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IMPACT OF TECHNICAL CHANGE ON THE STRUCTURE
OF THE LABOUR FORCE IN THE ECWA COUNTRIES

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Impact of Technical Change on the Structure
of the Labour Force in the ECWA Countries

Introduction:

1. The impact of technical change has often been assessed on the different aspects of social evolutions, including the evolutions in the level and structure of employment, in the prevailing values and habits, in the individual attitudes to work in the patterns of socioeconomic stratification, and even in physical environment, (1)
2. In most cases, the impact of technical change on human behaviour, human surroundings and human needs, is explained with reference to the characteristics of modern technologies and of recent technical advances. We shall contrive in the next few paragraphs to explain - as simply as possible - the mechanism through which technical change affects the structure of the labour force in a growing economy.
3. Technology is generally defined as the practical application of scientific discoveries - on commercial basis - in the different fields of economic activities (2). It is, in other words, a mode of productive behaviour involving the use of a certain combination of resources, and therefore, a certain production function. Following the same trend of thought, technical advance involves a change in the combination of resources, leading mainly to the development of new inputs and involving an improvement (a shift to the right) of the production function (3).

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- (1) H. Russell Bernard and Pertti Pelto, Technology And Social Change; (N.Y. The Macmillan Co.; 1972). Chap. 12; pp. 317 - 331.
 - (2) IDCAS; An Approach to a strategy for Industrial Development and Arab Industrial Cooperation. (In Arabic) (Basic Study presented to the Fourth Conference on Industrial Development in the Arab countries. Baghdad - 12-19 Dec. 1976 - P2.
 - (3) OECD.; Technological Change in Agriculture And Employment in Developing Countries; (Paris, 1971 P.36).

4. Technical advance leading to the development of new inputs is essentially generated in the manufacturing sector (or in research institutes). This sector provides other sectors with the improved inputs needed to promote production. In this sense, the manufacturing sector can be considered as the "trigger" of technical advance in the economy, and a balanced industrialization policy is apt to increase its capacity to "disseminate" technical innovations to all parts of the productive system through proper sectoral integration.

The role of the manufacturing sector as a disseminator of technical innovations in the economy gives it a predominant role in initiating and orienting labour inter-sectoral shifts.

5. Since the great majority of modern technical innovations happened in the advanced industrialized countries, it reflects the resource endowment prevailing in these countries. It is characterized by two main features: (i) it leads to a continuous substitution of the abundant resource (capital) for the scarce resource (labour) and accordingly (ii) it involves an increased mechanization of production processes, with subsequent changes in the qualifications of required skills.

- 5-1. Considering the first feature of modern technical advance i.e., the labour-displacing effect, it is evident that it exerts a limiting effect on the "demand for labour". It has to be compensated - from the employment of view - by adequate capital accumulation.

- 5-2. Considering the second feature of modern technical changes, viz, their tendency towards the mechanization of production processes, and, accordingly, towards increased use of effort-saving devices, it is natural that more technically advanced activities attract labour from other more effort-consuming activities, i.e., the use of advanced techniques is expected to exert a positive influence on the "supply of labour".

6. The contradictory effects of the "labour-saving" and the "effort-saving" characteristics of modern technical changes on the "demand for" and the "supply of" labour in different activities, interact to determine the prevailing structure of the labour force within an economy.
7. Other similarly important variables enforcing the impact of technical change on labour structure on the macro-level are: (i) the adaptability of different economic activities to mechanization, and (ii) the investment policy. The first, through its impact on the size of employment opportunities within each activity (sectoral level); and the latter through its impact on the distribution of the compensatory effects of capital accumulation on labour demand.

