

ECONOMIC AND EMPLOYMENT COMMISSION
SUB-COMMISSION ON ECONOMIC DEVELOPMENT

NOTE ON THE PROPOSED STUDY OF PATTERNS
OF INDUSTRIALIZATION

(Note by the Secretariat)

1. It will be recalled that the Economic and Employment Commission has asked the Secretariat to initiate a study on the comparative analysis of the patterns of industrialization in the developed nations, to serve as an aid for orientation in the formulation of programmes of economic development. (Document E/CN.1/Sub.3/2).

2. At its first session, the Sub-Commission on Economic Development observed that:

"The Sub-Commission notes that the Secretariat has already been instructed to undertake studies of the patterns of industrialization that have developed under differing economic conditions. The terms of reference of the Sub-Commission call for a study of the effects of industrialization and changes of a technological order upon the world economic situation. It is the feeling of the Sub-Commission that the Secretariat should examine the feasibility of such a study and communicate a preliminary plan to the Sub-Commission before the next session." (Part VIII of document E/CN.1/47).

3. The Secretariat considers that studies of this type should be undertaken by arrangements with outside organizations. Accordingly, arrangements were made with Dr. Simon Kuznets* to prepare, in consultation with the Secretariat, an outline for comprehensive study of the patterns of industrialization.

* This outline was prepared by Dr. Kuznets in his personal capacity. Dr. Kuznets is a Director of Research of the National Bureau of Economic Research, Professor of Economics of the University of Pennsylvania, Fellow of the American Statistical Association and of the Econometric Society, and past vice-president of the American Economic Association.

RECEIVED

1948 MAY 27

UNITED NATIONS
ARCHIVES

4. The attached outline was prepared by Dr. Kuznets in accordance with the foregoing arrangement. It is submitted for the consideration of the Sub-Commission, so that the comments and suggestions of the Sub-Commission members may be taken into account in the final preparation of a plan of study. It is anticipated that, when the plan of study is completed, steps will be taken to enlist the co-operation and resources of competent public and private authorities and institutions in various parts of the world to conduct studies along the lines outlined.

/AN OUTLINE

AN OUTLINE
OF
THE STUDY OF
PATTERNS OF INDUSTRIALIZATION

/CONTENTS

CONTENTS

	<u>Page</u>
<u>Part A. General Considerations</u>	
I. Scope of the Industrialization Process	4
II. Outline of the Study	8
III. Countries and Periods Covered	10
1. Selection of countries	10
2. Period covered	11
IV. Selection in Coverage within the Country	12
V. Design for Standardization	14
VI. Organization of the Study	16
1. Personnel	16
2. Time schedule	16
3. Limit of size	18
4. Formulation of responsibilities	18
VII. Aims and Character of the Study	19
<u>Part B. An Annotated Outline</u>	
	23
I. Growth and Diversification of the Productive System	24
1. Overall measures	25
2. Industrial distribution	25
3. Composition of major sectors	25
4. Individual products and groups	26
II. Adjustment of the Labour Force	27
1. Demographic sources	28
2. Inter-industry shifts	28
3. Employment status	28
4. Quality and training	29
5. Conditions of employment	29
6. Attitudes and policies	30
III. Material Requisites of Production	30
1. Changing use of land	33
2. Other natural resources	33
3. Reproducible capital	34
4. Imports	34
5. State and other policies	35

/IV. Financing

	<u>Page</u>
IV. Financing of Expansion	35
1. Volume and sources of domestic savings	37
2. Volume and sources of foreign capital	38
3. Channels of placement.	38
4. Relation between sources and destination	38
5. State and other policies	39
V. The Disposition of Output	40
1. Volume and composition of output, by major user	41
2. Distribution of consumer goods	42
3. Flow to business enterprises	42
4. Flow to government	42
5. Flow into exports	43
6. State and other policies	43
VI. The Agents of Industrialization	44
1. Carriers of technological knowledge	45
2. Agents of industrialization	46
3. Conflict of attitudes toward industrialization	46
4. Changes in values.	47

PATTERNS OF INDUSTRIALIZATION IN SELECTED COUNTRIES

Part A. General Considerations

I. Scope of the Industrialization Process

For present purposes, industrialization is defined as a sustained increase of the proportion of sectors other than agriculture in the national economy, accompanied by a marked rise in total and per capita output and associated with growing application of modern technology. This definition is wide enough to include the diversity of industrial sectors that may lead in the growth away from dominance of agriculture; and narrow enough to exclude cases of growth in total output not associated with increasing diversification of the country's productive system or with widening application of technology based on experimental science.

All definitions grasp the cognitive characteristics of the given phenomenon that serve to set its boundaries and distinguish it from others: they cannot describe the phenomenon in its full complexity. In this respect, the definition just given is no different from others: it stresses the surface features of industrialization that can be clearly noted with the help of economic statistics, but conveys no hint of the wide ramifications and complexity of the process in all its effects upon the social and economic life of a country. A clear account of industrialization in its full complexity and with all its ramifications should be the end-product of the study, and obviously cannot be sought for in the initial stage of planning. Nevertheless, it is necessary to go beyond the formal definition and formulate some preliminary notions of the process of industrialization as tentative guides: without these the study will be blind groping in a dark, vast area.

One may start by taking the potentialities of industrialization provided by application of modern technology as a given datum; and accept these potentialities at any given time as theoretically available to any country. The industrialization process may then be viewed as one in which a country avails itself of these potentialities in order to increase its output. In the process of such increase, there will inevitably be a movement away from agriculture, since human wants are satisfied with a progressively smaller share of agricultural products as the standard of living increases.

