per cent etc.).

There are four main regions in Africa, if grouped by the rate of urbanization and distinctive features of their ethnic processes: (1) North and, in part, North-East Africa where big cities (mostly sea ports) have long been in existence and the share of the urban population is high (an average of 30 per cent); the Arabs constitute the bulk of the population, and big Arab nations are taking shape in the North and Ethiopian and Somalian nations, in the North-East; (2) Western Africa with a very complicated ethnic composition of the population, an insignificant share of urban population in the past but with a high rate of growth of modern cities. Every country here is multinational, with two or three nationalities predominating, which play the role of an ethnic nucleus in the process of national consolidation; (3) Equatorial Africa, region of the Bantu peoples which are very close to one another in language and culture. Urbanization expedites the formation of big Bantu nationalities (in the East, Swahili is very widespread; more than 30 million people speak it); (4) South Africa, where the indigenous African peoples (Bantu, Hottentots, Bushmen etc.), although constituting a majority, are subjected to brutal racial discrimination (particularly in the Union of South Africa), which strongly affects the development of the ethnic processes.

The African cities—industrial, trading and administrative centres—with their fast growing proletariat, national petty and middle *bourgeoisie* and intelligentsia, have turned into the centres of national movements against colonialism and the centres of national political organizations.

The coming together of the different languages and dialects, formation of literary languages, exchange of cultural values between the various peoples and the awareness of a common national entity manifest themselves most markedly in the cities. The process of consolidation of the kindred peoples and tribes proceeds at a particularly rapid rate in the newly-independent countries of Africa. The urban population is increasing very rapidly, and the cities and towns are playing an ever greater role in the struggle against colonialism and neo-colonialism, for social and economic progress and the development of national culture. The ethnic processes of consolidation of the various sections of population, tribes and peoples, which lived in isolation in Africa in the recent past, and the formation of big African nations are especially evident in the cities.

Demographic development, urbanization and housing needs based on the experience of Poland and some other socialist countries

ADAM ANDRZEJEWSKI

The report concerns the effect of urbanization on the development of housing needs. In addition to the direct housing needs resulting from population changes, the author analyses some economic and sociological aspects of this problem from the standpoint of the experience of Poland and some other socialist States. In those countries, urbanization is linked to the process of growth resulting from intensive

industrialization, and its development is to a large extent governed by the planned-economy system.

By accelerating the development of housing needs and by intensifying such needs, urbanization poses difficult problems in planning the growth of towns and housing. The author goes on to analyse the principal factors in the expansion of housing needs due to urbanization, in particular:

(*a*) The acceleration of population growth in the towns;

(*b*) The secondary impact of migratory processes on variations in the population structure and the rate of subsequent population growth;

(*c*) The effect of population movements into a different material and cultural environment on housing standards and the subjective needs of the population;

(*d*) The effect of population migrations on the housing situation and on housing needs in rural areas which become depopulated;

(*e*) Problems related to the urbanization of rural agricultural land and to the various aspects of this type of process.

Some of these factors affect quantative needs (new housing needs), others affect certain qualitative needs (size and characteristics of housing standards), while still others affect both types of needs.

With regard to studies of housing needs as a whole, the author puts forward some ideas concerning:

(*a*) The programme of demographic studies of the various aspects of urbanization;

(*b*) The need to relate demographic, economic and sociological studies;

(*c*) Methodological and organizational problems involved in such studies.

Metropolitan growth and environmental hazards: an illustrative case

MAURICE D. VAN ARSDOL, JR.

Contemporary metropolitan population increases necessitate conversion of significant portions of the land area of developed nations to urban uses. Urbanization leads to environmental hazards which include air pollution, air traffic noise, brush fires, floods, and earth slides. These hazards differentially affect intraurban sites, and reactions to them apparently result in population redistribution. This paper examines, as an illustration, the urban genesis of these hazards in Los Angeles from 1940 to 1960, and the manner in which hazard presence can lead to intrametropolitan population changes. Data indicate that initial urban settlement intensifies the "natural" or economic hazards of brush fires, flood, and earth slides. More intensive land use and increasing population densities within urban segments of Los Angeles result in the intrusion of "artificial" health hazards—including air pollution or "smog" and airplane noise—into more urbanized neighborhoods. Differential population and housing unit growth is then accomplished in hazard free subareas at the same or different stages of urban maturation. Given an increasing metropolitan population and housing stock, with differential locational opportunities, contrasting population and housing categories grow at different rates and in different kinds of subareas. Once an "optimum" utilization of urban land has been obtained, a lack of control over artificial hazards may make for differential population and housing unit growth in hazard free areas and a relative lack of use of those portions of urban areas which are subject to environmental hazards. If these conclusions characterize other metropolitan areas, in either developed or developing nations, there is a need for demographers to examine artificial and natural hazards of micro-urban environments with respect to their influence on urban population phenomena.

The consequences of changes in population upon administration and supply and the reasonable development of settlement

JEAN BEÉR and JOSEPH KOVACSICS

The authors present the demographic interdependences of the development of the communities. They deal with the evolution of the network of the Hungarian towns. Thereafter the actual problems of community extension are treated. Among the subjects touched upon the development of socialist large scale farms as well as the creation of rural district centres are emphasized. The task is different in the western part of Hungary than in the Great Plains.

After having reviewed the problems of the agricultural settlements the authors examine the demographic interdependences of the town

network. In their view, the examination of the functions of the towns is of paramount importance when it comes to the analysis of the interdependences of the growth of towns and the population. The questions to be examined are as follows. How large is the attraction of the towns in respect of their administrative, supply, cultural and economic activity, what settlements are covered by the said attraction, how large is the number of the population attracted by the town concerned, in which way is the supply role of the town modified by that part of the population which is present temporarily only, out of which a certain portion is working regularly at identic places.

The economic, and above all communal, tasks of the towns are to be planned on the basis of varying population number, the criterion being as to whether:

(*a*) Establishments are to be gauged (schools, restaurants, cinemas etc.);

(*b*) The number of the population is to serve as basis for organizing the retail trade activity;

(*c*) Town administration and town planning is involved;

(*d*) The production relations of the towns and the country as a whole are considered.

All the aforesaid problems mean that the planning programmes are to contain data relating to the area and standing population of the economic, health, cultural and educational the town in question, further those covering requirements of the population of the areas, making use of the establishments of the towns concerned, as well as the supply and development consequences thereof.

The study concludes by determining the town supply areas and the population making use thereof, and by examining the consequences as far as population statistics are concerned.

A complex analysis of the standard of development of towns

KATHARINE DUX

The purpose of this paper is to present a method of using selected factors as a basis for a single composite indicator that will permit the ranking of towns according to their degree of development and to their supply. The author is not occupied with deciding what factors should be taken as a basis for the composite indicator. She only presents a method suitable for establishing ranking based on the totality of data from factors chosen as significant.

In presenting her method, the author allows $\alpha_1, \alpha_2, \ldots \alpha_m$ to be the criteria on the strength of which towns $A_1, A_2, \ldots A_n$ are to be fitted in a ranking, and the elements of matrix $A = || a_{ik} ||$ the data of the towns with respect to the selected criteria, where a_{ik} represents the numerical value of town i with respect to criterion k.

The point of the method is comparison with a town of average grade of development in every respect. The "average town" is simply one with all its characteristics as arithmetical means of the corresponding data of all towns in the examination.

Values $\bar{a}_1, \bar{a}_2, \ldots \bar{a}_m$ of average town $\bar{A}$ with respect to criteria $\alpha_1, \alpha_2, \ldots \alpha_m$ are the arithmetic means of the respective columns matrix A:

$$\bar{a}_k = \frac{a_{1k} + a_{2k} + \ldots + a_{nk}}{n} = \sum_{\substack{i=1 \\ n}}^{n} a_{ik}$$

$$[k = 1,2 \ldots m]$$

Compare the data of towns $A_1, A_2, \ldots A_n$ with respect to each criterion with the corresponding data of average town $\bar{A}$. Matrix $A' = || a'_{ik} ||$ is obtained whose element a'_{ik} is: $\frac{a_{ik}}{\bar{a}_k}$.

The degree of supply of the towns according to various criteria depends not only on the absolute values a_{ik} but also on the values $q_1, q_2, \ldots q_n$ of criterion Q that determine the dimensions of towns $A_1, A_2, \ldots A_n$. The values a'_{ik} need standardization with respect to criterion Q. The value $\bar{q}$ of criterion Q related to the "average town" must be determined:

$$\bar{q} = \frac{\sum_{i=1}^{n} q_i}{n}$$

Standardization is made by converting each element of matrix A' for the dimension of the "average town", which means that the index of supply of town A_i with respect to criterion α_k is obtained if $a'_{ik} = \frac{a_{ik}}{\bar{a}_k}$ is divided by value

q_i of the town and multiplied by the corresponding value, $\bar{q}_i$, of the average town:

$$b_{ik} = \frac{a_{ik}}{\bar{a}_k} \cdot \frac{\bar{q}_i}{q_i}.$$

That is as follows:

$$b_{ik} = \frac{a_{ik}}{q_i} \cdot \frac{\frac{\sum_{i=1}^{n} q_i}{n}}{\frac{\sum_{i=1}^{n} a_{ik}}{n}} = \frac{a_{ik}}{q_i} \cdot \frac{\sum_{i=1}^{n} q_i}{\sum_{i=1}^{n} a_{ik}}$$

$[k = 1,2, \ldots m]$

The supply indexes b_{ik} will be used as elements of matrix $B = || b_{ik} ||$.

The supply indexes have the following characteristics: (1) The supply indexes related to a single criterion furnish the same ranks for the settlements under examination as the corresponding ranks of intensity; (2) if, instead of the absolute values for the towns under examination, the intensity ratios c_{ik} related to some criterion Q and the values $q_1, q_2, \ldots q_n$ of criterion Q are known, the supply indexes can be calculated by a division of the values by the intensity ratio of the "average town" without the need of standardization; (3) when the number of towns under examination undergoes a change, the indexes of the new item or those of omitted items do not influence the ranking. They will alter the values of the supply indexes but not their sequence.

Because the supply indexes are dimensionless numbers, the degrees of supply for various criteria for the same town become comparable or can be summarized.

Population concentration in Italy and its variations from 1861 to 1961

ANTONIO GOLINI

The author provides a measure of the dynamics of the Italian population centralization in the biggest communes and of the progressive concentration. This work was carried out in all Italian regions, territorial units into which the national territory is subdivided, and the basis was the population by right enumerated in each commune (constituting the different regions), on the ten censuses taken in Italy from 1861 to 1961.

On the distribution of communes and of population classified into twelve size classes of communes, the Gini concentration ratio (r) was estimated. First of all, the results show concentration varies largely from one region to the other and that since 1961 the degree of population concentration has been growing steadily in all Italian regions. Nevertheless concentration of the population has not lessened the regional unevennesses.

In general, by knowledge of the Italian economic structure, we remark that the population centralization into big urban agglomerations is much larger in the prevailingly industrial regions than in the prevailingly agricultural ones.

Considering the value of R relating to Italy as a whole, we stress that population concentration tends to increase steadily, with slight exceptions.

The comparison with the situation of some western civilization countries and the marked regional differences still existing, allow us to reckon that the urbanization process of the Italian population should continue intensely in the future.

Fluctuations in marriage and migration experience in long swings in economic growth

MANUEL GOTTLIEB

As with short business cycles marriage and migration are diversely affected by the long twelve to twenty-five year swings in rates of urban and industrial growth generated in the open markets of classical capitalism. Rates of migration, both internal and across national boundaries, fluctuate as intensely as residential building; rates of marriage fluctuate through a range one fourth to one seventh as wide with a barely perceptible rhythm. Unlike short business cycles, migration turns lead those of marriage and of building as well; and unlike short business cycles, fluctuations of migration and marriage are not only induced by changing economic conditions but, in turn, generate a substantial feedback influence on the volume of building and rates of investment growth. The form of migration movement is inverted for sending countries where emigration is discouraged during domestic upward swings and encouraged during domestic downward surges. Receiving countries such as the United

States show positive long cycle patterns with a tendency to lead at peaks. Since countries of the Western world had diversified long rhythms with shifting periods, the gravitational field of "pull" and "push" was disturbed and was always shifting. Age groups that are migration-prone tend to be marriage-prone, and both sets of decisions are influenced by changes in economic conditions. The decision to migrate is more vulnerable and sensitive; the impulse to marry would seem to be more tenacious. It is easier to stay put than to stay single. Moreover, waves of migrants that move evenly tend to generate a counterpart flow of marriages but with an extended distributed lag partly because of sex disparities among migrant communities and partly because of delays in becoming settled.

Statistical study of daily commuting to other localities

TEODOR MAGDA

This paper relates to a statistical survey made among the wage-earning population of Braşov.

The rapid growth of industry and of other branches of economic activity in this town has absorbed a large part of the agricultural population of the surrounding areas and these people have to travel daily between their homes and their place of work.

At the same time, the establishment of new plants and factories outside the town, in neighbouring localities, has resulted in a similar phenomenon in the reverse direction. A substantial number of workers living at Braşov, particularly skilled workers, work in and travel to these factories every day.

The object of the survey was to determine the magnitude and direction of these daily movements and their causes and effects, with a view to better organization of transportation and more rational planning of goods traffic etc.

The survey therefore covered only wage-earners residing in localities other than that in which the firm or institution employing them was located.

The survey, carried out in the socio-economic undertakings of Braşov, showed that 18 per cent of their wage-earning employees resided in 176 localities in the vicinity of the town and in other neighbouring areas, namely the districts of Fagaras, Sf. Gheorge, Rupea and Tg. Secuiesc and the regions of Mareş-Autonome Magyare and Ploesti.

Out of the total number of persons surveyed, 24.5 per cent had been making such journeys for less than a year; in other words, they had been recruited for employment only recently. The majority (62.1 per cent) consisted of persons who had been making such daily journeys for a period ranging from birth to 5 years.

Qualitative aspects associated with inward and outward migration towards and from a large urbanized area

FRANS VAN MECHELEN

Among the whole Belgian population, the Brussels-capital area occupies a special position. The enormous concentration of population in the Brussels capital may be looked upon as the main characteristic of this particular situation. With 11 per cent of the total population, this area represents more than a proportionate share of Belgium's employment possibilities, of liberal professional people, of University students etc.

As is the case with every large agglomeration, the Brussels-capital area shows, during most periods, a natural population deficit. Brussels has a low fertility rate associated with an average mortality rate. In spite of this natural population deficit, the population of the Brussels-capital area is constantly rising. The explanation of this phenomenon is not difficult. A migration surplus accounts exclusively for the growth of the Brussels population. The Brussels-capital area exerts an attraction upon people from all administrative units of the Belgian territory. Most immigrants originate, however, from the less-developed economic areas. This phenomenon is clearly reflected in a change in the composition of the migration population entering the Brussels-capital area. Until 1955, Flanders, that is the northern part of the country, was the main supplier of people to Brussels capital; after that date, the southern part of the country, Wallonia, became the leading supplier. Apart from these general aspects of a quantitative nature, a qualitative factor exists which is of particular interest.

We observe a permanent influx of highly skilled people and university graduates to the Brussels-capital area. This is shown by the more than proportionate share of these people within the total professional population.

An additional illustration of this trend can be found in the higher average income figures for the area. There is also an emigration trend of people from the Brussels-capital area to the so-called "border communities". They are rural communities located at a fifteen to twenty kilometers distance from the centre of the city which are assuming a more and more residential character. The permanent enlargement of the metropolitan agglomeration presents problems of demography, planning and culture.

Development of resident population and economic activities in a number of concentrically situated Amsterdam wards

J. MEERDINK

Amsterdam had 865,000 inhabitants in 1960. The proportion of its population increase between 1860 and 1960 was 261 per cent; yet in the "city proper" which encompassed nearly all the capital in 1860 and in the centre area of Amsterdam, density actually has decreased.

The decrease in density which is more pronounced toward the center of the city started earlier than in other sections. Residential sections of the center have turned into business sections mainly in the tertiary sector. The former inhabitants of the centre have been replaced by about 100,000 professionals who come there to work every day but do not live there. In the city alone the number of commuters reaches 30,000. This figure does not include many commuters who live in the suburbs.

Persons employed in wholesale trade, banking, insurance, and civil service live in the new residential sections around the centre, where they usually work. Those employed in hotels, cafes and restaurants, which are mainly situated in the centre, generally live near their place of work.

The trend described in Amsterdam is similar to that of many cities both in the West and in the East. The only difference between one town and another is the stage that the trend has reached.

Urbanization and internal migration in Turkey

KEMAL OZOK

The criterion of 10,000 as the size a settlement considered "urban" seems to fit well with conditions in Turkey in defining urban and rural settlements. Turkey is becoming more urbanized. Urbanization has accelerated since 1950 and the big city group is growing the fastest. Urban population growth has been concentrated in the urban centres that have existed since 1927. Growth clusters composed of regional groups of cities seem to be emerging. Turkey will face large scale urbanization in forthcoming years. With the single exception of Ankara the major net gains from immigration have been in coastal areas—Istanbul and environs, Izmir and environs and the Cukurova (Adana) region.

The main economic reasons for urbanization are "push" factors (low agricultural income, fragmentation of agricultural lands, tenant farming and the mechanization of agriculture), and "pull" factors (improvement in transportation, industrialization, improved communications, higher educational levels and in the long run, the experience of Turkish workers abroad).

The fact that increasing housing demands could not be met in big cities forced the unemployed or low paid villagers to build squatter houses on public or private land. The majority of the problems created by urbanization lie in the public services and development works. A rapid development in urban public services caused a big increase in the municipal expenditures which could not be met in most cases.

The growth of cities should be encouraged, because the success of industrialization (the main factor in development) depends on the fast growth of cities. Migration to the cities should be kept on a level with the new jobs to be created there. Programmes are necessary to encourage non-agricultural activities in rural areas and agricultural reforms may help to retain the population in rural areas. Community development methods are also a device to improve living conditions in rural areas.

Housing needs in Latin America

JULIO PÁEZ CELIS

The principal aim of this paper is to study the situation of the housing needs in the twenty political independent Latinoamerican countries: Argentina, Brasil, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, Guatemala, Haití, Honduras, Mexico, Nicaragua, Panamá, Paraguay, Perú, República Dominicana, Uruguay and Venezuela, determining the actual shortage and new dwelling constructions in this region, considering all the nations as a whole.

The housing needs estimations for the years 1950 and 1961 are based on the Marital Status Structure. The housing shortage for the abovementioned years was obtained through comparison between the theoretical number of housing units required and the number of existing ones; keeping in mind the adequacy of housing units considered as well as the structural shortage.

In order to obtain the theoretical number of housing units required one separate living quarter was assigned to each of the following household type units: married couple, widowed and divorced person. An additional number of separate living quarters equivalent to ten per cent of the unmarried population was also included.

Housing needs in 1965, 1970 and 1975 were also estimated on the basis of a projection of the population by sex and broad age groups and an extrapolation of the marital status structure.

In order to appraise the number of new housing units which should be built in the period 1961-1975, a comparison was made between housing needs estimated for future dates and the number of housing units at the beginning of the projection, taking account of the number of inadequate units in 1961 as well as of the number of units which will become obsolete in the future.

Computation brought out that shortage of dwelling units in Latin America was 17 million in 1961, and that in order to cover this shortage as well as to satisfy the housing needs due to population, growth and reposition of dwellings it will be necessary to build 37 millions of dwelling units in Latin America for the period 1961-1975.

Geographical distribution of population, urban-rural distribution and its developments

ROMÁN PERPIÑÁ

Spatial movements of population are particularly marked in agricultural areas which are in process of development. Their goals are agrarian-industrial zones, manufacturing zones and highly urbanized zones. These four characteristic types of economy and life exist side by side in Spain. We can thus study the world-wide rural-urban phenomenon in the form of a sample, a fact which provides the scientific justification for our study.

In Spain the natural distribution of resources (infrastructure) has formed a pattern which, when examined in conjunction with the dynamic spatial movement of population, has made it possible to systematize these phenomena, which exist in all countries, although less visibly.

(*a*) The periphery-interior phenomenon;

(*b*) The chorology or structural and dynamic system in very dense zones (*dasychores*) surrounded by larger, predominantly agricultural zones (*areochores*) which constitute units with complementary relationships (*chores*, from the Greek word *choros* meaning place), each of them having spatial population movements and their own particular resources;

(*c*) The rural-urban phenomenon is not therefore independent but has a chorological explanation: population groups of equal size in agricultural zones grow at a slower rate than population groups in zones of increasing density (*dasychores*) for in the latter the two forces—concentration in *dasychores* and urban attraction—supplement each other.

The structural movement tends to increase the population in the *dasychores* (16 per cent of the territory) and in the 172 towns included in the total number of 9,030 municipalities with extrapolation for the year 2000.

The chorological understanding of the logistic curves and the effect of prosperity on the behaviour of the population, the corresponding elasticity calculations and the chorological differences in relation to demographic rates show the wide possibilities offered by this technique.

The existence in Spain, a nation midway between the highly industrialized-urban countries and the developing-rural ones, of very different infrastructural conditions make it a laboratory model for studying problems of geographical distribution of population and economic and social development.

The trend of urbanization in Greece (demographic aspect)

GEORGE S. SIAMPOS

The phenomenon of urbanization has shown an increasing trend in Greece throughout the course of this century. The "index of urbanization" (percentage of population living in cities of 10,000 and more inhabitants) has increased from 23 per cent in 1920, to 42 per cent in 1961; while at the same time the semi-urban areas have kept about 14 per cent of the total population. The rural areas show a decreasing percentage of population, respectively, but the absolute number of the rural

population in working ages remains nearly constant. Among the urban areas, Greater Athens covers 22 per cent of the total population.

The demographic characteristics of urban population are as follows: sex ratio (males per 100 females) from 116 in 1920 reduced to 96 in 1961; the population of working ages covers 69 per cent while in the rural population this ratio is 61 per cent; the expectation of life is seventy years in urban and sixty-five years in non-urban areas; the net reproduction rate is 0.806 in urban, 0.901 in semi-urban, and 1.161 in rural areas. The internal migration causes a gain in urban and a respective loss of population in rural areas and shows a sex ratio of 91 and a dispersed distribution by age, covering 42 per cent in the ages twenty to thirty-four. Emigrants to other countries derive proportionally from the urban and non-urban population, but the immigrants prefer to settle in urban areas.

On the assumption of a yearly rate of net emigration six per 1,000 population, it can be forecast that in 1970 the rural population will be reduced compared to 1961 and the "index of urbanization" will increase to about 46 per cent.

It seems necessary in the near future for restriction of emigration or a programme to attract the emigrants to return to their original homes so that urbanization may meet the needs of industrialization of the country without reducing the agriculture production. Middle-sized cities also should be developed.

Perspectives on the urbanization of the negro population in the United States

KARL E. TAEUBER

As recently as 1910 the Negro population of the United States was an impoverished, largely illiterate population whose principal employment was as agricultural tenants or laborers. Today, Negroes are more urbanized than whites, 40 per cent live outside the South and 86 per cent are in non-agricultural employment. An overview of the patterns of migration bringing about this massive population redistribution reveals crucial differences between the Negro experience and typical patterns of "over-urbanization". The Negro migrations throughout the past fifty years appear to have been highly sensitive to economic considerations. The "pull" of the cities has been more important than the "push" from the countryside. Urban Negroes of both sexes have been increasingly successful in obtaining employment in typical urban-industrial occupations without working solely in services and petty trading. As the large-scale Negro migration to cities in both the North and South continued, it was a self-altering process. Negro migration now takes place not in the context of a large agricultural population sending its youth to a few dominant cities, but in the context of a highly urbanized population redistributing itself within a nationwide system of urban places. Negro migrants to northern cities are now as well educated as Negroes born and reared there. The pressing social problems of the Negro population cannot be attributed in any direct manner to the patterns of Negro migration. In many respects, therefore, patterns of population redistribution and social change among Negroes in the United States cannot provide a basis for generalization about the processes of "over-urbanization" which is being experienced in much of the contemporary world.

Some demographic and sociological characteristics of a fast expanding city: Tehran

SEZA TAMRAZIAN

Tehran, the capital of modern Iran, was founded in 1786 by the dynasty of the Khadjars. The first census of the city was taken in 1861, when Tehran had 190,000 inhabitants. The rapid expansion of the capital is recent. The enlargement began in the nineteen-thirties, increased its tempo after World War II, until it reached its present rate of increase which is 8 per cent annually.

At the time of the 1956 census, Tehran had 1,512,000 inhabitants, representing 25 per cent of the urban population and 8 per cent of the total population of the country. Immigrants account for more than half of Tehran's inhabitants. In certain age groups, the proportion reaches 70 per cent. Most immigrants come from Azerbaidjan, in the northwest of the country.

The majority of immigrants live in the southern part of Tehran. In some older sections of the city, immigrants account for no more than 30 per cent of the total but in the new sections, the proportion can reach 66 per cent.

This distribution explains why population characteristics vary greatly from section to section within the city. For instance, the child-women ratio reaches 861 in one district and no more than 408 in another. The average age

of first marriage among women varies from 16.6 years to 22.3 years.

Tehran is a rapidly-expanding town which has become the crossroads of modern and traditional cultures. This mixture explains the variety of population characteristics because the cultures are still far from being amalgamated.

Some aspects of urban explosions in developing countries

U AUNG THEIN

The sudden unprecedented pouring of rural peoples into urban areas in the developing countries may reach catastrophic dimension within the next ten to twenty years. The cities and towns of the developing countries present housing, health, food, traffic, education, crime and water problems of staggering nature: shanty towns, slums, squatter settlements fast growing, becoming seed-beds of political unrest as in Latin America for example. Three measures are tested to check the rapid flow of rural migrants to urban areas: first, implementation of rural improvement programmes (as in Yugoslavia); second, encouragement of a rapid increase in urban and regional planning as a means of achieving a more balanced distribution of population (as in Israel); finally, greater attention to decentralization of economic and administrative activities to open less-developed areas or to divert the rapid flow of migration away from cities (as in Ciudad Bolivar, Venezuela, or the new capital of Brazil—Brasilia). The expansion of road transportation, government assisted industrial estates and the opening of new suburbs with large apartment blocks is recommended to check the accelerated sprawl and overspill in new urban areas. Birth control is by no means the sole factor in the decline of birth-rate; the Japanese experience should be a guiding lamp to the path of developing countries facing urban explosions. Planned parenthood movements should be encouraged and every developing country should be urged to set up an Urban Research Center modeled after the UNESCO Research Center in Asia.

Some features of urbanization in North America since 1920

GUILLAUME WUNSCH

An examination is made of the trends and characteristics by sex and age of urban and rural populations in the United States and Canada since 1920. A distinction between the agricultural and non-agricultural rural population is found to be necessary. The farm population and the non-agricultural rural population, which consists mainly of the inhabitants of suburban residential areas, are developing along different lines and have different characteristics. The agricultural population is undergoing a sharp decline, temporarily slowed by the economic crisis of the 1930-1940 decade; the non-agricultural population, on the other hand, is increasing steadily despite the changes made in the definition of the urban population, the effect of which is to absorb a large proportion of the suburban population. The excess of men over women in agricultural regions is declining at a slower rate than at the country level; the opposite is true with regard to the structure of non-agricultural rural populations. The farm population, especially in the United States, appears to be aging rapidly; the non-agricultural rural population is much younger. Internal migrations—from the farm to the urban area and from the town proper to the urban fringe—appear to be the determining factor in this regard.

When towns reach the size of metropolitan areas, the urban-rural division no longer adequately reflects the real developments taking place in the process of extensive urbanization.

Meeting A.3

INTERNAL MIGRATION (WITH SPECIAL REFERENCE TO RURAL-URBAN MOVEMENTS)

PAPERS

Internal migrations in Greece and Turkey

SOTIRIS AGAPITIDIS

I. THE EVOLUTION OF THE POPULATION

1. During the first quarter of the twentieth century, significant territorial changes and movements of populations took place in the area of the two countries, resulting in demographic benefit to Greece. On the one hand, territories occupied by Turkey were annexed to Greece. On the other hand, many more refugees from Turkey were established in Greece, as compared to the number of refugees from Greece who were established in Turkey.

2. Although the emigration abroad absorbed a large number of Greeks, the influence of this factor was rather small. Within twenty-one years the population of Greece increased by 137 per cent (1907: 2,631,952; 1928: 6,204,084). Although there is a lack of data relative to the evolution of the population in Turkey, during the years 1900-1925, it is certain that there was a decrease due to the territorial losses.

3. Nevertheless, since the beginning of the second quarter of the century until now, the pattern of demographic evolution in the two countries was completely different. Turkish population increased much faster than Greek population. More specifically:

(*a*) Natural increase in Turkey was two to three times faster than in Greece. Before World War II, the reproduction rate of the Greek population was 1.4 per cent; then 1.2 per cent; and now 1 per cent. This may be compared with 2.5-3 per cent of Turkey, which had been almost constant during the whole period;

(*b*) During the period 1940-1949, Turkey did not suffer losses in population as did Greece. This was due to the war and the Occupation (when deaths considerably exceeded the births), and also to the events of the years 1946-1949 (losses, exodus and transfer by force to other countries from Greece);

(*c*) The emigration abroad deducted a very small portion of the population of Turkey, which was compensated many times by those who returned from other countries (285,000 persons up to 1961). In Greece, the increasing rate of emigration abroad brought about a deduction of about 300,000 persons from 1950 to the census in March 1961. From 1961 to the end of 1964, another 300,000 persons were added as emigrants. The new refugees who entered Greece from neighbouring countries, along with the repatriated persons, consist of a small percentage of the total losses.

4. The table below indicates census data (1927-1961) from both countries concerning the evolution of the population.

			Index	
Year	*Greece*	*Turkey*	*Greece*	*Turkey*
1927	—	13,648,270	100	100
1928	6,204,684	—	—	—
1940	7,344,860	17,820,950	118	131
1950	—	20,947,188	—	153
1951	7,632,801	—	123	—
1960	—	27,754,820	—	203
1961	8,388,553	—	135	—

Consequently, within the period 1927-1961, the population of Greece increased by 35 per cent, while the population of Turkey increased by 103 per cent, with corresponding effects on the density of population. Nevertheless, during the years 1960-1961, Greece had almost twice the density of population of Turkey (64, as compared to 36 people per square kilometre). This difference becomes even greater if we take into consideration better land conditions existing in Turkey.

II. The emigration of the rural population to the urban areas

5. The inflow of rural population into the cities (in Greece and in Turkey) takes place today with a continuous increase of the proportion of the urban population in comparison with the total population. More specifically: in Greece, the increasing movement of population from the mountainous areas to the valleys, from villages to the cities, and especially from the provincial towns to Athens and Thessaloniki can be easily noticed. Therefore, the population of villages and rural areas is continuously decreasing, while the population of the towns is developing very irregularly. These developments have caused some regions of Greece (Peloponnesos, Islands) to have in 1961, about the same population they had back in 1928. In the aggregate, the population of 96 cities in 1961 was equal to 43.3 per cent of the entire population of Greece versus 31.1 per cent in 1928, with 44 cities.

6. In Turkey, the proportion of the urban population to the total was 16.4 per cent in 1927, 18 per cent in 1940, 18.7 per cent in 1950, and 25.2 per cent in 1960. From these figures we gather that the inflow to the cities was strong only during the periods of 1950-1960 and this was probably due to a faster degree of industrialization during this period. During 1940-1960 the number of cities increased from 96 to 148 (population more than doubled), while the number of the cities with a population of more than 100,000 increased (from 3 to 9).

7. So, the rate of increase of the population in the cities of Turkey during the period mentioned has been greater than in Greece. However, in Turkey the degree of concentration of the population in the cities is still considerably below that of Greece (25.2 per cent *versus* 43.3 per cent). This also holds true when we compare the neighbouring Yugoslavia (24.3 per cent *versus* 43.3 per cent) and Bulgaria (29.2 per cent *versus* 43.3 per cent).

III. The population of the big cities

8. The big cities of the two countries (more than 300,000 inhabitants including the suburbs) are of special interest; in particular, the area of the Greek capital.

9. Comparing the relation of the population of these big cities to the total population of each country at different intervals, we see that:

	Greece			*Turkey*	
	1940	*1961*		*1940*	*1961*
Athens	1,124,109	1,852,709	Istanbul	815,638	1,506,040
Thessaloniki	278,145	373,635	Ankara	188,416	783,851
			Smyrna	303,688	548,327
Total	1,402,254	2,226,344	Total	1,307,742	2,383,118
Population of Greece	7,344,860	8,388,553	Population of Turkey	17,820,950	27,754,820
Per cent	19.1	26.5	Per cent	7.3	10.2

The above table indicates that both in 1940 and in 1960-1961, the percentage of the population of the two largest Greek cities is 2.5 times greater than the corresponding percentage of the population of the three largest Turkish cities. It already appears that the population of the two largest Greek cities is close to 30 per cent of the total population. Greater Athens (close to 25 per cent) constitutes a rare phenomenon of urban concentration.

10. The exceptionally rapid increase in population of Greater Athens has been realized since 1920. Within 41 years (1920-1961), the percentage of her population to the total was almost tripled (from 8.2 per cent to 22.1 per cent), and within the period 1940-1961, it increased by almost 50 per cent (from 15.3 per cent to 22.1 per cent). In Turkey, the increase of the ratio of the population of Istanbul (largest Turkish city) to the total population during 1940-1960 was small (from 4.6 per

cent to 5.4 per cent) and considerably lagging in the degree of concentration as compared to Athens (5.4 per cent vs. 22.1 per cent).

11. During the last years, the contribution of internal migration to the increase in the population of Greater Athens was estimated at 2 per cent per year, while the natural increase is only 1 per cent. According to the results of the sampling census (1960), 56 per cent of the inhabitants of Greater Athens were born outside this area; most of them in neighboring regions (Peloponnesos, Attica, Aegean Islands) and abroad (mainly refugees).

IV. Causes of the movement from rural areas to the cities

12. The main reasons for the movement of the population to the urban centres in the two countries are:

(a) *The technical progress.* Industrialized development in the cities attracts people, while the continuous mechanization of the agriculture brings about displacement and exodus from the rural areas. Moreover, the expansion of communications—particularly during the post-war years—incites the desire for settlement in more civilized environment;

(b) *The increased natural movement of the agricultural population.* In the rural areas, where natural increase is greater than in the cities (Greece + 60 per cent), those who are added each year to the under-employed population are not absorbed locally and try to find an outlet by moving to the cities;

(c) *The inequality in the educational and social conditions.* The geographical distribution of the educational institutions—especially those of the higher level—is not proportional to the distribution of the population in the country, while a continually increasing number of young people in the rural areas seek education. Moreover, the delay of electrification in villages creates inequality in the living conditions. In general, the settlement in the cities is considered to be of higher social status;

(d) *The increasing difference in the income between rural and urban areas.* The percentage contribution of agriculture to the national income drops more rapidly than the percentage of the rural population as compared to the total. Moreover, part of the previous activity of the farmers was transferred to the cities (i.e., manufacturing of clothes), while, in parallel, the farmers look more to the city markets for agricultural supplies.

13. In addition to those motives common to both countries, there are some additional reasons that are more applicable to Greece and less to Turkey, where the inflow to the urban areas is only a recent phenomenon. Those reasons are:

(a) *The small agricultural lot and its fragmentation.* The majority of the rural families have insufficient and fragmented lots, which do not provide the basic sustenance, and there are not many opportunities for non-agricultural occupation. In Turkey, the average lot is larger and land fragmentation is less extended, but there exists more unequal distribution of land and the number of landless farmers is comparatively greater;

(b) *The wartime events.* During the war of 1940-1944, and in Greece even during the years 1946-1949, a large number of peasants abandoned the villages and went to the cities for security reasons. The acquaintance with the environment created the hope for a better professional and social settlement therein. A similar case is that of soldiers and students from the provinces, as well as those who suffered (i.e., earthquakes), while living temporarily in urban areas;

(c) *The development of the tertiary sector.* The growth of commerce, banks, tourism, communications and public services in the cities absorbs a large number of the people who move into them. Also, the parasitic professions occupy most of those people with unfavourable effects to the cost of production and the circulation of the goods. Thus, 56 per cent of the male and 62 per cent of the female immigrants who work in Athens are occupied in the "service"-type activity, according to the results of the sampling census of 1960;

(d) *The preceding emigration in the interior and abroad.* Those who leave their villages cause a demographic disorder in the places where they lived and in particular an imbalance in the composition of the population by sex and age. Those who remain usually react by moving out of their homes. Moreover, the increase in population of the cities—especially the large ones—results in the construction of more buildings and other works where labour from the rural areas participates. Also, persons with high income in the provinces and emigrants abroad, usually invest their savings in housing in cities, thus creating demand for labour.