Changes in the Structure of the Labour Force

In the ECWA Region

8. Before examining the technical factors influencing the structure of the labour force in the ECWA countries, we present in the next few paragraphs a picture of the historical pattern of changes in the more advanced countries, to be used as a basis for comparison and evaluation.
9. The first stages of industrialization in the advanced countries were characterized by:
 - (i) strong capital accumulation movements,
 - (ii) rapid increases in agricultural productivity; and
 - (iii) pronounced improvements in the efficiency of transportation and communication means.
- 9-1. Capital accumulation adequately compensated for the labour-displacing effect of technical changes in manufacturing, increasing labour absorption in this sector.
- 9-2. Rapid increases in agricultural productivity happened as a result of early transfer of technical advance from manufacturing, in the shape of improved equipment and better research facilities. It made possible the gradual "liberation" of the labour needed to sustain the growth of the leading industrial sector.
- 9-3. Pronounced improvements in the efficiency of transportation and communication means also happened as an early result of technical transfers from manufacturing. It ensured a better functioning of the market forces, facilitated the appropriate shifts of resources (including labour), and increased intersectoral trade.
10. The previous characteristics of the first stages of industrialization in the advanced countries show that strong sectoral integration was achieved through the continuous flow of technical innovations from manufacturing to other activities. This integration facilitated favourable labour shifts from lower productivity activities (agriculture and services) to higher productivity industrial activities, and industrial employment increased rapidly as a percentage of total employment.

11. At more advanced stages of industrialization, the rate of technical advance and of capital accumulation slow down, causing labour absorption in industrial activities to decrease in intensity. To compensate, technical innovations and mechanization expand to the tertiary sector (banking, trade, storage, distribution etc..) which assumes an increasing importance in a mature economy, and becomes essential to ensure the efficient functioning of the already developed and mechanized commodity sectors (industry, agriculture and construction). Furthermore, the achievement of high per capita income levels increases the need for personal services in the society (tourism, entertainment, cultural services, etc.); and the structure of the labour force changes in favour of the lower productivity tertiary sector.
12. This latter change in the structure of the labour force in a mature industrial economy is bound to have a retarding effect on GNP growth rate (1). However, this effect is alleviated because, on the one hand, the change starts after domestic product and per-capita income have both reached comparatively high levels; and because, on the other hand, this change is necessary and dictated by the objective economic requirements of further growth.
13. Taking the pattern of technical advance and of subsequent changes in the structure of the labour force in the more advanced economies as a basis for comparison we present in the following sections the picture in the ECWA countries with special attention to the factors influencing employment in agriculture:
- Firstly: Trend and Fields of Technical Advance.
- Secondly: Causes of Changes in Employment Conditions in Agriculture.
- Thirdly: Identification of some Problems Resulting from Disruptive Technical Change.

(1) Lloyd G. Reynolds, Labor Economics and Labour Relations. (3rd ed.; Englewood Cliffs, New Jersey, Prentice Hall, Inc. 1963); P.448.

First: Trend and Fields of Technical Advance

In the ECWA countries:

14. Industrialization in the ECWA countries started at a comparatively late period, and until the beginning of the seventies, the ratio of the product of manufacturing industries to G.D.P. in the earlier starters, namely Lebanon and Syria, did not exceed 16% and 13%. The ratio in late starters varies between 3% in the Arab Republic of Yemen and 10% in Iraq. (Table 1)

Table (1)

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Country	Year	% of manufacturing product to G D P
U.A. Emirates	1974	0.2
Iraq	1974	10.0
Jordan	1972	8.0
Kuwait	1973/1974	3.6
Lebanon	1972	16.0
Oman	1974	0.7
S.Arabia	1975	5.0
Syria	1974	13.0
Yemen (A.R.)	1974	3.0

In other countries of the ECWA region, for e.g. Oman and U.A. Emirates, this ratio does not reach 1%, meaning that industrialization is still at a very preliminary stage.

15. Furthermore, industrialization in the ECWA countries, like in so many other developing countries, was characterized by:

- (i) the use of imported capital intensive technologies and, therefore, by a low labour absorption in manufacturing.
- (ii) the failure to achieve sectoral integration.
- (iii) and, insufficiency of capital accumulation to create alternative employment opportunities in higher productivity activities.

15.1. The use of imported techniques of production to promote industrialization in the developing countries is meant to allow them to "benefit of the accumulated experience of developed countries to compress the time period needed for economic development". (1) However, because imported technologies are not compatible with resource endowment in the ECWA countries, they led to the initiation of dynamic disequilibria accompanied by structural imbalances in many areas, noticeably the balance of payments and the employment situation.

15.1.1. From the quantitative point of view, imported capital-intensive techniques taxed the balance of payments in the deficit non-oil countries in the ECWA region, (Lebanon, Syria, Jordan, Yemen Democratic Republic and Arab Republic of Yemen), and restricted the labour absorption capacity of the manufacturing activities.