Whether or not the sequence just suggested is accepted is not important; the important element is the recognition that industrialization
/is a process

is a process of social and economic adaptation to potentialities present in human knowledge and experimental science. This emphasizes the economic and social rather than the purely technological aspects of the process. We do not wish to imply that growth of experimental science and of its application in modern technology is not in itself a social process, in turn affected by the extent to which living societies manage to adapt themselves to already existing technological potentialities. But in the general inter-relation of social phenomena, one has to cut in at some link and start by assuming one as given. It seems most fruitful to do so with respect to the stock of technological knowledge. The study of patterns of industrialization will then be guided by the following basic question: what were the economic and social factors that produced, in a variety of countries, relatively successful adaptations that permitted the exploitation of potentialities residing in the stock of technological knowledge?

The adaptation of the economic and social system to technological potentialities is obviously not a simple, one stage process. It exhibits sequences and stages of its own. For example, the technological potentialities of steel production may, in the first turn, result in the setting up of a few steel plants, and thus modify the country's industrial structure. But the steel industry imposes certain patterns of life upon the population engaged in it, which may in their turn result in a modification of the general pattern of social life. Thus, just as the effects of technological change radiate along the network of economic relations, from the steel industry to all other industries with which it shares resources or for which it provides industrial materials; so will the corollary social effects (class structure of population, urbanization, etc.) radiate along the network of social relations. And these effects in turn will determine the economic and social conditions under which adaptation to some other potentialities of modern technology will subsequently be made.

If, in this approach to the process of industrialization, the possibilities in the field of modern technology constitute one important datum, the other is the economic and social framework of the country. The impact of industrialization is not upon a tabula rasa: it is upon a country that has already lived for some time, with a long background of past history and a full heritage of entrenched economic and social institutions. No country is born industrialized: disregarding cases of political splits of already existing national units, all countries are born agricultural. But this simple fact means that in every process of
/industrialization

industrialization there is an element of re-adaptation of already existing economic and social institutions for the purpose of taking advantage of potentialities in the field of modern technology. Even in the so-called young countries the population groups are the living carriers of such historical heritage, brought over from the older countries from which they migrated. Full understanding of the process of industrialization is impossible without an account of economic and social institutions in the country at the time the process begins; and without tracing the long-term effects of the historical heritage through the decades of industrialization as the latter develops.

To this interplay between potentialities of modern technology, along with the economic and social adjustments required by their exploitation, and the historical heritage of the country at the time it meets the impact of industrialization, a third element must be added: the complex of natural resources. Neither modern technology, nor the human population that uses it can operate without the framework of nature and of its resources for most of which human labour and skill cannot substitute. While historically they are a more stable factor than either technology or economic and social institutions, the distribution of their supply among several countries of the world is uneven. Obviously, such an uneven distribution is of importance in explaining the diversity of industrialization experience, diversity beyond that accountable for by differences in the historical heritage of national institutions.

From these few suggestions as to the scope and complexity of the industrialization process, three consequences for the planning of the study follow. The first is that the study cannot be limited to the superficial characteristics of the industrialization process, to measures of growth of output and its diversification away from agriculture. It must go beyond, into the related adjustments in the country's economy by way of changes in the stock and characteristics of productive resources; major shifts in the organizational structure of the economy; trends in the disposition of the country's total output; changing relations between the given economy and the rest of the world. It must eventually take cognizance of the adaptations made in the social and political institutions of the country, which are the basic framework within which economic processes occur and which both determine and are in turn determined by these processes. The study must visualize the industrialization process not only as an economic change but as a change in social life at large; and if, for practical reasons, the investigations undertaken fall short of this wide scope, the limitations must be made with

/full

full recognition of their significance in relation to this ideal.

The second conclusion follows from the diversity of both the natural resources and historical heritage of the national units already entered upon the process of industrialization. This process, as defined here, is a recent phenomenon observed in the last two centuries. Its impact found a variety of countries, both old and young, large and small, equipped with different stocks of natural resources and living in economic and social conditions that obstructed as well as induced industrialization in different ways. A study of this process that is to serve useful purposes must take adequate cognizance of such diversity among the several countries with respect to their initial and persisting stock of natural resources and historical institutions.

If the two conclusions just formulated call for a study of wide scope, a third may be suggested that would narrow the range of problems to be investigated. It is to accept the stock of technological knowledge based on experimental science as a datum, rather than as a result of a process to be studied. This conclusion is suggested in full recognition of the fact that accretions to stock of modern technological knowledge are a crucial lever in the whole process of industrialization; and that progress in science and technological knowledge is a social process greatly affected by the economic and institutional framework of society. But the exploration of this area is extremely difficult, for it would call for a study of the various connecting links between the process of discovery in the theoretical realm of experimental science and the process of invention; between the latter and the selection of some inventions for extensive use; and between such extensive use and cumulative technical improvements. To push the inquiry in these directions would be extremely useful in the long run: it would deal with the basic factors common to industrialization wherever and whenever it occurs. But in the short run it would divert our attention from the diversity of industrialization responses and the study of the factors in the social and economic structure of nations that make for different responses to a world-wide common pool of scientific and technological knowledge. It is suggested therefore that the account of basic changes in the progress of experimental science and modern technology be used only as a background of common information; but that as a necessary limitation upon the study, no attempt be made to deal with the factors that produce the flow of discoveries in experimental science and that determine the application of these discoveries to technology via inventions.

/II. Outline

II. Outline of the Study

In an inquiry of the scope suggested above, the most obvious approach is to select countries with diverse experience in industrialization, and study within each the course and pattern of industrialization in its fullest ramifications. This country-by-country approach offers two major advantages. The first lies in the double emphasis on the time pattern of development within each country and on the inter-relations of various aspects of industrialization within the country's framework. Both elements are important in understanding industrialization as a process that, once initiated, tends to exhibit persistent trends; and one the various aspects of which are inter-related in ways that must be carefully studied - for disregarding them may result in policy decisions with unexpected and unpleasant boomerang effects. The second advantage of the country-by-country approach lies in the fact that most available data have been assembled and most analytical studies have been made for separate countries, rather than on a trans-national basis; and, more important, that the scholarly resources available in the field are largely along the lines of knowledge and familiarity with each scholar's own country. As a result, mobilization of data, analysis and scholarly resources could more expeditiously be attempted in the country-by-country than in any other approach.