14. Greece and Turkey have tried to check the inflow to the urban areas, which increases the supply of labour in the cities and sometimes causes a decrease of production in the rural areas. To this purpose, Greece has already started to implement special programmes of regional development to promote agricultural production, development of industry in the provinces, raising of the educational level of the farmer etc.

Analysis of geographical data on internal migration

ROBERTO BACHI

1. This paper reviews some research in internal migration recently performed by means of (*a*) analysis of preferred directions in net migrations; and (*b*) comparison of indicators of the geographical distributions: (i) of places of origin of internal migrants; (ii) of their places of destination; and (iii) of the total population.

I. ANALYSIS OF PREFERRED DIRECTIONS IN NET MIGRATIONS

2. The analysis of data cross-classified by region of origin and region of destination is difficult for two reasons:

(*a*) The number of migratory streams to be studied is generally very large. For example, in a recent study of internal migrations in Israel, [1] we struggled with a table of 26 by 26 cells despite the relative smallness of the country and despite the merger of adjacent regions with small numbers of migrants;

(*b*) The fact that the size of each migratory stream from region *i* to region *l* depends upon many factors which are difficult to analyse separately, such as: the size, shape and other geo-physical and economic characteristics of both the regions *i* and *l*; the size of their populations; the propensity of people living in *i* to migrate, and in particular, to migrate outside *i*; the possibilities of finding accommodation in *l*; the distance between *i* and *l*; the similarity (or dissimilarity) of the ethnic and social composition of *i* and *l*, which may influence the selection of *l* by people migrating from *i*.

3. In order to overcome at least part of the difficulties, the analysis of individual streams was restricted mainly in our study to "net migrations", namely, to the difference between the number of migrants from *i* to *l* and the number of migrants from *l* to *i*. The sign (+) or (−) of the difference offers a simple measure as to whether direction *i* to *l* is preferred to the direction *l* to *i* or *vice versa* (the study of the "extent" of preference and of the significance of the value are not considered here).

4. Let us examine the distribution of internal migration in Israel summarized according to six districts of origin and destination (see table 1). By comparison of the movements from the Southern District to the Tel Aviv District (4,755) and from the Tel Aviv District to the Southern District (3,905), it is possible to determine that, since the first number is larger than the second, "net" migration is in the direction from the South to Tel Aviv. In other words, these migrants prefer the Tel Aviv District to the Southern District.

5. In table 2 the preferred directions (from the South to Tel Aviv) are marked by "+"

[1] Central Bureau of Statistics, "Internal migration", *Population and Housing Census, 1961*, Publication 19 (Jerusalem, 1964).

Table 1. The "mobile" Jewish population of Israel, by districts of residence in 1956 and 1961

From district of residence in May, 1956	*To district of residence in May, 1961*						
	Total	*Jerusalem*	*Northern*	*Haifa*	*Central*	*Tel Aviv*	*Southern*
TOTAL	267,510	14,655	21,030	41,380	47,095	119,510	23,840
Jerusalem	19,055	1,570	1,525	2,030	4,040	7,570	2,320
Northern	37,780	2,265	8,710	8,965	5,705	8,285	3,850
Haifa	44,240	2,865	4,285	19,925	4,490	10,195	2,480
Central	66,720	3,285	2,785	4,125	19,865	30,945	5,715
Tel Aviv	80,660	3,355	2,240	4,180	9,220	57,760	3,905
Southern	19,055	1,315	1,485	2,155	3,775	4,755	5,570

signs, while the complementary directions (from Tel Aviv to the South) are marked by "—" signs. In this table, the districts are arrayed according to the descending number of directions in which each district was preferred. The order of preference obtained is very simple: the Tel Aviv District is preferred above all others, followed by the Southern, Central, Jerusalem, Haifa and Northern Districts, in this order.

6. When such a situation is found, the difficulty already mentioned in paragraph 2 (*a*) is also overcome. The signs of preferred directions in net migration in a table with n^2 cells are completely described by the simple ranking of the n districts (as illustrated by the head of table 2). Analysis of statistics of internal migrations conducted for many countries and towns, for different periods, has shown that such a situation often is found, or at least is approximated. Linear ranking often enables the accurate description of a high proportion of preferred directions.[2] When such a simple ranking of regions can be found, its analysis may be of special interest. For example, this analysis in Israel has revealed that of twenty-six regions studied, the preferred ones were: (*a*) regions containing areas in which industrial and agricultural development were especially promoted; and (*b*) areas including the larger cities. Some further examples of the application of this method follow for countries with which the reader may be more familiar than with Israel.

[2] Roberto Bachi, "Some methods for the study of geographical distribution of internal migrations", *International Population Conference, New York, 1961* (London, IUSSP, 1963).

Table 2. Districts by order of preference in "net" migrations (1956-1961)

	To districts					
From districts	*Tel Aviv* (1)	*Southern* (2)	*Central* (3)	*Jerusalem* (4)	*Haifa* (5)	*Northern* (6)
Tel Aviv		−	−	−	−	−
Southern	+		−	−	−	−
Central	+	+		−	−	−
Jerusalem ...	+	+	+		−	−
Haifa	+	+	+	+		−
Northern	+	+	+	+	+	

7. *United States:* on the basis of the 1960 census in the United States, data on the state of residence in 1960 and the state of residence in 1955 showed that among the internal migrants (aged five or more) the order of preference of "divisions" was as follows: (*a*) for the white urban population: Pacific (most preferred), Mountain, West South Central, South Atlantic, East North Central, New England, Middle Atlantic, West North Central, East South Central; (*b*) for the white rural nonfarm population: South Atlantic, Pacific, Mountain, East South Central, New England, West North Central, West South Central, Middle Atlantic, East North Central; (*c*) for the non-white population: Pacific, New England, Mountain, Middle Atlantic, East North Central, West North Central, South Atlantic, West South Central, East South Central. One can see that while the West is generally attractive, the order of preference is considerably different for different population groups.

8. Map I shows the ranking of each of the states of the United States in regard to preferences in net internal migration,[3] measured on the basis of statistics by state of birth and state of residence in 1950. As a matter of convenience, each state has been assigned the "preference score"

$$S = 100\,\frac{i + \frac{1}{2}}{n}$$

where i is the number of states from which the given state received net internal migration (that is, the number of signs + in a preference table similar to table 2), and n is the total number of states. In this map and in the following ones, the data have been represented by graphical rational patterns recently proposed.[4] Here each score $S = 10t + u$ is shown by u small squares of given area a indicating the units and by t squares of area $10a$ indi-

[3] Ranking of states by order of preference describes accurately the signs of 91.6 per cent of the 1,176 streams of net migration. In the three series described in paragraph 7 above, the ranking describes respectively (*a*) 100 per cent; (*b*) 100 per cent; and (*c*) 97.2 per cent of the streams of each series.

[4] R. Bachi, "Some new methods for the geographical representation of statistical data", *Bulletin of the International Statistical Institute*, vol. XXXIX, No. 2 (1962), and a paper on "Graphical representation and analysis of geographical-statistical data" delivered at the 1965 International Statistical Institute Conference.

cating the tens. The key to that method is given in figure I. Map I illustrates that Western States, Florida and a few states on the Atlantic coast are preferred.

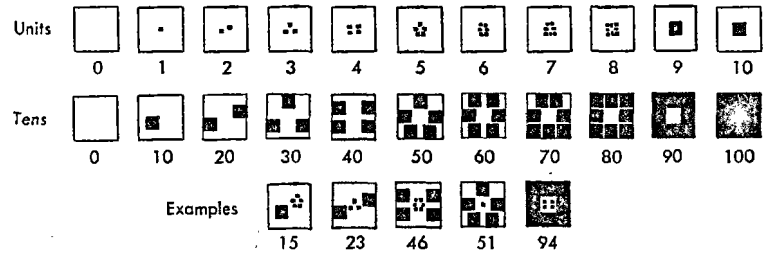


Figure I

Patterns used in maps I, II and III

9. Italy: map II shows preference scores for the regions of Italy,[5] according to statistics of region of residence by region of birth at the censuses of 1901 and 1951. The order of preferences at the two dates is very similar. Comparisons have shown the close similarity of: (*a*) the preference score in internal migration (1951); and (*b*) scores measuring the relative income per capita, selected indicators of consumption, educational level and percentage non-agricultural occupation for each region of Italy. The preference in internal migration is given to more developed regions (mainly in the North-west) and to Latium (including the capital city of Rome).

II. Comparison of indicators of the geographical distribution of internal migrations and of the total population

10. The method discussed in the preceding section is based on consideration of each of the regions (divisions, or states etc.) as a distinct and well-defined unit, having its own administrative, geographical, historical and sociological characteristics, which are supposed to be well known to the reader.

11. However, a different point of view, not necessarily opposed, and often complementary, may be adopted in the study of changes in the geographical distribution of the population in general and of internal migrations in particular. The subdivision of the territory into regions may be viewed as a more or less arbitrary device for collecting and analysing data, grouped into geographical classes. Methods may be then devised for obtaining an over-all view of general characteristics of the geographical distribution of population and of migration. These methods may have advantages over the methods considered earlier. They are almost invariant to changes in the systems of territorial boundaries used (by counties, provinces, regions, States etc.).They summarize the main results of the analysis of large and complex tables on population and migration distributions into a few data permitting easy comparisons. Among these methods, we mention a few in the paragraph to follow.[6]

12. The characteristics of the geographical distribution of any population can be summarized by: (*a*) indicators of location, dispersion, main direction, asymmetry and concentration of the entire distribution; (*b*) subdivision of the population into a small number of subsets and calculation of the centres of population in each subset, so that the entire distribution is described by only a few points (by the centres of subsets). We can thus obtain indicators to describe the geographical distribution:

(i) Of the population studied at the beginning of the period surveyed; and

(ii) At the end of this period;

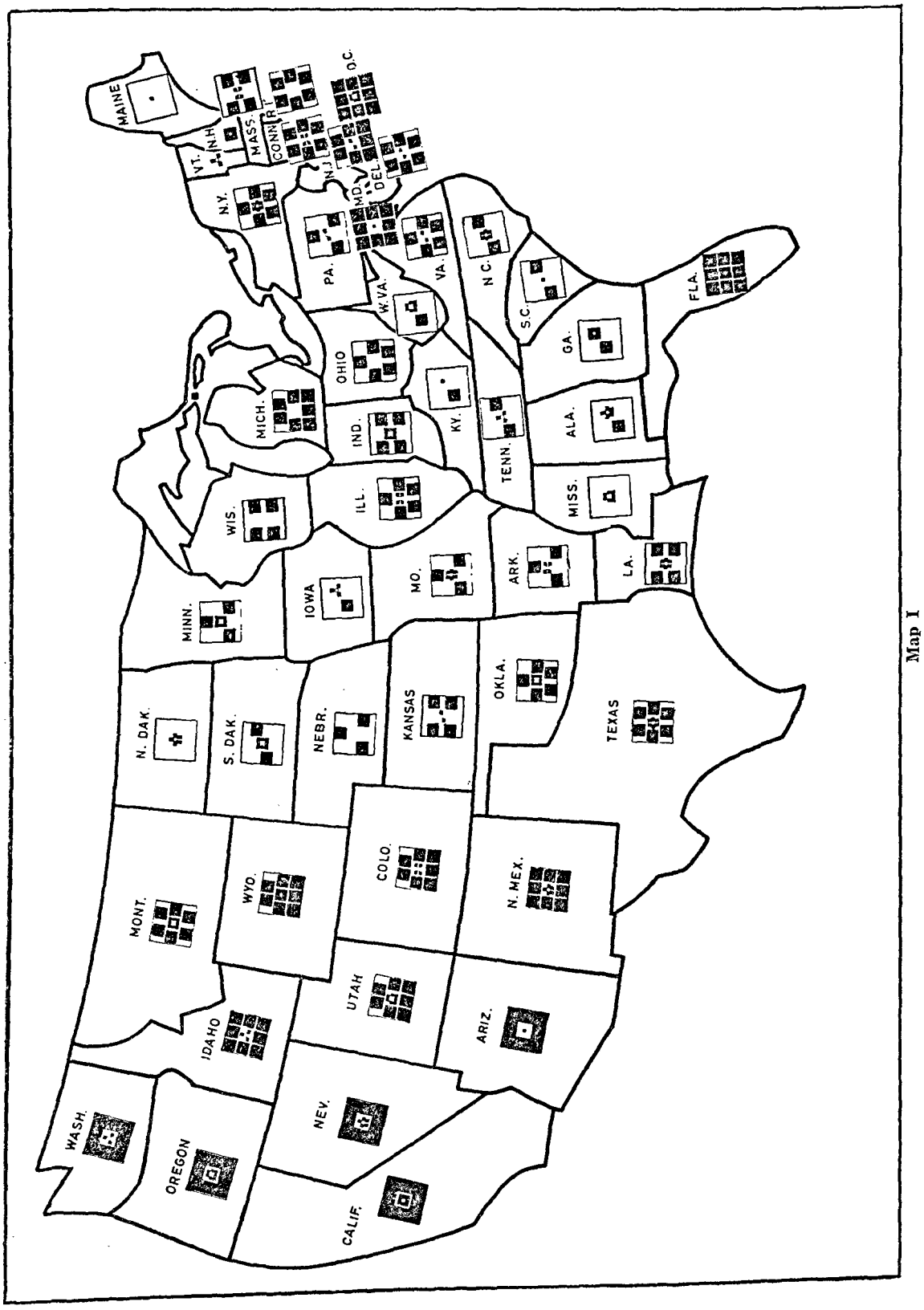
(iii) Of the places of origin of internal migrants;

(iv) Of their places of destination.

This study may reveal the extent to which changes in the population during the period surveyed are due to internal migration. Com-

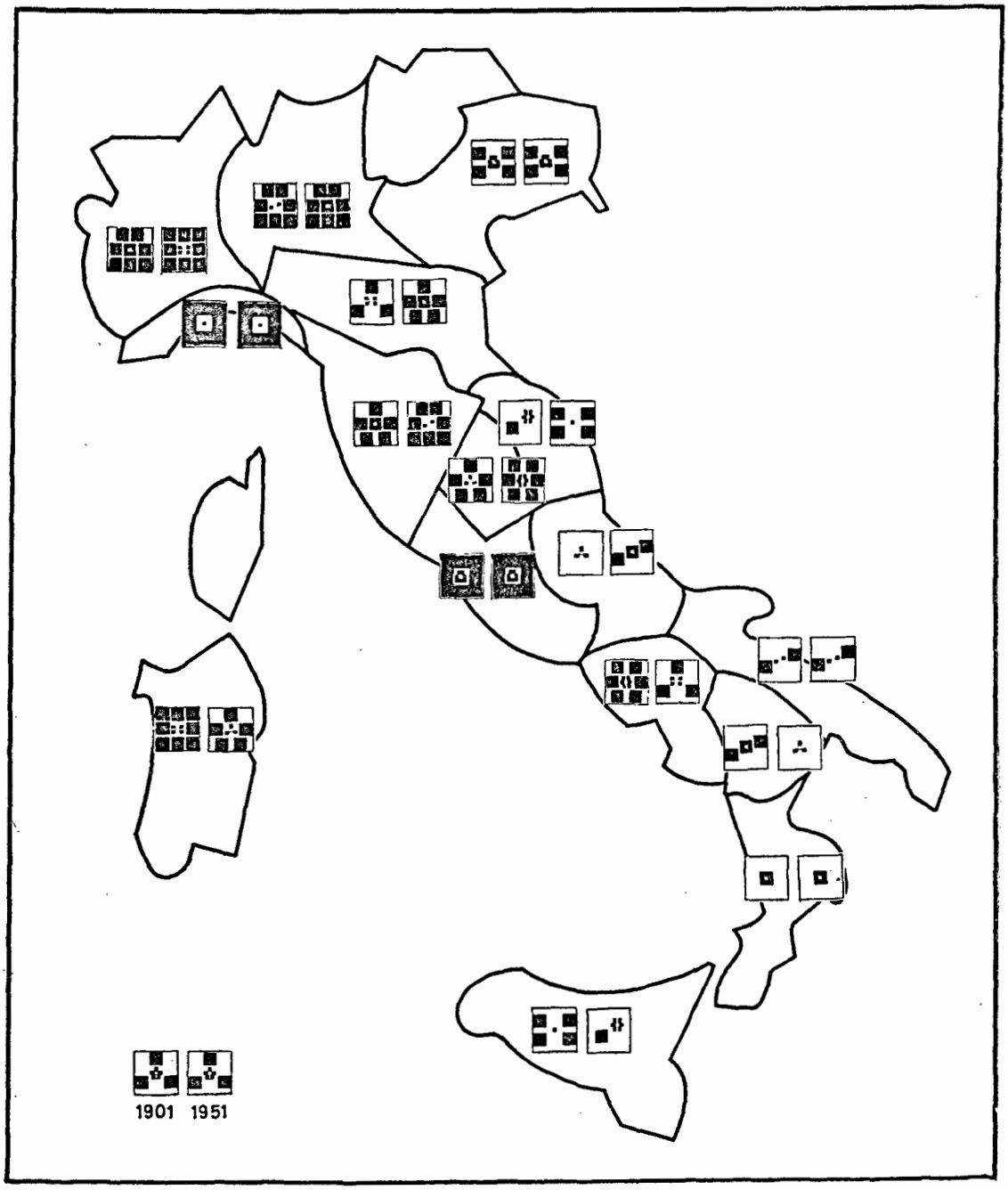
[5] One region has not been taken into consideration and others have been merged, in order to enable comparability of data for 1901 and 1951, despite changes in boundaries. The ranking describes accurately 94.2 per cent and 98.3 per cent of the 120 streams considered in 1901 and 1951 respectively.

[6] For description of some of these methods, see: R. Bachi, "Statistical analysis of geographical series", *Bulletin of the International Statistical Institute*, vol. XXXVI, part 2 (Stockholm, 1958); *Standard Distance Measures and Selected Methods for Spatial Analysis* (Regional Science Association, Papers X, Zürich Congress, 1962) and "Graphical representation and analysis of geographical-statistical data", International Statistical Institute Conference, 1965.



Map I

United States — preference scores in internal migrations (1950)



Map II

Italy — preference scores in internal migrations

parison with indicators of geographical distribution of:

(v) Births;

(vi) Deaths;

(vii) Places of destination of immigrants from abroad; and

(viii) Places of origin of emigrants

may enable the evaluation of the relative influence of other factors of population changes.

13. A deeper insight into the difference between the geographical distributions (i) through (viii) may be obtained by measuring the "distance" between each pair of these distributions, in particular, the distance between (i) and (ii), (iii) and (iv), and (i) or (ii) from (iii) or (iv).

14. The approaches indicated in paragraphs 12 and 13 are complementary. It may be shown that the indicators of characteristics of geographical distributions considered under paragraph 12 are the main components of "distance" between two such distributions. A few examples now will be given of applications of the methods indicated under paragraph 12.

15. Data on the geographical distribution of various population groups in Israel in the years between 1948 and 1964 enabled us to calculate the summary values mentioned under paragraph 12 for each year. For the Jewish population, it was found that the centre of gravity was subject to a continuous southward shift, while the dispersion of this population—as measured by its "standard distance"—increased from year to year.[7]

16. These findings were of interest in view of efforts made to spread the population over the territory and to develop certain areas, in particular, the Southern part of the country. It was possible to measure some factors which brought about these two changes in regard to the five years preceding the 1961 Census. This census provided statistics for the subdivision of the population into the following groups and summary indicators were calculated for each of their geographical distributions: (*a*) people who were living in Israel in 1956 and who did not change their place of residence between 1956 and 1961 ("non-mobile"); (*b*) people who changed their place of residence in Israel during the years 1956 to 1961 ("mobile"). It was found that the centre of gravity of their places of origin was more to the North than that of the non-mobile population, while the centre of gravity of their places of destination was far to the South. On the other hand, their "standard distance" before and after internal migration was almost identical; (*c*) immigrants after 1956; (*d*) those born after 1956.

17. For groups (*c*) and (*d*), it was found that their centres were more to the South than that of (*a*) and that their dispersion was considerably larger. We therefore can conclude that the southward shift of population was due to all factors, (*b*), (*c*) and (*d*), while increased dispersion was mainly due to (*c*) and (*d*).

18. It is well known that the centre of gravity of the population of the United States has shifted to the West. Calculations of "standard distance" for 1870-1960 show, too, that the dispersion of the population of the United States over the territory has increased continuously. In order to study the influence exerted by internal migrations on these geographical changes of the population, calculations have been made of (*a*) the centres and of places of birth of internal migrants; (*b*) the standard distances of places of birth of internal migrants;[8] (*c*) the centres and of places of residence of these migrants; and (*d*) the standard distances of places of residence of these migrants for each of the censuses 1870, 1900, 1930, 1960. The centres of gravity (*a*) and (*c*) for each of these years are shown on map III by small squares. Over each square, a pattern is given to represent standard distances (*b*) and (*d*), dispersion of places of origin and places of destination of internal migrants. In these patterns, every "unit" shows ten miles of standard distance. It is seen from map III that at any given date, the centres (*c*) are more to the West than those of (*a*), and the dispersions (*d*) are by far larger than (*b*): internal migration then has both a marked westward and a powerful centrifugal effect.

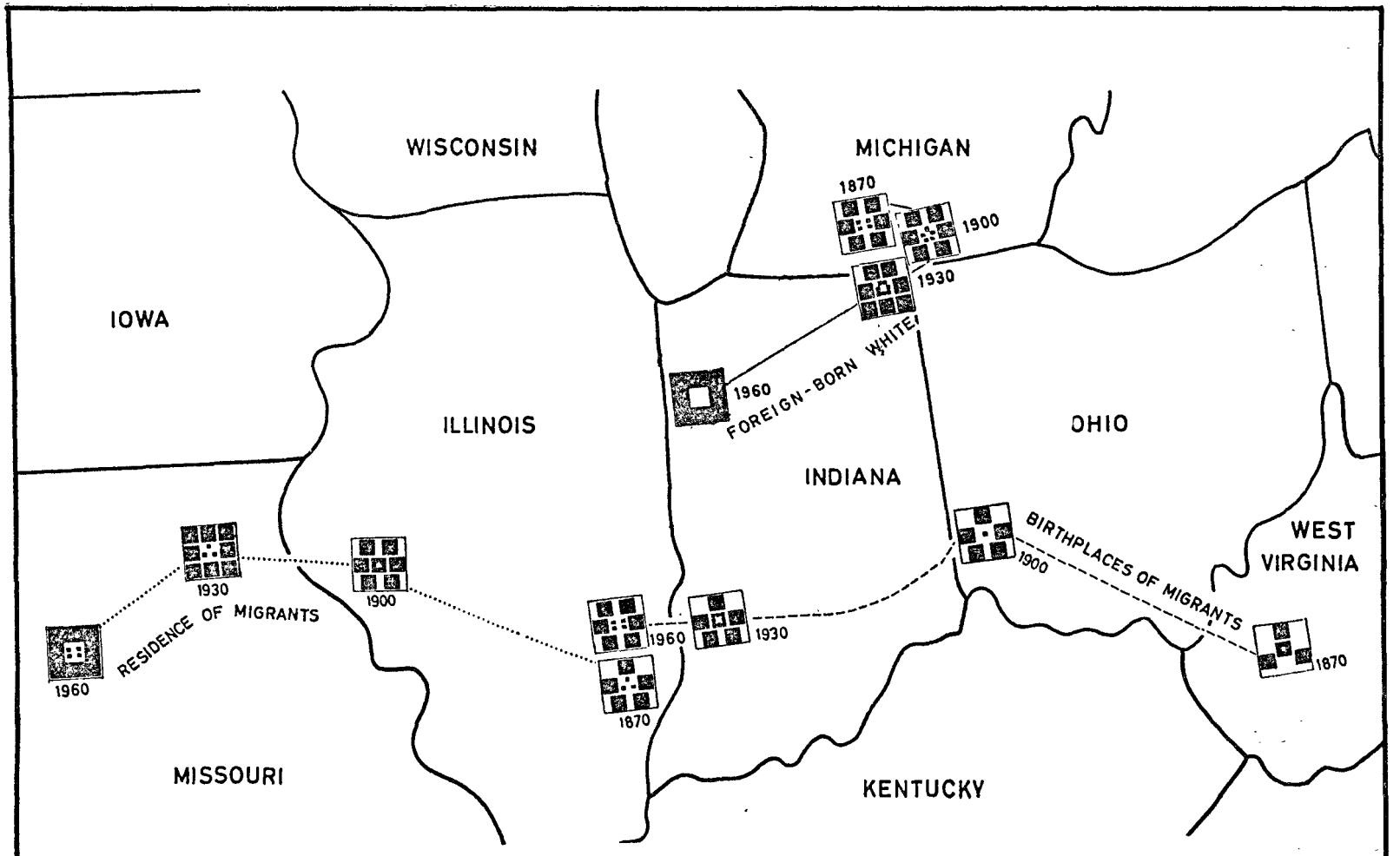
19. In contrast with the strong influence exerted by internal migrations on changes of the distribution of population of the United States, differential rates of natural increase may be considered as a secondary factor. Births and deaths (in 1940, 1950 and 1960) had similar standard distances, approximately equal to the standard distances of the population, and with centres not far from each other. In regard to the influence exerted on the population distribution by immigration from abroad, a detailed analysis has been conducted of centres and standard distances of foreign-born classified by countries of birth (1870-1960),

[7] The "standard distance" d is the weighted quadratic average of distances between each point i (of co-ordinates x_i, y_i, and weight $= w_i$) in a set of n points and the centre of gravity $(\bar{x}, \bar{y})$ of the n points of the set

$$d = \sqrt{\frac{\sum_{i=1}^{n} w_i[(x_i-\bar{x})^2 + (y_i-\bar{y})]}{\sum_{i=1}^{n} w_i}}$$

The "standard distance" is a useful measure of the dispersion of population over the territory.

[8] We consider as internal migrants people resident in a state of the United States different from the state of birth. The help of H. Brunsman of the United States Bureau of the Census in the preparation of the data represented in map III is gratefully acknowledged.



Map III
United States of America (1870-1960) centres and standard distances

which shows considerable differences in the distributions of migrants of various origins and their changes in the course of time. Considered as a whole, the foreign-born population has relatively heavy concentrations in both the North-east and in the West and has a considerable dispersion. The shifts of the centre of gravity of this population in the course of time have been smaller than those of the centres of gravity of the total population and of the "internal migrants" (see map III).

Internal migration in India, Pakistan and Ceylon

ASHISH BOSE

I. INTRODUCTION

1. Considering the total population size of India, Pakistan and Ceylon, the volume of internal migration is small; so is the impact of internal migration on the rate of population growth in different states and districts in these countries. Nevertheless, the fact remains that they can prosper only when their excessive dependence on agriculture is lessened. This reduction requires a sizable shift from agriculture to industry, a shift which is bound to result in considerable spatial mobility, notwithstanding the professed objectives of industrial decentralization, village industrialization and balanced regional development. Internal migration, and rural-urban migration in particular, must be viewed, therefore, as essential elements of economic growth and social change.

2. In the past, the study of internal migration in India, Pakistan and Ceylon has been handicapped seriously by the inadequacy of data on the volume, origin and direction of migration streams and on the demographic, social and economic characteristics of migrants. The 1961 census of India is a good starting point for comprehensive studies on internal migration. At this census, for the first time in the history of census operations in the subcontinent, the rural/urban origin of the migrants (defined in relation to place of birth) and the duration of residence in the place of enumeration were ascertained. Thus, it will be possible now to study, in quantitative terms, the four types of migration: (*a*) rural-to-urban; (*b*) urban-to-urban; (*c*) urban-to-rural; and (*d*) rural-to-rural.

3. In regard to other sources of data on internal migration, reference must be made to the National Sample Surveys of India,[1] the socio-economic surveys of several cities in India and Pakistan,[2,3] and the demographic study of the city of Colombo, Ceylon.[4]

II. RURAL-URBAN MIGRATION

Causes of migration: push or pull?

4. While data in different surveys on the causes of migration tend to highlight push as the main motivating factor in migration, Sovani disputes this conclusion,[5] and in a recent paper he argues convincingly against the "over-urbanization" thesis.[6]

5. It is our contention, however, that a migration analysis based on push and pull factors tends to be an over-simplification. Migration research today requires a more sophisticated approach. Elsewhere we have argued that push and pull factors must be interpreted in the over-all demographic context.[7] When there are high rates of natural increase in population not only in rural areas, but also in urban areas (as a result of high urban birth rates and rapidly declining urban death rates), the push factor operates in urban areas also. In India and Pakistan, the urban labour force is sizable

[1] Government of India, "Preliminary estimates of birth and death rates and the rate of growth of population", *National Sample Survey* No. 48 (Delhi, 1961); "Tables with notes on internal migration", *National Sample Survey*, No. 53 (Delhi, 1962).

[2] In 1954, the Research Programmes Committee of the Planning Commission of India sponsored socio-economic surveys in twenty-one Indian cities. For a summary of main findings in nine of these surveys, see J. F. Bulsara, *Problems of Rapid Urbanisation of India* (Bombay, Popular Prakashan, 1964).

[3] For an important Pakistani study, see Sultan S. Hashmi, *et al., The People of Karachi: Data from a Survey* (Karachi, Pakistan Institute of Economic Development, 1964).

[4] Government of Ceylon, "Demographic study of the City of Colombo", *Monograph No. 2* (Colombo, Department of Census and Statistics, 1954). This study is based on census data. See also: S. Vamathevan, "Internal migration in Ceylon, 1946-54", *Monograph* No. 13 (Colombo, Department of Census and Statistics, 1961).

[5] N. V. Sovani, "The urban social situation in India", *Artha Vijnana*, vol. III (June 1961), pp. 85-106, and vol. V (September 1956), pp. 195-224.

[6] N. V. Sovani, "The analysis of over-urbanization", *Economic Development and Cultural Change*, vol. XII, No. 2 (January 1964), pp. 113-122.

[7] Ashish Bose, "Urbanization in the face of rapid population growth and surplus labour — the case of India", *Indian Population Bulletin*, No. 3 (New Delhi, Office of the Registrar General, 1964).

and the urban unemployment rates are high; pools of under-employed and unemployed population already exist in the labour force and these pools act as deterrents to fresh flows of migration from rural areas to urban areas. We have called this the "push-back" factor. If new employment opportunities arise in urban areas, the first persons to offer themselves for employment are the marginally employed persons already residing there (unless, of course, special skills are required).

6. In support of this hypothesis, we point out that in urban India the unemployment rate was 8.2 per cent among the resident (non-migrant) population, while it was 6.4 per cent among the migrant population.[8] In Bombay City, it was found that 7.1 per cent of the resident males were unemployed, while only 4.5 per cent of the immigrant males (non-refugees) were unemployed.[9] At the same time, it is true that more people come to cities in search of employment, rather than in hopes of finding better employment. On the basis of National Sample Survey data, we have estimated that for every one hundred persons who migrate to urban areas in India because they have found better employment, 254 persons come because they are looking for employment.[10] These two facts (namely, the larger number of persons coming to cities in search of work, compared to those who come to cities after they have obtained better employment, and the lower unemployment rate among the migrants), taken together, indicate the operation of the push factor in both rural and urban areas. In other words, there are not always clear streams of migration from rural to urban areas, but there is probably a high rate of turnover migration, indicating push to-and-fro.

7. There is also another type of urban push. In the absence of social security measures, except in a limited sense and for a small section of the population, there is a constant push factor in urban areas which operates whenever a migrant in a city falls sick, is unemployed, or retires from service. This is especially true of the migrant who comes to the city expecting to find a job, but who fails to get one. Inevitably the migrant is pushed back to his village or to some other city in search of a job.

8. In regard to the push factor in rural areas, we may interpret "push" in a literal sense to indicate the dash and dynamism on the part of some sections of the population. In a recent study of migration in Punjab (India), Gosal lists among the causes of migration "the adventurous spirit of the Punjabis, whom distance does not deter in the pursuit of economic opportunities", but he also points out that areas whose out-migration is at the highest rate are areas where the density of population is the greatest, where the amount of per capita cultivated land is the smallest and where large portions of land have been affected by waterlogging.[11] This indicates the combination of positive and negative aspects of the "push" factor.

The tempo of rural-urban migration

9. In the absence of data on rural-urban migration in the censuses of India (barring the 1961 census), Pakistan and Ceylon, one has to look into the pace of urbanization to get an idea of the trend of rural-urban migration. (See table 1.)

10. During the decade 1941-1951, the rates of urban growth in India and Pakistan were approximately the same: 41.4 per cent for India and 41.9 per cent for Pakistan. In the next decade, 1951-1961, the rate of urban growth in India dropped to 34 per cent, while the urban growth rate in Pakistan rose to 56.4 per cent. One may note that during the years 1951-1961, the growth rate for the total population of India was 21.5 per cent, while it was 23.6 per cent for the total population of Pakistan. The rate of growth of the rural population was very much the same in both countries: 19.1 per cent for India (adjusted for definitional changes) and 19.8 per cent for Pakistan. A major problem for investigation is, therefore: what explains the slowing pace of urbanization in India and the accelerating pace of urbanization in Pakistan during the last decade? Part of the explanation may be statistical: Pakistan's urban population is small compared to India's and so it is also small in the proportion of urban population to total population. But this fact alone cannot explain the opposite trends in the tempo of urbanization. One may also note that in Ceylon also there has been a slight reduction in the tempo of urban growth.

11. A recent paper by Zachariah estimates that the net rural-urban migration in India

[8] Computed from data presented in "Tables with notes on internal migration", *National Sample Survey*, No. 53 (Delhi, 1962).

[9] D. T. Lakdawala, *et al., Work, Wages and Well-being in an Indian Metropolis: Economic Survey of Bombay City* (Bombay, 1963), p. 482.

[10] Computed from Government of India, "Tables with notes on internal migration", *National Sample Survey*, No. 53 (Delhi, 1962).

[11] G. S. Gosal, "Redistribution of population in Punjab during 1951-61", *Seminar on Population* (Delhi, Institute for Economic Growth, 1964).

Table 1. Growth of urban population in India, Pakistan and Ceylon

	(Per cent increase per decade)		
	India	*Pakistan*	*Ceylon*
1901-1911	0.4	8.5	
1911-1921	8.3	16.1	
1921-1931	19.1	32.1	
1931-1941	32.0	44.1	38.8 (1931-1946)
1941-1951	41.4	41.9	21.1 (1946-1953)
1951-1961	26.4 34.0 [a]	56.4	28.0 (1953-1963)

SOURCES: Government of India, *Census of India, 1961,* vol. I (Delhi, 1964), part II-A(i), General Population Tables; Government of Pakistan, *Population Census of Pakistan 1961,* Census Bulletin No. 2 (Karachi, 1961), p. 14, Sex, Urban-rural, Religion; Government of Ceylon, *Census of Ceylon 1953,* vol. I (Colombo, 1957), p. 152, General Report; "Country statement for Ceylon", *Asian Population Conference* (United Nations publication, Sales No.: 65.II.F.11).

[a] Calculated on the assumption that the same definition of "urban" applies in 1961 as in 1951.

during the decade 1941-1951 was 8.2 million, whereas it was 5.2 million during the decade 1951-1961.[12] In Pakistan also there has been some surprise about the small volume of migration from rural areas to the city of Karachi, which had a growth rate as high as 79.6 per cent during the period 1951-1961. According to a recent survey of Karachi, only 9 per cent of the total number of workers in that city came from rural areas of Pakistan.[13]

III. OTHER TYPES OF MIGRATION

12. In old census reports, there used to be considerable amounts of speculation about the magnitude of marriage migration, that is, the migration of females from rural areas to urban areas and also to other rural areas, consequent upon marriage. On the basis of the National Sample Survey of India (No. 53), it is possible to estimate the relative importance of economic migration and marriage migration. In urban areas of India as a whole, only 1.8 per cent of the female migrants came there in search of employment, although 46.2 per cent of them came because of marriage.

13. Marriage migration is particularly relevant to the study of rural-to-rural migration. The marked female selectivity in short-distance rural-to-rural migration streams is shown in table 2.

14. Associational migration, representing migration of family members and other dependents with the migrant earners, is also sizable among female migrants who move to urban areas. Here, there are considerable regional variations. Migration in south India, for example, is more of a family type than the

[12] K. C. Zachariah and J. P. Ambannavar, "Population redistribution in India: interstate and rural-urban", *Seminar on Population* (Delhi, Institute for Economic Growth, 1964).