15.1.2. From the qualitative point of view, the rapid importation of mechanized techniques met with a shortage in skilled trained industrial workers, especially in the surplus oil-exporting countries of the ECWA. This was partly remedied by importation of skills from other Arab and Foreign countries; (Table 2). The recruitment and training of industrial skills locally can be achieved only when technical advance happens gradually within the community. However, the scope of this paper does not extend to cover the problems of imported labour.

(1) Reynolds; Labor Economics and Labor Relations, Op. cit.; P. 457.

15.2. The failure of industrialization efforts to achieve the sectoral integration conditional to balanced and sustained growth, was largely due to the adoption of import substitution policies in the densely populated countries of the ECWA, namely:

Table (2)

Migrant Workers by Origin and Destination

Origin Destination	Date	Arab countries	Non Arab countries	Unknown	T O T A L
Saudi Arabia	1970	345 000	n.a.	65.000	400 000
Kuwait	1970	121 514	53 925	-	175 439
Lebanon	1970	46 400	n.a.	21 600	68 000
U A E	1968	35 450	8 819	n.a.	44 269
Qatar	1970	24 000	16 090	n.a.	40 090
Bahrain	1974	15 600	6 000	751	22 351
Oman	1973	2 000	3 000	n.a.	5 000

Source : Manpower and Empl. in Arab Countries Come Critical Issues.

Selected papers and Reports of the ILO/ECWA Seminar on manpower and Empl. Planning in Arab Countries, Beirut, May 1975.

International Labor Office - Geneva

Lebanon, Syria, Jordan and Iraq, and to the adoption of export promotion policies in the scarcely populated countries, namely: Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Oman and Katar (1). Both industrialization policies led-though for different reasons - to the cancellation of the role of the manufacturing sector as a disseminator of technical change in the economy.

(1) Ibrahim Saad El Din ; Industrialization and Development, paper Presented to the Seminar on Arab Industrial Coordination. Alexandria, United Republic of Egypt. 22-26 June 1976.

15.2.1. A balanced industrialization policy should mainly aim at stimulating the growth and multiplication of forward and backward linkages between industry and other sectors. With respect to agriculture, the forward linkage includes the flow of goods purchased by the farmers to be used as inputs for promoting and furthering agricultural production; the backward linkage includes the supply of agricultural raw materials for manufacturers and processors (1).

15.2.2. In the ECWA countries, the only agricultural inputs produced locally in adequate quantities are nitrogenous fertilizers, and Iraq produces limited numbers of tractors (on assembly basis). Insecticides, pesticides, phosphate and potash fertilizers and different appliances and tools required to promote agricultural production are imported.

On the other hand, empirical studies showed that the backwardness of the agricultural sector in the Arab countries is responsible for about 79% of the cases of under-utilized productive capacities in industry (2).

15.3 The third characteristic of industrialization in the ECWA region is as previously stated the insufficiency of capital accumulation to create the adequate number of new employment opportunities in the higher productivity activities. In other words its insufficiency to compensate for the labour displacing effects of imported industrial technologies:

15.3.1 Insufficiency of capital accumulation is due to shortage of financial resources (complicated by increased cost of technological transfers) in the deficit countries of the ECWA . In the surplus countries, obstacles to capital accumulation are scarcity of skilled workers, lack of basic infrastructure and limitation of local

** ILO: Yearbook of Labour Statistics; 1976.

** The Economist Newspaper Ltd.; The World in Figures; Editorial Information compiled by the Economist, (England 1976).

** Sources: Galal Amin; The modernization of poverty; (Leiden, ...)
M.A. Ghanom; (Development, Resources and Adult Education", in Opinions in Functional Education of Adults; (in Arabic) First and Second issues; Table 7, p. 4

16. The previous three characteristics of industrialization in the ECWA countries led, with respect to employment structure, to the following results:

* A strong propensity of workers to move away from primitive low-wage agriculture to mechanized higher-wage industry, is met with low labour absorption and high skill qualifications in this sector.

* Workers moving away from agriculture are compelled to accept the only alternative offered to them in the low productivity tertiary sector.

* The sectoral distribution of the labour force is skewed in favour of the tertiary sector at a very early stage of economic development.

16.1 Table (3) shows that the ratio of employment in the tertiary sector to total employment, is higher than the ratio of employment in the secondary sector in all the ECWA countries. This ratio exceeds 50% of total employment in five countries, namely: Bahrain (58%), Jordan (63%), Qatar (64%), Kuwait (60.5%) and Lebanon (50%).