The annotated outline in Part B of this document attempts to group the many aspects and elements of an industrialization of a country around six major questions: (1) what has been the precise industrial composition of the industrialization process, as it affected and was manifested in the growth of total output, increase in the labour force, and accumulation of capital? (2) How was the labour force found and adjusted to man efficiently the more elaborate productive system that grew up in the process of industrialization? How were the requisite material means of production obtained, the means being non-reproducible or reproducible capital of various description securable either from within the economy or from abroad? (4) How was expansion financed, with particular reference to the source of savings that financed accumulation of capital and the mechanisms that were evolved both to mobilize savings and to direct them into the proper investment channels? (5) How was the increased product of the economy disposed of, either to the individuals and households who comprise the country's ultimate consumers, to business enterprises in the way of addition to their capital, to the government for various uses, or to foreign countries in the way of exports of commodities and services? (6) Who were the active agents of industrialization, the carriers of technological change and the spearheads in the institutional and economic

/breaks

breaks that were the indispensable prerequisite and accompaniment of the industrialization process, and what was their role in the conflicts that the impact of industrialization created within the country? Under each of these broad questions, which delineate the major parts of the outline, there are several sections intended to spell out in somewhat greater detail the topics that are to be covered.

Three comments might facilitate proper judgment of the outline. First, the nature and sequence of the major questions around which we have chosen to centre the inquiry and group the narrower topics that should be covered, represent a choice among a variety of others, and it is not claimed here that they are the only possible choice. The outline might have been grouped along the sequence of an economy's industrial sectors, ranging from the extractive industries at one end to the service industries and government at the other; or it might have started with the finished output of the economy classified by destination, and then work back to its origin in the productive system. As they are conceived here, the major questions and their sequence do seem to us to be the most effective way of approaching a study of the complex and ramified process of industrialization; yet this does not bar modifications in sequence and in formulation of some topics or sectors. But we do wish to emphasize that in any consideration of alternatives, the basic characteristics of the present outline, the wide scope of its coverage, be left unimpaired. One must guard particularly against basing the inquiry upon preconceived notions of some few strategic factors that may seem the key to the industrialization process, and then confining the study to assembly of evidence limited to these strategic factors with the danger of overlooking both factors suggested by alternative theories and the wide ramifications of the process itself.

Second, the outline given here is incomplete in that for each major heading and sub-heading only the barest hint is given of what is desired, what data and evidence are sought for and how they are to be organized and analyzed. The outline is thus a series of hints and guideposts, not a detailed and tested map to be followed with comparative ease provided the data are available. This sketchiness is partly a matter of design, partly a matter of necessity. It is intentional in that it would be presumptuous to confront investigators in the several countries with a specific set of directions that may well provide a poor guide to the data and institutional arrangements peculiar to that country. Desirable as it is to secure a body of evidence organized and analyzed along strictly parallel lines for
/each

each of the countries covered, we must assume in advance that the variety of data and differing relative importance of various sectors and institutions would make such a result unattainable; or if attained, misleading. It seemed preferable to provide only broad indications, sufficiently specific to suggest to competent students what is wanted while leaving to them the necessary discretion. Such a course is also unavoidable; no single person, least of all the author of the outline, can claim sufficient knowledge of the vast field covered by the study to be able to frame the various questions with the necessary specific detail.

Third, it follows from both the scope of the outline and from its unavoidable sketchiness that a wide field of discretion is left to the scholars undertaking the investigation for each country. This discretion would take largely the form of selecting and combining whatever available data are generally appropriate to the various aspects of industrialization distinguished in the outline; and of pushing the investigation more thoroughly in one direction or another according to its importance and the promise of available data. Such wide discretion is inevitable. But it also means to assure results sufficiently comparable both as to the scope of coverage and levels of acceptability, requires some efforts at assisting the scholars by providing guides for selection, and possibly continuous advice from some central source that would accept such general responsibility for the inquiry as is compatible with the freedom and interests of scholars in the several countries. These matters are discussed briefly below; but the eventual working out of the most efficient arrangement will be accomplished by trial and error in the early phases of the inquiry, once it gets under way.

III. Countries and Periods Covered

1. Selection of Countries

Ideally, the study outlined here should cover each and every country that has at all entered the process of industrialization, no matter to what extent. Such a maximum programme would assure coverage of the full diversity of industrialization experience in the world, and would avoid the danger of missing some special cases, inevitable if even a single country fails to be covered since each country reveals some features of the process peculiar to itself.

For obvious reasons such a maximum programme is not feasible, at least not in the near future. Instead, we must limit our selection, taking care that the countries chosen for study should, in so far as possible, represent full diversity of conditions preceding

/industrialization

industrialization as well as the variety of experience with respect to industrialization proper. Many criteria of selection can be suggested: size of the country; density of population; availability of natural resources; age of the country; historical period in which the industrialization process began; degree of economic development and progress of industrialization; extent of predominance of industry in the advanced stage of development; dependence upon foreign trade; political status (independence or colonial status); extent of government intervention in economic life.

On the basis of these criteria, the following list of countries can be suggested: Great Britain; Germany; France; Belgium; Sweden; Switzerland; Denmark; Ireland; United States; Canada; Australia; New Zealand; Japan; China; India; Netherlands East Indies; one or two Latin-American countries; and, separately, Imperial Russia and the Union of Soviet Socialist Republics. This list is inevitably tentative. Final selection will depend upon interest within the countries and availability of scholars; exploration as to the adequacy of data; and further checks as to the significance of the individual country's experience to the whole inquiry.