[13] Mohammed Irshad Khan, "Industrial labour in Karachi", *Pakistan Development Review,* vol. III, part 2 (Karachi, 1963) pp. 598-599.

Table 2. Masculinity ratio of migrants in West Bengal, 1951-1961 (males per 1,000 females)

Areal units	*Type of migration*			
	Rural-urban	*Urban-urban*	*Urban-rural*	*Rural-rural*
1. Within the district of enumeration..	1,018	1,022	613	360
2. Within the state, but outside the district of enumeration.....	1,270	1,066	737	392
3. Born in other states of India, but enumerated in West Bengal.....	3,247	2,150	1,499	1,797

SOURCE: computed from unpublished provisional migration data in the 1961 census of India (courtesy of the Registrar General, India).

adult male migration which is common in north India.[14]

15. From the sociological point of view, the phenomenon of the "lone" migrant is of considerable importance. Defining a lone migrant as a married man who has left his family behind, we have estimated that more than 40 per cent of the migrant households in Calcutta belonged to lone migrants.[15] These migrants send money home regularly and live as frugally as possible in the city. According to Asok Mitra, in the period 1960-1961, migrants in the Calcutta industrial region sent out 276 million rupees by postal money orders, the average value of a money order being Rs. 46. In Mitra's words, "These figures afford some idea of the further savings which the worker carries with him on his annual holiday, and also of how he gets along without the barest minimum housing, sanitation, comfort and privacy".[16] One wonders how such a lone migrant gets along with the barest minimum of family life.

16. In Indian cities, there is some evidence to indicate that intra-urban migration is increasing. In Kanpur city, for example, migrants from urban areas constituted 20.6 per cent of the total number of migrants during the period 1941-1945, while this figure rose to 33.0 per cent during the period 1950 and after.[17]

17. Nothing has been mentioned in this paper about migration rates, gross or net, in the absence of detailed census data. When the migration tables of the 1961 census of India and Pakistan and the 1963 census of Ceylon are published, however, there will be scope for a series of statistical studies on internal migration.

[14] Noël P. Gist, "Selective migration in urban south India", *Proceedings of the World Population Conference, 1954*, vol. II (United Nations publications, Sales No.: 1955.XIII.8), pp. 811-821.

[15] S. N. Sen, *The City of Calcutta* (Calcutta, 1960), pp. 164, 180.

[16] Asok Mitra, *Calcutta, India's City* (Calcutta, 1963), p. 22.

[17] D. N. Majumdar, *Social Contours of an Industrial City* (Bombay, 1960), p. 71.

Economic development and internal migration

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[*Translated from Russian*]

1. The entire history of economic development in the Soviet Union is striking evidence of the fact that industrialization is an essential requirement for raising the economic potential of a country setting out on the path of independent development. The creation of industry is accompanied by an expansion of the country's productive resources. By 1937, owing to the successful implementation of the programme of industrial development, industrial production in the Soviet Union was 490 per cent higher than it had been in 1913. During that period, the production of capital goods increased by more than 900 per cent. A fundamental change occurred in the structure of the country's fixed productive assets. Industry and construction, which in 1913 had comprised 8.9 per cent of all such assets, accounted for 25.7 per cent in 1940. New industries, which manufactured tractors, automobiles, machine-tools, agricultural machinery etc., were set up and developed. Heavy industry was drastically reorganized. Owing to the success of industrialization, agriculture, too, began to make rapid strides.

2. The years that followed brought even greater progress in Soviet economic development. Today, the level of industrial production in the Soviet Union is more than 500 per cent higher than it was in 1940. The production of capital goods has risen more than 700 per cent, and there has been an increase of more than 400 per cent in fixed industrial assets. Soviet industrial production is now roughly 63 per cent of that of the United States; it is the largest in Europe and the second largest in the world.

3. The industrialization of the country has resulted in a substantial expansion of the productive and technological base of industry in every part of the country, particularly in the formerly under-developed areas. There, industrial production has risen sharply, increasing in some republics even more rapidly than in the country as a whole and in the regions where development had come earlier:

	Rate of increase in gross industrial production by Republics — 1962, as compared to	
	1931 (=1)	*1940 (=1)*
Union of Soviet Socialist Republics	48	6
Russian Soviet Federative Socialist Republic	50	6
Ukrainian Soviet Socialist Republic	32	4
Byelorussian Soviet Socialist Republic	42	5
Uzbek Soviet Socialist Republic	23	5
Kazakh Soviet Socialist Republic	72	9
Georgian Soviet Socialist Republic	46	5
Azerbaidzhan Soviet Socialist Republic	20	3
Kirghiz Soviet Socialist Republic	73	7
Tadzhik Soviet Socialist Republic	46	5
Armenian Soviet Socialist Republic	81	9
Turkmen Soviet Socialist Republic	25	4

4. As regards the Republics which joined the Soviet Union in 1940, gross production was thirteen times as great in the Lithuanian and Latvian Republics in 1962 as it had been in 1940, fourteen times as great in the Estonian Republic and eleven times as great in the Moldavian Republic.

5. The successful industrialization of the various republics and economic regions has helped to bring them closer together in terms of economic development. The gap in the levels of productivity of social labour and in the availability of power and machinery in production is gradually being closed. Natural resources are being exploited to more nearly the same extent.

6. The rapid development of industry, construction, transport and other sectors of the economy in the formerly under-developed or

newly developed regions has brought about an increased demand for labour. However, this need cannot always be fully met by the working population of these regions, where the rate of economic growth and the demand for labour often outpace the growth of local manpower resources. Migration helps to counteract the manpower shortage in the developing regions.

7. The causes of internal migration are varied and are wholly dependent on the social and economic conditions prevailing in the given country.

8. Migration in capitalist countries is primarily a consequence of poverty and relative overpopulation. The migrants are driven by circumstances and the movement is spontaneous in nature. Migration from agricultural to urban areas is caused mainly by the steady systematic impoverishment and dispossession of the peasants and the impoverishment of rural artisans whose work is connected with agriculture. Millions of former small independent producers leave the rural areas and sell their services in the urban labour market.

9. The movement of agricultural workers to the towns adds to the pool of unemployed manpower, which is an essential part of the capitalist productive process. Increasing unemployment tends to promote a constant movement of population. Driven by want, the migrants move from place to place in search of work. The direction of this constant migration is determined by the movement of capital. The capitalist State takes very little part in organizing migration, the migrants themselves being left to bear all the costs of these movements.

10. The rate of mechanical population movement in the capitalist countries is extremely uneven and fluctuates with the various phases of the economic cycle. During boom periods, it rises; during crises and depressions, it drops. Thus, the urban population of the United States rose by 27.3 per cent between 1 April 1921 and 1 June 1931; between 1 June 1931 and 1 April 1940, when the economic crisis was at its worst, it rose by only 8 per cent, but there was another sharp increase of 29.6 per cent during the period from 1 April 1940 to 1 April 1950.

11. Because of the fact that social and economic conditions are radically different from those prevailing in the capitalist countries, the causes and nature of migration in the Soviet Union are fundamentally different. Movements of population is created by constant technological progress and by the planned distribution of productive resources, which calls for the comprehensive development of all parts of the country, including the formerly backward ones, the exploitation of natural resources, the incorporation of unexploited land into the economic process etc.

12. The primary purpose of migration in the Soviet Union is to provide manpower for developing areas where there is a shortage of labour; it helps to bring about a more even distribution of the population in accordance with the development of productive resources.

13. Migration in the Soviet Union is undertaken with due regard for both the public interest and the interests of the individuals concerned. Hence, it is highly effective from an economic standpoint. Not only is there no unemployment in the Soviet Union but its causes have been eliminated for all time. The State ensures full employment and the rational use of the entire labour force. Migration is promoted by the absence of unemployment, crisis-free economic development and the fact that people have no fear of finding themselves out of work if they move to another locality.

14. Planned, organized migration helps to raise the productivity of social labour, increase social production and raise standards of living. Organizing migration is an important function of the State. Through current and long-term planning, the State determines the economic development of each region in the light of local conditions. On the basis of the planned volume of production and the growth of labour productivity, manpower requirements are fixed and the economically desirable volume of migration from one region to another and from rural to urban areas is determined.

15. State agencies are responsible for the organized recruitment of workers and specialists for existing and planned enterprises; manual and non-manual workers are redistributed on a planned basis among enterprises forming part of a given economic sector but situated in different parts of the country. Special vocational training schools prepare personnel for work in various regions. The network of higher and secondary specialized educational establishments is responsible for the planned training and distribution of specialized personnel. After completing their studies, graduates are assigned to work appropriate to their training and qualifications in areas where workers are needed.

16. The collectivization and mechanization of agriculture has brought a rapid increase in farm labour productivity, thus freeing manpower for other work. It is the task of State

organs to carry out organized recruitment, mainly among the rural population, for work in other economic sectors—particularly industry and construction—in the same or other parts of the country. In addition to organized recruitment, resettlement takes the form of the transfer of rural inhabitants from densely populated to sparsely populated areas, public appeals for resettlement with a view to working on major construction projects and in virgin land areas, etc. By carrying out planned population transfers, the State ensures that a permanent, stable labour force is available in various regions.

17. In addition to migration organized by state organs, there is also individual migration. This, too, cannot be characterized as spontaneous, since the flow of individual migration is determined by planning for the development and distribution of productive resources.

18. In the Soviet Union, much of the expense involved in planned, organized migration is borne by the State. It is the responsibility of the State to provide migrants with jobs, housing, medical services etc. In resettlement areas, the State gives a great deal of attention to expanding the construction of social and cultural facilities and developing passenger transport, communications and other public services. The State gives migrants long-term loans to enable them to build and furnish their homes.

19. In order to keep track of the flow of migration throughout the country, compulsory registration of arrivals and departures by housing offices has been introduced in all Soviet towns and rural settlements. For every person arriving or departing, a special form containing the following information is completed: given name and surname, date of birth, place of birth, sex, nationality, place of origin (destination), purpose of stay (departure)—work, study, vacation, medical treatment etc.—length of stay, place of work, occupation, children under sixteen arriving (departing). These forms are sent to the State statistical organs for processing, and figures are obtained in a breakdown by republics and regions for the number of arrivals from other localities (showing whether they arrived from rural areas or towns in the same or another area) and departures for other localities, the mechanical increase in population, and the sex and age distribution of the migrants.[1] Summary migration figures are compiled at quarterly intervals and detailed figures each year. The sampling method is used, and the data thus obtained are applied to the total number of migrants.

20. Migration from the countryside to the towns has brought about a sharp increase in the urban population and decrease in the rural population of the Soviet Union:

[1] Data can also be obtained from these forms on the causes and seasonal fluctuation of migration and the social composition of migrants.

	1913	*1920*	*1926*	*1939*	*1959*
Total population of the Soviet Union in millions (within frontiers of 17 September 1939)	139.3	136.8	147.0	170.6	188.1
Urban population	24.8	20.9	26.3	56.1	93.9
Rural population	114.5	115.9	120.7	114.5	94.2
Changes in:					
Urban population	—	−3.9	+5.4	+29.8	+37.8
Rural population	—	+1.4	+4.8	−6.2	−20.3

21. By the end of the period of reconstruction (1926), the urban population showed an increase of only 26 per cent over 1920, but during the period from 1926 to 1939 it more than doubled. This was an increase of unprecedented proportions.

22. In subsequent years, the urban population of the Soviet Union continued to grow at a rapid rate. Between 1939 and 1959, despite the heavy losses suffered during the war, it rose by 39.6 million within the country's present frontiers. On 1 January 1964, it stood at 118.6 million and was thus almost twice as high (the increase was 96 per cent) as in 1939.

23. The urban population has increased even more sharply in those Union republics and economic regions which at one time were economically backward. Thus, while the national rate of urban population growth for the period 1926-1939 was approximately 113 per cent, the urban population of the Kazakh Soviet Socialist Republic rose by 222 per cent and that of the Turkmen Soviet Socialist Republic by 204 per cent. The growth rates for the national

republics were still higher for the period 1939-1962; whereas the urban population of the Soviet Union as a whole increased by 90.5 per cent, the corresponding figures were 200 per cent for the Kazakh Soviet Socialist Republic, 230 per cent for the Kirghiz Soviet Socialist Republic, 210 per cent for the Tadzhik Soviet Socialist Republic and 190 per cent for the Armenian Soviet Socialist Republic.

24. The higher rate of urban population growth in these republics was due to their higher rate of industrial development. During the period 1940-1962, gross industrial production in the Soviet Union rose 530 per cent, but the increase was more than 800 per cent for the Kazakh and Armenian Republics and 640 per cent for the Kirghiz Soviet Socialist Republic. The growth of industrial production was accompanied by an increase in agricultural production. Between 1953 and 1962, gross agricultural production increased more than 100 per cent in the Kazakh Soviet Socialist Republic and approximately 60 per cent in the Armenian and Kirghiz Republics.

25. The urban population has also increased substantially in the eastern economic regions. In the Urals region of the Russian Soviet Federative Socialist Republic, for example, the urban population rose by 134 per cent between 1939 and 1962, while there was an increase of 163 per cent during the same period in the Far Eastern region.

26. The growth of the urban population in the Soviet Union has resulted mainly from migration from the countryside to the towns:

	1926-1938	*1939-1958*
Total increase in urban population of the Soviet Union (in millions) [a]	29.8	39.6
Accounted for by:		
Migration from rural to urban areas	18.7	24-25
Transformation of villages into towns	5.8	7
Natural increase	5.3	8

[a] Figures for 1926-1938 apply to territory of the Soviet Union within frontiers of 17 September 1939; those for 1939-1958 apply to present territory of the Soviet Union.

27. The increase in the urban population resulting from migration amounted to 63 per cent between 1926 and 1938 and more than 60 per cent between 1939 and 1958.

28. Migration from rural to urban localities proceeded in many different directions. During the period 1926-1939, there was a heavy flow of rural dwellers into the largest of the older industrial centres (Moscow, Leningrad, Kharkov, Gorki, Tula, Yaroslavl etc.), where there were already concentrations of highly skilled workers, engineers and technicians. It was in these cities, where there were scientific research institutes and design organizations, that new technology was developed, new industries established and new skilled workers trained. Hence the flow of migration from rural areas to these older industrial centres, leading to their rapid growth. There was also a heavy flow of rural migration to the northern and in particular the eastern regions of the Soviet Union (to the Urals, Siberia, the Far East and Kazakhstan), which had immense natural resources whose exploitation was essential in order to raise the over-all level of the country's productive resources. In addition, scores of new urban settlements were established and developed as entirely new industrial centres (Magnitogorsk, Karaganda, Komsomolsk-on-Amur etc) on the sites of what had been villages or simply on "empty spots".

29. The flow of migration between 1939 and 1958 sometimes brought rural inhabitants to towns in the same region and sometimes to towns in nearby regions or in other parts of the country. The main areas absorbing migrants were the Urals, the Central Industrial Region, the Donets Basin and Dnieper region, Siberia, Central Asia and Kazakhstan.

30. Migration resulting from industrialization, the development and intensive exploitation of natural resources etc. is also a significant factor in changes in the total population of the Union republics and of economic and administrative regions. While the total population of the Soviet Union increased by 17 per cent between 1939 and 1962, the increase was 88 per cent for the Kazakh Soviet Socialist Republic, 63 per cent for the Kirghiz Soviet Socialist Republic and 57 per cent for the Armenian Soviet Socialist Republic. Certain economic and administrative regions also registered a sharp rise. Thus, over-all population growth between 1939 and 1962 was 73 per cent in the Far Eastern economic region, 80 per cent in the Kemerovo region and 85 per cent in the Chelyabinsk region. At the same time, the population of agricultural areas declined during the period of industrialization as a result of migration from rural to urban localities in the same or other areas. Thus, the population of the Central Black Earth region fell by 13 per cent between 1939 and 1962 and that of the Byelorussian Soviet Socialist Republic by 6 per cent.

31. The migrant population includes people of all ages but is made up primarily of people of working age, particularly those between 18 and 35.

32. The ratio of male and female migrants varies in the different economic and administrative regions. For the country as a whole, the migrant population includes somewhat fewer women than men.

33. Migration tends to alter the sex and age distribution of the population in both urban and rural areas. Among the urban population there is a higher proportion of males and the proportion of persons of working age is gradually rising, while in rural areas it is falling. In 1939, the rural working population totalled 64.9 million, as against an urban working population of 37.3 million—a difference of 27.6 million. By 1959, however, the picture had changed: the total working-age population was 4.6 million higher in the towns than in rural areas, while the population below and above working age was 13.4 million greater in rural areas than in the towns. In 1963, the proportion of males in the working population was 48 per cent in the towns and 46 per cent in rural areas. The proportion of persons of working age was approximately 60 per cent in the towns and 48 per cent in rural areas, and the proportion of those below or above working age was lower in the towns than in rural areas. 29 per cent of the urban population and approximately 37 per cent of the rural population was below working age, while 11 per cent of the urban population and 15 per cent of the rural population was above working age. Of the Soviet Union's total population of 223.1 million at the beginning of 1963, 115.1 million, or 51.6 per cent, lived in towns and 108 million, or 48.4 per cent, in rural areas. The working-age population amounted to 120.5 million, of which 68.6 million, or 56.9 per cent, lived in towns and 51.9 million, or 43.1 per cent, in rural areas; of a total of 102.7 million persons below or above working age, 46.5 million, or 45.3 per cent, lived in towns and 56.2 million, or 54.7 per cent, in rural areas.

34. All this has an effect on population reproduction. Because of the growth of the urban population, whose birth rate is considerably lower than that of the rural population, there has been a decline in the over-all national birth rate and, to some extent, in the rate of natural increase. The drop in the indicators for population reproduction is, of course, attributable not only to migration but to a number of other factors as well.

35. Although much has been done during the period of Soviet rule to raise the educational level of the population, and the wide gap which formerly existed between urban and rural areas in that regard has been narrowed, the educational level of the urban population is still much higher than that of the rural population. Migration from rural to urban localities helps to raise the cultural level of the entire population as well as its level of vocational training. Industrial training at factories and in specially organized schools and courses plays an important part in raising the cultural and technical level of the population.

36. Migration from rural to urban areas and from areas with adequate manpower reserves to those suffering from manpower shortages promotes better utilization of labour resources. The new numerical correlations between the urban and rural populations in various economic and administrative regions and Republics of the Soviet Union reflect a new, higher level of development of the country's productive resources and a new and more progressive economic structure.

Internal migration in Brazil

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[*Translated from French*]

INTRODUCTION

1. Despite the importance of internal migration in Brazil's formation and especially in its national development process, we do not yet have adequate statistical information either on the exact extent of the migratory movements or on the particular places where the migrants settled. The data are partial and insufficient, the most meaningful of them relating generally to the north-east to south movement by inland routes; those concerning the same movement, but by sea routes, are inaccurate. No figures are available on the migrations to other areas—the settlement of Rio Grande do Sul, Belém-Brasília and even Brasília itself.

2. The census returns are also inadequate. The results of the 1940 and 1950 censuses are available but those of the 1960 census have not yet been published. However, the 1940 and 1950 returns show only the number of persons from one state who were enumerated in another. That is the only information available on this subject; we know nothing of the age, occupation, sex etc. of those born in a particular state who were in another at the time of the census.

3. This constitutes part of the information used in this paper, and it is supplemented with other available statistics. But since full information on the 1960 census is not yet available, it is obvious that this study cannot purport to be in any sense original. In the main it repeats what has already been said and is already known about internal migration. To round out the material I have drawn on certain bibliographical sources, selecting the books that seem most helpful from the standpoint of information, background material or interpretation.

I. CAUSES AND EFFECTS OF INTERNAL MIGRATION

4. The main causes of internal migration in Brazil are threefold:

(*a*) The actual process of human occupation of the territory, resulting in shifts from one region to another, as dictated by the needs of population growth;

(*b*) Poor living conditions and the execrable level of living of the populations in the interior, especially where large rural estates predominate;

(*c*) The imbalance resulting from the development of industry and the complete abandonment of agriculture.

5. The first of these causes is historical; but it is also contemporary. It explains the treks undertaken throughout the centuries to occupy new areas of Brazil. These occurred periodically with the opening up of new routes to the interior for the country's final occupation. In the seventeenth and eighteenth centuries these movements radiated in various directions; and in the nineteenth century, as new regions were opened up, people from other areas took them over and settled them. This is still happening today with the spearheading of pioneer areas, particularly in the so-called Central West.

6. At present, three main pioneer areas may be distinguished:

(*a*) The area west of São Paulo is beginning to spread to the south of Mato Grosso;

(*b*) The area known as Mato Grosso de Goiás, developed following the founding of Goiânia and the establishment of the new capital;

(*c*) The area separated from Minas Gerais by the Rio Doce and extending north of Espírito Santo and, in part, south of Bahia.

7. Another area—Xapecó-Pato Branco in the State of Santa Catarina—might have been regarded as a pioneer region until some time in the middle of this century, but it is now losing that character and becoming a migration area.

8. The second cause, which is responsible in particular for the rural exodus, contributes to the migration of populations, rural or otherwise, who, hoping to find new sources of income, abandon areas which are impoverished or unable to assimilate them economically and

set out in search of more prosperous land. The best examples of this second cause are, *inter alia*, the attraction of the São Paulo coffee plantations, the opening of the Belém-Brasília highway and the occupation of the west with the founding of the new capital.

9. There have also been cases of population groups from the interior leaving their lands to settle others which had been abandoned by a labour force attracted to industry. This was particularly true in the case of São Paulo, where people from the north moved into the *fazendas* whose inhabitants had left to find factory jobs in the big industries. These movements occurred at the time of São Paulo's growth.

10. It is a fact that the rural inhabitants, and, generally speaking, the people in the interior of the country, live in sub-standard educational, health and economic conditions. This creates resentment that is growing steadily stronger under the influence of the large estates which, by preserving outmoded working methods, are responsible for a system of labour relations that still bears the stamp of feudalism or at best semi-feudalism. Internal migration is thus increasing as groups of people set out to find better living conditions.

11. To this we must add the fact—and here we come to the third cause—that Brazil's economic development, based on giving priority to industry, has been pursued to the detriment of rural activity. As a result, a magnet has been created for rural migration which operates simultaneously with the repelling force of poor living conditions in the interior. Brazil's development has proceeded unevenly, particularly since 1950 when the effects of the Second World War ceased to be felt. The model for development is industrialization, while agriculture is belittled. In addition, an inflationary spiral emerges and affects first and foremost the factors conducive to agricultural productivity. The result is a shortage of goods, steadily rising prices and constantly declining purchasing power.

12. This imbalance leads to two phenomena of major significance from the standpoint of internal migration: (*a*) increasing migration to the big cities; the migration often occurs before the cities have a labour market capable of absorbing the new population; and (*b*) the formation of marginal groups known as *favelados*, i.e., people living in the mushrooming *favelas* (shanty-towns).

13. The building of Brasília offers a good illustration of these two phenomena in recent times (1956-1961). Migration to the new capital is on the rise, mainly because of the manpower requirements of rapid construction, while at the same time, marginal groups are forming. The same is happening elsewhere. Migration to São Paulo is rising as a result of industrial expansion, for São Paulo is the centre of a new industrial boom, primarily in the motor vehicle sector.

14. The present situation in the new capital is not well known so far as migration is concerned. The data for 1959—the year before the capital's inauguration—show a population of 64,314, with 63,098 born in Brazil. But of the total, only 7,361 were born at Brasília. Allowing for 1,216 aliens, we find that 56,953 persons migrated there, most of them from other states of Brazil.

15. Of the 55,737 Brazilians who came and were enumerated at Brasília, the majority were from neighbouring States, i.e., Goías, Minas Gerais and São Paulo. Goías alone supplied 21,408 persons, or 38 per cent of the total. Among the northern states, the largest contributors were Ceará, Pernambuco and Paraíba, adding up to a total of 7,654 migrants. Migration to Brasília was thus mainly from near-by areas and the more distant states made only a minor contribution.

16. An examination of the 1950 census figures for the capitals confirms that the growth of their populations is the result of internal migration. Two aspects of the latter deserve special mention: first, the high percentage of adults, much higher than the figure for Brazil as a whole; and, secondly, the growing proportion of male adults, although there is also a sizable female component comprising women who came from the country-side to the capitals to enter domestic employment.

17. From the 1940, 1950 and 1960 census returns we can follow the change in population of the capitals during the past three census periods. We find from the absolute figures and even more from the percentage increase that the capitals grew most strikingly during the last period. Outstanding examples are Goiânia and Curitiba, and in part Fortaleza and Belo Horizonte, both capitals of emigration states. On the other hand, there are a few cases of capitals where the increase is negligible (Cuiabá, Florianópolis and Niterói, for example) or where there was a decline rather than expansion (Manaus, São Luis, Natal and Recife, for example).

18. The forces of attraction have become significant factors in the growth of internal migration, accelerating the rapid pace already

set by local forces of repulsion. Groups of migrants set out in search of new quarters, either in expanding rural areas or in urban areas being built up or industrialized. Thus migrations produce effects which might be considered positive and favourable. For one thing, the migrants occupy uninhabited areas, bringing economic activity to them; for another, they provide manpower for the urbanization process, either by plying useful trades—mainly in the tertiary sector and particularly in civil construction—or by seeking better conditions and adapting to the urban setting with its various peculiarities. It is true that quite often they form marginal groups in the towns, with their *favelas, mucambos* and *malocas*. But that is part of the urbanization phenomenon and of the very process of internal migration. Actually, it is a transitional phase in both these cases.

II. Internal distribution

19. In 1950, according to the census data, 5,206,319 Brazilians were living in a state other than that of their birth; thus 10.28 per cent of the inhabitants were outside their original state. In a few administrative units, the presence of people from other states was particularly striking, especially in the territories established only seven years earlier; in these areas persons from other states were in the majority. There were two reasons for this: the first was that most of these persons had been born in the state to which the territory had belonged until 1943, and the second was that economic factors had directed migratory streams towards some of these territories from neighbouring regions. Acre, which is now a state but was still a territory in 1950, received a great wave of migrants in the first two decades of this century, owing to the rubber-extracting industry.

20. The administrative unit with the largest proportion of immigrants from other units in 1950 was the then Federal District, now the State of Guanabara. Immigrants constituted 42.92 per cent of the population enumerated in 1950. Next came the State of Paraná, with a figure of 32.55 per cent. Goiás was third, with 23.23 per cent. Leaving aside the former Federal District, which was always a centre of attraction and settlement for people from other parts of Brazil (this has been so since the nineteenth century when it, with the Court, became the seat of the Imperial Government and then, in 1888, the seat of the Government of the Republic), the States of Paraná and Goiás have been the main pioneer areas to be expanded, cleared and settled, the former from the mid-1930's and the latter from the 1940's.

21. There are states which, despite larger percentages of immigrants from other units, cannot be included in the same general category. Rio de Janeiro, in fourth place with a percentage of 16.19, became a centre of attraction for migrants owing to industrial development, originally with the construction of the Volta Redonda iron and steel works and later with the development of industrial activity in the Paraíba valley. The same is true of São Paulo, 12.16 per cent of whose population originally came from other states; the factor responsible for attracting them is industrial development, due partly to the expansion of coffee-growing towards the State of Paraná. However, the State of Mato Grosso, which is in fifth place with a percentage of 15.54, must be placed in the group of states which offered new areas for pioneer expansion.

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Rural-urban migration in the European Economic Community

KURT HORSTMANN

1. Emigration from rural regions in Western Europe was in limited amounts until the first half of the nineteenth century. In many areas, the source of subsistence for the rural population had not been farming alone, but also activities in decentralized industries. These areas proved to be over-populated in the beginning of the nineteenth century because of the large increase in population and the decline of decentralized industries as a result of the rise of factory industries in the towns. The urban industry did not provide sufficient possibilities for employment or the rural population did not like to work in the dirty factories. Emigration overseas was the solution for millions of persons. Later, when the urban economy became able to absorb more of the surplus rural population, emigration was balanced by internal rural-urban migration. The agricultural population remained stable, nevertheless, for many decades in many regions although its percentage of the total population decreased. In France, however, the rural exodus caused an early decrease in the agricultural population and the rural population. This decline has begun in other areas only recently with modern rationalization of agriculture.

2. The European Economic Community is not a region of uniform socio-economic structure. The economic development of its states and their provinces stands at different stages and the rural-urban migration shows peculiarities among the States, as well as within them. Because information on migration is unequal and scarcely comparable regarding the impact of different sized administrative units on amount and rates of internal migration, the situation must be portrayed State by State. As much as possible, a classification of municipalities according to socio-economic characteristics will be used, as well as a classification according to size—or in some cases, instead of their size.

3. In France, the population increased between 1954 and 1962 (average annual) in the "zones of industrial or urban population" (ZPIU) by 18.4 per thousand and decreased in the rural municipalities outside of the ZPIU by 5.6 per thousand. The migration balance was plus 10.1 per thousand for the ZPIP and minus 10.0 per thousand for the rural municipalities. The deficit of rural towns was greater with decreasing size, from minus 0.4 per thousand for municipalities containing more than 2,000 inhabitants to minus 27 per thousand for municipalities with fewer than 50 inhabitants.

4. The agglomeration of Paris in the period from 1954 through 1962 has lost 4.3 per thousand (annual) of its population in the city itself, whereas the population increased by 30.2 per thousand in the urban fringe and by 65.3 per thousand in the suburban fringe. A decrease, or a relatively small increase, of the population in the nucleus of the town and a greater increase of the population in the rest of the agglomeration can be seen in other instances.

5. Of the Paris population, 55 per cent of the people have been born in rural municipalities, but only 25 per cent have immigrated directly from there. Half the persons born in small areas made a stop-over in a smaller town before coming to Paris. Immigration over short distances originated more often in rural municipalities and immigration over long distances more often began from towns.

6. Official statistics provide data on the age distribution resulting from migration only by an evaluation of the election registers of 1953. At that time, the rural municipalities showed a considerable deficit in persons aged 21 to 45 years and a surplus for older persons. For urban agglomerations and for Paris, the situation was the reverse. Even if small in the beginning, these deficits and surpluses accumulate and cause (especially when rural-urban migration is beginning or accelerating) a relatively high percentage of persons in the younger ages in towns and a larger percentage of older persons in rural municipalities. It is probably a consequence of this fact that in the period 1954 to 1962 the annual birth rate per 1,000 inhabitants amounted to 17.4 in rural municipalities with less than fifty inhabitants; 18.1 in rural municipalities with more than 2,000 inhabitants; 18.6 in urban agglomerations with less than 5,000 inhabitants; and

19.8 in urban agglomerations with 100,000 to 200,000 inhabitants. On the other hand, the death rate reached a maximum of 15.7 in rural municipalities and a minimum of 9.7 in the agglomeration of Paris (with an average of 10.4 for all urban agglomerations).

7. In Belgium, the population of towns with 100,000 inhabitants decreased between 1941 and 1961. This decrease did not happen to the administrative areas in which they are located (Antwerp, Brussels, Liège and Ghent). It seems that the nuclei of the towns have lost inhabitants, but that the surrounding areas have gained.

8. In 1962, the internal migration balance of the areas mentioned was positive, with the exception of Liège. Substantial net immigration produced three additional *arrondissements* with more important towns and *arrondissement* Nivelles immediately south of Brussels. In thirty-one of the 41 *arrondissements,* more persons emigrated than immigrated in 1962. This fact was true even for the industrialized area of Charleroi.

9. The study of migration streams among the forty-one *arrondissements* proves that the *arrondissements* in smaller towns received their in-migration from neighbouring *arrondissements* and lost emigrants to more distant *arrondissements* of larger towns. In Belgium, too, small towns are intermediate stations of internal migration.

10. The statements on inter-*arrondissement* migration can be supplemented by stating that in 1962, within the frame of internal and international migration, the rural municipalities had a deficit of 2.3 per thousand. In municipalities with 2,000 to 5,000 inhabitants, the surplus of in-migration amounted to 3.2 per thousand and in those with 5,000 to 25,000 inhabitants to 4.9 per thousand, but in those with 25,000 inhabitants it amounted to only 1.9 per thousand.

11. As long as no detailed investigation is possible, it is difficult to ascertain whether it was the different population structure, due to migration which caused the higher birth rate in medium-sized municipalities (18.0 per thousand and 17.3 per thousand) compared with that of the smaller areas (16.9 per thousand) and of the larger ones (15.0 per thousand). Neither does one know if population structure was a factor in the lower death rate in the medium-sized municipalities (11.2 per thousand and 11.4 per thousand) compared with that of the smaller (12.9) and the larger ones (13.0 per thousand).

12. Migration statistics in the Netherlands are classified by rural municipalities, urbanized country-side (industrial rural municipalities, special resident municipalities of commuters) and urban municipalities (country towns and small towns, medium-sized towns, large towns with more than 100,000 inhabitants). Among these municipalities in 1962, a deficit of internal migration was observed within the rural municipalities, the medium-sized towns and the large towns (minus 2.2 per thousand; minus 0.8 per thousand; and minus 5.9 per thousand). The surplus was the highest for the special resident municipalities (11.2 per thousand).

13. The migration deficit of the rural municipalities has decreased and that of the large towns has increased during the last years, whereas that of the medium-sized towns began only in 1962. The migration surplus of the special resident municipalities decreased, too, but that of the industrial rural municipalities increased.

14. Balancing the migration streams between the individual types of municipalities resulted in a deficit for rural municipalities against all other types except large towns and in a deficit for large towns primarily against the special resident municipalities and the industrial rural municipalities. This means a decreasing attraction of large towns as dwelling areas and an exodus into the surrounding areas that offer more spacious living areas.

15. In the Netherlands, too, internal migration has its influence not only on population redistribution, but also on its structure. The migration deficit of rural municipalities is predominantly women and that of the large towns is predominantly men. The age distribution of migration between the types of municipalities is unknown, but a lessening of middle age groups in the regions of emigration and a reenforcement in the regions of in-migration may be deduced from the fact that during the period 1960 to 1961 the agrarian province, Friesland, had a migration balance of minus 8.1 per thousand, with the male population ages 20 to 24 having a balance of minus 20.2 per thousand and in the ages 25 to 29 of minus 21.2 per thousand. For the female population, the corresponding rates were minus 8.2 per thousand, minus 27.3 per thousand and minus 28.1 per thousand.

16. In the Federal Republic of Germany, internal migration was abnormal during the last decades because towns evacuated during the Second World War were filled again and because the expellees who at first were accommodated in the agrarian regions of the Federal Republic of Germany were transferred by government organizations or by free migration

to other places offering opportunities for economic integration. These factors lost their influence later. The migration balance of the municipalities with less than 1,000 inhabitants developed from minus 31 per thousand to minus 7 per thousand in 1962. The large towns with more than 100,000 inhabitants had a balance of plus 16 per thousand in 1955. This balance decreased later and became a deficit of minus 4 per thousand in 1962. This deficit from internal migration in Germany could be outweighed by recruiting foreign labour only transitorily after the exodus from Eastern Germany had been stopped by the construction of the Berlin Wall.

17. Although large towns had a negative balance from internal migration in 1962, the remaining urban agglomerations had a balance of plus 5.7 per thousand in the urban fringe, of plus 21.1 per thousand in the suburban fringe and of plus 10.9 in the peripheral fringe. In this connexion, the number of commuters had doubled between the years 1950 and 1961. The ratio of commuters in the labour force had increased from 17.9 per cent to 25.4 per cent. Even municipalities with less than 1,000 inhabitants had net in-migration if they were located within urban agglomerations. The migration deficit was limited to municipalities located outside urban agglomerations.

18. The influence of rural-urban migration on sex and age distribution is illustrated by the fact that in 1962 in the migration deficit of the rural municipalities, the ratio of females per 1,000 males was 1,159, in the deficit of the large towns 799 (in the total population 1,111) and—indirectly—that the migration balance per 1,000 persons amounted in agrarian Niedersachsen to minus 2.7 on the average, but to minus 11.5 in the age group 21 to 25; in Schleswig-Holstein to plus 1.4 on the average, but to plus 10.7 in the average mean age; in Hamburg to minus 2.3 on the average, but to +10.8 in the average mean age; and in Hessen to plus 3.4 on the average, but to +10.6 in the average mean age.