Table (3)

Sectoral Distribution of the Labour Force In the ECWA Countries.....

Countries	Year	% distribution of Employed		
		Primary Sector	Secondary Sector	Tertiary Sector
Bahrain	1972	6.7		
U.A. Emirates	1968	18.0 (1)	34.5	58.8
Iraq	1970	55.3	34.0(2)	48.0(3)
Jordan	1961	35.3	9.3	35.4
	1975	18.0	21.5	43.2*
			19.0	63.0
Qatar	1970	4.0(1)		
Kuwait	1973	3.5	32.0(2)	64.0(3)
Lebanon	1970	18.0	36.0	60.5
S. Arabia	(1969/70)	61.0	23.0	50.0
Syrian Ar.Rep.	1967	58.1	10.0	29.0
	1975	51.1	13.7	28.2
			19.4	29.5
Ar.Yemn Rep.	1972	85.0(1)		
			- (2)	
Yemen Dem.Rep.	1973	45.0(1)		15.0(3)
			12.0(2)	43.0(3)

* The Tertiary Sector includes the non-classified workers
 1) Agriculture 2) Industry 3) Services.

16.2. The increase in the proportional importance of employment in the tertiary sector during the first stages of industrialization is a premature unfavourable phenomenon.

This is so because:

(1) empirical studies conducted in many countries proved that labour productivity is generally higher in industrial and agricultural activities than in services, because of differences in possibilities of mechanization. (1) (2) And, shifts of labour from higher to lower productivity activities in a "young" economy is especially detrimental to sustained growth-

(ii) increases in the size of employment in the tertiary sector when previous to growth of commodity sectors do not reflect actual economic needs, but reflect unsuitable technical and investment policies in other sectors.

(iii) the congestion of employment in the tertiary sector during the first stages of development is a well known "disguise" of unemployment.

17. In the next section, the causes of changes in employment conditions in agriculture will be explained in detail.

Second: Causes of Changes in Employment Conditions in Agriculture:

I. Causes due to side-effects of inadequate technical Changes:

18. The inability of the industrial sector to diffuse the effects of technical advances to other sectors of the economy, resulted in a retardation of the adoption of modern techniques in these sectors, especially agriculture. New inputs needed to promote agricultural production have as previously stated - to be imported.

19. The spread of the use of imported agricultural inputs on the micro-level in developing countries is impeded by: (i) the complications of import procedures and regulations; (ii) the conservative attitudes of land-owners; (iii) the unsuitability of imported inputs to local needs and conditions and (iv) the limitation of financial and credit facilities.

20. Agricultural microtechnologies refer to two main types of technical innovations:

1) Reynolds: Labor Economics and Labor Relations; op.cit; p.449-50.

2) L.A. Vincetn, "Population Active, Production et Productivité dans 21 Branches de l'Economie Française. 1896 - 1962". Etudes et Conjonctures; (Février 1965)p.95

the first being the productivity increasing innovations, including chemical fertilizers, insecticides, improved varieties of seeds, etc..., and the second being the labour saving machineries such as tractors, harvesters etc...

21. Since the decision to adopt microtechnologies in agriculture is mainly the responsibility of land owners, the conservative attitude of these land owners and the quantity of credit facilities offered to them assume a prime importance. It was often observed that the readiness of farmers to adopt new techniques depended on possibilities of partial trial adoption, i.e., on the divisibility of the required resources. Accordingly, "lumpy" inputs, and "innovations involving relatively indivisible resources" (1) such as tractors and harvesters are unlikely to be adopted as readily as fertilizers (for eg.), because a partial trial adoption is much less feasible.
22. Table (4) shows that in the majority of the ECWA countries, the utilization of nitrogen and phosphate fertilizers spread much faster than the adoption of tractors and harvesters

Table (4)

Comparison of growth Rates *
of Adoption of Advanced Agricultural Inputs in
some ECWA Countries

	(Percentages)			
	Tractors	Harvesters	Nitrogen Fertilizers	Phosphate Fertilizers
	Aver. 1961-1965 to Avers. 1971-73	Aver. 1966-70 to Avers. 1971-73	Period: 1968-1973	Period: 1968-1973
Iraq	+ 5.9	- 5.4	+ 31.0	+ 65.0
Jordan	+ 10.1	+ 13.3	+ 23.6	+ 41.0
Lebanon	+ 19.3	+ 13.6	+ 17.0	+ 23.5
Syria	+ 5.8	+ 2.4	+ 13.1	+ 46.0
Saudi Arabia	+ 10.8	+ 14.7	+ 31.9	n.a.
Yem. Dem. Rep.	+ 2.9	+ 15.9	n.a.	n.a.