It will be noted that the suggested selection includes, on the one hand, countries that have been highly industrialized since long, and, on the other, countries that are still in the early stages of industrialization or in which the process of industrialization is at its very inception. Countries of the latter class cannot be expected, of course, to offer the same wealth of experience to be drawn upon as can the industrialized countries. Nevertheless, their inclusion would be helpful, since their experience, even though limited in time, might afford indications with regard to obstacles and bottlenecks encountered, to methods of overcoming and eliminating them, and to the degree of success or failure, that would be directly relevant to present-day problems of economic development and industrialization of under-developed countries in general. Moreover, it is possible that dependable information relating to early stages of industrialization might prove more readily obtainable from the experience of these under-industrialized countries, precisely because it is of recent date, than from the early historical experience of countries that are now much more advanced industrially.

2. Period Covered.

Ideally, the study for each country should cover the full period from the beginning of industrialization to the present (or in some cases, where the recent war had devastating effects, to the end of 1930's). But such

/an ideal

an ideal encounters first, the difficulty of establishing the rough date at which industrialization began; and second, the increasing scarcity of data as the investigation is pushed further back in time.

How these difficulties are to be resolved is a question that can be answered for each country separately; in the light of the knowledge possessed by the investigators. No general answer can be given here. One can stress, however, the importance of covering as much of the long-term period of industrialization as possible, since only then can the course over time and the pattern of successive phases be discerned. It is also apparent that the period will differ from country to country, since each country entered the process of industrialization at different times from late eighteenth and through the twentieth centuries. Whereas for Great Britain the starting point should be 1770-80 and the minimum period of coverage should begin not later than 1830, the record for the United States should begin, if possible, in 1840 and the minimum period extend back at least to 1870. For every country included in the study, both the ideal and the minimum period of coverage will have to be set; so that it is clear in advance whether the minimum period can in fact be covered, and to guide the investigator in his efforts to piece out existing information.

IV. Selection in Coverage Within the Country

There are few, if any, countries in which the available data are sufficient to cover adequately all aspects of industrialization noted in the outline - for the long periods consideration of which is indispensable if the course of industrialization and its basic patterns are to be clearly discerned. This is certainly true of quantitative data. And even if one assumes existence of complete records of non-quantitative evidence on the several aspects of institutions and policies involved in the industrialization process, the sheer magnitude and complexity of such materials would make the task of distilling from them the basic conclusions called for in the outline one of great difficulty. To undertake the study for any single country with the intention of covering completely and thoroughly all aspects of industrialization distinguished in the outline would be to doom the undertaking from the start to certain failure.

If selection is unavoidable, it is better to face it and consider how it can be done with least damage to the value of the results. General suggestions alone can be provided at this juncture; more specific consideration would be possible only in connection with the study for any specific country, and in consultation with the scholars engaged upon the task.

/The first

The first and most obvious suggestion is that balance must be retained in any selection, in the sense that concentration on any single section or part of the outline should not be at the expense of slighting others. The need for a comprehensive and rounded view is paramount. In so far as possible, the selected data and analysis should attempt to cover all the facets and aspects of the industrialization process without barring the sinking of deeper shafts into one or the other sector of the economy, if available evidence and potential yield warrant.

Second, it is clear that the undertaking must rely heavily upon already available data and studies. To attempt to gather new data, via field investigations, samples, etc., would add to the burdens of the task beyond the time and other resources likely to be available. In the case of statistical data, this means relying upon basic series or synthesis of those already available in the economic literature of the country. For non-quantitative data, monographic studies and organized assemblies of the raw materials would be the chief sources. This suggestion cannot be treated as a hard and fast rule. If the available data can, with a little effort, be converted into more meaningful totals and summaries, this effort is obviously warranted. All that is urged here is that, if the study is to stay within the limits of feasibility, it must primarily be a synthesis of already available data and research - not a series of investigations attempting to secure new primary data.

Third, in so far as the study must cover a relatively long historical period for each country, the choice of time intervals for recording the data is important. Even if one limits himself to the available series, the use of annual data might overload the study with unnecessary detail. One may suggest that decade units (in the form of decade averages where marked short-term fluctuations are characteristic) would be sufficient; and that the annual series be used only where an exact timing of certain phases is important (or the availability of annual series merely indicated, without presenting the series themselves). In the case of non-quantitative data, the summary evidence again need not be for time units shorter than a decade: the effects of policy changes and the broad institutional changes to be noted extend over a period of at least a decade, and their timing (unless easily associated with a specific date) need not be finer than in terms of decades. This would keep the study, and the eventual presentation of results, from being over-burdened by a mass of detail, which in many cases would merely be the mechanical reflection of
/the somewhat

the somewhat accidental wealth of available raw data.

Finally, selection must be guided by a clear recognition of the eventual main uses of the study. This consideration leads to the twofold conclusion. First, since the study should, above all, provide reliable reference information, however deeply its analysis may and should go, heavy emphasis must be placed on objective evidence of an easily acceptable character. This means stressing quantitative data wherever possible and avoidance of non-testable types of evidence, based on conjectures, hypotheses or ex-parte testimony. Second, in so far as the conclusions of such a study are desired as background for industrialization policy in under-developed countries, as well as for some guidance for the developed countries in their policy with respect to the former, the investigators must be cognizant of the basic question that will be asked with respect to their findings: how much of what happened was determined by specific and transient conditions of the time and therefore has little general applicability, and how much can be interpreted as possibly valid for other places and other periods? Answers to such a question are far from easy; nor can they be given, even with qualifications, until the very end of the whole investigation. It would be unreasonable to expect the investigator to anticipate which of the items of evidence that he is synthesizing and organizing will be most directly relevant to policy problems of the immediate future. But neither should we assume that tentative judgments with respect to such relevance are impossible. To the extent that these are feasible, they should guide selection of evidence most directly relevant to the ultimate uses of the study.