19. In Italy, 23.2 per cent of the total population lived in municipalities with less than 3,000 inhabitants in 1901 and 13.2 per cent lived in these towns in 1961. In towns with more than 100,000 inhabitants, the proportions were 9.5 per cent and 24.8 per cent respectively. In internal migration, not only the rural-urban direction prevailed, but at the same time, emigration from southern Italy, Sicily, middle Italy and eastern north Italy was mainly to the Roman agglomeration and to the Turin-Milan-Genoa industrial triangle. Migration in these directions became vital after the beginning of the twentieth century, when emigration overseas had stopped almost completely. In emigration areas, even for towns, a migration deficit can be seen. In 1960, the balance of internal migration amounted to plus 13.7 per thousand for the central urban places, plus 4.6 for other urban municipalities and minus 19.7 per thousand for rural municipalities.

20. The main directions of internal migration can be seen—although with remarkable differences—in the important in-migration surpluses of large towns. For Rome, one third of the surplus in-migrants came from middle Italy. Rome is also the first choice of persons from south Italy and Sicily; for Turin, one third of the surplus came from western north Italy; for Milan, one half came from both near and far surroundings; for Bologna, two thirds came from nearby surroundings.

21. In Italy, too, internal migration gives preference to the middle age groups. In 1956, the migration balance of Calabria amounted to minus 5.6 per thousand as an average for males, but to minus 8.9 per thousand for ages 15 to 25; for females, the corresponding rates were minus 5.1 per thousand and minus 8.3 per thousand. The migration balance of Piemonte amounted to plus 9.9 per thousand for the males on the average, but to plus 22.0 per thousand for men ages 15 to 25; the corresponding rates for females were plus 9.2 per thousand and plus 19.7 per thousand. [1, 2]

[1] Official statistics and articles in Population 2/1956, 3/1963 and 2/1964 have been analysed for this paper.

[2] G. Beijer, *Rural Migrants in Urban Setting. An Analysis of the Literature on the Problem Consequent on the Internal Migration from Rural to Urban Areas in Twelve European Countries (1945-1961)* (The Hague, Martinus Nijhoff, 1963).

Rural-urban migration as a factor of economic development and adjustment of the ratio of urban-rural population to the general level of productive forces

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[*Translated from Russian*]

1. The distribution of population between urban and rural areas is one of the most important indicators of the economic structure of a country or area. Economic development is accompanied by a change in the ratio of urban to rural population. This change is mainly due to the influx of rural inhabitants into the towns.

2. The migration of population from rural localities to towns is taking place all over the world. In capitalist countries, the town exploits the village, and, because of profound and unresolved contradictions, migration is spontaneous and antagonistic in character. In the socialist countries, the contradictions between town and country have been eliminated; the opposition between them is gradually disappearing, and the town helps the village. The migration of population from rural localities to towns in the socialist countries is controlled by the State in the interests of the whole nation and follows a plan.

3. In the Soviet Union, provision is made in the national economic development plan for migration from densely populated rural areas to those parts of the country where an influx of new people is required for the development of the economy. There is organized recruitment of manpower for industry, building, transport etc. Upon graduation from educational establishments, young specialists are sent to the localities where they are most needed. The State gives assistance of various kinds to them all. Thus, using various means, the Soviet Government organizes migratory movements and guides them in the right direction.

4. In order to determine migratory movements, all urban and rural settlements in the Soviet Union have compulsory registration for in-migrants and out-migrants. Special address lists, with detachable slips giving information about each in-migrant and out-migrant, are used for this purpose. The information on these slips is processed to provide the following statistics for the country as a whole and for the individual republics and regions: number of arrivals from other places and number from each place; number of persons departing for other places; the balance of migration; age, sex and social structure of migratory population; reasons (employment, education, medical etc.) for migration; and seasonal characteristics of migration.

5. The economic advancement of the developing countries inevitably involves a shift of population from rural localities to towns. Since the experience of the Soviet Union is attracting the attention of these countries, a description of the character of internal migration in the Soviet Union may be of interest to them.

6. Pre-revolutionary Russia was a country in which agriculture was much more important than industry; 75 per cent of all workers were engaged in agriculture, and the distribution of population was 82 per cent rural and only 18 per cent urban.

7. The socialist industrialization of our country, which began in the mid-twenties necessitated a radical change in this situation. The Soviet people set themselves the task of overcoming as rapidly as possible the backwardness inherited from the past. That task could be accomplished only by creating new branches of industry, by constructing a large number of new industrial enterprises that would make use of new natural resources, and by improving transport facilities. To accomplish all this required people, and they could only be obtained from the countryside.

8. At that time great changes were taking place in the Soviet countryside as a result of the successful development of industry. Industry began increasingly to provide agriculture with new machines and implements. In 1929, the mass collectivization of agriculture began. The new ways of organizing agricultural pro-

duction and the introduction of agricultural machinery made it possible, without hindering the development of agriculture, to release millions of people from the farms and to channel them systematically into industry, transport and building.

9. In the period between the censuses of 1926 and 1939, 18.7 million people moved from rural localities to towns in the Soviet Union. No country in the history of mankind has experienced migration on such a scale over such a short period of time.

10. This migration of population from rural to urban areas took many different directions, the most important of which were the following.

11. The main movement of rural inhabitants was to the largest of the older industrial centres (Moscow, Leningrad, Kharkov, Gorky, Tula, Yaroslavl, etc.). Sizable numbers of the most highly skilled and experienced workers, engineers and technicians had converged on these towns, particularly Leningrad and Moscow, for the scientific research institutes and the planning and construction agencies were situated there. All this naturally made these old centres "arsenals of industrialization", where new techniques were mastered, new branches of industry were established and new skilled workers were trained. This explains the very rapid population growth in these towns as a result of the influx of people from the countryside.

12. Moscow and Leningrad are prime examples of this. In the period from 1926 to 1938, the population of Moscow increased by 2,107,600, and the population of Leningrad by 1,501,200. The population of some other towns increased two and a half to three times during this period. Such growth is unprecedented in the history of the world. The extent to which the population increased in some of the largest of the older towns in the USSR can be seen by comparing the figures from the censuses of 17 December 1926 and 17 January 1939 (1939 urban boundaries).

	1926 (thousands)	1939 (thousands)	1939 as a percentage of 1926
Moscow	2029.4	4137.0	204
Leningrad	1690.1	3191.3	189
Kiev	513.6	846.7	165
Kharkov	417.3	832.9	200
Gorky	222.4	643.7	289
Rostov-on-Don	308.1	502.9	163
Dnepropetrovsk	236.7	500.6	211
Donetsk	174.2	466.3	268
Volgograd	151.5	445.3	294
Yaroslavl	114.3	299.4	262
Ivanovo	111.5	285.2	256

13. Such a rapid growth of the older towns made it necessary to take steps to restrict their further expansion. At first these restrictions applied only to Moscow and Leningrad, but they were later extended to some of the other of the largest towns (Kiev, Kharkov, Gorky, Rostov-on-Don etc.), because they had become full-fledged industrial centres. These steps consisted of a ban on the construction of new industrial enterprises and control of the influx of new inhabitants.

14. Another sizable migratory movement was towards the northern and, more particularly, the eastern areas of the country—the Urals, Siberia, the Far East and Kazakhstan. These areas had immense natural resources which had to be exploited in order that the general level of production throughout the country might be raised.

15. Here, too, socialist industrialization led to population growth in the largest towns, as can be seen from the following examples:

	1926 (thousands)	1939 (thousands)	1939 as a percentage of 1926
Sverdlovsk	140.3	425.5	303
Novosibirsk	120.1	405.3	337
Omsk	161.7	288.9	179
Irkutsk	108.1	250.2	231
Vladivostok	108.0	206.4	191

16. At the same time many medium-size and small towns were expanding and becoming important industrial centres.

	1926 (thousands)	1939 (thousands)	1939 as a percentage of 1926
Chelyabinsk	59.3	273.1	461
Alma-Ata	45.4	230.5	508
Khabarovsk	52.0	199.2	383
Nizhny Tagil	38.8	159.9	412
Kemerovo	21.7	132.8	611
Ulan-Ude	28.9	125.7	435
Leninsk-Kuznetsky	19.6	82.7	421
Anzhero-Sudzhensk	30.2	69.0	229
Orsk	13.6	66.3	489
Cheremkhovo	14.5	65.6	453
Berezniki	16.1	64.6	400
Kamensk-Uralsky	5.4	50.9	948

17. In addition, dozens of new urban settlements were created either on the site of former villages or where no former settlement had existed at all. They developed as entirely new industrial centres and included such important new towns as Novo-Kuznetsk (population of 169,000 according to the 1939 census), Karaganda (166,000), Magnitogorsk (146,000) and Komsomolsk-on-Amur (71,000).

18. In 1940, the gross output of all industry was 7.7 times greater than in 1913, and agricultural output was 41 per cent greater. This difference in growth rates led to radical changes in the structure of the economy, and this in turn affected the relative proportion of urban and rural population. In the period 1926-1939 (Soviet Union boundaries prior to 17 September 1939), the urban population more than doubled (213.3 per cent), while the rural population declined by 5.2 per cent.

19. The growth of urban population is accompanied by an increase in the gainfully employed population—and consequently a considerable increase in the number of women in employment—and by an improvement in the cultural level of the population, the development of health services, an improvement in the well-being of the population, a decline in mortality—particularly infant mortality—and a decline in the birth rate.

20. In the various republics and regions, the growth of urban population means an increase in the ranks of their working class and intelligentsia. The movement of workers and intelligentsia between the different republics and regions gives the population of the towns —particularly the large ones—a multi-national character which enables the peoples of the Soviet Union to enrich and appreciate each other's cultures and gives them a more international outlook.

21. For such a vast State as the Soviet Union, which exhibits tremendous differences within its boundaries, the existence of definite proportions between urban and rural population is important not only for the country as a whole but also for its individual areas. As the level and character of the development of productive forces and the structure of the economy differ from area to area, each one requires its own ratio of urban to rural population.

22. These ratios have taken form under the influence of the differences in the extent of rural migration and the differences in the natural movement of population in the individual regions, territories and republics of our country.

23. In the period 1926-1939, a decline in the rural population was observed throughout the Soviet Union with certain exceptions, the most important of which were the following two.

24. In the first place, there was an increase in population in sparsely populated outlying districts in the north and east (European North, Far East) to which the planned migration of rural population was directed. In the second place, there was an increase in population in the national republics as a direct result of the considerable attention that was given after the October Revolution to raising the economic and cultural level of formerly oppressed peoples (Central Asia, Transcaucasia, Volga area, Northern Caucasus etc.).

25. The most extensive migration of rural population was observed in the densely populated districts of the Ukraine and in both the black-earth and the non-black-earth zones. In some cases, the decrease in rural population amounted to between 20 and 25 per cent or more.

26. There was an increase in urban population in all regions, territories and republics without exception. The most rapid rates of urban population growth were in the European North, the central industrial area, the Urals, Siberia, the Far East, Kazakhstan, the Donetz Basin and Dnieper area. In some areas, the rates of growth were lower than the average for the Soviet Union. In the central black-earth area, for example, the urban population increased by only 44 per cent (compared with 113 per cent for the Soviet Union as a whole), and as this did not offset the decreases in the rural population, the total population of this area declined. This, however, was a unique case.

27. These movements of urban and rural population during the period 1926-1939 in the various areas of the Soviet Union led to changes in the proportions of urban and rural population. The relative increase in the urban population was particularly marked in Kazakhstan, Western Siberia, Eastern Siberia and the Far East, the Urals and the European North. This reflected a new distribution of the country's productive forces—a shift to the East and to the under-developed and under-populated areas of the Soviet Union. The growth of urban population was based, on the one hand, on the local manpower resources which could be released from the farms of a particular area and, on the other hand, on migration from other parts of the country where the rural population was particularly dense, where the

effect of the reorganization and mechanization of agricultural production was the greatest and where, consequently, there were the greatest possibilities for the planned release of rural manpower.

28. As a result of this migration, which, as previously noted, comprised many millions of people, the ratios of urban to rural population underwent a change in the pre-war period in all areas of the Soviet Union. These ratios corresponded to the new and higher level of productive forces and to the new and more progressive structure of the economy of the country as a whole and of its individual areas.

29. In 1941-1945, the Soviet Union suffered a heavy loss of population. Owing to the war, there was a sharp decline in the birth rate and a sharp rise in the death rate. The military hostilities and the atrocities of the fascist aggressors led to the death of millions of people.

30. In the post-war years, the economy of the Soviet Union rapidly recovered and continued its expansion. Because of the high rate of natural increase, the population was rapidly replenished. The main reason why this rate (16 to 18 per 1,000 population in 1950-1960) was high was the sharp drop in the death rate (7.1 to 9.7 per 1,000 population, compared with 30.2 in 1913), and this in turn was achieved through the improvement of the material and cultural level of the Soviet people and the great advances of our country in the fields of public health and child welfare.

31. Whereas in 1939 (inclusive of the territories incorporated into our country after the census of 17 January 1939) there were 190.7 million people living in the Soviet Union, the population according to the census of 15 January 1959 was 208.8 million, i.e., an increase of 9.5 per cent. By the beginning of 1964, the population of the Soviet Union had reached 226.3 million.

32. The rapid growth of our economy in the post-war period was accompanied by further structural changes. Gross industrial output in 1962 was 6.3 times greater than in 1940, and agricultural production was 67 per cent greater. These changes in the economy resulted in changes in the distribution of the gainfully employed population as between the various branches, as can be seen from the following table.

	1939	*1959*
	(percentages)	
Industry, construction, transport and communications	30.1	36.9
Agriculture	50.1	38.8
Trade, public catering, purchases by the State, supplies and sales of materials and machinery	4.9	5.2
Non-productive branches	10.1	14.6
Other [a]	4.8	4.5
TOTAL	100.0	100.0

[a] Persons engaged in branches of production not listed; persons serving in the Soviet Army; persons not specifying or not clearly specifying their place of work.

33. These changes naturally altered the proportions of urban and rural population. In 1939, in the existing territory of the Soviet Union, the urban population accounted for 32 per cent of the total; according to the 1959 census it had reached 48 per cent. It subsequently continued to increase, amounting to 52 per cent in 1963.

34. This radical change in the proportions of urban and rural population was brought about by a further considerable volume of rural-urban migration, which between 1939 and 1958 amounted to 24-25 million persons. In addition, almost 7 million people ceased to be rural inhabitants because the rural localities where they lived were transformed into towns or urban-type settlements.

35. Migration on such a large scale led to a considerable increase in the urban population —from 60.4 million in 1939 to 100 million in 1959, i.e., an increase of almost 40 million or 65.5 per cent. At the same time, there was a further decline in the rural population—from 130.3 million in 1939 to 108.8 million in 1959, i.e., a decrease of 21.5 million or 16.4 per cent.

36. These changes in the population structure of the Soviet Union were again accompanied by considerable differences in the migration pattern in the various parts of the country, for in the period 1939-1959 the rural population did not everywhere undergo a decline, and the rates of decline were far from uniform.

37. The rural population increased in the Uzbek, Tadzhik and Kirghiz Republics. The increase was not due to in-migration but to the very high rate of natural increase. In addition to the general factors influencing the rate of natural increase in the Soviet Union as a whole, there is in these republics a local factor, viz, the age-old tradition of the peoples of Central Asia to have large families. While the average size of families for all nationalities of the Soviet Union is 3.7 persons, it is 4.5 persons for Kirghiz families, 5 for Uzbek and Turkmen families and 5.2 for Tadzhik families.

38. As a result of migration, the rural population increased somewhat in the Far East and rose considerably in the sparsely populated eastern regions where virgin and fallow lands have recently been developed. For example, there was an increase of 62 per cent in the Kustanai Region and of 72 per cent in the Pavlodar Region. In the virgin lands, the average increase was 41 per cent.

39. The largest relative decrease in rural population occurred in the western areas of the country especially hard-hit by the war, in the non-black-earth zone, in the central black-earth area and in the regions in or near which there were large industrial centres that absorbed the rural migrants. Thus, in 1959, the rural population of the Novgorod, Pskov and Smolensk Regions amounted to only half of what it had been in 1939, that of the central black-earth area to 72 per cent, that of the Baltic republics to 75 per cent, and that of Byelorussia to 79 per cent.

40. The largest absolute decrease in rural population occurred in the non-black-earth zone of the European part of the Russian Soviet Federative Socialist Republic, and in the central black-earth area, the Ukraine, the Volga area, Byelorussia, the Baltic area and the Urals.

41. The direction of rural migration was to towns of the same region and to those of neighbouring and other regions of the country. A particularly large number migrated to the Urals, the central industrial area, the Donetz Basin, the Dnieper area, Siberia, Central Asia and Kazakhstan.

42. The trends of urban and rural population movements in the various areas of the Soviet Union over the period 1939-1959 and the resulting changes in the proportions of urban and rural population are shown below.

43. During the period 1939-1959, there was a further sharp increase in the urban population of the Soviet Union, and, as in the pre-war years, it affected all areas of the country without exception. Although there was some equalization in the proportions of urban and rural population in certain areas of the country, there are still substantial differences in proportion of urban population as between the various republics, territories and regions. This can be seen from the following figures for twenty-three union and autonomous republics and 118 territories and regions.

44. In 1959, the percentages of urban population were as follows:

	Administrative units
Over 81	4
From 71 to 80	8
From 61 to 70	11
From 51 to 60	22
From 41 to 50	19
From 31 to 40	33
From 21 to 30	33
20 or less	11
TOTAL	141

45. Population trends and structure in the major economic areas of the Soviet Union in the period 1939-1959 were as follows:

Economic area	*1959 as a percentage of 1939*		*Percentage of urban population*	
	Urban population	*Rural population*	*1939*	*1959*
North-West	131	66	48	65
Central	140	67	41	59
Volga-Vyatka	181	73	20	39
Central black earth	164	72	14	27
Volga	187	75	25	46
Northern Caucasus	161	92	30	43
Urals	210	88	39	60
Western Siberia	224	86	30	53
Eastern Siberia	197	101	36	53
Far East	236	99	47	68
Donetz-Dnieper	147	79	48	63
South-West	131	88	21	29
Southern	138	85	37	49
Baltic	196	80	29	50
Transcaucasian	168	95	32	46
Central Asian	198	110	23	35
Kazakhstan	241	119	28	44
Byelorussian Soviet Socialist Republic	134	79	21	31
Moldavian Soviet Socialist Republic	195	106	13	22
Union of Soviet Socialist Republics	166	84	32	48

46. A higher density of urban population is found in the following three cases:

(*a*) Where the level of industrial development is very high (Donetsk Region—86 per cent);

(*b*) Where the density of rural population is very low, as is typical of the far northern and far eastern regions (Murmansk region—92 per cent);

(*c*) Where a region has a very large town whose importance extends far beyond the boundaries of the region (Leningrad region—85 per cent, but the neighbouring regions of Pskov—27 per cent, Novgorod—38 per cent and Vologda—35 per cent).

47. In every case, the new ratios of urban to rural population in the various economic districts, regions, territories and republics again reflect the new and even higher level of development of productive forces and a new and even more progressive economic structure.

48. Our country is continuing along a course of intensive economic development. The Soviet people are faced with the task of achieving a further significant increase in industrial and agricultural output. This will require further profound changes in the ratios of urban to rural population both in the country as a whole and in its various sections.

49. At the same time, one of our greatest tasks in the building of communism is to eliminate the social, economic and cultural differences and the differences in living conditions as between urban and rural areas.

"Under communism there will be no classes; social, economic and cultural differences and differences in living conditions as between town and country will disappear; in so far as the level of development of productive forces, the character of labour, the forms of industrial relations, living conditions and degree of well-being are concerned, the rural population is being raised to the level of the towns.

"The hamlets and villages with their collective farms are gradually being transformed into consolidated urban-type localities with comfortable dwellings, community facilities and cultural, welfare and medical institutions. In the end, the cultural and living conditions of the rural population will be comparable to those of the urban population."

50. However, as V. I. Lenin noted, "... farming has its special characteristics which are completely indelible .... Because of these special characteristics, the large-scale mechanization of farming will never have all the distinguishing features of the mechanization of industry."

51. Because there will be some shades of difference between industry and agriculture, the division of inhabited localities into urban and rural localities will persist in the foreseeable future, and it will therefore still be important to adjust the proportions of urban and rural population to the general level of development of productive forces.

Internal migration: an overview of problems and studies

TOSHIO KURODA

1. The internal migration of population has not only demographic, but also socio-economic implications, and its effects are certainly more serious in most of the developing countries than in the developed areas. As is well known, there are many types of internal migration, but the most important one is the flow of people from rural agrarian areas to urban industrial districts, because such a flow of people usually reflects the extent of socio-economic development and is also certain to cause changes in such demographic behavior as fertility and mortality, together with changes in population structure as a whole.

2. Urbanization has been increasing throughout the world particularly since World War II. This has implied a rapid rural-urban migration of people. Since, only limited data and information about the rural-urban migration are available at the present time, one possible approach is to examine data and information about growth rates of urban population because they can suggest something about the general trend of rural-urban migration. In this connexion, the growth rates of population of "primate" or the greatest city in a country can be rough indicators of rural-urban migration.

3. According to the available data, one cannot find any appreciable rural-urban differences of natural increase rate in many developing countries. Hence, it may be safe to assume that an increase of urban population in the developing countries is mostly attributable to migration of people to cities from rural areas.

4. It must be noticed that the majority of rural migrants are those young people who would eventually affect fertility levels both in the areas of their origin and also in their destinations. They have a high fertility potential, and their migration tends to reduce natality rates in rural areas and, at the same time, to increase it in urban areas, even if the present high fertility level in rural areas is to be maintained for the time being.[1]

5. As mentioned earlier, the increase of urban population in developing countries is mostly due to the out-migration of rural people. Characteristics implied in this phenomenon are similar to those which were experienced by Western nations. But, its background —ecological pattern, technological standard and the extent of socio-economic development—is essentially different.

6. Internal migration may be studied with respect to the following three points: (*a*) motivation; (*b*) mechanism of migration; and (*c*) socio-economic implications of migration. A number of studies have been made by sociologists and economists to find what the motivations of migration are. Their methods of approach vary, and it is very difficult to make a proper evaluation of their work. Furthermore, most of the studies are based on the specific data and information of the country studied, and they were also undertaken at different times.

7. Numerous factors—economic, social, cultural, demographic and even physical—and their combinations have been considered to motivate internal migration. So far, a single factor or a combination of particular factors has not been accepted universally to be the most predominant one. Generally speaking, however, economic factors have been emphasized by social scientists as the primary motives of internal migration, particularly of the rural-urban migration.

8. The family system and agrarian culture in rural society have often been considered to be the factors which impede the movement of people towards urban areas. But, a recent Indian study indicates that these social and cultural factors are "stimulants" rather than "deterrents". According to this study, the pile-up of unemployment in urban areas is a more powerful factor to obstruct exodus of rural population.[2]

9. There is a persistent regional disparity in economic level and employment opportuni-

[1] Recent experience in Japan may give an illustration. Crude birth rates in Tokyo and Osaka, both highly urbanized prefectures, have begun to show higher rates than those of some agricultural prefectures most recently.

[2] D. J. Bogue and K. C. Zachariah, "Urbanization and migration in India", in R. Turner, ed., *India's Urban Future* (Berkeley, Calif., 1962), p. 45.

ties. Such a disparity tends to become larger. Such an economic situation must be seriously considered as a motivating factor of internal migration. The rural-urban disparity in economic life tends to become larger, partly because the reproduction of population is larger in rural areas than in urban districts. The continuous increase of population has resulted in the heavy accumulation of surplus population in rural areas. The population pressure on the productivity of land is tremendous. This provides a condition to push surplus people out of rural communities to the areas of greater economic opportunities. The net result is an alleviation of population pressure in rural areas.

10. Only a few recent works which the author could know up to now are referred here very briefly. Tachi, using post-war data of Japan, tested the hypothesis that the mechanism of population migration is a movement to bring about such a distribution of population as would level off the disparities in the level of living among different areas.[3] His major conclusions can be summarized as follows: (*a*) he recognized a substantial leveling effect of population migration upon the regional distribution of income, by comparing the Lorenz' curve of hypothetical population distribution by prefecture, biggest administrative unit in Japan, against real income, with the same curve drawn of the actual population. Hypothetical population here is derived from the presumption of no interprefectural migration; (*b*) then, he probed a good correlation between the rate of actual population increase, or the net migration rate, of a given prefecture and its potential of population migration. Migration potential defined by him was computed from the population figures which are derived under the ultimate situation in which even distribution of population against the regional distribution of income will be attained under his hypothesis. Finally, Tachi referred to the importance of regional differences of population reproduction as a motivating factor of migration.

11. Another prominent work has been undertaken by the Pennsylvania University Population Study group. They have analysed relationships between population redistribution and economic growth in the United States over a long period of time, that is, the period of 80 years from 1870 to 1950.[4] The results of their studies have already been published in two volumes as far as the analysis of economic implication of population growth and redistribution is concerned. However, we understand a third volume which is expected to cover demographic links and rate of migration, has not been published yet.

12. With regard to the so-called income theory of migration, we are also interested in the analysis of employment opportunity because it can be a factor which directly contributes to the economic potentials of migration. The employment opportunities may come from an excess of demand of labour over the supply. Therefore, it is natural to assume that the flow of people heads for the area where abundant employment opportunity exists. In such an area, wage and income levels tend to become higher. So, the index of income level can be used as indicator of employment opportunity.[5]

13. It may also be interesting to introduce the work done by Nishikawa and his group.[6] They have found that economic factors are dominant, though not exclusive, in internal migration of labour force, after examining inter-prefectural migration in pre-war and post-war days. Their study may be summarized as follows: there is a regularity in migration, that is the volume of out-migration of labour force of each prefecture is inversely correlated with income level y_j of sending prefecture, and also the volume of in-migration of labour force is positively correlated with wage rates w_j in receiving prefecture. Furthermore, he has recognized that volume of migration value n_j^i of labour force from j prefecture to i prefecture depends upon average rates of wage rates w_j in different prefecture besides i prefecture, which is expressed by the following equation.

$$n_j^i = f(\bar{w}_j/w_i, y_j)$$

This relation is empirically approximated to a

[3] M. Tachi, "Regional income disparity and internal migration of population in Japan", *Economic Development and Cultural Change* (January, 1964), and also "Shotoku no Chiikibunpu to Kokunai Jinkoido" (Regional distribution of income and internal migration), *Keizaigaku Kenkyu* (Studies in Economics) (1963).

[4] S. Kuznets et al., *Population Redistribution and Economic Growth: United States, 1870-1950,* vols. I-III (Philadelphia, American Philosophical Society, 1957-1964).

[5] Y. Okizaki and M. Oyama, "Daitoshi no Shakai-keizaiteki Jinkogakuteki Kozo to sono Tokucho" (Socio-economic and demographic structure of metropolitan population), in *Daitoshijinko no Shomondai* (Metropolitan population in Japan) (M. Tachi, ed., 1962).

[6] S. Nishikawa and K. Obi, "Labour market and regional mobility" (relatively longer summary in English of "Obohoteishiki ni yoru Rodoshijo no Bunseki"), *Keizaigaku Nempo* (Annual report of economics) (No. 4, Keio Economic Society, 1960), and also S. Nishikawa, "Chiikikan Rodoido ni Tsuite" (On the regional mobility of labour), *Keizai Kenkyu* (The Economic Review) (Jan., 1962), pp. 63-67.

linear semi-logarithmic equation, which he calls "Labour Application Equation".

$$\log n_j^i = C_0 + C_1(\bar{w}_j + w_i) + C_2 y_j + u$$

Here u is possibility variable depending upon the distribution of $N(0\sigma)$. He further extended this equation, taking account of various factors affecting regional migration, besides economic factors, as follows:

$$n_j^i = f(\bar{w}_j/w_i, y_i, \psi)$$

14. Kono and his group conducted a multiple regression analysis of a variety of post-war migration data in Japan to examine inter-relationship between migration and demographic and economic factors. They found that two economic factors, interprefectural difference in income level and interprefectural difference in the proportion of non-agricultural workers in the total employment, play a significant part in migration. [7]

15. Another type of study is macroscopic approach. Some studies have indicated the existence of strong positive correlation between economic activities and migration rates. For example, Thomas found a positive correlation between the level of economic activity and the net inter-state migration rates in the United States. [8]

16. A similar study has been undertaken in Japan. Minami found a closer relationship between migration and economic activity, after analysing relationships between economic trends and migration of agricultural population (since 1920) as well as between economic trends and migration of general population (since 1885). [9]

17. It is generally known that the rural-urban migration is considerably selective of age and sex, that is, young males move more often. However, the sex composition of migrants becomes balanced gradually after a pattern of migration is established. The age groups, 15-19 and 20-24, are the majority of migrants. This age pattern of migrants is common to every country with different socio-economic and cultural backgrounds. A slight difference has been found when the age pattern in the United States was compared with that in Japan and India. In the United States, the migration rate comes to the peak at the age 25-29 and then declines gradually and regularly, while the tempo of decline is more sharp particularly after age 30 in India and Japan. [10]

18. Another factor is the social and economic characteristics of migrants. There is evidence that the educational level of migrants is relatively higher than that of population of their native communities. *The Calcutta Industrial Region Survey* indicates that the average level of education among migrants is considerably higher than the general population in the states of origin, but lower than the average level among indigenous urban residents. Available data suggest that in India the literate and educated people tend to migrate to urban areas more often than illiterate people. The travel distance in migration is also positively associated with education level of migrants. A social-medical survey of young migrants in the post-war years conducted in Scotland also indicated that magnitudes into the city of Aberdeen showed much higher educational level than the city-born population. [11] The Scotland survey also suggests strong occupational selectivity of migration, that is, the professional and high educated groups are most likely to move. Similarly social background (as indicated primarily by parental occupation) strongly influences residential choices. However, it seems to be quite possible that in developing countries, the migrants to cities are likely to have poorer working status and less income than indigenous urban residents, although their average educational level is higher than that of remaining people in their original communities. [12]

19. A 10 per cent sample of the 1928 male birth cohort chosen serially in 1948-1949 was surveyed in Sweden recently to study internal migration. This study indicates that migrants increased proportionately with level of competence expressed in various ways. [13]

[7] S. Kono and M. Shio, *Interprefectural Migration in Japan, 1956 and 1961: Migration Analysis*, Demographic Training and Research Centre, Bombay (1963).

[8] D. S. Thomas, "Age and economic differences in interstate migration", *Population Index*, vol. XXIV, No. 4 (October 1958), pp. 313-324.

[9] R. Minami, "Keizaihendo to Rodoryoku no Sangyokan Ryudosei" (Economic change and redistribution of labour force among industries), *Hitotsubashi Ronso* (The Hitotsubashi Review), vol. LI, No. 3 (1964), pp. 73-96; R. Minami, "Jinkotoshishuchu no Keiko to Hendo" (Trends and fluctuations in urbanization in Japan), *Keizai Kenkyu* (The Economic Review), vol. XVI, No. 1 (1965).

[10] D. J. Bogue and K. C. Zachariah, op. cit., p. 24; D. S. Thomas, op. cit., p. 316.

[11] R. Illsley, A. Finlayson and B. Thompson, "The motivation and characteristics of internal migrants", *Milbank Memorial Fund Quarterly*, vol. XII, Nos. 2 and 3.

[12] D. J. Bogue and K. C. Zachariah, op. cit., pp. 48-51.

[13] D. S. Thomas, "Internal migration in Sweden: a recent study", *Population Index*, vol. XXIX, No. 2 (1963), pp. 125-129.

20. Some questions are raised in view of the intensity of rural-urban migration in the world, particularly in developing countries. One question is concerned with social selectivity of migration. If young rural people, able physically and mentally, move to urban areas continuously, only illiterate, unskilled and infirm people might be left in rural communities. The quantitative and qualitative imbalance of population between rural and urban areas would be disadvantageous, not only for regional development, but also for the growth of the nation as a whole.

21. Another question is concerned with changes in the age composition pattern caused by heavy rural-urban migration; aging of population in rural areas, while rejuvenation of population in urban areas. Regional changes in demographic structure just mentioned above affect regional development, both economically and socially. The experience of the Western countries adequately illustrates this problem.

22. Some theoretical studies on the mechanism of internal migration suggest that internal migration, especially rural-urban migration, is a movement to adjust the distribution of economic opportunities. If this holds true, higher mobility of population might be desirable. However, the issue is not so simple.

23. In order to promote balanced development of regional communities, migration behaviour which may accelerate the rural *versus* urban polarization should be deeply explored by a comprehensive project of experts using a multidisciplinary approach. A few suggestions may be given in connexion with this point; necessity of putting more emphasis on micro-demographic analysis, and of making detailed surveys on the relationships between internal migration and socio-economic development. Finally, international discussion on the collection and presentation of data on internal migration would also be useful.

Factors affecting rural-urban migration in Latin America: influence of economic and social conditions in these two areas

GIORGIO MORTARA

[*Translated from French*]

INTRODUCTION

1. A growing percentage of the population of Latin America is becoming concentrated in urban areas. The many migrants who flock to the towns are abandoning the occupations characteristic of the rural economy—such agricultural activities as stock-farming, logging and the cultivation of natural products, and also mining—to engage in other forms of activity characteristic of the urban economy.

2. As we cannot here consider the differing conditions which characterize the physical and social environments in the various countries, this paper will be limited to a general survey of the predominant factors affecting urbanization. [1]

3. The average population density in Latin America is only twelve inhabitants per square kilometre. In several countries there are vast largely habitable areas which have not yet been opened up for development, while migrants from rural areas crowd into the towns.

4. The degree of urbanization varies greatly from one country to another. According to the censuses conducted around the year 1950, centres with more than 2,000 inhabitants accounted for 62.5 per cent of the total population in Argentina and 57.5 per cent in Chile, but only 21.5 per cent of the total population in the Dominican Republic and 17.3 per cent in Honduras. The corresponding figures for Venezuela, Cuba and Mexico were in excess of 40 per cent and for Panama, Colombia and Brazil in excess of 30 per cent.

5. The censuses conducted around the year 1960 show the following increases in the proportion of the urban to the total population (the former being defined according to the different criteria applied by the various countries) as compared with the figures from the immediately preceding censuses: Chile—60.2 to 66.5 per cent; Venezuela—53.8 to 62.5 per cent; Mexico—42.6 to 50.7 per cent; Brazil—36.2 to 42.1 per cent; and 35.4 to 47.1 per cent in Peru. The figure for Argentina according to the latest census is not yet known.

6. Demographic gigantism is characteristic of Latin American metropolises, which include such great urban concentrations as Buenos Aires, with 7 million inhabitants, Mexico City, with nearly 5 million, São Paulo and Rio de Janeiro, with 4 million each, Santiago, with 2 million, and Caracas, Bogotá and Montevideo, with more than 1 million each.

FACTORS AFFECTING MIGRATION

7. A number of the circumstances contributing to the exodus from rural areas are related to the natural environment. Among the physical factors we may mention climatic and meteorological disasters, which make life difficult for inhabitants of such areas by exposing them to hardships and dangers and by reducing the size of harvests, damaging crops and decimating livestock.

8. Certain physical factors contribute to the spread of diseases which reduce the work fitness of their victims and in many cases eventually claim their lives.

9. Among the social conditions which affect migration, the most important are demographic factors.

10. In 1920 the population of Latin America totalled 131 million; in 1965 it will reach 245 million. This enormous increase has been caused by the persistence in most of the

[1] Extensive and varied documentation on the subject dealt with in this report is to be found in the volume *Urbanization in Latin America* (UNESCO, SS61-V9-F), which summarizes the texts of and discussions on papers presented at a seminar held at Santiago. Information and observations on urban populations in general and on the different classes making up the population of urban centres are to be found in the monographs *Formas de asentamiento de la población de la América Latina* by J. C. Elizaga (Santiago, Latin American Demographic Centre, 1963) and *Características de estructura demográfica de los países americanos* by G. Mortara (Washington, Pan American Union, 1962).

countries of high birth-rates in conjunction with a reduction in mortality rates brought about by progress in medicine and sanitation. In rural areas this accelerated natural increase has not in general been accompanied by even a proportionate expansion in employment opportunities, owing to the backward and depressed condition of local economic activity. The needs of the excessively large new generations absorb resources which might have been used to expand and improve this activity.

11. In the towns, where the rate of natural increase is lower, employment opportunities are multiplying, and the demand for labour cannot always be met by the local supply.

12. Among the economic factors affecting migration are the decline in the relative importance of rural activities which is characteristic of recent phases of economic development, and the reduction in the amount of manpower required to carry on those activities caused by the mechanization and electrification of agriculture.