* Compound annual growth rates; n.a.: not available
Sources: Tables B(1), B(2), B(3) and B(4) in Appendix.

In Iraq, for eg., the annual rate of increase in the number of tractors used (period 1961-65) to 1971-73) did not exceed 5.9%; and the number of harvesters used actually decreased by 5.4% per year (period 1966-70 to -73). ON the other hand, the consumption of nitrogen and phosphate fertilizers increased at comparatively high rates: 31% and 65% per year, respectively (period 1968-1973).

23. The use of productivity increasing innovations (1) has generally no direct significant effect on labour demand in agriculture, and the limited increase in agriculture mechanization in the ECWA countries implies that labour-liberation was rather weak. Linking this observation with low labour absorption in industry, it is possible to assert that labour shifts away from agriculture were not initiated by economic development requirements, but by social factors resulting from uneven sectoral distribution of the benefits of technical advance. This statement will be explained briefly in the next paragraphs.
24. The limited utilization of labour displacing, effort-saving technologies in agriculture in the ECWA countries, led to the creation of a kind of professional and social "elite"; the industrial worker who gets high wages, workers for a limited number of hours in much improved conditions, and lives in the city.
25. The picture of this "elite" initiated the observed labour movement away from agriculture in the ECWA countries. But, the displaced labour, finding no sufficient suitable employment opportunities in industry, diverts to the less productive occupations offered in the still primitive tertiary sector (mainly in trade and distribution).
26. Economic policy in the ECWA countries participated to some extent in enforcing the tendency of labour to move away from agriculture, as will be explained in the next section.

(1) Also called "land augmenting innovations" meaning that it is designed to increase the yield of output per unit of land. (Ibid; p.47.)

II/ Shortcomings of Economic policy:

27. Industry, as the leading sector in economic development was allotted the largest share of national investment in the development plans of the ECWA countries. (Table (C) in Appendix.).
28. The smaller share of investment allotted to agriculture was used by governments to implement large scale technological improvements, such as the building of dams the implementation of irrigation and drainage schemes. This type of technological large scale environmental achievements undoubtedly increases the productivity of the land in the area where it is set up; but it does not change the nature of farm work and do not spare effort or time for the agricultural workers. Furthermore these improvements are bound to increase the possibilities of intensified agriculture and of land reclamation, and are, subsequently, bound to increase the demand for agricultural labour. In other words, they make the flight of labour from farm work more unfavourable from the economic point of view.
29. Another feature of the large scale improvements implemented by governments is that, while under construction, they attract a large number of the rural workers in the area, and give them the experience of a regular wage work, and the taste for it. After their completion, the dismissed workers are reluctant to go back to the uncertainty of farm labour.
30. The tendency of labour to shift away from farm work is enforced by the great differences in living conditions in rural and urban areas. In the absence of indicators of comparative living standards in the ECWA countries, we can rely on the data on rural poverty in developing countries presented in Table (5), it shows that 43% of those living in rural areas in Asian countries have an income below 1/3 of national per capita income.
31. In the next section, some of the problems accompanying unfavourable changes.

Table (5)

Rural Poverty in Developing Countries

Region	<u>Percentage of rural poor population</u>		
	Pop. with incomes below \$ 50 per capita	pop. with incomes below \$75 per capita	Pop. with income below 1/3 of national income or below \$ 50 per capita
AfricaA	38	50	41
America	17	25	38
Asia	42	61	43
Developing)) Countries) (Total)	38	55	42

Source: World Bank; Rural Development, Sector Policy Paper. February 1975. p.80

In the sectoral distribution of the labour force in the ECWA countries will be identified and discussed.

* * *

Third: Identification of Some of the Problems Resulting from Disruptive Technical Changes
32. When technical advance is achieved as a gradual phenomenon within the local industrial sector, it creates better opportunities for technical and economic sectoral integration, for gradual changes in the pattern of consumption and for suitable and smooth social changes. In other words, the "graduality" of technical advance is an equilibrium factor in a growing economy. But, when technical advance is imported, and, figuratively speaking, "transplanted" into the economy, it is bound to have disruptive effects on structural relationships and on economic and social conditions.