V. Design for Standardization

A great deal of the evidence called for by the outline is statistical. It refers to aggregates, components and distributions that, while generally familiar, are subject to variant treatment from country to country, and often, within a single country, from one aspect of economic activity to another and from one historical period to the next. Many of these vexing differences in definition, classification, and treatment of controversial items of exclusion and inclusion, are irremediable, at least without effort disproportionate to the gain. Nevertheless, some attempt at standardization should be made.

It is proposed that a companion document be prepared, if and when the outline in the present or modified form is approved. The document would set forth the definitions, classifications, and answers to various controversial questions of inclusion and valuation, that appear to provide

/the best

the best guides for the study to be conducted in the several countries. To be effective, this code-document should be available in time to serve as a guide to whatever studies are undertaken; and completion of the document in the near future is indispensable, if the studies in question are initiated promptly and are to gain any advantage from such a document.

The code in question cannot be viewed as binding upon the scholars engaged in the studies. As already suggested, the costs of adhering to it may frequently outweigh the advantages to be secured thereby. Adherence to the code must consequently be left to the discretion of the scholars in the several countries; and they will have to decide, specific case by specific case, whether the effort involved in modifying the available data to fit them into the pattern of the code is worthwhile. But one may reasonably expect that with such a code at hand, some effort at adherence will be made; and that where departures from the standard are unavoidable, the nature and possible extent of such departures will be indicated.

The usefulness of a similar code as a guide in the summarization of non-quantitative data is obvious. The question is whether such a code can be prepared; whether experience in this field has revealed some patterns of dealing efficiently with this type of evidence. For lack of familiarity with studies resting heavily upon non-quantitative evidence, one hesitates to answer the question in the affirmative. Yet some general considerations do suggest the feasibility of such a code. Monographic studies of development of various institutions abound; considerable experience has been accumulated in the field of summarizing legislative policies or administrative decisions and rules; there has been some study of currents of public and group opinion, at least in the immediate past. Thus, the raw materials for a code are present.

It may be surmized that the specific contents of such a code will be quite different from those of a code dealing with statistical data. Rather than provide clear-cut definitions of totals, components, and classes, it may devote itself mainly to rules for testing evidence - rules that might help to distinguish the formal expression of policy from its actual execution, the overt formulation of a policy or attitude from its true contents. But conjectures, on the basis of relative ignorance, are of little value. One can but urge careful consideration of its feasibility, with the assurance that if prepared it would prove of great value in the present studies - as well as find wide use in the broader realm of economic and social investigation.

/We come

We come finally to presentation of results of these country-by-country studies. Care in citing sources, describing procedures used in synthesizing evidence, revealing the variants and margins of error and the like, is standard practice in scholarly studies in the field. To mention the need for such care in the studies outlined is perhaps superfluous. Yet one must recognize that practices vary from country to country, from one field of economic and social study to another, and often from scholar to scholar. It may not be redundant, therefore, to stress the need for adherence to the highest standards of explicitness in documentation and description. Whether this calls for an additional simple code governing the presentation of the evidence, is a question that can perhaps be best left for further consideration. However, if such a code or simple set of rules is to be prepared, it may, in the nature of the case, be considered much more rigidly binding than any code mentioned above; and, like the others, it should be made available in the initial phases of the studies so that care is taken from the very start in recording the details of the evidence needed for a complete description of its source and character.

VI. Organization of the Study

1. Personnel

It is proposed that the study for each country be undertaken by a single scholar or group of scholars familiar with the data for that country and possessing sufficient competence in the field. In most cases these would be scholars residing within their country, and would carry on the study there. In others, such as Germany or Japan, reliance may have to be placed on scholars outside the country proper. In either case, these people should be permitted wide discretion since they will be most competent to decide, on the basis of full knowledge of the data and peculiarities of their country, how best to organize the evidence called for in the outline. Naturally, the fullest choice will be left in the hands of the scholar or the groups of scholars within a country as to the organization of the study with respect to personnel, division of labour and the like.

2. Time Schedule

To estimate how long it will take to complete any substantial inquiry in a wide field of empirical study is to engage in one of the most hazardous types of forecasting. Yet to plan in earnest, one must approximate at least roughly the time involved; and it is inadvisable to avoid this, no matter how cogent the excuse.

An optimistic estimate of the minimum time required for completion of
/a study

a study for any country is two years, counting from the date at which co-operation is secured and the research group ready to devote full time to the undertaking. It is optimistic in that it assumes the existence of competent personnel ready for the task and willing to give it top priority on their working schedule. In turn, this time limit itself may be treated as a tentative guide in the study, in that the exercise of discretion in following the outline should take these time dimensions into account. In other words, it is a guide insofar as it demands from the investigators that the major results of the undertaking be available in roughly two years - not two decades, or half a century.

One must emphasize that the decision as to the time schedule of a study, imprecise as it necessarily is, is also a decision upon the character of the results that one can hope to secure. Like all practical decisions, it is a compromise in which one is forced to weigh the pro's and con's, most of them not easily susceptible of precise weighing. While the reasons for indicating a rough minimum of two years cannot be stated too explicitly, they can be indicated as follows. If one allows a period much shorter than two years, then with the most excellent provisions in the way of personnel, the time is still too short for proper organization and analysis of the evidence along the lines suggested in the outline. If one allows a much longer period, a more thorough study can be made, but extending the period involves a material loss in value of the study for broad policy decisions important for the near future. The period thus suggested is a minimum in which worthwhile results are possible, without a costly delay in making them accessible for the basic aims of the whole undertaking. And it is hoped that, in actual prosecution, the time schedule will not extend over a period much longer than the minimum suggested.