13. The development of communications and transport has facilitated migration by reducing travel time and costs.

14. The effect of factors related to the rural economy is often preponderant in Latin America, where agriculture is currently passing through a phase of depression. In the report of a seminar sponsored by the United Nations it was observed that agricultural and livestock production had increased to a lesser extent during the past fifteen years than the population.

15. Any expansion of these activities is hampered by a variety of factors; yet the rapid and unceasing population increase makes such an expansion essential if the exodus from rural areas is to be checked.

16. In some regions the colonization of vast still uninhabited areas is prevented by unfavourable natural conditions which could be counteracted only by large-scale drainage, water-supply, sanitation and clearing operations.

17. In other regions the greatest obstacle to progress in agriculture and stock-farming is the land tenure system. In some areas *latifundia* predominate; these are exploited to only a very limited extent, owing primarily to the inertia of the owners, who prefer the traditional extensive and partial methods of cultivation to the modern system of intensive and complete land use, which would necessitate substantial capital investments and considerable organizational capacity. In other areas, by contrast, the prevalent form of land holding is the small, sometimes fragmented property on which the most efficient production techniques cannot be used; in such cases the small producers are at the mercy of those who buy up their products.

18. The backwardness of agricultural techniques is another factor which makes any slowdown of migration from rural areas hard to achieve. The workers already employed are more than enough to cultivate the land by the old methods—methods which, in addition, often lead to soil impoverishment, deforestation and erosion, thus limiting employment opportunities still further. The rationalization and intensification of agriculture would, at least to start with, help to increase employment. Progress along these lines is also impeded by the lack of skilled personnel and capital. Even in Mexico the redistribution of immense areas of land carried out over half a century of agrarian reform has not sufficed to check migration to the towns, stimulated, in addition, by the rapid natural population increase.

19. Small rural handicrafts are suffering the effects of competition from large-scale industry, which limits their markets. Industries processing the products of agriculture and stock-farming, which were once accessory agricultural activities, now tend to be concentrated in larger units located in urban areas. Small cottage industries, which formerly provided additional employment for women, are also on the decline.

20. One very important unsettling factor affecting the inhabitants of areas whose principal products are produced mainly for export is the depression prevailing in the markets for these products. The causes of this depression include excessive development of local production under the impetus of a temporary expansion of the market, competition from countries where wages and levels of living are very low, protectionist measures taken by importing countries, and the substitution of synthetic for natural products. The exorbitant cost of middlemen's services and the taxes on exporters' receipts levied by some Governments as a means of financing the protection of the market have aggravated the consequences of the decline for the producers—who in addition feel the effects of the high prices of imported industrial products.

21. The depression prevailing in the markets for agricultural products has helped to discourage the investment of national and foreign capital in any activity directed toward expanding colonization or improving production techniques.

22. The effects of factors relating to the urban economy are also intensive and manifold.

23. The technological innovations which have transformed the way of life of the inhabitants of urban areas—the automobile, the use of electricity in housework, the telephone, wireless, cinema, television etc.—have given birth to many activities connected with the use, maintenance, repair, distribution and sometimes the manufacture of these means of work and recreation. These activities are widely carried on in many Latin American cities.

24. In various countries consumer goods industries now supply most local needs, and capital goods industries are beginning to develop; the former, in particular, tend to be located in urban areas. In some cities industrialization has reached a fairly advanced stage; in many others it is still in its infancy, but is tending to accelerate. The expansion of building construction, although frequently insufficient to meet existing needs, has had the effect of expanding industries producing building materials and tools.

25. The foreign capital invested in the Latin American countries has been directed largely towards the installation, operation and expansion of public services and industrial, commercial and banking enterprises, located in the cities and for the most part serving their inhabitants.

26. The development of communications and new means of transport has had particularly far-reaching repercussions on the urban economy.

27. In Latin America, as elsewhere, population growth, increased industrial production and trade, and the growing intervention of the State in economic activity have been accompanied by a considerable expansion of the administrative machinery and of the civil service, military, local government and trade unions, which has tended to benefit mainly the urban population. Improvements in the educational system have likewise benefited the urban areas in particular.

28. The degree of modernization of urban life cannot be gauged by the percentage of inhabitants engaged in industry; this does not even reflect the degree of industrialization. Several of the new activities characteristic of urban life today are classified for census purposes not under industries but under services such as making-up, maintenance and repair, communications and transport, or trade. At the same time the replacement of handicrafts by large-scale industry sharply reduces the amount of manpower required for each particular task, and technological progress culminating in automation, has the effect of reducing employment still further. It should be noted in this connexion that today new industries strive from the outset to use the most advanced methods and processes.

29. Industrialization is often a gradual process. For example, countries begin by importing fully assembled automobiles and spare parts, go on to import parts for assembly locally, then to manufacture the simpler parts, and only later reach the stage of manufacturing the entire automobile. Thus the first phase of development is dominated by commercial activities, followed gradually by maintenance and repair services, assembly operations, and, finally, factories.

30. The cities also serve as centres for the distribution of products and services to rural areas, and the agencies which exercise this function grow as the population and its demand for consumer goods increase.

31. In most Latin American countries urbanization is encouraged by the great inequality in income distribution. A rich and indolent minority seeks in the cities, particularly the great metropolises, the luxuries and pleasures of life, thereby considerably swelling the demand for goods and services.

32. The supply in the cities of essential personal services which the urban worker considers too menial, too laborious or too restrictive of his personal freedom, would in many cases be inadequate were it not for immigration from rural areas. The nominal wage to be earned by such services appears relatively high to the rural labourer, who has no idea of the cost of living in urban areas; but the corresponding real wage is low, with the result that the majority of the immigrants live in conditions of great poverty.

33. The poverty of the rural population is often aggravated by the inadequacy or even total absence of health, education, police and judicial services. This raises the point that the exodus from rural areas also has political and administrative causes: the needs of the inhabitants of rural areas are often either not recognized or neglected by the public authorities.

34. In many rural areas health protection does not exist: there are no doctors or pharmacists, and hospitals are found only in fairly large centres. Where any efforts at all are made to control endemic diseases they are with a

few notable exceptions carried on intermittently and with inadequate resources.

35. In most of the countries primary education facilities do not meet existing needs, and in the rural areas there are no secondary schools. The schooling available is limited to the rudiments of general education and is not designed to prepare the pupil for rural occupations.

36. There is not always adequate protection of civil and political rights. In certain areas the police and sometimes the courts are not immune from the influence of the persons or groups who dominate the local economy and local politics.

37. On the *latifundia* existing in certain areas semi-feudal régimes survive which bind the peasant to the land, oblige him to render the land-owner certain services without pay, and make him dependent on the landowner for the satisfaction of so many of his needs that he longs to see at least his children freed from this semi-bondage.

38. The social welfare and social insurance institutions rarely penetrate into the rural areas, and their activities there are largely ineffective.

39. The public authorities are in most cases apathetic to the urgent need for agrarian reform, and are equally unresponsive to the need to provide the infrastructure without which rural economic activities cannot be expanded and intensified and the level of living cannot be raised.

40. Cultural factors also encourage migration from the country: the cities attract young people seeking to continue their education. In the course of their secondary and higher studies they absorb ideas which are likely to incline them towards urban rather than rural occupations, and most of them do not return to the country. Even poor and ignorant parents, it is found, fervently desire their children to rise to a higher social level through education, in an environment more conducive to such progress.

41. Other migrants are attracted to the cities by the picture of urban opportunities for education and recreation they gain from newspapers and magazines and from radio and television, which now reach many rural areas, particularly those situated close to cities.

42. While all the factors considered above have their effect on the human spirit, there are others which may be more specifically described as psychological determinants of the exodus from rural areas.

43. Among such factors are the illusions inspired in country people by the reports they hear of opportunities for employment and gain in urban occupations, the less arduous nature of such occupations and the ease with which the worker may move from one job to another. The attraction of certain amusements offered by cities also plays its part.

44. The intolerance of and contempt for agricultural labour aroused, particularly among young people, by the nature of rural life, with its complete lack of comforts, helps to strengthen the attraction of the mirage of urban life.

45. Whatever may have been the original factor setting off a migratory movement from the country to the city, imitation and inertia (in the physical sense of the word) tend to nourish and sustain it.

46. The imitative impulse is aroused by the frequency of departures from rural areas and the infrequency of returns: many of those who have stayed behind are led to believe that they too could find a better life where so many others—or so they think—have found it. Often the psychology of the migrant is even simpler: it is a follow-my-leader mentality. And sometimes, when a natural disaster or an economic crisis makes life even more difficult and precarious, migration becomes a mass flight.

47. Inertia is manifested in the continuance of migration even when the conditions which gave rise to it no longer exist. This is a phenomenom which is frequently observed.

48. The self-seeking zeal of labour contractors and advertising by transport enterprises help to persuade potential migrants to set off for the cities.

Conclusion

49. In the foregoing analysis an effort has been made to identify and classify the principal factors making for rural-urban migration. Distinctions of this kind, however, although useful and necessary for any study of the effects of the factors in question, are more theoretical than real, for in most cases there are several factors in operation, either simultaneously or successively.

50. The decision to leave the country for the city, like so many other decisions men make, is in most cases the product of a number of convergent motives whose relative weight the individual himself could not determine, even if he could identify them.

51. In Latin America the influence of economic determinants, generally resulting from or stimulated by the effect of demographic determinants, is predominant, but it is seldom the only factor.

Relationship between population migration and ethnic convergence in the Soviet Union of today

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[*Translated from Russian*]

1. The ethnic development of the peoples of the Soviet Union in the post-revolutionary period is characterized by two trends: (i) the consolidation of nations and nationalities; and (ii) the ethnic convergence of nations and national groups, a phenomenon of growing importance, which is taking place on an ever-increasing scale. Migrational processes play a vital role in the ethnic convergence of the peoples of the Soviet Union. In this paper an attempt is made to trace the relationship between the ethnic convergence of peoples and population migration, the conclusions being based mainly on population census data.

2. The Soviet Union is characterized by large-scale population migration connected with the rapid development of the national economy. The extent of population migration is shown by the following examples. In the period between the 1926 and 1939 censuses the urban population of the Soviet Union rose by 29.8 million. Of this increase, a figure of 18.7 million, or 62.8 per cent, is accounted for by migrants from rural areas. According to rough estimates, some 24 or 25 million people moved to the towns during the period 1939 to 1959, a figure which constitutes about 62 per cent of the total increase in the urban population. In the period 1926 to 1959, when the population of the Russian Soviet Federative Socialist Republic as a whole rose by 27 per cent, eight of the republic's administrative regions (territories, autonomous Soviet Socialist Republics) recorded a population growth of over 200 per cent and a further seven a growth of 100-200 per cent, whereas in twenty-two regions the population declined—in eight of them by over 25 per cent. This redistribution virtually created a completely new population structure, corresponding to the needs of society. Population migration in the Soviet period has mainly taken the form of migration to the towns, by contrast with the rural migration prevailing in pre-revolutionary times. Urban migration in recent years has absorbed about three quarters of the natural growth of the rural population for the Soviet Union as a whole. It is characteristic, important and ethnographically a feature of today's migration that the migrants are mainly young people of working age (16 to 35).

3. The processes of ethnic convergence take many forms and are revealed by a variety of indicators. One of the most important, in our view, is the proportion of persons regarding as their mother tongue a language other than that of their nationality. In the Soviet Union this language is predominantly Russian, which has become the language of inter-national intercourse among all the peoples of our multinational country. According to the 1959 census, of the 94.7 million people constituting the non-Russian population of the country 10.2 million, or one in nine, recognized Russian as their mother tongue. Even more important is the fact that the overwhelming majority of the adult non-Russian population (particularly in the towns) speak Russian fluently as a second language.

4. Members of all the peoples of the Soviet Union take part in population migration, but not all to the same degree. The main reason for this is the influence of ethnic factors. The extent of this influence may in part be demonstrated by comparing the rates of settlement in a given area of members of different nationalities each originating in a single area. We shall take as our example some figures showing the relative rates of migration of different nationalities to towns in the Novosibirsk region (table 1). The figures are based on the 1959 population census data. The entries in the final column were arrived at as follows. Of the total number of migrants from the Ukraine to towns in the Novosibirsk region, 31 per cent were Ukrainians and 65 per cent Russians. According to the 1959 census, Ukrainians constituted 77 per cent of the total population of the Ukraine, and Russians 17 per cent. The rate of migration of Ukrainians may therefore be

expressed by the ratio 31:77, and that of Russians by the ratio 65:17. The relative rate of migration of Ukrainians as compared with Russians is therefore (31:77):(65:17) = 0.11, or 11 per cent. On the basis of the table, it may be concluded that the more closely the language, way of life and culture of the indigenous populations of the Union Republics approximate to the Russian language, way of life and culture, the higher is the relative rate of migration of such populations to areas with predominantly Russian populations.

Table 1. Proportion of Russians and indigenous nationalities among migrants to towns in the Novosibirsk region, and differences in rates of migration

Area of origin	*Percentage of migration flow*		*Rate of migration of indigenous population as percentage of Russian migration rate*
	Indigenous nationalities	*Russian*	
Ukrainian Soviet Socialist Republic..	31	65	11
Byelorussian Soviet Socialist Republic	54	36	15
Transcausasia	28	65	5
Central Asia	1	86	Less than 1
Kazakh Soviet Socialist Republic ..	2	78	4
Baltic Republics	10	82	3

5. The same pattern is found among the indigenous peoples of the Autonomous Republics of the Russian Soviet Federative Socialist Republic. After the Russians, the most active migrants to Siberia are the indigenous populations of the Volga Republics, particularly the Mordvinian republic, a fact explained by the considerable ethnic convergence of the Volga peoples and the Russians after many centuries of living and farming side by side, and also by the steady release of manpower from agriculture in this area, a process in which members of the indigenous nationalities have a large share.

6. There is a clear reciprocal connexion between the relative rate of population migration and the proportion of persons regarding the language of their nationality as their mother tongue. Table 2 below shows that peoples with higher rates of migration (see table 1) have a smaller percentage of persons regarding the language of their nationality as their mother tongue. At the same time this

Table 2. Percentage of persons among the main peoples of the union republics regarding the language of their nationality as their mother tongue (1959)

People	*Population*		
	Urban and rural	*Urban*	*Rural*
Ukrainian	87.7	77.2	94.5
Byelorussian	84.2	63.5	94.2
Uzbek	98.4	96.7	98.9
Kazakh	98.4	96.7	98.9
Georgian	98.6	96.8	99.7
Azerbaijanian	97.6	96.4	98.2
Lithuanian	97.8	96.6	98.4
Moldavian	95.2	78.4	97.7
Latvian	95.1	93.1	96.9
Kirghiz	98.7	97.4	98.9
Tadzhik	98.1	96.4	98.6
Armenian	89.9	84.4	97.1
Turkmen	98.9	97.3	99.4
Estonian	95.2	93.1	97.0

table is eloquent testimony to the fact that the processes of ethnic convergence are incomparably more vigorous in the towns than in rural areas.

7. In most cases population migration increases the proportion of the non-Russian population in predominantly Russian areas and the proportion of the Russian population in the national republics. The first process is most clearly visible in areas of major new construction, where large settlements spring up rapidly, often practically "out of nowhere", and also in the areas where enormous stretches of virgin land are being opened up. Thus, in the construction of the Bratsk hydroelectric station (Irkutsk region), of the 35,500 workers at the site in 1962, 70.3 per cent were Russian, 13.3 per cent Ukrainian, 6.7 per cent Byelorussian, 1.4 per cent Tatar, 1.4 per cent Chuvash, 1 per cent Mordvinian, 0.8 per cent Buryat, 0.8 per cent Bashkir, 0.7 per cent members of the Baltic peoples etc. For purposes of comparison it may be pointed out that the urban population of the Irkutsk region as a whole in 1959 consisted of 86.5 per cent Russians, only 4.9 per cent Ukrainians, and no more than 1.2 per cent Byelorussians. In many state farms of the virgin territory of the Kazakh Soviet Socialist Republic, where many millions of hectares of virgin land have been opened up through the combined efforts of the peoples of the Soviet Union, men and women of fifteen to twenty-five nationalities now live together.

8. On the other hand, in most of the union and autonomous national republics the proportion of Russians has substantially increased. According to the 1939 and 1959 censuses, for example, the proportion of Russians in the Uzbek Soviet Socialist Republic rose over the twenty-year period from 11.7 to 13.5 per cent, in the Kirghiz Soviet Socialist Republic from 20.8 to 30.2 per cent, and in the Tadzhik Soviet Socialist Republic from 9.1 to 13.3 per cent. As members of other nationalities besides the Russians have migrated to these republics, the proportion of the indigenous population in each republic has declined despite considerable natural growth. Thus, the number of Uzbeks in the Uzbek Soviet Socialist Republic was 23 per cent higher in 1959 than in 1939, but the proportion of Uzbeks to the total population of the republic declined over that period from 65 to 62 per cent; the number of Tadzhiks in the Tadzhik Soviet Socialist Republic was 19 per cent higher but their proportion declined from 60 to 53 per cent; the number of Kirghiz in the Kirghiz Soviet Socialist Republic was 11 per cent higher but their proportion declined from 52 to 41 per cent. The population flow into the republics of Central Asia and other eastern areas of the country over the period indicated was mainly due to the transfer of many industrial enterprises from the central to the eastern regions of the country during the Second World War, and to the post-war development of new construction in those areas and the opening up of virgin and fallow lands.

9. Statistics on changes in the size and nationality structure of the population of various areas over a given period do not always give a full picture of the actual territorial redistribution of the population of the different nationalities. The reason for this is the process of assimilation. Thus, analysis of population migration into Siberia over a long period might lead one to expect a sharp increase in the proportion of Byelorussians and Volga peoples in the Siberian population since 1926. In reality there has been no such increase. In point of fact the national composition of the population of Siberia underwent the following changes (table 3). Thus, the proportion of

Table 3. Ethnic composition of the population of Siberia in 1926 and 1959

People	*Percentage in population of Siberia*	
	1926	*1959*
Russian	75.5	83.7
Ukrainian	8.3	3.9
Byelorussian	3.2	0.7
Volga peoples [a]	2.8	2.8
Baltic peoples [b]	0.7	0.6
Siberian peoples [c]	6.2	3.6
Other	3.3	4.7
TOTAL	100.0	100.0

[a] Bashkir, Mordvinian, Mari, Tatar, Udmurt, Chuvash.
[b] Ditov, Latvian, Estonian.
[c] Buryat, Yakut, Altai, Khakas and minor Siberian peoples.

Byelorussians in the population of Siberia fell by 80 and the proportion of Ukrainians by over 50 per cent. The fact that this is basically due to assimilation may be seen from the example of the population of Kulunda, a vast area of Siberia at one time settled predominantly by Ukrainians. As long ago as 1926, when the assimilation of the Ukrainians of Kulunda was already far advanced, Ukrainians constituted about half the total population in the Slavgorod

areas and over half in some administrative districts of the area. In 1959 the proportion of Ukrainians in the total population reached 20 to 25 per cent in only a few administrative districts.

10. One of the "prime movers" of assimilation is intermarriage between nationalities. Processing the preliminary data of the 1959 population census for the town of Karasuk, whose population at that time was 17 per cent Ukrainian, we found that among the Ukrainians intermarriage (predominantly with Russians) is considerably more common than marriage within the nationality. The overwhelming majority of children resulting from marriages between Russians and Ukrainians are regarded as Russians. The correlation between the nationality and mother tongue of the children and the nationality and mother tongue of their parents may be seen in table 4. Quite frequently, parents who are both Ukrainians and regard Ukrainian as their mother tongue have children who are Ukrainians of Russian mother tongue or even Russians of Russian mother tongue. Frequently also, children are regarded as Russian although neither of their parents is Russian. The same processes are taking place in the rural areas, though not so rapidly.

Table 4. Distribution of children by nationality and native language in mixed Russian-Ukrainian families

Nationality and language

Parents			*Children (per cent)*		
Father	*Mother*		*rr*	*ur*	*uu*
r r[a]	u u	.....	100	—	—
u r	r r	.....	97	3	—
r r	u u	.....	82	15	3
u u	r r	.....	88	7	5
u r	u r	.....	49	51	—

[a] The first letter indicates nationality, the second the mother tongue (r = Russian, u = Ukrainian).

11. The population assimilation going on today in the Soviet Union is a completely natural and logical process. The elimination of class antagonisms and of the national antagonisms inseparably linked with them has led to the natural convergence, in every sphere of life, of different peoples living together side by side in the same territory. The natural assimilation now taking place is the product and one of the manifestations of this convergence.

12. Population migration plays a key role in the processes of assimilation. Migrants often find themselves in an ethnic environment sharply different from that of their place of origin. Normally, members of most nationalities found in the towns constitute an insignificant minority in the villages and settlements of each area. But the smaller the relative size of a given national group among the inhabitants of any populated locality, the more rapidly—other things being equal—do its members lose their basic ethnic features. This emerges clearly from the population census of 1926: for example, in the former Slavgorod administrative district of the former territory of Siberia, where there were four times as many Ukrainians as Russians, 95 per cent of the Ukrainians regarded their national language as their mother tongue, whereas in the nearby Volchikhinsk area, where Russians outnumbered Ukrainians four to one, the proportion was only 36 per cent. The convergence and merging of Ukrainians and Byelorussians with Russians is of course facilitated by the initial cultural similarity of the Slavic peoples. But the same process is taking place among other peoples too, although less rapidly.

13. The predominance of young unmarried people among the migrants leads to a high proportion of nationally mixed marriages, which gives impetus to the convergence and merging of the various national groups. Thus, in the town of Bratsk referred to above, records in the town's Register Office show the proportion of children born of nationally mixed marriages to have been 21 per cent in 1960, 20 per cent in 1961 and 23 per cent in 1962 (the non-Russian proportion of the adult population being about 30 per cent). In Frunze, the capital of the Kirghiz Soviet Socialist Republic, one in every four marriages in 1964 was nationally mixed. These examples are undoubtedly characteristic of other localities too.

14. A general expression of the enormous influence of migration on ethnic processes may

be seen in the sharp decline in the proportion of persons regarding the language of their nationality as their mother tongue among those living outside the areas traditionally settled by the given national group (table 5) by comparison with the proportion of such persons in the group as a whole (table 2). Among Ukrainians, for example, these proportions are 51 and 88 per cent respectively, among Byelorussians 42 and 84 per cent, and so forth.

Table 5. Percentage of persons regarding the language of their nationality as their mother tongue among members of the principal peoples of the union republics living outside their own republics (1959)

People	*Population*		
	Urban and rural	*Urban*	*Rural*
Ukrainian	51.2	45.9	57.8
Byelorussian	41.9	37.7	49.8
Uzbek	97.4	94.9	98.5
Kazakh	95.6	91.6	96.8
Georgian	73.4	68.3	86.3
Azerbaijan	95.2	87.0	98.1
Lithuanian	80.3	75.0	86.4
Moldavian	77.7	57.7	87.2
Latvian	53.2	43.7	66.0
Kirghiz	92.3	89.6	92.5
Tadzhik	94.6	92.7	95.1
Armenian	78.1	69.3	92.5
Turkmen	92.0	81.6	93.8
Estonian	56.6	43.2	69.5

The loss of basic ethnic characteristics is particularly marked among urban migrants. Thus, if ethnic features influence population migration, migrational processes in their turn have no less strong a reciprocal effect in stimulating the ethnic convergence of peoples and the absorption of some members of particular national groups, and particularly their descendants, by other groups. It is natural that the children of persons who regard as their mother tongue a language other than that of their nationality will more often associate themselves with another nationality (predominantly the nationalist whose language they have adopted), than the children of persons who have retained the language of their nationality as their mother tongue.[4]

15. Although the degree of linguistic assimilation varies widely among different national groups, the trend—so far as it can be assessed on the basis of census data—is the same in the overwhelming majority of groups, and the intensification of the process of assimilation is very marked. In most of the principal peoples of the national union republics there has recently been a substantial move forward in this respect. This is demonstrated by the sharp increase, according to the 1959 census data, in the proportion of persons in the 10-19 age-group whose mother tongue is not the language of their nationality, as compared with the 25-29 age-group (i.e., those born between 1939 and 1948 as compared with those born between 1929 and 1933). This may be seen from table 6. Among the principal peoples of the national union republics enumerated in the above table the change took place in the forties and fifties. Among the Latvians and Estonians it took place later—in the fifties. Although this leap forward was to some extent due to closer acquaintance with Russian language and culture of the parents of the 10-19 age-group, i.e., of persons who were born in 1910-1920, its principal cause was undoubtedly the enormous rise in the level of education and general culture of the populations of previously backward national areas. Another influence was changes in population distribution (influx of national rural population to the towns), a process inseparably linked with the economic upsurge of the national Republics. Thus, in the period 1939 to 1959 the proportion per 1,000 of persons with higher and secondary education, including incomplete secondary education, rose by a factor of fourteen among the Uzbeks, seventeen among the Tadzhiks and Turkmen, and twenty-two among the Kirghiz

[4] In the Soviet Union, a person's nationality is determined by his national consciousness.

Table 6. Proportion of persons regarding as their mother tongue a language other than that of their nationality, among those living in areas of basic settlement in 1959 (percentages)

Nationality	*Urban and rural population*		*Urban population*	
	25-34	*10-19*	*25-34*	*10-19*
Uzbek	1.3	2.0	2.3	4.3
Kazakh	1.0	2.5	1.7	4.4
Georgian	0.3	0.8	0.6	2.0
Azerbaijan	1.4	2.7	1.4	4.9
Kirghiz	1.1	1.8	1.0	3.3
Tadzhik	1.6	2.3	2.3	4.6
Armenian	6.8	10.7	9.9	17.9
Turkmen	0.2	1.0	0.7	3.7

(the proportion for the population of the Soviet Union as a whole and among Russians rose by a factor of 3.4).

16. Among the relatively numerous peoples of the Soviet Union enjoying national statehood as autonomous republics, the processes of assimilation may be exemplified by the Mordvinians. In 1959 there were 1,285,000 Mordvinians and they were among the few peoples of the Soviet Union whose numbers had declined (by 12 per cent) since the 1939 census. This happened despite an extremely high rate of natural growth in the areas of basic Mordvinian settlement. Over the same period the populations of other Volga peoples grew. Among all the peoples of the Volga republics, the Mordvinians have the most widely scattered settlements; they also have the highest proportion of persons living in new areas of settlement, predominantly in the Urals, Siberia and the Far East. Most Mordvinians who have left their own Republic live in towns. As a result, the proportion of persons regarding the language of their nationality as their mother tongue among the Mordvinian urban youth is very small; according to the 1959 census it constituted 38 per cent of the 9 and under age-group, and 41 per cent of the 10 to 19 age-group in the Russian Soviet Federative Socialist Republic. A considerable proportion of Mordvinian children identify themselves as members of other nationalities, above all as Russians. There is every reason to suppose that the Mordvinians have merely outdistanced the other peoples of the Soviet Union in the direction of convergence and amalgamation.

17. The ethnic convergence of the peoples of the Soviet Union, one of the most important factors in which is population migration, has an extremely positive influence on all aspects of the country's social and economic life. In particular, it facilitates the planned geographical redistribution of labour resources, promotes the mutual cultural enrichment of peoples, helps formerly backward peoples more rapidly to shake off survivals of outmoded ways of life, and so forth.

18. All objective data indicate that the processes of ethnic convergence will be rapidly intensified. This is suggested, in particular, by the following facts:

(1) The greater ethnic convergence of urban as compared with rural inhabitants, and the rapid relative increase in the urban population;

(2) The fact that ethnic convergence is incomparably more marked among young people than in the older age-groups;

(3) The rapid rise in the general educational level of all the peoples of the Soviet Union and the fact that the young acquire a good knowledge of Russian, the language of international intercourse in the Soviet Union, while still at school;

(4) The more rapid growth of labour resources in most of the national republics, the greater possibilities of releasing manpower from agriculture offered by continuing mechanization and rising labour productivity, and the economic desirability of redistributing part of these resources to areas where labour is scarce.

19. The ethnic convergence of peoples will promote the territorial redistribution of people belonging to different nationalities and their further "blending"; on the other hand, this redistribution will, in its turn, promote the further ethnic convergence of the peoples.

An analysis of – and a policy regarding – rural migration in developing countries

J. A. PONSIOEN

1. Nothing new is said, when one states that the development process is the main factor of rural-urban migration. Economic development usually is unequally distributed over geographical areas. This regional discrepancy is stronger in recently developing countries than it has ever been in Western economic development. All historical phases of the centuries-old national development in the West are simultaneously represented in different parts of developing countries. These parts, nevertheless, affect each other by internal migration.

2. From experience one discerns in the developing countries five typical regions, different in regard to the degree of modernization:

(*a*) The Western type of administrative and commercial cities provided with all modern facilities;

(*b*) The industrializing and mining areas which are a mixture of modern industry and native ways of life. Usually provision of public services is far behind rapidly increasing needs;

(*c*) The rural areas with a commercialized and scientifically based agriculture (plantation economy);

(*d*) The primitive rural areas; and

(*e*) The slum quarters or shantytowns built around the administrative, commercial and industrial centres.

3. Because the primitive rural areas are the expulsion zones, the towns are the attracting zones and the shantytowns are the danger signs of over-migration, we must deepen the analysis of these areas.

4. A tendency can be observed (notably in Latin America, but also in other places), that people from the most primitive and poorest areas migrate to the largest towns of the country with a preference for the capital. What happens here?

5. There are few primitive areas which have remained completely away from the impact of modernization. Most backward areas have been touched by modern life without making steps towards development. Rudolf Stavenhagen, in a paper "Changing functions of the community in developing countries", delivered at the First World Congress of Rural Sociology, held at Dijon in 1964, has analysed well the impoverishment of many rural communities by this contact. He describes its effects as follows:

(*a*) The former subsistence agriculture with its balanced mixed farming was partly responsible for a low nutrition level; however, the colonizers' introduction of monoculture which was encouraged by the governments for export reasons and for expansion of the money-economy, often has lowered nutrition standards and thus weakened the people;

(*b*) The introduction of wage labour in agriculture has broken corporate lineages, has contributed to the disappearance of co-operative labour, has increased economic independence and responsibility of the women, and added to the individual vulnerability and increased mobility of the male population;

(*c*) The buying power of the rural population may have been increased, but the standard of living has been decreased. With the introduction of a money-economy, the production of foodstuffs often dropped and prices rose. Moreover, much money is spent on unessential items such as alcohol;

(*d*) The money-economy creates an enormous sector of middlemen and money-lenders, who take away profits of commerce-oriented production.

"Rural communities," concludes Stavenhagen, "have generally on the whole, lost more than they have gained". The first impacts of modernization on primitive areas, being what they are, nobody will be astonished that people leave their primitive dwellings.

6. At the opposite end we find towns as "the promised land." The town is a complex phenomenon. It is not just a big conglomeration. The study of the urban revolution of cultures (which has preceded the industrial revolution by millennia) reveals urbanization as a set of a great number of functions interdependent with such conglomerations: formal admin-

istration, the rule of impersonal law for order, money-economy connected with wide marketing and banking, market-oriented production, literacy, school education, a leisure class enjoying fine arts, institutionalized services for welfare, and a standing police force.

7. Since the nineteenth century towns also have been breeding places for industries. Today industry often is a breeding place for urban functions (mainly in Central Africa, where the culture did not pass through an urban revolution or, in some cases, has lost these functions).

8. As regards the individual, the formal administration of the town and the rule of impersonal law liberates him from the rural authorities and protects him against their arbitrariness. The high degree of division of labour provides easy access to a job without training in a traditional craft and without belonging to a family which traditionally exercised it; the school education opens opportunities to rise in status; cultural performances sometimes can be enjoyed publicly; institutionalized services often can be approached freely.

9. The towns and their functions are carried to the countryside through family communications. One who migrates to the town, tends to justify his move by his experiences and those of his friends, narrating positive experiences to enhance his status in the family. People, who return temporarily to their original homes, and tell such stories have been, in many cases, the fortunate ones among the migrants, able to save money for the return and for the gifts which they bring with them as proofs of success. Others who failed and live in the slums and the shantytowns do not return and never will tell their stories.

10. The shantytowns alone are only a demonstration of the housing shortage. One who has experience with shantytowns, mainly in Latin America where there are many, knows that there is a stratification among these settlements. Some are the living spaces of regular workers who could not find better dwellings. But these persons are relatively few. Most inhabitants of shanties are people who came to town to find a new job and a better life, but found neither. Waiting for a job, they settled provisionally before the gates of the town without regular income. These constructions very often are illegal, thus, for the administration, they do not exist. No public services are found, no roads, no water, no sewerage, no schools, no church, sometimes, even no police. These settlements tend to become permanent. To one who has never experienced them, it is inconceivable how much human beings can degenerate in such circumstances. These settlements are, physically and spiritually, the graves of the "over-migrators" from the rural areas to the town. They constitute a "pre-industrial proletariat".

11. Governments then are forced, either for humanitarian or for political reasons (though the lower strata of this proletariat hardly have political awareness), to frame a policy to terminate this inhuman situation. Provision of durable dwellings, some public services and, mainly, employment opportunities by industrialization are some of these solutions. Such policies, praiseworthy as they are, tend to aggravate the situation. Provision of decent dwellings and employment to those who are recognized citizens attract more people. Relatives, and relatives of relatives will feel they have the same rights. For one new job available for unskilled workers five new men may arrive to supply the labour. A still greater disadvantage is that all new industries will be established in the already existing industrial towns. In this way these towns expand far beyond the optimum size, that is the size where the "social costs" (both in the economic sense and in the human sense) are at a minimum. For large towns this optimum is estimated to be between 750,000 and 1,000,000 inhabitants. Recent urban growth shows clearly there is no spontaneous reaction to prevent over-stepping this limit. On the other hand, with the exception of some crude measures on a racial base, no Government, of whatever political structure, has succeeded in controlling "spontaneous" rural migrations by direct measures.

12. The obvious answer to the problems, if one does not want to maintain shantytowns as graveyards of over-migration, is to diminish the push from poor rural areas by bringing urban facilities and functions to these areas. However, one cannot bypass the fact that these functions require a minimum number of people in one conglomeration, estimated between 25,000 and 50,000 inhabitants.

13. One may ask whether it is not too early to develop a policy of urbanizing the rural areas of developing countries. Europe around 1950 organized a regional developing policy, which established in the less developed areas centres by decentralizing industries (from the national point of view) and concentrating housing in the area (from the area point of view). It is remarkable to observe that in spite of the common social striving for equal opportunities, countries did not discover before 1950 that opportunities were unequally distributed and begin to frame a policy to improve this situation. Nearly all European countries began

at the same time: England in 1950 with its Distribution of Industry Act; Italy in 1952 with the Plan Vanoni; the Federal Republic of Germany in 1951 with its Sanierungs programme and, since 1955, with its Regionale Förderungsprogrammen; France in 1954 with its Programme d'équilibre financier, d'expansion économique et de progrès social; the Netherlands since 1952 with its yearly "industrialisatienota's". It seems an empirical generalization that a rather high level of economic growth is required before such a policy can be started.

14. The developing countries have no hope and neither politically nor morally can they wait until a high economic level is reached. They must find efficient means within the limits of their economic possibilities.

15. An original answer from the developing countries has been the community development programmes either publicly or privately organized. Their contribution to economic growth and consequently their prevention of migration are subject to many criticisms today. These criticisms are justified in that many programmes are "village improvement programmes" rather than real development programmes. Development, also community development, means economic growth by autonomous forces. It is clear that one cannot develop a separated village. Villages lack resources to start and to continue such a process. Development always includes scale enlargement; this is a hard sociological fact. This means that in the process of community development the concept and the reality of "community" must be enlarged. This does not mean that community development is the wrong approach. Indeed one must start by reinforcing the self-respect of existing communities (which may be villages or small areas) to be creative for implementing their needs and to promote leadership for changes. This approach is not yet development, but it promotes the prerequisites. It cannot stop at this point. The process must continue; if not, greater frustrations and discontentment are to be expected.

16. The very moment of a community's maturity is the point where community development must join the planning approach. Governments, initiating or permitting community development programmes, must have regional development plans ready at the moment of maturity. Such plans should be submitted to the leaders of the communities in the area and discussed with them to stimulate their contributions and their support of the community enlargement.

17. The authorities, however, shall stick to that element of the regional plan which formulates the concentration of all services in only one place. An area development plan usually considers introducing secondary education, vocational training, an agricultural centre, a general hospital, a central market, agro-industries and agro-business and administrative offices. My point is that all such services should be concentrated whether they are of public or of private nature (in the latter case, negotiations must start early). One may expect this location soon to become the central place for other small industries and crafts, shops, recreation and sports events. The method is that of using historical urban functions to make urban centres come into existence. These places can act as centres of development on a low level. It will be wise to continue the psychology of community development in these centres and especially to bring social services under a consultative board of representatives so that people really feel it to be their centre.