33. The disruptive effects of transplanted technical changes on structural relationships and on economic and social conditions are magnified when technical advance is transplanted into one sector of the economy to the exclusion of others. This is so through: (i) the sudden creation of new "attraction" centers, (ii) the rapid changes in patterns of consumption and, (iii) the subsequent weakening of existing social relationships and ties.
- 33.1. The large differences in income levels and living conditions in urban and rural areas have led—disregarding objective production needs—to strong migration movements towards urban areas in the ECWA countries, as shown in Table (6). The stronger migration movements were witnessed in Kuwait, where rural population in 1975 did not exceed 11.4% of total population (from 44.1% in 1950), and in Qatar where it did not exceed 12% in the same year (from 68.1% in 1950). Linking together this phenomenon and the assessed low labour absorption in industry, it is possible to give a plausible explanation of many of the modern diseases of urban centers, especially the rise in theft and other crimes, the growth of slums areas, etc....
- Table (7) shows the high population growth rates in three of the largest cities in the ECWA region namely, Beirut, Baghdad and Amman (2.9 %, 4.4% and 4.5% respectively). It also shows high percentages of people living in slums and squatter settlement: in Beirut, this percentage reached 1.5% of total population in 1970, in Amman it reached 14.0% in 1971 and in Baghdad it reached 29.0% in 1971.

Table (6)
Percentage Distribution of Population Between
Urban and Reral Areas in the ECWA Countries
* (1950-1970-1975)

Countries	1 9 5 0		1 9 7 0		1 9 7 5	
	Urban	Rural	Urban	Rural	Urban	Rural
Bahrain	61.4	38.6	77.2	22.8	80.0	20.0
U.A. Emirates	21.3	78.7	39.5	60.5	44.2	55.8
Iraq	36.4	63.6	57.4	42.6	61.9	38.1
Jordan	34.6	65.4	52.0	48.0	56.2	43.8
Kuwait	55.9	44.1	85.1	14.9	88.6	11.4
Lebanon	24.5	75.5	53.4	46.6	59.8	40.2
Oman	3.3	96.7	4.9	95.1	5.4	94.6
Qatar	31.9	68.1	82.2	17.8	88.0	12.0
S. Arabia	8.2	91.8	17.8	82.2	20.8	79.2
Syria	34.8	65.2	43.0	57.0	45.5	54.5
A.Rep.of Yemen	2.0	98.0	7.0	93.0	8.0	91.1
Yemen Democ.Rep.	14.4	85.6	25.7	74.3	29.0	71.0

Source: CAEU; Economic Utilization of the labour Force; June 1977.

Table (7)

City	Pop.of city	City pop. as % of urban pop.	Annual % growth of city 1960-1970	Slums and Squat settlement as % of city pop.
Beirut	700	61	2.9	1.5 (1970)
Baghdad				
Metro Area	2.055	49	4.4	29.0 (1965)
Amman	478	45	4.5	14.0 (1971)

Source : World Bank; Housing, Sector Policy paper

May 1975, pp.62-63.

33.2 Another result of technical advance in industry is the appearance of new and diversified goods on the markets with subsequent changes in consumption patterns. Cash needs increase in both rural and urban areas, and expectations hasten the rate of internal migration by adding a strong pull to the demographic push in agriculture (1). But, as urban centers become rapidly congested, an increase in commercial activities is witnessed in the form of new stores and trading posts. This offers an additional explanation for the increasing share of labour in the tertiary sectors.

33.3. As industrial centers develop and attract labour from rural areas, the traditional extended family system weakens. And, although this system is considered by many economists as an impediment to industrialization through its restrictive effects on required labour movements, its stabilizing impact on social relations and social behaviour cannot be ignored. The continued authority of the father supported by strong family links can exercise restrictive effects on the behaviour of the young over confident ambitious son. But, once this son has moved away from the familiar environment, he does not feel committed to inherited sets of values: Juvenile delinquency is a much more frequent phenomenon in urban than in rural areas. This phenomenon is enforced by the fact that the attraction of urban life is stronger on young new entrants to the labour force, than on established older workers.