However, one must face the probability of such a necessary extension in time and perhaps consider, in preparation for it, some arrangements for securing at least part of the results in advance of the completion of the full study. Such arrangements cannot be planned at present; and should, at any rate, be discussed with the research groups mainly responsible for the study in each selected country. If the outline provided in Part B is adopted without major modifications, it may be possible to plan, for each country, a similar sequence of aspects of the industrialization process to be covered - so that the results dealing with some of these aspects for the several countries will be forthcoming well in advance of those dealing with others. If this can be done, at

/least

least part of the results should be available long before the full study is completed; and there may be some value in making these results accessible to groups concerned with policy problems. Further exploration of the time schedule of the studies, if they are to be undertaken, is obviously indispensable in the efficient planning of the undertaking.

3. Limit of Size

It is essential that the eventual presentation of the findings of the studies be brief, concise, and free of digressions. The size of the eventual reports would naturally vary, but it would be desirable to set the maximum limit at, say, about 35,000 to 50,000 words for each of the six major parts of the study. This would not include statistical appendices, which, if properly organized, may constitute a most valuable reference part of the eventual report. These size limits should be borne in mind in the planning and organization of the several parts of the study for each country.

4. Formulation of Responsibilities

If the studies are to be carried on without conflicts as to responsibilities, the latter will have to be carefully formulated in advance. This is all the more necessary because the study for each country will be carried on by a research group that will have to be given wide discretion; and because sheer distance will make continuous close contact with these groups a matter of some difficulty.

In the first place, the basic responsibility for the studies must obviously rest with the scholars who undertake them. It is they who will accept authorship, and it is their competence and care that will be judged by the users when the results become available.

Second, it follows that the publications containing the study cannot be treated as official documents of the United Nations, subject to whatever authority or limitations such documents carry. This is not to bar publications of the results under the United Nations' imprint, if it seems desirable to do so and if it is agreeable to the scholars who prepare the study. Perhaps it would be possible to treat such publications as a series of 'sponsored' rather than 'official' studies.

Third, however the questions just raised are decided, the United Nations will have to accept some minimum responsibility. This will involve an expression of interest in the studies. It will also involve assistance in the way of provision of outline and technical codes, and possibly continuous consultation. Some such minimum commitment seems indispensable if the interest and co-operation of scholars in selected countries are to be enlisted.

/VII. Aims and

VII. Aims and Character of the Study

The declared aim of the inquiry is the possible use of its results in considering long-range economic policy. Choices in development policy in under-developed countries might be facilitated by the experience of industrialized countries, so that some undesirable concomitants of industrialization might possibly be avoided or minimized, and the process itself guided more expeditiously. For countries that have already gone through some phases of industrialization, the results of the study may be useful in considering long-range policies leading to further development; and of policies that would be of most assistance to under-developed countries and to an international economic framework conducive to peace and welfare.

Were one to ask how the study can yield results that will be useful in framing economic and social policy, the obvious answer is that the analysis of historical experience should serve to suggest the weight of various factors that made for relatively successful industrialization; to indicate, if only tentatively, which were the indispensable prerequisites for and consequences of industrialization and may, therefore, be expected in the future and which were the dispensable antecedents and consequences that may be avoided in the future. In addition to such elements of positive knowledge, there may be the important negative value in destroying or modifying some prevalent hasty ideas of the nature and consequences of industrialization. We all tend to act upon the basis of some knowledge, vague and ill-formed as it may be. And people charged with the responsibility for policy decisions are no exception to this rule. The enrichment of their knowledge of the past courses of industrialization and the consequent abandonment or modification of more hastily formed notions should be an important useful result of the study - even if it does not succeed in establishing a body of generalizations concerning past invariant or stable relations that may be valid in the future.

If the study proposed and outlined here is to serve properly the aims just indicated, it must be guided by a clear understanding as to the character of the results expected. In discussing this aspect of the study, we can begin by suggesting levels of analysis and inquiry distinguished by three questions: what has happened? Who made it happen and how? Why did it happen? In studying industrialization, concentration upon what has transpired in the process, how it was initiated and pushed on its course, and why it occurred at given times and places and in the form which it assumed, represents three different levels of inquiry and analysis - even though the levels are obviously interrelated.

/The answer

The answer to the question "what has happened" required systematic assembly and organization of evidence on the magnitude of the industrialization process in its major aspects and components, and on its course over time. The answer is indispensable, if, in considering the process of industrialization, we are to be made aware of what we are discussing; and if, in the formulation of any policies designed to accelerate industrialization, we are to know what particular aspects of past experience we wish to assure in the future and which to avoid. To describe and measure in systematic fashion what has happened in the course of industrialization is certainly the minimum goal of the study discussed here.

How industrialization happened is a question that immediately raises difficulties which make it improbable that more than partial answers will be provided or can be expected. For as the question is understood here, its exploration requires the identification of the various active agents - individuals, enterprises, other institutions, the state - whose decisions actually initiated the process of industrialization and whose drives, resistances, hopes and fears determined its course. To trace these decisions and the attitudes underlying them is far from easy; and what is more important, they do not lend themselves to objective study as do the outward aspects of industrialization recorded in answering the question "what has happened." The outline for the country-by-country studies does call for evidence bearing upon the question of "how did it happen" - with particular emphasis on the role of the state and on changing attitudes of various socio-economic groups towards industrialization. But it cannot be expected that either the evidence or analysis in the study will succeed in providing as complete an answer to the question "how" as they would to the question "what".

Since a full explanation of why the industrialization process occurred in the areas and at the times it did occur requires full knowledge of what has happened, and who made it happen and how, the studies planned cannot be expected to deal with this question directly. They will contribute a great deal of organized information and analysis, without which any explanations of why industrialization occurred would perforce be reduced to vague hypotheses and shaky conjectures. But one cannot and should not expect the studies themselves to provide such explanations, in an elaborate and reasonably conclusive form.