18. These "rurban" centres (to use an American term) may have, and often do have, another function, that is to act as a sluice between the expulsive poor rural areas and the big towns. The first migration can be to these centres and from them to the bigger towns, if there are reasonably better opportunities in the bigger towns.

19. This approach requires at the same time a decentralizing industrialization policy. Without an absolute necessity new industries should not be established in already too large towns, no matter how great the demand for job opportunities might be. Neither should industries be dispersed at random over the country. Groups of light industries should be directed to well chosen centres throughout the country. Development in five towns of 100,000 inhabitants will offer a greater radiation over the country than development in one town of 500,000 inhabitants.

20. We, of course must foresee the demographic consequences of this approach. One hopes it will slow over-migration to the big town; thus, mortality, which is terribly high in shantytowns, will diminish. At the same time it may be expected that mainly young couples will migrate to the new "rurban" and industrial centres with the result that the fertility rate will be high. With medical provisions installed there, infant mortality will drop considerably. Experience in developing countries shows that in the beginning of urbanization

no decline may be expected in the birth rate. This decline perhaps will start later. Moreover, educational standards in urban centres is higher than in rural areas, so that the new centres will require more schools and teachers.

21. All these consequences bring new costs. The point is whether this approach raises the productivity of investments made today in existing, overcrowded towns and reduces the costs in human misery.

Characteristics of rural/urban migration and the effects of their movements upon the composition of population in rural and urban areas in sub-Saharan Africa

R. MANSELL PROTHERO

1. A high degree of population mobility, both intra- and inter-territorial, is characteristic of countries in sub-Saharan Africa;[1] rural/urban migration is one of the major elements in this mobility.[2] At ever-increasing rates people have been moving from the rural areas to rapidly growing urban centres.[3] Though the over-all proportion of urban population to total population remains low (under 10 per cent), the figure is subject to considerable regional variations, up to a maximum of over 50 per cent in the Western Region of Nigeria.

2. Both centrifugal and centripetal factors operate in rural/urban migration.[4] In rural areas various inventives may encourage, or even force, people to seek opportunities for livelihood away from traditional agricultural pursuits.[5] The towns offer, or at least seem to offer, advantages and amenities which are not available in the rural areas.

3. The factors in the rural and the urban areas which stimulate migration may be grouped into two major categories.

(*a*) Economic, e.g., rural poverty, population pressure and land hunger, and the attraction of urban wage-earning;[6]

(*b*) Social and psychological, e.g., the desire to break away from the constraints of traditional social organization and obligations, and to exchange these for the social freedom of the towns.[7]

The factors in the first category are more important.

4. There are various forms of rural/urban migration.

(*a*) Daily movements of people from the peri urban fringes of towns into the centrally located commercial and industrial areas. These movements have not yet become as large as those in other parts of the world;

(*b*) Seasonal movements, mainly of men during periods of seasonal inactivity in rural areas and when there are demands for additional labour in urban areas. Absences from home are for up to 5/6 months; distances travelled to and from work amount to hundreds of miles.[8] There may also be reverse movements, when people from towns go into surrounding rural areas to work. These occur when relationships between town and country are very close; where towns have developed from what were originally agricultural settlements;[9]

(*c*) Short-term movements mainly of men to towns, for periods of up to two years; they work either on contract for a specified time or are "target" workers, aiming to earn a spe-

[1] R. M. Prothero, "Continuity and change in African population mobility," in Steel and Prothero (eds.), *Geographers and the Tropics; Liverpool Essays*, and *Population Movements... Malaria Eradication in Africa*, Bulletin of World Health Organization, *24*, pp. 405-25 (1961); H. Panofsky, *Migratory Labour in Africa*, J. Mod. Afr. Stud. 1, pp. 521-529 (1963).

[2] P. Mercier, *Urban Explosion in Developing Nations*, Unesco Courier, pp. 50-55 (1963).

[3] R. W. Steel, *The Towns of Tropical Africa*, in Barbour and Prothero (eds.), *Essays on African Population*, London (1961); J. Comhaire, *Urban Conditions in Africa*, London (1961); *Social Implications of Industrialisation and Urbanisation in Africa* UNESCO (1956).

[4] J. C. Mitchell, *The Causes of Labour Migration*, Bull. Int. Afr. Lab. Inst. *6*, pp. 12-46 (1959).

[5] I. Schapera, *Migrant Labour and Tribal Life*, London (1947); R. M. Prothero, *Migrant Labour from Sokoto Province, N. Nigeria*, Kaduna (1959) and *Some Observations on Desiccation in N. W. Nigeria*, Erdk. *16*, pp. 112-119 (1962).

[6] J. C. Mitchell, *The Causes of Labour Migration*, *op. cit.*, and *Wage Labour and... Movements in Central Africa* in Barbour and Prothero, op. cit. (1961); A. I. Richards (ed.), *Economic Development and Tribal Change*, Cambridge (1956).

[7] I. Schapera, op. cit.

[8] R. M. Prothero, *Migrant Labour in West Africa*, J. Local. Admin. Overs., *I*, pp. 149-155 (1962).

[9] N. C. Mitchel, *Yoruba Towns*, in Barbour and Prothero, op. cit. (1961); W. Bascom, *Urbanization Among the Yoruba*, Amer. J. Soc. *60*, pp. 446-454 (1955).

cific sum of money.[10] Wives and children remain in the rural areas though migrants in this category may spend several periods in towns during their working lives;

(*d*) Definitive movements, when people sever their links with rural areas and settle permanently in towns.[11] The decisions to do this may be taken immediately or may come after several periods of urban employment. Men in this category are either accompanied from the start by their families or are joined by them after they have become established in the towns.

5. These four forms of migration are to be found together in many parts of sub-Saharan Africa: (*a*) occurs in all the large towns; (*b*), (*c*) and (*d*) have developed to varying degree in different parts of sub-Saharan Africa.

(*a*) West Africa (from Senegal to Cameroon) is characterized by a greater degree of seasonal migration than is found elsewhere.[12] From inland countries, Mali, Upper Volta and Niger, and from the northern parts of Ivory Coast, Ghana and Nigeria, male migrants move generally in a southward direction during the long dry season. These areas are poorly endowed and developed, and migrants seek employment in rural and urban areas of more precocious economic development. These include the major commercial and administrative centres and the seaports. After working for from two to five months migrants return home to cultivate their farms with the onset of the next wet season. For the most part these migrations are spontaneous and uncontrolled, organizations for recruiting workers do not operate and workers have no formal contracts with their employees;

(*b*) East and Central Africa (Uganda, Kenya, Tanganyika, Rwanda and Burundi, and the Congo-Leopoldville) are characterized by less seasonality in movements. Migrants seek work for relatively longer periods (c.1–2 years) and there is a greater measure of organization for migrant labour; still only a minority of migrants are dealt with by recruiting organizations.[13] In the Congo under Belgian administration a high degree of stabilization of labour was achieved.[14] The situation had changed with political and economic instability since independence. Unemployment has increased in the towns and a new element in mobility had developed with the movements of refugees. These movements have occurred elsewhere—particularly from Rwanda and from the south of the Sudan into Uganda;

(*c*) South-Central and South Africa (Zambia, Malawi, Rhodesia, Angola, Moçambique, South Africa and minor colonial territories). Migrants are attracted to mining and industrial complexes on the Copperbelt in Zambia, on the High Veld in Rhodesia and above all in South Africa, particularly the Witwatersrand. The main source areas of migrants are in Malawi, Zambia, Angola and Moçambique.[15] The control of migrants has been stricter than elsewhere in Sub-Saharan Africa, by:

(i) The operation of recruiting organizations (particularly, the Witwatersrand Native Labour Association);[16]

(ii) Travel arrangements for migrants to and from places of work;[17]

(iii) Workers entering into formal contracts with their employers.

South Africa has, for economic and political reasons, exercised the most control over the movements of migrants into and out of the country and within it. Rural/urban migration is affected by the more rigid application of apartheid. There is now greater distinction between the urban areas and the rural areas reserved for Africans, and less freedom of movement between them. This will presumably lead

[10] W. Elkan, *Migrant Labour in Africa: An Economist's Approach*, American Econ. Rev., *49*, pp. 188-197 (1959); E. J. Berg, *Backward-sloping Labour Supply Functions in Dual Economies — the African Case*, Quart. J. Econ., *75*, pp. 468-494 (1961) and P. F. M. McLoughlin, *ibid.*, *76*, pp. 660-663 (1962); H. E. Hurst, *A Survey of... Facilities for Migrant Labour in Tanganyika... 1926-59*, Bull. Int. Afr. Lab. Inst., *4*, pp. 50-91 (1959).

[11] A. W. Southall, and P. W. C. Gutkind, *Townsmen in the Making*, E. Afr. Stud., *9* (1957), and works cited in other references.

[12] M. P. Piault, *Migrations des travailleurs en Afrique de l'Ouest*, Bull. Int. — Afr. Lab. Inst., *8*, pp. 111-130 (1961).

[13] Hurst, op. cit.

[14] P. F. Bouvier, *Some Aspects of Labour Migration in the Belgian Congo*. Bull. Int. Afr. Lab. Inst., *6*, pp. 8-55 (1959); M. Heymans, *L'urbanisme au Congo Belge*, Brussels (1951).

[15] J. C. Mitchell, *Wage Labour and... Movements in Central Africa*, op. cit. *and The Distribution of African Labour by Area of Origin on the Coppermines of N. Rhodesia*, J. Rhodes-Livingst, *14*, pp. 30-36 (1954); P. Scott, *Migrant Labour in S. Rhodesia*, Geog. Rev., *44*, pp. 29-48 (1954) and N. Rhodesia in *African Labour Migration*, *ibid.*, *44*, pp. 432-434 (1954); D. H. Houghton, *Migrant Labour* in P. Smith (ed.), *Africa in Transition*, London, (1958).

[16] *Organization of Migrant Labour ... Witwatersrand Native Labour Association Ltd.*, Bull. Int. Afr. Inst., *4*, pp. 40-49 (1959).

[17] D. Niddrie, *The Road to Work*, J. Rhodes-Livingst, *15*, pp. 31-42 (1954); Scott, op. cit.

[18] P. H. Gulliver, *Labour Migration in a Rural Economy*, Kampala (1955); W. Watson, *Tribal Cohesion in a Money Economy*, Manchester (1958).

to more stabilization of the urban African population. The attitudes of some of the newly independent African countries towards the political developments in South Africa (and to a lesser extent towards those in Rhodesia) are already having some effect upon migrant movements.

6. The effects of rural/urban migration on population composition:

(*a*) Rural areas:

(i) Large-scale rural depopulation has not yet occurred and the majority of the population remains rural-based. The effects of short-term and definitive movements are greater than those of seasonal movements. The absence of seasonal migrants reduces pressures on rural resources. Migrants return with money and goods which benefit rural economies. Seasonal absences, even in large numbers (25 to 50 per cent of the adult males), need not have ill-effects on rural economies, if they are during periods of agricultural inactivity. Absences of similar proportions for long-periods may seriously upset economic organization, though some communities are able to adjust to these circumstances;

(ii) Traditional social organization may or may not be disrupted through the breakdown of traditional forms of authority, though these are now steadily and deliberately being eroded by the governments of recently independent countries;[19]

(*b*) Urban areas:

(i) The impact of migration is much more apparent in the urban areas. Rapid population growth has made it impossible to keep pace with the needs of new urban dwellers for jobs, housing and other amenities. Unemployment and under-employment are characteristic. In the African context, they are both difficult to measure and the latter especially so.[20] Housing and basic facilities (e.g., water supply, waste disposal) are inadequate, with gross overcrowding in existing accommodation, and the growth on urban peripheries of ramshackle shanty towns (*bidenvilles*) without basic facilities. These conditions produce a wide range of social and health problems;

(ii) Migrants from rural areas continue to be unstable and may move frequently within towns from one part to another;

(iii) The population structure in rapidly growing towns is unusually unbalanced, with a predominance of young adult males. Resulting social problems are well known;[21]

(iv) Urban populations display great ethnic variety.[22] Migrant ethnic groups establish themselves in well-defined quarters of towns.[23] This form of segregation has limited the mixing of ethnic groups, and has inhibited the merging of ethnic characteristics and the emergence of uniform groups. But those who live for long periods in towns are still likely to find that they have more in common with one another than with the communities from which they originated.[24] They have greater social and economic sophistication (though this may be a thin veneer) and are more receptive to current ideas and practices. People in rural areas are conservative, and it is the towns of Africa which had led the movements for political independence in the last two decades. Among town-dwellers during the next few decades the process towards a sense of nationality is likely to advance most rapidly, to replace traditional ethnic allegiances.

7. Conclusion: it has been possible only to generalize on some of the most important aspects of rural/urban migration and its prob-

[19] J. Van Velsen, *Labour Migration ... in the Continuity of Tongo Tribal Society*, Econ. Dev. and Cult. Change, *8*, pp. 265-278, Chicago (1960); W. Watson, op. cit., E. P. Skinner, *Labour Migration and ... Socio-cultural Change in Mossi Society*, Africa, *30*, pp. 375-401 (1960); J.-Cl. Pauvert, *Migration et Education*, Bull. Inst. Fr. d'Afr. Noire, *22*, pp. 467-475 (1960).

[20] M. Davauge, *Le Chômage à Brazzaville*, Bull. Int. Afr. Lab. Inst., *7*, pp. 9-49 (1960); Situation du Chômage au Congo Belge, Bull. Int.-Afr. Lab. Inst., *7*, pp. 9-38 (1960).

[21] A. W. Southall, *Population Movements in East Africa*, in Barbour and Prothero, op. cit. (1961); Mitchell, op. cit., A. W. Southall, (ed.), *Social Change in Modern Africa*, London (1961).

[22] M. Banton, *West African City: ... Tribal Life in Freetown*, London (1957).

[23] J. Rouch, *Migrations au Ghana*, J. Soc. de Afr., *26*, pp. 33-196 (1957); Mitchel, op. cit.

[24] M. J. B. Molohan, *Detribalization*, Dar es Salaam (1957); J. Rouch, *Second Generation Migrants in Ghana and the Ivory Coast*, in Southall (ed.), op. cit. (1961).

lems. Several fundamental points may be emphasized and should be discussed.

(*a*) A unitary approach should be used for the study of rural/urban migration, to consider together the areas of origin and the destinations of those who migrate. There is a danger of concentrating too great attention upon the towns and neglecting the rural areas;

(*b*) Comparative studies of rural/urban migration in sub-Saharan Africa with that in other parts of the world, past and present, are likely to contribute useful results;

(*c*) Information and data on rural/urban migration have been restricted in amount and variety. There is an absence of adequate measures of migration; standard censuses provide only limited data. Studies of migration have been limited in areas and in the situations considered. There is a dearth of information and data on the volume, pattern and time of migrations;

(*d*) The study of migration elsewhere, as well as in Africa, should be made through the co-operative effort of workers in the social and economic sciences;

(*e*) Much migration takes place not only within but also between countries; co-operation between governments is essential for the study and solution of problems;[25]

(*f*) Little is yet known of the effects of changed political circumstances in Africa on rural/urban migration. These should be investigated.

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M. J. Herskovits, *The Human Factor in Changing Africa* (London, 1926).

G. Hunter, *The New Societies of Tropical Africa,* (London, 1962).

[25] A study of migration in the Ivory Coast, Ghana and adjacent countries was sponsored in 1958 and 1959 by the Commission for Technical Co-operation, in Africa South of the Sahara, and directed by J. Rouch. Full results of this study are not yet published.

Internal migration in Hungary and some Central and East European countries

LOUIS LAJOS THIRRING

[*Translated from French*]

1. In this paper we shall do no more than summarize the most characteristic data and features. For lack of space we have been obliged to excise at the last moment, many explanatory notes, five tables and the entire bibliography. Only the barest indication can be given, therefore, of the appreciable influence which internal migratory movements have exerted in recent times on the geographical distribution of population, on the conditions affecting agglomeration, and on the development and evolution of population structures in some Central European and East European States with a socialist planned economy.

2. The paper is based on data relating to Hungary. Data concerning Bulgaria, Czechoslovakia, Poland, Yugoslavia and the German Democratic Republic are cited for purposes of comparison or merely as examples.

3. In view of the limitations to which this paper has to conform, and in order to make it as authoritative as possible, it has been confined to the recapitulation, in a greatly condensed form, of the data and information kindly made available to us by the competent institutions in the countries listed above.

4. In some of these countries, statistics of internal migratory movements are compiled directly and continuously. Where these statistics are included in the information supplied to us, they have been used as the main source of reference. For the other countries, and to supplement the statistics in question, we shall also cite other data such as general census results.

5. Our figures, therefore, are not completely homogeneous. Furthermore it should be noted that even the direct statistics of internal migratory movements are not entirely homogeneous. For example, the data from the German Democratic Republic do not take into account the migratory movements taking place within localities (*Kreise*), though these territorial units have sizable populations. Despite methodological differences of this and other kinds, the data given here are a satisfactory source of information.

6. With regard to the reasons for and background to internal migration, fairly appreciable differences have been observed among the six countries examined, even in the most recent times, from the standpoint of conditions affecting agglomeration, degree of cultural and economic development etc. These differences exert no appreciable disruptive influence, for they will in time be balanced out by the essential homogeneity of those countries' social systems and by the particularly rapid progress which the planned economy has set in train in the relatively backward areas.

7. The situation presents a different picture when it is compared with the past.

8. Admittedly, there is nothing new about either the existence or the nature of internal migratory movements in any of the six countries concerned. In many respects these movements are closely linked with similar migrations in the past. Personal reasons for a change of residence, too, are often similar to those of the past.

9. On the other hand, most of the internal migratory movements taking place today, even if not entirely smooth in operation, at any rate fit into the planned utilization of manpower and are accompanied neither by mass unemployment nor even by an appreciable amount of emigration. Nowadays, as one of our Hungarian sources puts it, "attraction" is a more powerful force than "repulsion". The movement is no longer in the nature of an exodus—i.e., of a flight from agriculture or from village life. Changes of residence are no longer caused by the predominance of large-scale land ownership, for this has disappeared; they are now caused by the more or less foreseen and systematic decline in demand for agricultural manpower associated with the vigorous growth of the co-operative movement and the more rapid mechanization of agriculture. Other causes to be taken into account, as one Bulgarian authority points out, include rapid social and economic development, the increased pace of industrialization, the creation of new living

conditions, the rise in the economic and cultural level of the people, the considerable rise in wages, the increase in the number of dwellings, and the expansion of the network of special and vocational training schools. All these factors have combined to effect a major increase in internal migratory movements.

10. The statistics of countries where data are compiled directly offer a relatively accurate picture of the changes that have taken place in the volume of internal migration (see table 1). For example, the Hungarian figures, which exhibit fairly moderate variations except for the extraordinary jump in 1957-1958, provide indications from which we can infer a relatively uniform rate of economic progress. In contrast, the curve of temporary migration,[1] for which separate statistics are kept in Hungary, has been much more uneven. The Bulgarian figures, which vary much more, show a rising trend by comparison with 1947. The main reason for this is probably that the level of urbanization and industrialization was lower in the past, so that there was more scope for progress. The downward trend observed in Czechoslovakia is attributed by the Czechoslovak authorities primarily to a more marked stabilization of manpower associated with changes made in the investment programme for the establishment of new enterprises. The following comments are also worth noting: "After the war industry was organized with a view to a more uniform distribution throughout the country. The current programme pays more heed to natural sources of manpower." The decline in volume after 1960 "was due partly to the amalgamation of some communes into larger units".

11. The intensity of internal migratory movements has not been identical in all the countries examined; this fact is probably due to differences in the conditions affecting agglomeration and the geographical distribution of the population, in social and economic structure, and in the stage of development reached. While in Hungary there were 33 to 34 cases of migration per 1,000 inhabitants in recent times, there were 32 in the German Democratic Republic, 27 to 29 in Czechoslovakia, and only 20 in Bulgaria. Since the agricultural population, which is relatively sedentary, represents a fairly high proportion of the total population in almost all the countries concerned, the frequency of changes of residence can be considered somewhat high. By comparison with the past, it has greatly increased (in Hungary, for example), though it still falls well short of the levels attained in the most advanced States.

12. According to special computations based on the last two general censuses taken in Hungary, 19.5 per cent of the population had a different residence in 1949 from the one occupied at the beginning of March 1938, and in 1960 18.4 per cent lived in a different town or locality from that which they inhabited at the time of the 1949 census (excluding, in both cases, persons born after the census and persons previously resident abroad).

13. Polish surveys based on similar census questionnaires indicate that a great many changes have taken place in the distribution of the population, territorially and by type of agglomeration, not only as a result of the social and economic transformation in the early post-war years but also owing to the war, the occupation and the movement of the State frontiers. One of the largest migratory trends was "the settlement of the population in the western and northern areas recovered after the war". According to the 1950 census data, settlers from central and southern Poland represented 49 per cent, and repatriates 30 per cent, of the total population of the western and northern regions.

14. The figures at our disposal concerning internal migratory movements in Yugoslavia are, according to the information received, "direct data based on a 5 per cent sample of the 1961 census returns". "They show that, in the period 1946 to 1950, the number of persons changing their residence was 1,071,000 per annum; from 1951 to 1955, it was 237,000 per annum; from 1956 to 1958, it was about 330,000 per annum; while in the most recent period, from 1959 to 1961, the annual figure exceeded 500,000."

15. As regards the spatial distribution of internal migration—i.e., the territorial distribution of such migration and its breakdown by type of agglomeration—the tide of migration from the countryside to the towns (see table 2) continues to be, and in an ever-increasing degree, the most important feature in all six countries.

16. Neither the theoretical dividing-line between what constitutes a town and what a village, nor the classification of towns and villages, is perfectly homogeneous or entirely

[1] Information concerning temporary changes of residence requires special analysis but is very useful in making a complete evaluation of population mobility.

beyond criticism.[2] Nevertheless, the differences in the volume and intensity of migratory movements, in each category of agglomeration, between the two directions—and above all between urban gains and rural losses—remain strikingly constant.

17. The difference in "power of attraction" between small and large towns—with the latter in the ascendant—is similarly constant. However, the progression, which was fairly regular until recently, now shows signs of irregularity. For example, the rate at which towns in Czechoslovakia with over 100,000 inhabitants, and the city of Budapest in Hungary, gain by immigration, although considerable in absolute figures, falls short of that for the size category, or even categories, immediately below.

18. During the most recent period, the population of the new industrial centres (the socialist towns) which enjoy relatively more of the advantages of industrial development has been particularly favoured—indeed, increased by leaps and bounds—by internal migration. On the other hand, a net emigration was observed for the same period even in some large agricultural agglomerations on the great Hungarian plain.

19. The evolution and proportions of the movement towards the towns are also evident from the Yugoslav and Polish figures.[3] Furthermore, the Czechoslovak, German and Hungarian figures, taken together, indicate a high rate of population exchange among all categories of agglomerations.

20. As the territorial breakdown shows, the balance of mobility for the industrial areas is positive in each of the six countries examined, whereas the net emigration characteristic of the agricultural areas is not only constant but also amounts, very often to a considerable figure. According to our Yugoslav sources, for example, "it appears that population mobility is in direct ratio to the degree of economic development; it is greater in the more developed areas than in the backward areas".[4]

21. The evolution we have just described naturally involves a progressive and far-reaching change in the territorial distribution of the population and especially in the conditions affecting agglomeration. As the Hungarian figures show, this consequence of internal migratory movements has not been counter-balanced, as between the towns and the rural agglomerations, by the natural increase of population.

22. It will be worth while to take a look at the structure of the populations involved in internal migratory movements in the countries examined.

23. As regards distribution by sex, the mobility of men in the German Democratic Republic appreciably exceeds that of women (however, migration within localities (*Kreise*) has not been taken into account). In Hungary, this is true only of temporary migration; so far as permanent migration is concerned, women change their address at practically the same rate as men. In Czechoslovakia too, the differences noted in this regard are insignificant.

24. The distribution by age (see table 3) shows that the intensity of migration among the younger groups of working age (under 30 years)—and especially in the 20 to 24 years group—is far higher than in the other age groups. This trend is connected with the demand for manpower created by rapid industrialization, the choice of a permanent occupation, setting up a home etc.

25. As regards marital status, nearly 50 per cent of those who migrated in Hungary were married. In Czechoslovakia, the proportion was almost exactly 50 per cent.

26. Owing to the relatively high ratio of agricultural to total population and the considerable volume of movement from the countryside to the towns, permanent migration of the economically active population affects a relatively high proportion—in Hungary, about 20 per cent—of persons in agricultural occupations. This category of workers, however, does not predominate in migratory movements. About 40 per cent of the migrants are industrial and construction workers, and this is due as much to the demand for manpower created by accelerated industrialization as to the greater mobility of these categories. In the German Democratic Republic, for example, persons in agricultural occupations accounted for only 8 per cent, whereas workers in industry, construction and mining accounted for five times that proportion. In Hungary, moreover, persons who earn their living accounted

[2] The dividing-line based on a population figure of 2,000 is not altogether satisfactory even for the German Democratic Republic. It is even less so for Czechoslovakia.

[3] According to the Polish data, for example, some 2.8 million people left the countryside for the towns between 1945 and 1963. This represents an increase of about 37 per cent in the urban population during that period.

[4] Examples of the more developed areas are Slovenia and the Vojvodina; examples of the backward areas are Bosnia and Herzegovina, Kosovo and Medtohija.

for 48 per cent of permanent and 73 per cent of temporary changes of address. In the German Democratic Republic, the proportion is 61 per cent, and out of every 1,000 workers 50 men and 30 women moved from one place to another.

27. According to the Hungarian data on purpose of change of residence (including dependents accompanying the head of the household), the reason for nearly three-quarters of all cases of migration is that the migrants are looking for new employment and wish to live closer to their work. This confirms the importance of economic determinants. The same considerations apply to the other countries examined, as the detailed figures show.

Table 1. Distribution of internal migration in Hungary, Bulgaria, Czechoslovakia and the German Democratic Republic

Year	Hungary [a]		Bulgaria [d]	Czechoslovakia	German Democratic Republic
	Permanent changes of address	Temporary changes of address			
1954	—	—	132,402	619,881 [e]	—
1955	312,583	293,418	134,724		—
1956	349,651	281,003	161,196		—
1957	472,613	429,353	131,465	435,709 [f]	—
1958	383,623	376,038	152,697		—
1959	339,415	366,643	168,512		—
1960	338,206	365,129	176,342	401,896	—
1961	330,424	341,395	151,795	397,925	—
1962	336,714	326,689	142,894	391,468	544,399 [h]
1963	330,887 [b]	— [c]	160,676	381,815 [g]	—

[a] Add temporary migrants who returned: 265,319 in 1960; 278,970 in 1961; 291,476 in 1962.

[b] Provisional figure.

[c] Provisional total for migrations and temporary migrants returning: 579,716.

[d] 102,886 in 1947; 119,909 in 1948; 114,389 in 1949; 133,839 in 1950; 130,178 in 1951; 112,158 in 1952; 185,025 in 1953.

[e] Annual average for the period 1950-1954.

[f] Annual average.

[g] Provisional figure. The final figure is 394,663.

[h] Not counting movements within the same locality (*Kreis*).

Table 2. Internal migration, by urban and rural agglomerations, in Hungary, Bulgaria, Czechoslovakia and the German Democratic Republic

Years	Towns [a]		Villages [a]		Balance of migration		
					Absolute figures [b]	Per 1,000 inhabitants	
	Arrivals	Departures	Arrivals	Departures		Towns [a]	Villages [a]
Hungary [c]							
1955	109,056	93,163	203,527	219,420	15,893	+4.1	—2.7
1956	143,816	94,043	205,835	255,608	49,773	+12.7	—8.3
1957	178,983	129,282	293,630	343,331	49,701	+12.9	—8.3
1958	133,151	96,374	250,472	287,249	36,777	+9.5	—6.1
1959	125,442	82,417	213,973	256,998	43,025	+10.9	—7.2
1960	131,912	79,627	206,294	258,579	52,285	+13.0	—8.8
1961	126,185	81,189	204,239	249,235	44,996	+11.0	—7.6
1962	132,481	82,780	204,233	253,934	49,701	+13.0	—8.4
Bulgaria [d]							
1955	90,277	28,493	44,447	106,231	61,784	+26.0	—12.1
1956	111,281	29,354	49,915	131,842	81,927	+32.9	—16.1
1957	82,061	22,676	49,404	108,789	59,385	+22.9	—11.8
1958	88,047	23,880	64,650	128,817	64,167	+23.9	—12.7
1959	104,388	27,533	64,124	140,979	76,855	+27.6	—15.3
1960	114,575	30,945	61,767	145,397	83,630	+28.6	—16.9
1961	90,181	27,584	61,614	124,211	62,597	+20.5	—12.8
1962	88,256	23,537	54,638	119,357	64,719	+20.6	—13.3
1963	102,491	26,552	58,185	134,124	75,939	+23.3	—15.7

Table 2. Internal migration, by urban and rural agglomerations, in Hungary, Bulgaria, Czechoslovakia and the German Democratic Republic (*continued*)

Years	Towns [a]		Villages [a]		Balance of migration		
					Absolute figures [b]	Per 1,000 inhabitants	
	Arrivals	Departures	Arrivals	Departures		Towns [a]	Villages [a]
Czechoslovakia [a]							
1960-1962 (average)	266,387	197,510	130,709	199,586	68,877	—	—11.8
German Democratic Republic [c]							
1962	428,968	404,859	115,431	139,540	24,109	+1.9	—5.0

[a] Agglomerations with over 2,000 inhabitants are classified as towns; those with fewer inhabitants are classified as villages. In Czechoslovakia, localities with a population between 2,000 and 5,000 are classed as "large villages" or "small towns".

[b] For the towns, net immigration; for the villages, net emigration.

[c] Not counting temporary changes of address.

[d] Difference per 1,000 inhabitants: In the towns: +16.5 in 1947; +15.8 in 1948; +15.9 in 1949; +21.8 in 1950; +21.7 in 1951; +17.0 in 1952; +35.1 in 1953; +23.0 in 1954. In the villages: —5.7 in 1947; —5.6 in 1948; —5.8 in 1949; —8.1 in 1950; —8.4 in 1951; —6.9 in 1952; —14.9 in 1953; —10.2 in 1954.

[e] Not counting migration within the locality (*Kreis*).

Table 3. Rate of internal migration, by age group and sex, in Hungary and the German Democratic Republic (1962)

Age group	Hungary [a]				German Democratic Republic [b]		
	Permanent changes of address		Temporary changes of address				
	Men	Women	Men	Women		Men	Women
	(per 1,000)					(per 1,000)	
Under 1	37.5	37.6	10.6	9.7	Under 1	48.5	48.8
1-4	54.9	54.6	13.2	13.5	1-2	30.2	31.0
					3-5	22.4	22.1
5-9	30.6	30.7	8.2	8.4	6-9	17.9	16.4
10-14	20.0	20.2	6.1	6.6	10-14	19.9	15.9
					15-16	68.1	65.8
15-19	41.9	69.5	134.2	75.0	17	103.1	106.0
					18-20	152.2	146.0
20-24	76.9	103.9	140.0	71.1	21-24	141.4	81.6
25-29	75.3	57.0	81.7	28.4	25-29	65.2	34.3
30-34	42.3	32.8	53.7	17.0	30-34	40.3	19.0
35-39	28.4	22.0	43.8	13.0	35-39	29.4	13.5
40-44	22.7	17.2	40.6	11.9	40-44	24.5	10.7
45-49	15.8	12.3	29.2	9.7	45-49	17.7	8.3
50-54	13.4	11.8	26.8	10.2	50-54	13.6	7.5
55-59	11.2	12.0	21.9	10.7	55-59	10.9	6.5
60-64	12.4	12.5	14.4	12.3	60-64	8.5	6.8
65-69	11.5	14.7	11.3	12.7	65-69	7.7	6.7
70-74	13.1	16.2	9.2	12.3	70-74	6.0	7.2
75-79	16.3	17.7	9.2	11.6			
80-84	18.8	20.1	9.0	10.2	75 and over	8.1	9.7
85 and over	17.2	18.0	7.7	8.6			
TOTAL	33.4	33.5	44.4	21.3	TOTAL [c]	40.2	24.9

[a] Not counting temporary migrants returning.

[b] Not counting migration within the locality (*Kreis*).

[c] According to another classification, we have: men under working age: 26.0; women: 24.3. Men of working age: 53.2; women: 32.3. Pensionable age groups: men: 7.3; women: 7.5. All these figures represent number per 1,000 persons of each sex.

Internal migration in the United States: 1870-1960

DOROTHY SWAINE THOMAS

1. The focus of this World Population Conference is on demographic aspects of economic and social development, with special reference to "the problems of economic and social progress of the countries in process of development".[1] The relevance of the present paper, therefore, is its assessment of the experience of a highly "developed" country during an extended period of economic growth. It emphasizes observed relationships between rates of internal migration and other demographic and economic indices. The period considered is from 1870 to 1960; the time unit is the decade; the spatial units are the forty-eight states and the District of Columbia, which comprised, throughout this whole period, what is now called "the conterminous United States";[2] the basic data sources are population censuses, taken at the beginning of each decennium, and related economic censuses; the analytical sources are the three-volume series on *Population Redistribution and Economic Growth, United States, 1870-1950,*[3] prepared under the direction of Simon Kuznets and myself at the University of Pennsylvania, and also memoranda prepared on the basis of 1960 census data by the staff of the University's Population Studies Center.

2. The choice of time period was dictated by the availability of data on the composition of the population and on the distribution of economic activity. By beginning as late as 1870, we miss important phases of economic growth, but nevertheless we include a long span of progressive industrialization. From the time of the first census in 1790 to that in 1870, the total population of the country increased at an average rate of 34 per cent per decade, compared with an average of only 18 per cent per decade from 1870 to 1960. In 1790, less than 30 per cent of the labour force was engaged in other than agricultural pursuits. Although the share of the non-agricultural sector had risen to 48 per cent by 1870, it continued to increase so rapidly that it approached 95 per cent in 1960. Correspondingly, the period between 1790 and 1870 witnessed an increase in the urban proportion of the total population from 5 per cent to 26 per cent, whereas by 1960 the urban share had reached 63 per cent.[4] Of the major race-nativity classes of the total population, 73 per cent were native whites in 1870, 14 per cent were foreign-born whites and 13 per cent were Negroes. By 1960, the native white component had increased its share to 84 per cent, the foreign-born whites had decreased to 5 per cent and the negro component represented 11 per cent of the total. At the earlier of these two dates, 1870, both the negro and the native white segments were predominantly rural, with only 22 per cent of the latter group and 13 per cent of the former group residing in urban places, contrasted with somewhat more than half (54 per cent) of the foreign-born whites. By 1960, however, all classes were heavily concentrated in urban areas: 68 per cent of the native whites, 73 per cent of the Negroes and 88 per cent of the foreign-born whites.

3. The choice of states as spatial units was, again, dictated by the form in which census data are available and by the necessity of manipulating these data for areas with fixed boundaries, in order to measure population shifts and redistribution. Our principal measures of historical migration were on an interstate basis: (*a*) "census survival" techniques were applied to age-sex-racial components of the native population of the country

[1] As defined at the first session of the Preparatory Committee at its meeting in Geneva in June 1962.

[2] Excluding Alaska and Hawaii, which became states between the 1950 and the 1960 censuses.

[3] Everett S. Lee, Ann Ratner Miller, Carol S. Brainerd and Richard A. Easterlin, *Methodological Considerations and Reference Tables,* vol. I (Philadelphia, American Philosophical Society, 1957); Simon Kuznets, Ann Ratner Miller and Richard A. Easterlin, *Analyses of Economic Change,* vol. II (Philadelphia, American Philosophical Society, 1960); Hope T. Eldridge and Dorothy Swaine Thomas, *Demographic Analyses and Interrelations,* vol. III (Philadelphia, American Philosophical Society, 1964).