Furthermore, the breaking up of the extended family system participates in increasing the number of independent households in the society, thus increasing rapidly the size of household consumption, New Young families wishing to have separate dwellings, necessarily need their own durable and non-durable consumption goods, and the pattern of the society consumption changes fasters.

This indirect impact of the weakening of the extended family system on the growth and pattern of consumption in a developing economy cannot be overlooked, since it places an additional burden on the infant local industry, and creates a new outlet for rural savings.

34. The most important and dangerous outcome of the technical and demographic changes discussed in this paper is the reduction in the crop areas in the majority of the ECWA countries. Table (8) shows that - during the period (1961-65) to (1971-73), crop areas in Jordan, Iraq, Lebanon, Syria, Yemen Democratic Republic and Arab Republic of Yemen declined.

Only did the crop area in Saudi Arabia increase significantly, and this is explained by large labour shifts from the Yemen Democratic Republic and the Arab Republic of Yemen.

35. In the following paragraphs, some concluding remarks and recommendations will be formulated in the light of the previous analysis of technical and demographic changes in the ECWA countries.

Table (8)

Change in the Crop Area in some
ECWA Countries
(From 1961-65 to 1971-73^o)

(Thousand of Hectares)

Countries	Aver. For the Period 1961 - 1965	Aver. for the Period 1971 - 1973
Iraq	3233.3	2408.1
Jordan	580.3	411.1
Lebanon	219.1	209.3
S. Arabia	264.5	436.6
Syria	3072.5	3007.1
Yemen D. Rep.	98.5	90.5
A.R. of Yemen	1561.6	1527.4

Source: Arab Organization for Agricultural Development, Economics of Food in the Arab Countries (in Arabic) Part I Khartoum 1976), PP.23-30-36-39-44-47-49.

Conclusion and Recommendations:

36. It was shown in this paper that labour movements in the advanced countries during the first stages of industrialization happened in response to objective economic needs, and that these movements were properly oriented through strong sectoral integration and gradual - but rapid - expansion of technical innovations to different fields of activities.
37. Contrarily, labour shifts in the ECWA countries, like in so many other developing countries, happened mainly in response to strong social aspirations; they were speeded and given a skewed pattern because of the absence of sectoral integration and the subsequent uneven distribution of the benefits of technical advance among economic activities and geographic areas.
38. Since the diffusion of technical advance necessarily required the stimulus of public investment, especially in the developing countries, it is the task of the governments to establish the efficient channels for the sectoral and spatial transfer and dissemination of technical innovations in the economy.
39. To establish these efficient channels and restore structural balance and social stability, the following policies are recommended:
 - (i) sectoral integration should be strengthened by increasing the capacity of the industrial sector to produce improved inputs needed to promote production in other sectors, especially agriculture.
 - (ii) imported tractors, harvesters and other agricultural tools, appliances and chemical inputs should be exempted from duties and tariffs.
 - (iii) rural areas should be provided with better services and housing facilities.
 - (iv) the role of the agrarian cooperative societies as promoters of mechanization and as providers of improved inputs (seeds, fertilizers, pesticides to smallland-owners) should be intensified. This role is better performed if the activity of these societies extend to marketing activities. During the last years, cooperative societies in most Arab and ECWA countries acted mainly as credit providers.

40. The impact of the previous recommended policies on the national levels could be greatly strengthened by supporting regional coordination policies. These coordination policies are especially important with respect to the implementation of large scale infrastructural projects serving large areas, such as the establishment of marketing facilities and transportation means, irrigation and drainage projects. When these projects are planned, financed and implemented on a regional basis, their burden is easier to carry, and their benefits spread over a much larger area.
41. To increase the capacity of national industries in the ECWA countries, as "disseminators" of technical advance, it is necessary to promote specialization and to establish large scale industrial projects. Considering the limited size of the markets in these countries, this is only feasible through a regional coordination industrial policy.