It is particularly important to agree on this view of the studies as guide in selection and emphasis that must be made by the scholars responsible for them. Unless such a guide is provided, there is the danger that the inquiry will prove much less useful from the standpoint of the United Nations than it otherwise would be. For if the scholars
/responsible

responsible for the studies feel that they are expected to provide causal analyses and elaborate theories of industrialization, it might affect the thoroughness with which evidence is assembled and organized - if only because it will divert time and effort from that main task. However much insight one may expect from such theoretical explorations by competent scholars, the major need in the field at present is more rounded and organized knowledge of the various facets of industrialization in the diversity of its historical occurrence. And in planning the studies, it is crucial to accept the paramount priority of such systematization of objective evidence as over against theoretical hypotheses as to causes of industrialization. The latter will inevitably rest upon shaky foundations; and their validity cannot be properly evaluated without that rounded knowledge that would be sacrificed for the sake of elaborating the hypotheses.

This does not mean that the assembly and presentation of evidence, the major task of the studies planned so far, should be made in complete ignorance of the theoretical structure of the problems involved, in so far as such theoretical framework is provided by already existing studies or by the thinking of investigators engaged. No proper organization of the evidence is in fact possible, except with relevance to some preliminary notion as to the importance of various factors in determining the course of industrialization; some preliminary hypotheses as to the nature of the relations that exist among these various factors. But there is a world of difference between using such hypotheses in their full variety, as guides in the organization of objective evidence - which can then be used to revise the hypotheses or formulate new ones; and selecting some specific hypothesis or theory in advance, as being the most plausible, and then trying to marshal evidence for the particular purpose of buttressing it. The danger of limiting the findings to such partial results of dubious validity is the main reason for stressing, in present planning, the need for answering fully questions as to what happened, and how it happened - rather than why it happened.

The result of such emphasis will assure the value of the studies, when completed, at least as sources of organized information on the course and pattern of industrialization; on the specific aspects and relations manifested in the past - information that would be as reliable as the basic sources permit. If, upon completion of the studies, it seems desirable to push the analysis closer to a causal theory, the advisability
/of doing

of doing so and the extent to which it can be done without loss of objectivity will, and can be, explored. At the present stage of thinking, it seems more important for the studies planned to provide the important factual background in a manner most useful as a guide in consideration of policy problems and as the broad foundation upon which valid theoretical explanations must rest. While this may seem a counsel of moderation disappointing in the curbs that it imposes upon possible flights of intellectual imagination, one must urge it in all humility in full cognizance of how unreliable the mind is unless buttressed by objective evidence - evidence sufficiently tangible both to restrict imagination and give it a solid base upon which to rest.

One final comment is perhaps not superfluous. It may seem that the general approach followed in the present document is altogether too elaborate; that it calls for vast intellectual resources that can ill be spared from work on pressing current problems; and that the prospective yield is rather meager relative to the costs, since it promises nothing more than a body of organized evidence - not direct answers to specific policy problems nor a theory that would give us the key to the whole industrialization process. These doubts merit consideration that cannot be given fully here. One can only say that narrowing the scope of the inquiry would result in partial and misleading notions, of which there has been a plethora in the past and an addition to which would be of more than dubious value; that the time has come when longer range problems must be considered, and at least some of the intellectual resources capable of dealing with them must be spared from the grindstone of current emergencies; and that the potential yield of such long range studies of wide scope is far greater than one at first imagines. If they accomplish nothing more than greater circumspection on the part of policy makers and closer consideration of evidence in deciding upon development policies, the savings in the way of prevention of waste and misery of false starts or of unnecessarily costly methods will be tremendous. Such savings are likely to outweigh by a vast margin the costs of the inquiry in the way of input of material resources. And if, in addition, the studies yield some positive results that can be embodied in either theory or policy, they will be among the all-too-rare cases of empirical study of social phenomena that serve to add to both the intellectual ordering of the observable world and to the welfare of mankind.

/Part B.

Part B. An Annotated Outline

/I. Growth

I. Growth and Diversification of the Productive System

In any study of a country's industrialization the first task is to record the growth of output, labour force, and capital, and the shift away from agriculture - both being the externally observable characteristics of the industrialization process. Since these are quantitative characteristics, the section calls naturally for statistical data - as comprehensive and as articulated as the supply of basic information for the country permits.

In illustrating the kind of questions that should be answered by the data called for in this part, the following may be listed: (a) how rapidly did total and per capita output, labour force, accumulated reproducible capital, grow? (b) Were there major long-term fluctuations in such growth, and if so what were their timing and amplitude? (c) How did the proportions of the major industrial sectors change, in output, labour force, and capital? (d) Was there a definite sequence among the industrial sectors in the shift away from agriculture? (e) Within the major non-agricultural sectors, which particular industries assumed greatest weight, in output turned out and labour force and capital engaged? (f) What was the contribution of the various sectors to the increase in total and per capita output? (g) What were the proportionate contributions to the growth of total output of the increase in the labour force and of the increase in capital?

Throughout this part particular attention must be paid to those types of production, groups in the labour force, and types of capital that are clearly the result of modern technology. A country may experience an increase in output as well as in the proportion of non-agricultural activities, without at the same time directly profiting from the advance of experimental science and the development of production techniques. Differences in the extent to which the various countries have responded to the latter stimulus are an important part of the account in this part; and such differences can best be revealed in a careful selection of the individual products turned out, narrowly defined skilled groups in the labour force, and specific types of capital equipment to be recorded in Section 4 of this part. The capacity of a country to produce certain types of machine tools, automobiles, radios, and a variety of electrical equipment, even though all these products may not amount to a large proportion of total output; the possession of highly trained and technologically advanced groups in the labour force, although constituting but a minor share of the latter; the possession of some advanced types of capital equipment, even though they account for only a minor share of the value of total capital - all these should be noted, to permit comparison with
/other

other countries in which industrialization, while substantial, may have been limited to the older and relatively less advanced phases of the extension of scientific methods to the problems of production.