[4] Conforming, for comparability, to the definition used prior to 1950, that is, persons living in incorporated places of 2,500 inhabitants or more and some other areal units classified as urban under special rules. By the more inclusive definitions used after 1950, the proportion of the total population that was urban in 1960 was 70 per cent.

as a whole on the assumption of closure of these components (that is, they were entered only by birth and were left only by death). For the "open" foreign-born component of the population (which increased by immigration and decreased by emigration), census survival ratios for native whites were modified in terms of life table differentials. Application of the appropriate ratios to fixed-area state populations at each census year from 1870 to 1950 yielded estimates of state-wise populations that would be "expected" at the next census, in the absence of migration. Subtraction of expected populations from enumerated populations yielded approximations of net intercensal interstate migration of the native components and of a combination of interstate movement and net external migration to the country of the foreign-born; (*b*) differencing "birth-residence indices" for the native segments of the population from census to census yielded other series of estimates of inter-censal interstate migration. [5]

4. Both techniques described in paragraph 3 yield measures of net migration (gains or losses) for each state and each inter-censal period. To generalize these measures at the national level, the increases for gaining states were summed. The resulting sums are referred to as "displacement due to migration". The same concept was applied to the foreign-born open populations by prorating the algebraic balances of external migration among state units (by the census survival ratio technique).

5. The absolute amounts of interstate displacement due to migration are shown for the major nativity-race components of the population in columns (2), (3) and (4) of table 1 and they are drawn as decadal time series in chart I. The following aspects of these series are noteworthy: (*a*) the upward trend in the amount of displacement due to migration of native whites throughout the nine decades from 1870-1880 to 1950-1960; (*b*) the upward trend in the foreign-born white series from 1870-1880 to 1900-1910, followed by a sharp decline to the period 1930-1940 and a slightly upward movement at a low level during the two terminal decades; (*c*) a very slowly rising trend for the negro migration series in the first three decades, with a marked speeding-up at precisely the same time that foreign-born migration began its secular decline; (*d*) the marked decadal swings throughout the ninety-year time span in the series for native whites, with an alternation of high values and low values around an imputed trend. These had their counterpart in the foreign-born series, but there were only slight fluctuations in the negro series until the 1920-1930 decade, after which they became quite pronounced. In terms of absolute numbers, then, the falling-off of foreign-born migration definitely seems to have been compensated for by a rise in the trend of the migration of Negroes.

Chart I

Displacement of population due to interstate migration of native whites, foreign-born whites and Negroes, United States, 1870-1880 to 1950-1960

SOURCE: table 1.

6. To allow for changes in the size of the population, the three series are expressed as rates of the average total population for each decade. These are shown in columns (5), (6) and (7) of table 1 and they are also shown in chart II. In the chart, however, the first decade is not plotted because of the extensive underenumeration known to exist, but difficult to measure, in the census of 1870. When changes in the size of the total population are taken into account, the trend for native whites flattens out, whereas that for foreign-born whites

[5] "Birth-residence indices" mean the inter-censal change in the number of natives living in any state who were born outside it, minus the inter-censal change in the number born in the state who were living outside it.

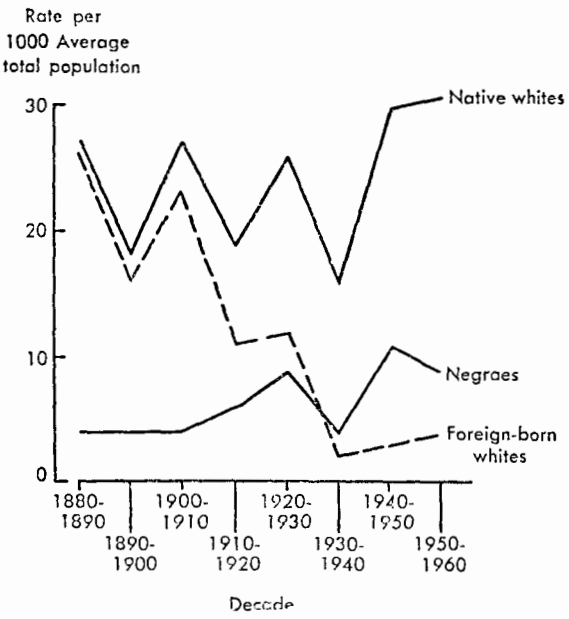

Chart II

Rate of displacement of population due to interstate migration of native whites, foreign-born whites and Negroes, United States, 1880-1890 to 1950-1960

SOURCE: table 1.

shows a sudden and sharp secular decline. The upward trend in the negro series, observed for absolute values, is still apparent in rates toward the end of the period. The pattern of decadal fluctuations is the same for rates as it was for absolute numbers, with alternations of high and low decadal values until the end of the period.

7. An underlying cause of these alternations of high and low values in internal migration and related demographic series is undoubtedly the systematic long swings in economic activity —the so-called Kuznets cycles—whose intercyclical movements approximated twenty years each during the period under observation. K. C. Zachariah fitted a trend to the most comprehensive economic series that we could find on an annual basis, that is, gross national product per capita in constant prices.[6] By cumulating annual deviations over decades from a secular trend of annual values and by expressing decadal sums as percentages of trend values, we were able to classify decades definitively as either "prosperous" (with a cumulated excess of positive deviations) or "depressed" (with a cumulated excess of negative deviations). The resulting series is shown in column (7) of table 2 and it exhibits a clear-cut alternating pattern of relatively "prosperous" and relatively "depressed" decades from the period 1880-1890 through the period 1940-1950. Computations for the latest decade (1950-1960) are not completed yet, but all available evidence indicates that it, too, will be classified in the "prosperous" category. The conformity between swings in this economic series and those in the native white migration series is perfect throughout. Moreover, if we consider the foreign-born white and the negro series, in a realistic sense, as substitutes for each other in the course of time, the conformity again is perfect. Perfect conformity also is found in decadal swings representing percentage changes in the total population, in the urban population, in the non-agricultural labour force (columns (4), (5) and (6) in table 2), in the index of displacement due to the migration of all classes of the population (column (2) in table 2) and in the two indices of total native migration computed independently by the two methods described in paragraph 3.

8. Our census survival technique also yields estimates of natural increase which are residuals obtained by subtracting net migration from total change. These estimates therefore contain a larger "error" element than do the migration estimates, and they are not necessarily the same as estimates derived directly from vital statistics (which, unfortunately, are not available for historical analysis). State-wise measures of displacement due to this factor are obtained from the data by summing state excesses of estimated shares of national natural increase over prorated shares. This series, expressed as rates per 1,000 total population, is shown in column (3) of table 2. When compared with column (2), which is similarly based, but which covers all migration (external, prorated, as well as internal), column (3) makes it apparent that geographic differentials in natural increase have contributed consistently far less than net migration to the redistribution of population; the relative importance of natural increase has tended to decline over time. Moreover, the natural increase series gives little evidence of co-variation with economic activity with slight decadal swings, in strong contrast to the migration series.

9. Inasmuch as our migration series were all age-sex specific, inferences may be drawn from them concerning age and sex selectivity,

[6] Dorothy S. Thomas and K. C. Zachariah, "Some temporal variations in internal migration and in economic activity, United States, 1880-1950", *International Population Conference, New York 1961* (London, 1963), pp. 525-532.

although one always must bear in mind that we were dealing with net migration, rather than with gross migration, and with age at the end of each decade. The age distribution of inter-censal rates of displacement due to interstate migration had a basic regularity of pattern that was common to all three race-nativity groups and to both sexes. There was a pronounced peak in both the native groups and in the foreign-born white group (in the early decades) at ages 25-29 years old at the end of each decade, with contiguous five-year age groups also being so high that up to and including the 1940-1950 decade, about 45 per cent of the interstate displacement due to the migration of native whites and about 50 per cent of the interstate displacement due to the migration of Negroes was accounted for by the age range of 20-34 years, with marked peaks at ages 25-29 at the end of each decade (corresponding roughly to ages 20-24 at the time of migration).[7] In the earlier decades, rates for males tended to exceed those for females, but the upward trend in the latter produced convergence towards the end of the whole period. In the period 1950-1960, the basic patterns continued, but certain special circumstances (entrance into and separation from the armed forces, retirement migration and so on) introduced changes in the degree of concentration and shifted the peak for native white males from ages 25-29 at the end of the decade to ages 20-24. Up to and including the 1940-1950 decade, the age profiles were very similar in prosperous and depressed decades, but the (net) response of the young was greatly intensified if a cohort reached the age of maximum readiness-to-migrate during prosperous times. If the strategic ages were reached in times of depression, however, there was an impressive amount of "catching up" at later ages during ensuing prosperous decades.

10. In paragraphs 5 through 9, we have been concerned with temporal variations at the national level. Inasmuch as indices of population change have been derived by summing observations by states, we shall now consider briefly some of the spatial variations in migration and related series over time. For convenience and for avoiding the use of small population bases, we have grouped the forty-eight states and the District of Columbia into thirteen subregions. From the economic standpoint, the most notable tendency that we find in subregional variation is convergence over time towards national averages. In other words, subregions (as well as their constituent state units) have tended to become more and more similar over time. Our most comprehensive measure of subregional development is the proportion of the total labour force that is engaged in non-agricultural activities. The radical convergence that occurred in industrialization, so measured, is indicated by comparing both the range and the average percentage deviations of subregions (disregarding signs) from the weighted average for the conterminous United States. In 1880, the subregion at one extreme had a non-agricultural proportion 73 per cent above the United States average, whereas the subregion at the other extreme had a proportion that was 55 per cent below the United States average. In 1950, the subregions ranged from 11 per cent above to 20 per cent below, and by 1960 the subregion with the highest proportion in non-agricultural activities was only 5 per cent above, while that with the lowest proportion was only 14 per cent below the United States average. The average deviation of percentage deviations from the United States average declined from 39 per cent in 1880 to 4 per cent in 1960. It was, in fact, halved between 1880 and 1920, more than halved between 1920 and 1950, and halved again between 1950 and 1960. Similar tendencies were apparent in measures of service income per worker in constant prices.[8] For this series, the range for 1880 was from 72 per cent above the United States average to 54 per cent below; the range for 1950 (the last date for which we have made the computations) was from 14 per cent above the United States proportion to 32 per cent below it. Correspondingly, the average deviation was more than halved between 1880, when it was 32 per cent, and 1920, when it fell to 15 per cent. Between 1920 and 1950, convergence continued and the average deviation fell to 11 per cent. The pace was somewhat slower for the income than for the labour force series. Convergence of subregional population towards uniformity of urban proportions proceeded less rapidly in the early decades, but gained considerable momentum during the later decades. In 1880, one subregion was 140 per cent more urban and two subregions were 70 per cent less urban than the United States average; by 1920, the extremes were 66 per cent above and 56 per cent below average; by 1960 (if we use the old definition of "urban"), the extremes ranged from 30 per

[7] Net losses appear in some age groups for this series.

[8] "Service income" consists mainly of the sum of wages and salaries and proprietor's income originating in each subregion, expressed on a per worker basis by dividing the aggregate by the number of persons in the labour force.

cent above to 31 per cent below the average, or (if we use the new, more inclusive definition) 18 per cent above to 31 per cent below the United States proportion. Correspondingly, average deviations declined from 52 per cent in 1880 to 38 per cent in 1920 and to 15 per cent in 1960.

11. The initial disparities and the later convergence in subregional economic "opportunities", as measured by service income differentials, by proportions in the non-agricultural labour force and by proportions urban in the total populations, would lead to an expectation of high opportunity orientation of migration in the early decades and somewhat less geographic concentration of gains in the later decades, when "opportunities" (as measured) were spread more evenly over the nation. This was true, however, only for the "minority" components of the population. In the very early decades, new lands were still being settled, and the measures we used do not adequately reflect the new opportunities that opened up and exerted great "pull" upon the native white elements. Although net gains of foreign-born whites were significantly rank-correlated with these measures in the eighteen-eighties, those of native whites were not, and the internal migration of Negroes barely had got under way. In the early nineteen-hundreds, all components of the population were opportunity-oriented; the pattern of high positive correlation persisted for the negro component throughout, but that for native whites (although achieving significance at the 0.05 level) remained fairly weak. When subregional gains of natives were analysed by the birth-residence technique, only 51 per cent of the native white migration gains was found to be from a subregion of lower service income to one of higher service income per worker in the eighteen-eighties; 73 per cent was the figure in the first decade of the twentieth century; 81 per cent in the nineteen-twenties; but only 66 per cent in the nineteen-forties. Native non-whites,[9] however, proceeded from southern subregions of low income to northern, central, and eventually, to western subregions of presumably greater opportunities. Their proportions migrating from subregions of lower service income levels to those of higher levels accounted for 82 per cent of the gains in the eighteen-eighties; 79 per cent in the nineteen-hundreds; and 94 per cent in the nineteen-twenties and the nineteen-forties.

[9] Because of the form in which census data on birth-place and residence are presented, we used a series for "non-whites" instead of "Negroes" in this comparison.

Table 1. Displacement of population due to interstate migration by nativity and race: numbers and rates, conterminous United States, 1870-1880 to 1950-1960

Decades (1)	Number in thousands			Rates per 1,000 total population			Total native rates per 1,000 native population	
	Native whites (2)	Foreign-born whites (3)	Negroes (4)	Native whites (5)[a]	Foreign-born whites (6)[a]	Negroes (7)[a]	Census survival ratio (8)	Birth residence method (9)
1870-1880	1,325	749	190	(30) [b]	(17) [b]	(4) [b]	(38)	(35)
1880-1890	1,496	1,467	222	27	26	4	33	29
1890-1900	1,235	1,139	257	18	16	4	24	22
1900-1910	2,289	1,939	371	27	23	4	34	31
1910-1920	1,823	1,087	589	19	11	6	25	19
1920-1930	3,004	1,361	1,004	26	12	9	38	33
1930-1940	2,080	295	555	16	2	4	21	19
1940-1950	4,263	464	1,590	30	3	11	39	31
1950-1960	4,537	591	1,342	31	4	9	(n.c.) [c]	(n.c.) [c]

SOURCES: Hope T. Eldridge and Dorothy Swaine Thomas, *Demographic Analyses and Interrelations*, vol. III (Philadelphia, American Philosophical Society, 1964); and various volumes of the 1960 *Population Census, passim.*

[a] Because there are both complementary and conflicting directions in components, columns (5), (6) and (7) are not additive to column (2) of table 2.

[b] Rates shown in parentheses, considered to be of poor quality, are not used in chart 2.

[c] The symbol (n.c.) means "not yet computed".

Table 2. Indices of demographic and economic change, conterminous United States, 1880-1890 to 1950-1960

Decades (1)	Rates of interstate displacement: Due to migration (2)	Rates of interstate displacement: Due to natural increase (3)	Per cent growth rates: Total population (4)	Per cent growth rates: Urban population (5)	Per cent growth rates: Non-agricultural labour force (6)	Gross national product per cent deviations from trend (7)	Economic status of decade (8)
1880-1890	45	23	25.5	56.5	53.4	+5.4	Prosperous
1890-1900	35	23	20.7	36.4	31.7	—4.0	Depressed
1900-1910	48	20	21.0	39.3	44.9	+2.6	Prosperous
1910-1920	31	15	14.9	29.0	20.1	—0.6	Depressed
1920-1930	43	17	16.1	27.3	23.9	+3.3	Prosperous
1930-1940	21	17	7.2	7.9	6.7	—10.0	Depressed
1940-1950	39	15	14.5	20.6	30.1	+15.1	Prosperous
1950-1960	39	13	18.4	25.4	22.9	(n.c.) [a]	Prosperous

SOURCES: Hope T. Eldridge and Dorothy Swaine Thomas, *Demographic Analyses and Interrelations*, vol. III (Philadelphia, American Philosophical Society, 1964); and various volumes of the 1960 *Population Census, passim.*

[a] The symbol (n.c.) means "not yet computed".

BIBLIOGRAPHICAL ANNEX

There are two comprehensive bibliographies covering the published United States Census tabulations that bear directly on or are usable indirectly for migration analyses. These are:

(*a*) Everett S. Lee and Anne S. Lee, "Internal migration statistics in the United States", Journal of the American Statistical Association, vol. LV (1960), pp. 664-697. This was prepared to supplement compilations of statistics on internal migration presented in United States Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1957* (Washington, D.C., 1960);

(*b*) Henry S. Shyrock, Jr., *Population Mobility Within the United States* (Community and Family Study Center, University of Chicago, 1964). Appendix B of this book lists all reports of the Bureau of the Census containing statistics on population mobility (pp. 435-443).

Volumes of the 1960 census issued since these two bibliographies (noted above) went to press include:

(*a*) Four important "subject reports", released in 1963, namely:

United States Census of Population: 1960;

State of Birth. Final Report PC(2)-2A;

Mobility for States and State Economic Areas. Final Report PC(2)-2B;

Mobility for Metropolitan Areas. Final Report PC(2)-2C;

Lifetime and Recent Migration. Final Report PC(2)-2D.

These reports are providing bases for more conceptually satisfactory census-based analyses of recent internal migrants than has been possible previously. For example, the *State of Birth* report gives data cross-classified by age for the second consecutive decennial census and thus permits more precise inferences about origin-destination differentials when collated with the 1950 report; the *Lifetime and Recent Migration* report gives a three-way classification of state of residence on 1 April 1960, with state of residence on 1 April 1955 and state of birth, and permits identification of "return" migrants for comparisons with "primary" and "secondary" migrants;

(*b*) The *Current Population Reports* of the Census Bureau, listed by Shyrock up to 1960, have fifteen annual sample surveys on population mobility. The latest to be issued (Series P-20, No. 127, 15 January 1964) summarizes the time trends, discusses the sources and the reliability of the estimates and presents data on characteristics of local movers, of intrastate and interstate migrants, and of non-movers.

The Census Bureau recently issued decade time series prepared by Irene B. Taeuber, Population Trends in the United States: 1900-1960, Technical Paper No. 10 (Washington, D.C., 1964), including state of birth series.

Major substantive works: (*a*) there are literally hundreds of papers and monographs dealing with internal migration in the United States. An excellent "selected bibliography" from among them is presented by Donald J. Bogue in a chapter on "Internal migration" in Philip M. Hauser and Otis Dudley Duncan, *The Study of Population* (University of Chicago Press, 1959), pp. 486-509; (*b*) the most extensive substantive works of an historical nature include (i) the University of Pennsylvania's volumes, *Population Redistribution and Economic Growth, United States, 1870-1950*; (ii) Henry S. Shyrock's monograph on *Population Mobility within the United States* (University of Chicago, Community and Family Study Center, 1964); (iii) Conrad Taeuber and Irene B. Taeuber, *The Changing Population of the United States* (New York, John Wiley and Sons, 1958); (iv) Donald J. Bogue, *The Population of the United States* (Illinois, The Free Press of Glencoe, 1959).

Internal migration affecting age composition and fertility with reference to Japan

MASAO UEDA

1. Internal migration in Japan has been mainly an inflow into four large industrial areas like Tokyo and Yokohama where the development of modern industry which started in the late nineteenth century has been outstanding. This trend was reversed temporarily at the end of World War II, but the prewar trend was regained following the reconstruction of war-damaged cities. The current of migration has been accelerated by the concentration of a labour force recently graduated from school in industrial areas developed during the rapid growth of economy since 1955. As a result, great change has been taking place in the age composition of urban and rural population and in vital rates, particularly birth rates. While the crude birth rate in metropolitan areas recently is showing an upward trend caused by the voluminous inflow of a young labour force, the rate in rural areas is lower, in some places, than the rate in metropolitan areas.

2. This report aims to examine the effect of internal migration on the age composition and to estimate the degree of effect of migration on fertility.

I. CHARACTERISTICS OF INTERNAL MIGRATION

3. In seven metropolitan prefectures including four large industrial areas, a constant excess of the inflow (except for the period at the end of World War II) can be noted by comparing the total population increase and the natural increase between censuses from 1920 to 1960. In almost all other thirty-nine prefectures, an excess is seen in the outflow. Particularly during the period 1955 to 1960, twenty-six prefectures—more than half the total number — show population decreases caused by the outflow exceeding the natural increase due to acceleration of migration.

4. According to reports of the Bureau of Statistics of the Prime Minister's Office on the number of in- and out-migrants by prefectures (which have been publicized since 1954 in accordance with the Residence Registration Law enforced in 1952), the total volume of inter-prefectural migration in 1962 is 3.3 million, occupying 3.5 per cent of the total population. Among them, in-migrants to those six prefectures with six major cities from other prefectures is 52 per cent. In forty other prefectures, excluding three prefectures adjacent to such major prefectures which show in-flow excess, thirty-seven prefectures show an excess of out-migration.[1]

II. AGE SELECTIVITY OF MIGRATION

5. According to the results of compilation of "usual place of residence a year ago" in the 1960 census, among the total population which migrated into other prefectures during the period ending on 30 September 1960, those from fifteen to twenty-nine years of age represent two thirds. In six metropolitan prefectures, those in that age group represent 71 per cent of the total in-migration.[2]

6. Calculation has been attempted to obtain the net migration rate of the expected population, assuming no migration, at each of the quinquennial censuses of 1920 to 1935 and 1950 to 1960 by applying the survival ratio of the country's population to the population by five-year age groups of each prefecture at the beginning of the periods. The result reveals that in the case of six metropolitan prefectures, almost all age groups show in-migration excess and in the age groups of fifteen to twenty-nine, the net migration rate is notably high. On the contrary, in agricultural prefectures, out-migration excess is seen in almost all age groups, and the decrease rate of age groups fifteen to twenty-nine is very high.[3]

7. In agricultural areas where birth rate is high, the voluminous out-flow resulted in a proportionally large child population and a

[1] Masao Ueda, "A study on internal migration and age structure of migrants", *Archives of the Population Association of Japan*, vol. IV (1963), pp. 105-129.

[2] Masao Ueda, "Features of in-migrants by age and industry, an analysis of results of tabulation regarding usual place of residence a year ago", *Annual Report of the Institute of Population Problems*, vol. VII (1962), pp. 25-30.

[3] Masao Ueda, "Differential net migration by age and sex in prefectures, 1920-1935, and 1950-1960," *The Annual Report of the Institute of Population Problems*, vol. VI (1961), pp. 24-29.

small productive age population. In these areas during the period of 1950-1955, because of a not too remarkable decline of birth rate on one hand and out-migration on the other hand, the decrease in child population was not marked and the proportion of productive-age population slightly decreased. However, from 1955 to 1960, the birth rate dropped more sharply than in metropolitan areas and the proportion of child population decreased. In those areas where the out-migration was most voluminous, there were places in which the decrease in the proportion of the productive-age population was more obvious than that of the child population.

8. In metropolitan areas, birth rate decline was more rapid than in agricultural prefectures during the period 1950 to 1955 and the proportional decrease of child population with the population in-flow expanded the proportion of the productive-age population greatly. During the period 1955-1960, although the decline of birth rate became gradual, the acceleration of in-migration further enlarged the productive-age population and a continuous decrease in the proportion of child population took place.[4]

III. Relationship between internal migration and fertility

9. Applying the survival ratio of the country's population to the five-year age groups of female population from fifteen to forty-nine years of age by prefectures for the period 1955 to 1960, the expected female population (without migration for each inter-census year) was estimated for six metropolitan prefectures where in-migration is voluminous and six agricultural prefectures where out-migration is remarkable. By applying the five-year age-specific birth rate of females to the expected female population, the assumed number of births was estimated for each year. This estimation was made as assumption *A*. Assumption *B* was established by estimating the assumed number of births gained by applying the birth rate of married women to the married female population. This population was estimated by using the 1955 age-specific percentage married as constant to the yearly five-year age groups of female population assumed as closed. The estimation of number of births by applying the birth rate of the married women of 1955 for every year as constant to the married female population of assumption *B* was established as assumption *C*.

10. Since the number of births in assumption *C* supposes no migration during the period and no change in the percentage married nor in age-specific birth rate, the difference with the actual number of births can be considered as including all effects of these changes. The difference between the number of births in assumption *A* and the actual number of births indicates the effect of migration. The difference of the number of births of assumptions *A* and *B* indicates the effect of the change in the percentage married, and the difference in the number of the assumptions *B* and *C* shows the effect of the change in the age-specific birth rate of married women.

11. During the period under observation, in metropolitan areas where in-migration has been most active, young-age married females increased and the young-age female population not married increased even greater, while in agricultural prefectures their decrease was prominent. Because of this trend, while the actual number of births to the total number of births by the assumption *A* during the period of 1956-1960, increased by 6 per cent in metropolitan prefectures, it decreased by 5 per cent in agricultural prefectures (table 1).

Table 1. Difference between the index numbers of actual births and estimated births [a]

Actual and estimated by assumption	*Metropolitan prefectures*	*Agricultural prefectures*
Index number:		
(A) Actual birth	102.3	82.7
(B) Estimated birth in assumption *A*	96.8	87.7
(C) Estimated birth in assumption *B*	96.2	88.2
(D) Estimated birth in assumption *C* [b] ...	100.0	100.0
Difference between:		
(A)-(D)	2.3	—17.3
(B)-(C)	0.6	—0.5
(C)-(D)	3.8	—11.8
(A)-(B)	5.5	—5.0

[a] As to these three assumptions, see text.
[b] Values in assumption *C* taken as 100.0.

12. The age-wise percentage of married women is either in an upward trend or constant both in metropolitan and agricultural prefectures for the age group of twenty-five to twenty-nine years in which the birth rate is the highest. However, if the changes in other age groups are considered as a whole, the

[4] Masao Ueda, "Influence of migration and decline of birth rates upon the age composition in Prefectures, 1950-1955," *Annual Report of the Institute of Population Problems*, vol. V (1960), pp. 29-37.

number of births increased by 0.6 per cent in metropolitan prefectures, but decreased by 0.5 per cent in agricultural prefectures.

13. As for the age-specific birth rate of the female population and the married female during this period, in the age groups of thirty years and more than thirty years, they declined in both rural and city areas and the higher the age, the more rapid was the decrease. However, in the age group of twenty to twenty-nine years, while the rates rose in metropolitan prefectures, they showed a slight decrease in agricultural prefectures, though the rate itself was higher than that in metropolitan prefectures. These changes in age-specific birth rate caused the general effect of decreasing the number of births in each area, the degree of which was 11.8 per cent in agricultural prefectures and only 3.8 per cent in metropolitan prefectures. The yearly age-specific birth rate used in this estimate is the actual age-specific rate of women in every year and the rate itself is under the influence of migration, but to isolate the extent of influence is difficult.

14. If changes of age composition by migration, and changes of age-specific percentage of married women and age-specific birth rate are generalized, the actual number of births was increased by 2.3 per cent in metropolitan prefectures, and that in agricultural prefectures was decreased by as much as 17.3 per cent. Among the three factors which are considered to have affected the number of births, while in metropolitan prefectures net in-migration of young productive-age population played the most prominent role, in agricultural prefectures, the effect of the drop in age-specific birth rate there was stronger than that of out-migration (table 1). This view confirms the previous observation of regional difference in the pattern of change in birth rate in metropolitan and agricultural prefectures, making 1955 the turning point.

15. In examining the birth rate of 1960, no obvious difference between actual and assumed rates can be noticed in metropolitan prefectures, because the in-migration enlarges the denominator population. In agricultural prefectures the decline of the actual crude birth rate is conspicuous because of the voluminous outflow of the young female population (table 2).

Table 2. Difference between the actual and estimated crude birth rates[a]

Actual and estimated by assumption	*Metropolitan prefectures*		*Agricultural prefectures*	
	Rate	*Index number[b]*	*Rate*	*Index number[b]*
Actual rates, 1955	16.41	100.0	21.13	100.0
1960	16.97	103.4	17.29	81.8
Estimated rates, 1960:				
Assumption *A*	16.67	101.6	18.03	85.3
Assumption *B*	16.52	100.7	18.33	86.7
Assumption *C*	16.92	103.1	21.74	102.9

[a] Estimated rates are based on the expected population assuming no migration has taken place.
[b] Actual birth rate in 1955 taken as 100.0.

IV. Conclusive remarks

16. The rapid decline in birth rate which started during the period of 1950 to 1955 after the "baby-boom" following World War II was more remarkable in metropolitan prefectures than in agricultural prefectures. Migration had generally greater effects on the change of age composition than the decline of birth rate in both areas. In the period of 1955 to 1960, the birth rate decline in metropolitan areas was gradual and that in rural areas became more rapid. The effect of migration on the change of age composition was more noticeable than in the period 1950 to 1955. If the effect on the change of the number of births in the latter period is divided into three factors, the change in the percentage of married women had affected the number of births only by 0.5-0.6 per cent. The change in age-specific birth rate of women decreased the number of births, though slightly, in metropolitan prefectures and remarkably in agricultural prefectures. The effect of migration in metropolitan prefectures was greater in increasing the number of births than the declined differential birth rate. In agricultural prefectures, though migration decreased the number of births considerably, its effect was weaker than that of the lowered differential birth rate.

17. Recently, the differential birth rate in Japan as a whole is almost stagnant, showing only delicate change in ages twenty to twenty-nine where the rate is the highest. The birth rate of this age group is rising slightly in some parts of low-rate urban areas and rural areas. If this active migration is to continue in the near future, the decrease of the reproductive-age female population in rural areas will lower the birth rate even further and will raise the rate in metropolitan areas to some extent. In metropolitan areas, the environment is on the way to facing serious problems because of excessive concentration of population. It is expected that the trend is to increase fertility in the future. It is an important task to promote the re-development of metropolitan areas to avoid difficulties. In planning the regional development programmes for developing regions making new industrial cities as nuclei, social development, which has been relatively neglected under the shadow of economic development, must be promoted. This promotion will be an important policy not only for securing the rural labour force required for the modernization of agriculture, by moderating the size and velocity of migration in its present pattern, but also for eliminating regional disparities in social welfare services and cultural development.

18. The consideration in this paper of the consequences of the accelerated internal migration in recent years on age composition and fertility is only to emphasize the extreme importance in the near future of the social and economic significance of such demographic changes.

Some aspects of internal migration in Ceylon

S. VAMATHEVAN

1. The intercensal period of 1946 to 1953 was one of unprecedented political, economic and social changes in Ceylon. Although the data obtained in the census of 1963 is now being processed, it is doubtful whether any other period, including the inter-censal period 1953 to 1963, could show such unparalleled population movement in Ceylon as during 1946 through 1953.

2. This study is based primarily on population changes between 1946 and 1953, where for any fixed area, other components, that is, births and deaths, are known, and migration to this area is determined.[1] Just as births and deaths are sub-components of reproductive change or natural increase, in-migration and out-migration are sub-components of migration. Dr. Donald J. Bogue states, "Reproductive change is not a more 'natural' source of change than migration, nor is migration an 'unnatural change' or source of change in comparison with births and deaths."[2] The net effect of fertility is not always to increase population; thus the term "natural" increase is a complete misnomer. He concedes the use of this term, however, as it is time honoured and popular.

3. The internal migration study was carried out by three different methods: (*a*) place of birth by place of residence method, from census reports of 1946 and 1953; (*b*) census forward survival ratio method; and (*c*) vital statistics method. To obtain the most reliable estimate of net migration,[3] the average of the two consistent results of these methods of assessment was accepted as correct. Using information about place of birth, districts of migration of gain and loss were shown.

I. DISTRICTS AND URBAN AREAS OF IN-MIGRATION IN CEYLON

4. From table 1, it can be seen that Colombo, Matale, Hambantota, Mannar, Vavuniya, Batticaloa, Kurunegala, Puttalam, Chilaw, Anuradhapura, Badulla, are all in-migration districts. Anuradhapura (46,200) and Colombo (46,100) have the highest number of migrants although the migration rate of Anuradhapura (25.08) was almost ten times that of Colombo District (2.94). Batticaloa District (23,000) and Kurunegala (21,400) districts too had heavy in-migration and the migration rate of Batticaloa was almost three times that of Kurunegala. As for the other districts, the highest number of migrants moved to Mannar District (5,700) and the lowest to Chilaw (1,700). Of these districts, Vavuniya had the highest migration rate (17.59) and Chilaw District the lowest (1.01).

5. Table 1 gives the net in-migration urban areas (towns). Colombo Municipality (15,630), Dehiwala-Mount Lavinia Urban Council (10,945), Kotte Urban Council (6,349) are three areas which are commonly called Greater Colombo City because they are situated together. As can be ascertained from table 1, urbanization has taken place at a greater pace in the two adjacent areas than in Colombo City proper. One of the reasons for this is that unlike other cities of the world, Colombo continues to be a "garden city" with few tall buildings constructed for dwelling purpose. Similar study of districts and urban areas of out-migration can be made from table 1.

6. Observation of in-migration streams (1946 to 1953) are shown against each district, by the place of birth by place of residence analysis in table 2. The estimated net migration for each revenue district is the average of the vital statistics and survival ratio method results. Colombo has an estimated net migration of 46,100. The streams drawn to Colombo have remained more or less the same, since 1946. Migration in large numbers to Colombo are given in the following order: Galle (12,394), Jaffna (7,535), Kandy (6,454), Ratnapura (4,228), Matara (2,873). New migration

[1] S. Vamathevan, *Internal Migration in Ceylon 1946-1953*, Monograph No. 13, Department of Census and Statistics (Government of Ceylon, 1960).

[2] Donald J. Bogue, "Components of population changes 1940-1953", *Estimates of net migration and natural increase for each standard metropolitan area and state area*, part I (Scripps Foundation for Research in Population Problems.)

[3] Under the guidance of Dr. Donald J. Bogue, United Nations expert at the United Nations Demographic Training and Research Centre, Bombay, India (1959-1960).

Table 1. Comparison of net migration by volume and rates for all twenty revenue districts and nine selected urban areas (with a population of more than 30,000) at the 1946 census

Districts	Total net migration					
	Volume			Rates		
	Survival ratios	Vital statistics	Average	Survival ratios	Vital statistics	Average
1. Colombo	50,153	42,011	46,100	3.20	2.69	2.94
2. Kalutara	—16,816	—11,160	—14,000	—3.43	—2.28	—2.85
3. Kandy	—30,982	24,070	—27,500	4.00	—3.10	—3.55
4. Matale	2,333	7,536	4,900	1.31	4.22	2.76
5. Nuwara Eliya	—5,566	—2,866	—4,200	—1.86	—0.94	—1.41
6. Galle	—14,152	—15,745	—15,000	—2.67	4.00	—3.43
7. Matara	—12,713	—16,112	—14,400	—3.32	—4.22	—3.77
8. Hambantota	790	3,147	2,000	0.46	1.84	1.15
9. Jaffna	1,662	—7,084	—2,700	0.42	—1.50	—0.54
10. Mannar	5,669	5,826	5,700	15.07	15.49	15.28
11. Vavuniya	5,174	5,093	5,100	77.73	17.45	17.59
12. Batticaloa	19,247	26,884	23,000	8.13	11.35	9.74
13. Trincomalee	—5,646	—4,611	—5,100	—7.05	—5.77	—6.41
14. Kurunegala	18,553	24,247	21,400	3.34	4.36	3.85
15. Puttalam	4,623	4,486	4,500	9.07	8.84	8.95
16. Chilaw	674	2,741	1,700	0.44	1.77	1.10
17. Anuradhapura	42,275	—50,245	—46,200	22.92	27.25	25.08
18. Badulla	1,339	9,758	5,500	0.32	2.32	1.32
19. Ratnapura	—4,533	—871	—2,700	—1.18	—0.23	—0.70
20. Kegalla	—22,567	—13,701	—18,100	—5.17	—3.14	4.15

Urban areas	Survival ratios
1. Colombo M.C.	15,630
2. Jaffna M.C.	4,365
3. Kandy M.C.	—2,242
4. Trincomalee U.C.	—9,436
5. Kotte U.C.	66,349
6. Dehiwala-Mt. Lavinia U.C.	10,945
7. Moratuwa U.C.	1,047
8. Galle M.C.	—251
9. Negombo M.C.	565

Table 2 follows on page 544

Table 2. Net migration districts of Ceylon (place of birth by place of residence analysis)—districts from where persons are drawn

District	*Period*	*Total in-migration*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*Other districts*
1. Colombo	1946	58,536	Galle 26,888	Matara 21,091	Jaffna 11,446	Kalutara 9,467	Kandy 7,500	—	—	—	1,626
	1946-1953	37,708	Galle 12,394	Jaffna 7,535	Kandy 6,454	Ratna-pura 4,228	Matara 2,873	Trinco-malee 1,361	Kegalla 1,059	Kalutara 1,020	784
	1953	107,769	Galle 38,782	Matara 23,964	Jaffna 18,981	Kandy 13,454	Kalutara 10,487	—	—	—	807
2. Hambantota	1946	12,747	Matara 11,309	Galle 868	—	—	—	—	—	—	—
3. Matara	1946	4,529	Jaffna 2,395	Batti-caloa 729	Colombo 527	—	—	—	—	—	878
	1946-1953	805	—	—	—	—	—	—	—	—	—
	1953	4,972	Jaffna 2,594	Colombo 561	Batti-caloa 525	—	—	—	—	—	1,292
4. Vavuniya	1946	5,448	Jaffna 2,533	Galle 1,108	—	—	—	—	—	—	1,807
	1946-1953	4,330	Jaffna 2,387	—	—	—	—	—	—	—	1,463
	1953	8,302	Jaffna 5,370	Colombo 826	Anuradha-pura 735	—	—	—	—	—	1,971
5. Batticaloa	1946	26,517	Badulla 1,099	Jaffna 533	—	—	—	—	—	—	1,025
	1946-1953	15,633	Kegalla 2,725	Colombo 2,683	Galle 2,301	Trinco-malee 1,663	Badulla 1,475	N'Eliya 1,300	Jaffna 1,283	—	2,203
	1953	18,829	Kandy 2,920	Kegalla 2,895	Galle 2,714	Badulla 2,574	Colombo 2,551	Jaffna 1,816	Matara 1,572	N'Eliya 1,035	1,847
6. Kurunegala	1946	48,108	Colombo 26,421	Chilaw 5,932	Kegalla 4,978	Kandy 4,653	Galle 2,109	Matara 1,334	—	—	2,679
	1946-1953	23,528	Colombo 9,858	Kandy 4,357	Kegalla 3,615	Galle 1,295	Chilaw 1,230	Kalutara 1,061	—	—	2,112
	1953	71,610	Colombo 36,279	Kandy 9,012	Kegalla 8,593	Chilaw 7,162	Galle 3,404	Matara 2,214	Kalutara 1,964	Jaffna 1,265	1,717
7. Puttalam	1946	10,164	Colombo 4,583	Chilaw 2,297	Kurune-gala 1,972	—	—	—	—	—	1,312
	1946-1953	5,751	Chilaw 2,227	Colombo 1,965	Kurune-gala 842	—	—	—	—	—	714
	1953	15,455	Colombo 6,548	Chilaw 2,814	Kurune-gala 2,814	—	—	—	—	—	1,569
8. Anuradhapura ..	1946	38,846	Kurune-gala 8,858	Kandy 5,858	Colombo 4,990	Matale 3,621	Batti-caloa 3,439	Kegalla 2,488	Galle 2,457	—	7,135
	1946-1953	44,966	Kandy 10,922	Kegalla 7,925	Colombo 6,024	N'Eliya 5,774	Puttalam 4,860	Galle 2,580	Matale 2,342	—	4,419
	1953	59,106	Kandy 16,850	Colombo 11,014	Kegalla 10,463	Kurune-gala 10,044	N'Eliya 6,283	Matale 2,392	—	—	2,113
9. Badulla	1946	8,905	Galle 2,782	Matara 2,140	Jaffna 1,019	Kandy 961	N'Eliya 748	Badulla 589	—	—	666
	1946-1953	6,164	Kandy 4,100	Galle 713	Kegalla 515	—	—	—	—	—	836
	1953	14,822	Kandy 5,061	Galle 3,495	Matara 2,586	Jaffna 1,422	Kalutara 957	Ratna-pura 792	—	—	509

streams originated during this period from Trincomalee (1,361) and Kegalle (1,059).