A P P E N D I X

Table (A)

Population, GNP, GNP per Capita and Growth Rates in the

ECWA Countries 1972

Countries	Population (000) Mid-1972	GNP at Market Prices		Growth Rates (%)			
		Amount (US\$ Mills)	Per capita (US \$)	Population		GNP Per Capita	
				1960-72	1965-72		1960-72
Bahrain	224	150	670	3.4	2.8	3.2	6.0
U.A. Emirates	257	830	3,220		9.3	19.7	16.2
Iraq	10,070	3,730	370	3.2	3.3	2.7	1.8
Jordan	2,470	670	270	3.3	3.5	1.7	-2.8
Kuwait	840	3,440	4,090	9.7	8.7	-2.1	-1.3
Lebanon	2,891	2,030	700	2.6	2.7	1.0	1.4
Oman	600	320	530	2.1	2.5	15.2	22.5
Qatar	130	330	2,530	9.1	8.8	3.4	6.1
S.Arabia	7,616	4,160	550	1.7	1.7	7.2	6.8
Syrie	6,740	2,150	320	3.3	3.3	3.4	3.8
Yemen A.R.	6,060	550	90	2.2	2.2	2.0	2.4
Yemen.Dem.R.	1,510	150	100	3.1	2.9	-4.5	-7.2

Source: World Bank; Atlas; 1974; P.12

Table B (1)
 Numbers of Tractors used in
 ECWA Countries
 (1966 - 1973)

Countries	Aver. for the period 61-65	Avera. for the period 71-73	Average Rate of Change*
Jordan	1315	3135	+ 10.1
Iraq	5309	8875	+ 5.9
Lebanon	580	2850	+ 19.3
S. Arabia	310	803	+ 10.8
Syria	6310	10518	+ 5.8
Yemen Dem.R.	1025 (1966/70)	1150	+ 2.9

Table B (2)
 Numbers of Harvesters used in Some
 Number of used in Some
 ECWA Countries
 (1966 - 1973)

Countries	Aver. for the period (66-70)	Aver. for the Period (71-73)	Aver. Rate of Growth*
Jordan	100	165	+ 13.3
Iraq	1985	1518	- 5.4
Lebanon	48	80	+ 13.6
Syria	1371	1507	+ 2.4
S.Arabia	123	213	+ 14.7
Yemen Dem.R.	5	9	+ 15.9

(*)Compound Annual Growth rate.

Source : Arab Organization for Agricultural Development
Economics of Food in the Arab countries; (in Arabic)
 Part I (Khartoum, 1976_ P.377 and P. 382.

Table B (3)

Consumption of Nitrogen
Fertilizers in some ECWA countries

(1968/69 - 1973/74)

(In thousand tons N)

	1968/69	1973/74 (72/73)	Average Rate of Change *
Jordan	0.9	2.1	+23.6
Iraq	8.3	32.0	+31.0
Lebanon	13.4	29.5	+17.0
Syria	21.6	40.0	+13.1
S.Arabia	1 0	4.0	+31.9

Table B (4)

Consumption of Phosphate Fertilizers

in Some ECWA Countries
(1968/69 - 1973/74)(In thousand tons P₂O₅)

	1968/69	1973/74	Average Rate of Change *
Jordan	0.7	3.9	+41.0
Iraq	1.4	8.0	+41.7
Lebanon	8.0	15.0	+23.5
Syria	6.7	16.0	+19.1
S.Arabia	2.1	1.0	-

(*) Compound Annual Growth Rate.

Source: UN Statistical Yearbook, 1970

Arab Federation of Producers of Chemical Fertilizers.

Table (C)

Sectoral Distribution of Investment in Development Plans in Some ECWA Countries

	Period of Planning	Agric.	I n d u s t r y			Construction	Trans. and Communication	Trade	Other
			manufacturing	other	total				
Jordan	1973-75	15.5	10.9	9.2	20.1	-	23.7	0.4	40.3
Iraq	1970-71	22.8	18.7	21.3	40.0	-	11.6	2.0	23.6
	1974-75								
Kuwait	1967-68	1.4	10.3	24.7	35.0	21.1	18.2	2.6	21.6
	1971-72								
S.Arabia	1970-71								
	1974-75	2.7	3.6	-	3.6	-	18.1	0.3	75.3
Syria	1971-75	31.5	15.2	18.0	33.2	-	11.0	1.8	22.4
Yem. Dem. Rep.	1971-72	26.6	22.6	6.6	29.1	-	32.3	-	12.0

Source: CAEU; Industrial Coordination and Its Role in Economic Development; (In Arabic) Discussion Paper Presented to the Seminar on Arab Industrial coordination; Alexandria 22-26 June 1976; Tables 11 and 15; pp. 54 and 61.