7. Observations of out-migration streams from table 1 show that Kalutara (14,000), Kandy (27,000), Nuwara Eliya (4,200), Galle (15,000), Matara (14,400), Jaffna (2,700), Trincomalee (5,100), Ratnapura (2,700), Kegalle (18,100) are out-migration districts.

8. Table 3 shows the net growth of population for each revenue district, that is, natural growth plus migration for each of the twenty revenue districts. From this, it could be seen that there are eight districts with a rate of growth of more than 20 per cent of the mid-intercensal population (1946-1953). They are Anuradhapura (46.5 per cent); Vavuniy (40.71 per cent); Mannar (32.10 per cent); Puttalam (31.03 per cent); Nuwara Eliy (25.03 per cent); Hambantota (23.8 per cent); Badulla (20.43 per cent); Ratnapura (19.90 per cent). Of the eight districts, Ratnapura was an out-migration district (minus 0.7 per cent) along with Galle District (minus 3.43 per cent). All others have been in-migration districts. In all districts except Anuradhapura, Mannar, and Vavuniya, where the rates are high, migration rates are lower than the rate of natural increase, that is, the rate of natural increase is comparatively high.

Table 3. Relation of migration to natural increase of populations, twenty districts: 1946-1953

	Mid population, 1946-1953	*Increase in population*	*Rate of natural increase*	*Rate of migration increase*	*Rate of net increase*
1. Colombo	1,564,500	246,400	15.75	2.94	18.69
2. Kalutara	490,000	78,100	15.94	—2.85	13.09
3. Kandy	775,900	153,000	19.22	—3.55	16.17
4. Matara	178,400	37,800	21.18	—2.76	18.42
5. Nuwara Eliya	226,900	60,000	26.44	—1.41	25.03
6. Galle	492,100	80,300	16.32	—3.43	12.89
7. Matara	382,700	77,600	20.28	—3.77	16.51
8. Hambantota	170,600	38,700	22.67	1.15	23.82
9. Jaffna	458,300	74,200	16.19	—0.54	15.65
10. Mannar	37,600	6,300	16.82	15.28	32.10
11. Vavuniya	29,200	6,800	23.21	17.50	40.71
12. Batticaloa	236,800	40,000	17.07	9.74	26.81
13. Trincomalee	79,900	12,600	15.77	—6.41	9.36
14. Kurunegala	555,700	117,000	21.06	3.85	24.91
15. Puttalam	51,000	11,300	22.08	8.95	31.03
16. Chilaw	154,900	27,600	17.79	1.10	18.89
17. Anuradhapura	184,400	39,500	21.42	25.08	46.50
18. Badulla	419,600	84,900	20.23	1.32	21.55
19. Ratnapura	382,600	78,800	20.60	—0.70	19.90
20. Kegalla	436,700	83,500	19.13	—4.15	14.98

II. Age and sex composition of migrants in all in-migration districts

9. *Age and sex pattern.* Table 4 shows that the highest number of in-migrants were in the age group twenty-two to twenty-six (age as of the census date, 1953) and may constitute about 48,250 persons. Of these, 29,441 were males and 18,804 females, with a sex ratio of 156. The lowest in-migration was in age group birth to six years (13,884) with a sex ratio of 105. Above the age group thirty-two to thirty-six there was actual out-migration from the eleven "in-migration" districts; the largest group was forty-two to forty-six, constituting 15,475 persons with a sex ratio of 187. The highest sex ratio was in the age group thirty-seven to forty-one, being 524, indicating that larger numbers of males than females left the net in-migration districts during the period. In the young age group twelve to sixteen where there was movement of population into the district, the sex ratio was 409. The lowest sex ratio was in the group of sixty-two years and over where there was a ratio of only 10. The sex ratios between age groups seventeen to twenty-one and twenty-seven to thirty-one varied from 263 to 159.

Table 4. Total population in-migration and out-migration districts of Ceylon by age groups and sex (F.S.R. method)

Total number of districts	*In-migration or out-migration*	*Age groups*	*Volume*			*Sex ratio per 100 females*
			Males	*Females*	*Total*	
Eleven.....	In-migration	0-6	7,112	6,772	13,884	105
		7-11	18,008	14,206	32,214	127
		12-16	12,896	3,152	16,048	409
		17-21	22,998	8,740	31,738	263
		22-26	29,441	18,809	48,250	156
		27-31	24,529	15,420	39,949	159
		32-36	9,417	6,389	15,806	147
		37-41	—5,228	—998	—6,226	524
		42-46	—10,081	—5,394	—15,475	187
		47-51	—7,909	—4,775	—12,684	166
		52-56	—5,059	—1,331	—6,390	390
		57-61	—4,288	—137	—4,151	—
		62	—195	—1,938	—2,133	10
		TOTAL	91,641	59,189	150,831	154
	Out-migration	0-6	—2,308	—2,198	—4,506	105
		7-11	—5,670	—7,083	—12,753	80
		12-16	—12,946	915	—13,861	1,415
		17-21	—14,824	—3,148	—17,972	471
		22-26	—6,579	—3,657	—10,236	179
		27-31	7,479	2,787	10,266	268
		32-36	3,038	1,458	4,496	208
		37-41	—8,371	—3,431	—11,802	244
		42-46	—12,294	—5,325	—17,619	231
		47-51	—9,016	—4,857	—13,873	188
		52-56	—4,699	—2,217	—6,916	212
		57-61	—4,937	—1,170	—6,107	422
		62	—3,413	—7,017	—10,430	49
		TOTAL	—74,540	—36,773	—111,314	203

10. *Rates of in-migration.* Table 5 shows that age group 17-26 had the highest rate of in-migration, 15.92 for males and 13.36 for females, with an average migration rate of 16.06 for both sexes. The next highest rate was in the age group 27-36. After this age group, there was slowing, and out-migration took place at an increasing pace. Female out-migration rate was higher, at age group 47-56, than the corresponding male rate. The tendency appears to be for out-migration rate to fall after this age group. Over-all migration rate was 7.45 with male in-migration rate higher than the female rate.

11. *All out-migration districts.* The age pattern for the nine districts of net out-migration in Ceylon shows that the largest number of out-migrants appear in groups 17 to 21 (17,972) and 42 to 46 (17,619). The former age group has a sex ratio of 471, while the latter a sex ratio of only 231. In age groups 27 to 31 and 32 to 36 there was actual in-migration as is seen in table 3. The highest number of in-migrants was in the age group 27 to 31 with a sex ratio of 268. The sex ratio in the age group 32 to 36 was 208. The lowest out-migration was in the age group 57 to 61. The sex ratio was 422. The highest sex ratio was in the age group 12 to 26; the lowest was in the age group of 62 and over, being 1,415 and 49 respectively.

12. *Rates of out-migration.* From table 5, the out-migration rates for the nine revenue districts can be seen. The highest rate was 8.00 for the age group 37 to 56. Male rates are higher than female rates. The rate of migration increases slightly from 1.03 to 1.46 and then reduces to nearly "0" at age group 27 to 36. It increases from 0 to 8.13 at age group 37 to 46, remains at that level at age group 47 to 56 and then shows a tendency to increase. The male rates are higher than the female rates except in the age groups 7 to 16 and 27 to 36. The overall out-migration rate was 3.16

Table 5. Total migration rates of in- and out-migration districts by age groups and sex (F.S.R. method)

Total number of districts	*In-migration or out-migration*	*Age groups*	*Volume*		
			Males	*Females*	*Average*
Eleven	In-migration	7-16	10.89	6.85	8.96
		17-26	15.92	13.36	16.06
		27-36	16.71	11.77	14.46
		37-46	—0.34	—3.59	—2.46
		47-56	—6.94	—8.71	—7.36
		57+	—3.14	—2.14	—3.09
		TOTAL	8.36	6.22	7.43
	Out-migration	7-16	—1.14	—1.27	—1.03
		17-26	—3.36	0.47	—1.46
		27-36	0.50	2.31	—0.03
		37-46	—11.08	—4.49	—8.13
		47-56	—9.50	—4.68	—8.12
		57+	—7.10	—5.01	—6.44
		TOTAL	—4.53	—1.24	—3.16

with higher male migration rates than female rates.

III. Characteristics of rural, urban migration in Ceylon

13. Migration within Ceylon from non-neighbouring districts was chiefly for agricultural purposes or for projects concerned with the development of agricultural and irrigation facilities. In Colombo District within which the Colombo Municipality, Kotte Urban Council and Dehiwala-Mount Lavinia Urban Council are situated, migration takes place presumably with a view to seeking white-collar jobs, skilled and unskilled labour work. It takes place at a higher level to the two urban areas Dehiwala-Mount Lavinia (16.12) and Kotte (13.40) than to Colombo proper. This tendency may be explained partially by the fact that housing is easier in the urban areas than within Colombo Municipality and that new industries and development projects were opened in the urban areas.

14. Rate of natural growth in all districts is higher than migration rates, except in the case of Anuradhapura district, and an almost equal rate in Mannar District and in Vavuniya District. This may be chiefly explained by the fact that major irrigation schemes were opened during this period and not only colonists moved but also traders and other workers.

15. Internal migration does not present immediate problems in Ceylon, because with planning, agricultural and industrial schemes are started in preselected locations. Even Colombo area was not a focal point of migration, with a rate of net growth of only 18.69 per cent during 1946 to 1953.

16. As elsewhere in the world, the younger age group in Ceylon is more mobile than older groups and males are more migratory than females. Economic opportunities in the plantation trades, paddy and other agricultural trades and occupations are some of the "pulling" factors. Trincomalee District, which was an in-migration district in 1946, became an out-migration district in 1953; the chief reason was that a large British naval base ceased to be a centre of employment. The rate of out-migration from Trincomalee Urban Council area was much heavier than for the whole of the dictrict. The rate may be explained by the fact that land development schemes drew in-migration to the district and that the naval workers who left were chiefly from the urban area.

17. In a developing country such as Ceylon with land available for utilization both for agricultural and industrial uses, urbanization does not pose a serious problem as we have stated earlier. However, in order to make the maximum use of existing land, water resources, network of railways, good roads and port facilities, it would be in the national interest to continue to locate agricultural and industrial schemes in districts and urban areas of out-migration.

18. The past migration pattern in Ceylon is different from that in other countries of the world in that international migration, both lawful and illegal, enter the picture. In estimation of survival ratio for working out-migration

care has been taken to eliminate international migration. At the present lawful immigration has been reduced; however, illegal immigration from neighbouring South India is said to be increasing. Unless these facts are taken into account, a further internal migration study for the intercensal period 1953 to 1963 will present serious problems. Even during the 1946 to 1953 census, it was not possible to distribute these immigrants among the various twenty districts; hence the difference between the total net immigrants in the in-migration districts and total net out-migrants from the out-migration districts would not equate the "0" either by sex group, or even total population (by the forward survival ratio method).

19. However, the net migration derived by "the place of birth by place of residence" methods totals to zero. Too much reliance cannot be placed on this method, not only because it takes into account only population born in Ceylon but also for various other reasons.

SUMMARIES OF PAPERS

Demographic, social and economic aspects of internal migration in some European countries

G. Beijer

The geographical (professional and to some extent social) mobility of parts of the rural population is a permanent fact. However, the knowledge of the aspects of internal migration is considerably less than that of international migration.

The fascinating relationship of internal migration problems with all aspects of human life requires a widening of the conceptual frameworks which might help to restore order within and between the various branches of knowledge in this field in order to arrive at a deeper and more coherent representation of the reality.

It is evident from recent demographic, economic, and sociological studies that the cycle of technological change will continue to influence the movement out of agriculture in the next decades. The need, the demand, and also the opportunities for more research into internal migration of rurals are, therefore, growing. Research based on statistical data must turn more and more to the phenomena of migration, to the impact on the well-being of individuals, families, and social categories, caused by man's changed environment—in short, to the situation of normal acceptance and adjustment. In that connexion, the mental reactions need careful study, because the influence of the attitude of the people who move into an area and of the people to whom the mover must adapt and by whom he must be accepted, is an important factor.

It is necessary when considering problems related to internal migration to pay attention to the permanent demographic factors, such as: (1) age and sex of the migrants and of the receiving community; and (2) the occupational structure.

In general, demographers are in a key position for research into internal migration, since the knowledge of the facts of population and the techniques of their manipulation is a relevant basic factor for every investigation.

New forms and factors affecting rural-urban migration in Poland

Stanislaus Borowski

Using census data from 1946, 1950, 1960 and official registration of internal migratory movements in 1952 to 1962, the author seeks to characterize the rural-urban migratory movements and the outflow from agriculture in Poland.

From 1946 to 1964 the total population of Poland increased approximately 30 per cent, the urban population redoubled and the rural population declined 2 per cent. In the western and south-western territories the urban population redoubled or nearly tripled while in other regions the increase was less than twofold. Rural emigration was most intensive in the south-eastern regions which were economically underdeveloped and overpopulated before World War II. In newly resettled western and northern territories the balance of rural-urban migrations was positive for the towns and until 1956 the balance varied in the villages. Since 1956, the balance has been negative for villages in the whole country.

Men constitute the major portion of emigration from villages to towns. Emigration of young people into towns and their outflow from agricultural occupations to non-agricultural ones are shown by the following: in 1960 the median age of non-agriculturally active population in towns was 35 years and of the agriculturally active it was 48; in the country the median age was 33 years in non-agricultural occupations and it was 43 years in agricultural work. Generally speaking the outflow of population from the farms was the greater from smaller sized farms. Census figures also indicate a favourable adjustment of labour force to the size of the farms.

"Push" factors in rural emigration include an excess of unproductive persons living in agricultural areas just after World War II; progress in techniques and mechanization in agriculture which diminished the demand for labour in rural areas and the economic and social reconstruction in agriculture which further lessened the demand.

"Pull" factors include numerous tax-free schools in towns; a demand for labour in non-agricultural activities and higher incomes from these jobs; migrants to towns who bring their parents or marry women from rural areas; and the attraction of improved cultural and social outlets in towns.

Patterns of dominance in internal migration, United States, 1955-1960

HOPE T. ELDRIDGE

Data from the United States census of 1960 permit identification of three categories of interstate migrants for the period 1955-1960: (*a*) primary migrants, who left their state of birth; (*b*) secondary migrants, who moved between states outside their state of birth; and (*c*) return migrants who moved from some other state to their state of birth. The analysis shows that patterns of dominance, as determined by comparing each stream with its counterstream were quite similar between primary and secondary migration, but that dominance in return migration was nearly always in the opposite direction from the other two. From the point of view of probability, rates of migration for the three types, based upon the population at risk in the area of departure, show somewhat different patterns of dominance from amounts. The rates for one third of the seventy-two pairs of streams of primary and secondary migration were dominant in the opposite direction from that indicated by amounts of migration. Nearly half of the thirty-six pairs of rates of return migration were dominant in the opposite direction from amounts. In comparing rates of return migration with rates of primary and secondary migration taken together, it was found that dominance for the latter was almost always concordant with dominance for the former. Conclusions drawn from a study of numbers of migrants can therefore be quite different from those drawn from a study of probabilities of migration.

Immigration from rural areas into Calcutta metropolitan region: analysis and projection

A. GHOSH

The object of the present paper is to analyse certain aspects of migration from surrounding rural areas into the Calcutta metropolitan area. The Calcutta metropolitan area is defined as a much bigger area than the Calcutta City proper. It "covers approximately 400 square miles in and around Calcutta". The primacy of this metropolitan region in East India as a whole is unquestioned. The volume of employment it offers, the magnitude of its output, the large volume of foreign trade, the density of its population, all these place it in a position of unique importance in India. With the growth of the industrial complex of steel and engineering in the eastern-belt its position as the only available port for the region has become still more important.

The present position of this metropolitan region has been because of a fairly long period of historical growth and it is not our purpose to go into the historical aspects of this growth. Our objective is to try to locate the major demographic movements over the last few decades, the basic interrelationship between the demographic and economic variables and to use this knowledge to construct suitable models for the approximate determination of the future tendency in migration from adjacent rural area into the Calcutta metropolitan region.

In section I a brief review is made of the main demographic components of the growth of the population of the region. In section II some of the important characteristics of the migrant population as revealed from their occupational study are discussed. In section III we go into the nature of empirical interdependence obtained in a study of migration and the corresponding natural population as a similar interrelationship between migration and employment.

In section IV is given the outline of a model for projection of migration figures on the basis of an assumed growth of industrial employment and an alternate model in which a complete system is presented giving growth of the migrant population, in an interdependent system with other aspects such as population, employment etc.

Rural–suburban–urban population redistribution in Denmark

SIDNEY GOLDSTEIN

Data from the national census and the continuous population registers of Denmark have been analysed to determine the changing urban-suburban-rural distribution of the population and the role of migration in effecting these changes. During the first half of the nineteenth century, approximately one fifth of Denmark's population lived in urban places. By 1940 the population was approximately equally divided

between urban and rural residence. Since then the concentration of population in Copenhagen itself has declined and that in the provincial towns has stabilized; the major growth has taken place in the suburbs of the capital and of the provincial towns as well as in the built-up rural places. The strictly rural areas continue to lose population.

During the 1950 decade, the population of both the capital and the rural places declined because net out-migration exceeded the gains from natural increase. This was particularly true of the capital. In contrast, the suburbs both of the capital and of the provincial towns as well as the built-up rural areas experienced growth from both natural increase and from net migration. During the course of the decade, however, the migration gain experienced by the suburbs of the capital declined whereas that of the suburbs of the smaller towns and of the built-up rural areas increased, suggesting that the tempo of the suburbanization movement in the area immediately surrounding the capital decreased while that in the more outlying areas increased.

Separate analysis of the specific streams of migration among the six residential categories shows a large volume of exchange among all types of areas. Despite high rates of in- and out-migration, however, the net movements are often quite small. The net results of the exchange point to movement away from the capital—Denmark's most urbanized part—as well as from the strictly rural areas in the direction of the suburbs and the built-up rural areas. As measured by the net migration rates and the effectiveness ratio, suburbanization is now taking place at a faster pace and in a more effective fashion in the outlying sectors of the country than in the suburbs immediately surrounding the capital.

Internal migration and the family life cycle: Canadian experience over the 1956-1961 period

YOSHIKO KASAHARA

Despite the limitations imposed by the type of data available, this exploratory study of family movement in Canada during the 1956-1961 period indicates a remarkably high correlation between the family formation stage and the propensity to migrate among family units. Along the entire scale of the maturing process involved in the family life cycle, gradients of migration showed a consistent decline from one stage to another. When the type of area is introduced as an additional variable, however, details of the picture change to some extent. Although marked association between the family formation stage and the propensity to migrate still persists, variance of the migration rates to be attributed to family size becomes larger, except for urban families. Furthermore, the overall intensity of migration as well as the pattern of variations in the migration rate by family size differs sharply from one type of area to another.

The results indicate a complete interplay between "family" variables and "area" variables effecting the propensity to migrate among family units at different stages of family formation. In order to open up a new avenue of exploration in this field, dynamics of the underlying social and economic correlates to be associated with the maturing process of the family life cycle would have to be examined. Emphasis should be on an intensive analysis of the effect of changes in both "family" variables and "area" variables over a period of time—particularly their changes prior to migration.

On the influence exerted by inland migration on the changes in the age structure of the urban and rural population and on the consequences resulting herefrom for the labour situation in the country

KURT LUNGWITZ

Changes in the age structure of a population due to migration are of special importance because they influence the processes of the natural movement of the population, the labour situation and the economic development of the regions considered.

Because younger people and families account for the bulk of migrants their age structure deviates considerably from the age structure of the resident population. In regions with predominant emigration the decrease of population will be associated with a change in the age structure; conversely, a change in the age structure will take place in the regions where immigration prevails.

Migrations recorded in the German Democratic Republic in 1963 indicate that rural communities had a migration loss of 51,000 people, namely 13,800 children; 33,600 people able to work and 3,600 old age pensioners. In comparing the age structure of this migration loss with the age structure of the whole rural population, one finds essential deviations.

In comparisons such as the one mentioned above differences found will depend on the age structure at a given time as well as on the birth rate and the death rate. Tables included in this paper summarize the classification according to age of the population of the German Democratic Republic. They show that the percentage of children decreases with increasing size of community; the percentage of people able to work increases with increasing size of community and the percentage of old age pensioners does not show essential differences except in large cities.

The author concludes that in the German Democratic Republic women have a higher fertility in the country than in the town; young people and families who migrate into towns adapt themselves quickly to the urban population in so far as their reproductive behaviour, and a considerable part of the children do not become effective as labour in the country because they migrate into towns before reaching an age for working.

While the number and percentage of children in the rural population is higher than in the urban population, an inverse ratio exists in people able to work and contribute to the labour resources.

Migration differentials among occupation groups: United States, 1960

ANN R. MILLER

This paper examines rates of interstate migration between 1955 and 1960 for white males residing in the United States at both dates and employed in 1960, by their age and major occupation group of employment in 1960. The focus is on analysis of age patterns of migration within occupation groups and occupation patterns of migration within age groups, with a view to determining whether age differentials in migration tend to persist regardless of occupation and occupation differentials tend to persist regardless of age.

The rates of migration present a general age pattern which is characteristic of almost every occupation group, with highest rates occurring among those aged 25 to 29 in 1960 and lowest rates at the oldest ages. White males classified as professional workers in 1960 had the highest rates in every age group except one and those classified as farmers had the lowest, but, beyond these two groups, the consistency of occupation patterns within age groups was much lower than the consistency of age patterns within occupation groups.

A summarizing measure indicates that the relative age concentration of migrants does not differ greatly among the occupation groups except for farm laborers; for this group, age is apparently a less dominant factor in migration than it is for other groups. A second summarizing measure indicates that standardizing for occupation has less effect on migration rates by age than standardizng for age has on migration rates by occupation.

Migration and modernization: the case of Puerto Rico, 1950-1960

GEORGE C. MYERS

This study of modernization in Puerto Rico between 1950 and 1960 focuses on the role of urbanization and migration in effecting population redistribution and differential growth patterns. Urbanization trends are investigated using published census data by different types of rural and urban areas. For examining patterns of municipio migration, data on net migration over a five-year period for movement within Puerto Rico was derived from special tabulations of the 1960 census of Puerto Rico, and ten-year estimates of total net migration were obtained by a life table survival approach. External net migration from Puerto Rico was approximated from these two types of data.

The highlights that emerge from this research can be summarized as follows: (1) in the decade 1950-60, Puerto Rico made spectacular progress in social and economic development; (2) the increasing migration of population was of two kinds, internal and external migration, with the latter assuming the greater importance; (3) among the consequences of this external out-migration were the curtailment of substantial population growth for the island as a whole and the attenuation of the trend toward increased urbanization of the population; (4) total net migration losses were experienced by nearly all the island's municipios, particularly rural municipios and those containing small urban places. The rates of internal net migration were negative for all types of areas except the metropolitan areas; (5) Puerto Rico appears to have passed from an emigration phase into one in which internal migration, including inter-urban migration, should assume new importance. There also is likely to be accelerated growth of urban population. Furthermore, the population growth that was controlled in part by external out-migration in the 1950-60 decade may be expected to rise unless further reductions in birth rates are established.

The influence of some socio-economic characters over the differences between resident and present population in the Italian censuses

MARCELLO NATALE

The author considers the differences between present and resident population after the latest Italian censuses and examines their territorial distribution. He points out that the provinces and the communes characterized by considerable migratory in-flows are the ones having a present population larger than the resident one and that in the districts undergoing depopulation present population is lower than the resident one. He infers that the differences between these populations are due to mainly working reasons, either seasonal migrations or temporary non-recurring displacements. The temporary displacements, however, can become permanent whenever the declaration of temporary absence at census is determined by situations of real uncertainty regarding the steadiness and the convenience of job.

Afterwards, the author goes into detail and analyzes the commune in the framework of some Italian regions. He tries to screen some possible socio-economic factors influencing the differences considered. To this end, he lays stress on the percentage of those working in industry, on the number of inhabitants and on urban and rural characteristics, and estimates some indices both of dependance and of correlation. The results lead to the reckoning that the relationship between the differences mentioned and the three characteristics considered is evident only in the case of size class of communes.

Investments and the internal migration trends of manpower in the Romanian People's Republic

I. RAVAR

The changes that have come about in the internal migration of labour in Romania are due mainly to the action of the socialist industrialization process, to the investments made in the economy and to their distribution by region.

There are, of course, a number of other factors, economic, social and so forth, that affect internal migration, but this study deals only with the influence that industrialization has upon it.

Socialist industrialization is the foundation of the rational and full employment of the labour force; it is constantly producing new opportunities for employment in every branch of the national economy. For this reason the judicious employment of the labour force in all the regions of the country, with a view to achieving maximum economic efficiency, is one of the chief criteria in deciding upon the site of new industrial objectives.

Following the dissemination of the co-operative system and the mechanization of agriculture, the manpower thus released was employed by industry. The rational distribution of this labour throughout the country was brought about by the flow of population towards the towns and towards the regions where new employment opportunities had been created as a result of the large amount of investments made there.

The improvement of the distribution of the production forces in the country, with a view to an increasingly efficient utilization of the natural resources and reserves of manpower in all the regions, resulted in a certain reduction in the volume of migration, precisely because of the creation of opportunities for the employment of manpower resources on the spot.

Comparisons with the pre-war period, together with the data concerning the number of urban and rural inhabitants, the number of wage-earners, by region, inter-regional migration etc. reveal the significant aspects of the internal migration of manpower.

The influence of internal migration in the Federal Republic of Germany on the population trend in urban agglomerations

KARL SCHWARZ

During the years immediately following World War II, the smaller communities in the Federal Republic of Germany had a deficit from internal migration, while in more recent times the large cities lost part of their population by internal migration. There is, however, due to this migration, a strong increase of population in regions surrounding large cities. Figures for the urban-agglomeration of Frankfurt and Offenbach show that the in-migrants come from two directions: the central cities and the communities outside the agglomerations. In this way the regions with a great density of population keep expanding, thus forming urbanized structures covering large areas.

Integration problems of recent rural migrants to United States cities

CLARENCE SENIOR

Internal migration in the United States now takes hundreds of thousands of persons a year from farms to urban areas. Particularly among the "visible" migrants the integration process has many parallels.

Basic to an understanding of them and to programmes for helping them is the realization that successful urban living involves a variety of patterns of learned behaviour. The newcomer must learn, and learn rapidly, how to cope with new and strange problems. Habits learned in different, and usually simpler, surroundings do not make for satisfactory results in the new environment. Customary ways of making a living, keeping house, raising children, visiting friends and neighbours, playing and worshipping, may all, and all at one time, be called into question. Matters treated casually in the old environment may, in the new, suddenly become invested with high emotional content (for example, disposal of refuse). Added to all these puzzling changes often goes the reduction in self-esteem which comes from being labelled as a "problem", from being treated as a member of a conspicuous "minority", instead of as a person.

Some specific problems are discussed and some of the organizations working in the field of helping solve these problems are named.

The role of internal migration in population redistribution in Brazil

T. LYNN SMITH

Data on state of birth of the native population of Brazil cross-classified with those on state of residence were published by Brazil's 1940 and 1950 censuses; and these, along with materials on the number and distribution of the inhabitants collected in 1950 and 1960 enable one to estimate the amount and direction of internal migration in Brazil. Prior to 1950 there was a heavy movement of people from the immense states of Minas Gerais and Bahia and the states of northeastern Brazil southward to the state of São Paulo and to the great metropolis of Rio de Janeiro. This movement of people from Minas Gerais to São Paulo was so great that between 1920 and 1940 the latter replaced the former as Brazil's most populous state. Between 1950 and 1960 mass internal movements of population in Brazil reached truly amazing proportions. The net movement from country to city during the 1950's totalled more than 7,000,000 people, or one out of every ten persons in Brazil. This mass movement of people from rural areas overshadowed even the immense migrations during the decade of the rush of Brazilians to the new coffee districts of northwestern Paraná, to the high plains of central Goiás in the general area in which the new national capital (Brasília) was built, to the new lands in north central Maranhão, and to southern Mato Grosso.

Structure and directions of the migratory movements affecting the commune of Rome

EUGENIO SONNINO

We examine in this paper the demographic and the professional structure of the population who migrated into the commune of Rome during the period of 1960 to 1961, as well as the population who emigrated, according to their regions of origin and of destination. We measure the degree of attraction the commune of Rome exerts on the Italian population.

After a comparison through the structure by age of the Italian population, as it resulted after the census taken in 1961, the immigrants in Rome during the 1960-1961 period are a considerable "young" population. Conversely, the emigrants from Rome are preponderantly middle-aged men.

The migration inflow presents a structure by professions which is strikingly influenced by the presence of a considerable number of "dependent workers"; on the contrary, the importance of non-professional workers among emigrants tends to decrease whereas a large percentage of skilled workers and people of a high professional level are among those who leave Rome.

As to the directions of these migration fluxes, we emphasize the preponderant role played by the regions of Central and Southern Italy, mainly in regard to migration in-flow, but the commune of Rome continues to exert a great attraction on the population of the whole Italian national territory.

Characteristics of the main internal migration flows in the People's Republic of Bulgaria

IVAN STEFANOV

Migration into urban areas in Bulgaria was of limited importance and did not result in a

decline in rural population until 1953 when an intensive internal migration began in connexion with the country's socialist reconstruction.

Direct data on migration exists only from 1947 making it necessary to base statistical data on internal migration on the *de jure* population. Shown in tabular form are actual, natural and mechanical (calculated) increases in population for the periods between consecutive census from 1927 through 1956. The actual increase is steadily growing while the increase in rural population is declining. The rates of natural growth in towns increase while the rural population has declined, and the mechanical (calculated) increase indicates a growth of urban population at the expense of the rural population.

The total internal migration flow for the period of 1945 to 1964 amounts to approximately 1,100,000 and differs in the flow to and from towns and to and from villages. Towns have more registration than the countryside; the mechanical increase in towns is a growing, positive one and in the countryside, a negative one. Removals from registers are more numerous in villages and are declining constantly in towns. The intensity of the decline of rural population rose by 168 per cent between the periods of 1947-1949 and 1960-1964 and the intensity of the mechanical growth of urban population rose by 42 per cent.

The men's share in internal migration is smaller than the share of women. Movement of population within districts accounts for 59 per cent of the internal migration and for 23 per cent of population from neighbouring districts. Migration between more remote districts accounts for no more than approximately 18 per cent of the total migration.

Within districts migration from country side to town and village to village is more important than between the towns and the countrysides while migration from towns to towns and from towns to countryside is relatively small.

Intensity of registrations is highest in towns of 25,001 to 100,000 inhabitants and the lowest in large cities (more than 100,000 inhabitants). Middle-sized towns of 10,001 to 25,000 inhabitants have a higher registration than small towns (to 10,000 inhabitants). In the period from 1947 to 1963 the intensity of registrations declined in small towns and stayed at approximately the same level in large cities as well as in middle-sized towns. Only in the group of big towns (25,001 to 100,000 inhabitants) did the intensity rise. In all groups of towns the intensity of emigration is declining with a particularly important drop in big towns and the large cities.

Absence of satisfactory statistical data makes it impossible to assess the motives of migration although opportunities for employment are certain to be an important factor.

The basic socio-economic factors of internal migration are intensive industrialization and the intensive reconstruction of agricultures with the creation of large farming enterprises to replace the former, small, middle and large sized farms.

On some interrelationships between occupational mobility and migration to Budapest

KÁLMÁN TEKSE

The number of inhabitants of Budapest has shown, despite a high concentration degree of the population of the country, a continuous, rapid rate increase in the past years. The Hungarian regular statistics can not provide an accurate picture of the temporal progress of the complicated migration and social restratification processes and of their characteristics. For studying them a more efficient basis is furnished by the surveys carried out by the Research Group for Population Studies in the years 1962-1964 (these investigations deal with a continuous study of the social restratification of the population of Hungary).

According to the investigations, the two thirds of the family-heads in Budapest are in-migrants. The majority of them in-migrated before 1945, mostly in their childhood or during the ages of twenty to twenty-four. Analysis of the duration of their stay in their present domicile and of the number of times moved by social groups shows a greater mobility of non-manual employees. Main motives of in-migration are taking a first job and changing working place as well as occupation.

The small sample allows a study of mobility of only the three main social strata (non-agricultural and agricultural manual workers as well as non-manual workers). In the years after World War II the social aspect of the population of Budapest has changed substantially. Some 37 per cent of the sample population changed their social stratum in their lifetime and they have been mobile to nearly the same extent. (The present study reviews the main factors of mobility of the population.) The social mobility and migration of the sample population have a close connexion. The simple social mobility was greater among the in-

migrants than those born in Budapest, while the proportion of the autochthons was relatively higher among those who moved twice. Among the in-migrants, those who belonged once to the non-manual stratum has shown the highest mobility, while the frequency of moving of people who changed from the manual stratum into the non-manual one hardly surpassed that of the non-mobile population. The mobility of those who in-migrated before 1945 and those who migrated after 1945 is nearly the same, but for people who in-migrated after 1955 it is lower. Those passing from the agricultural manual into the non-agricultural manual stratum moved to Budapest mainly before 1945. An investigation of the time elapsed between migration and the movements within the social strata show a quicker and smoother march of mobility between the strata of manual workers than other.

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Printed in Canada
23498—October 1967—4,850

Price: $U.S. 5.50
(or equivalent in other currencies)

United Nations publication
Sales No.: 66.XIII.8
E/CONF.41/5