The following sections are suggested:

I-1. Over-all Measures

This section would assemble measures of the country's total output, labour force, and capital. The former should preferably be recorded in estimates of national income or product, to be given in monetary values adjusted for price changes - on a total and per capita basis. The labour force should include not only employees but also the self-employed members of the country's active population - including family labour. Total capital should include not only reproducible capital, but also the value of natural resources - both reduced to a constant price valuation. Naturally, the distinctions between market and family labour force, or between non-reproducible and reproducible wealth should be preserved, regardless of further elaboration of the data in the sections that follow.

I-2. Industrial Distribution

This section calls for the apportionment of the over-all totals given in Section I-1 by the major industrial sectors, of origin or attachment. National income or product would thus be distributed by the major industries in which it originated; the labour force by attachment to preferably the same industrial sectors; natural resources and reproducible capital again by the same industrial sectors in which the capital is employed. The emphasis here, as distinct from the sections that follow, is on an exhaustive apportionment of over-all totals, the aim being to show how the country's total output, complete labour force, and total capital were and are distributed among the industrial sectors which, taken together, cover fully the country's productive system. There should also be emphasis on an identical industrial classification for output, labour, and capital - to permit important analysis of productivity trends.

I-3. Composition of Major Sectors

The industrial divisions, customary and feasible in the apportionment of total output, labour force, and capital, are quite broad. For many of them, particularly agriculture, mining, manufacturing, transportation, and perhaps the service sector, more detailed analysis of composition is needed. For present purposes it is particularly important to know the relative weights of the various branches of agriculture, manufacturing, types of transportation, etc. The attempt at completeness of the classification

/should

should be made here with reference to each major sector, not the nation's over-all output, labour force, or capital. Also, it is quite possible that the consistency of the classification for output, labour force, and capital could not be maintained - although it would be highly desirable within each major industrial sector.

I-4. Individual Products and Groups

For many countries over-all totals and distributions of the type called for under I-1 and I-2 will not be available; or if available, will cover only a short period. Data under I-3 will be more abundant, but may again fail to cover some important industrial sectors. For these countries heavy reliance will have to be placed on records relating to output of single products, narrowly defined groups in the labour force, and some specific types of capital equipment. These specific series will also constitute a valuable supplement for countries in which over-all totals are available, although for such countries their major importance will lie primarily in revealing clearly the technological aspect of the secular expansion and industrialization alluded to in the introductory comments to this part.

For countries for which over-all totals are lacking, the series or individual products and groups should serve the double purpose of suggesting the extent of economic growth and diversification, as well as the technological characteristics of the industrialization process. This would mean the inclusion not only of series symptomatic of industrialization proper (output of certain industrial products, ranging from pig iron, steel, and coal to machine tools, electrical equipment, etc., railroad and other advanced transportation services, etc.; existence of highly skilled labour groups - e.g. engineers, electro-technicians, etc.; possession of industrial capital - power equipment, machine tools, etc.) but also series that could at least suggest the changing magnitudes of total output, labour force, and capital. For example, some broad production indices could be used as substitutes for national income measures; estimates of total population as substitutes for over-all measures of the labour force; total power equipment plus land as substitutes for measures of total capital. In the present section, the investigator would have to exercise most freedom and ingenuity, to supplement the over-all totals where they are available by some more specific indexes of industrialization; and to do both the latter and provide some substitute for over-all totals in countries for which such over-all measures are neither available, nor feasible.

/II. Adjustment

II. Adjustment of the Labour Force

The growth of a labour force, well adapted with respect to education, skill, motivation, and mobility to the demands of an advanced industrial technology is a key element in the successful industrialization of a nation. Past studies have perhaps over-emphasized the importance in the process of industrialization of capital accumulation and of the availability of inventions and technological innovations at the expense of under-emphasizing the long-term requirements for an effective and efficient labour force. We deem it important to place in the forefront of the projected studies the recording and analysis of the factors involved in the formation of an adequate labour force to man the industrial system. As already indicated in Part I, labour force here is understood in its broadest sense as covering all persons engaged in economic activity, i.e., including the active entrepreneurs and family labour.

The process of formation of an industrial labour force is partly a matter of the availability of demographic raw material, i.e., the proper body of people of the required age and sex composition; partly of providing this body of people with the necessary personal tools, such as general education and specific skills; partly of organizing the flow of people to adjust most effectively the available labour force to the needs of the productive system, and partly a matter of providing the proper stimuli to the labour force already engaged in specific tasks in the industrial system, stimuli that would assure maximum efficiency in the performance of tasks compatible with social welfare.

This suggests the general range of questions to which the data in this part should serve to provide answers: original distribution of the working population of the country - geographic, occupational, and industrial - and subsequent changes in patterns of demand for labour and employment as related to changes in structure and location of production; the ways of maintaining and expanding the industrial labour supply - rural exodus, other forms of internal migration, immigration abroad; such related problems as urbanization and housing, process of adjustment of the labour force to changing labour requirements; the rise and evolution of the labour market and of labour market problems. The movement of wages and changes in working conditions and in security of employment and the role of labour unions as factors in the labour market would naturally belong here. So would relevant governmental policies - such as the old British Poor Laws, modern legislation on labour exchanges, legislation to control immigration or emigration, or that designed to promote or restrict internal mobility of labour.

/The vast

The vast variety of problems relevant to the present part, ranging from those susceptible of quantitative measurement to ones that can be studied only indirectly, is obviously due to the fact that the labour force is essentially the country's population; and that changes in the modes of its activity have far-reaching consequences affecting the whole mode of life and not confined to economic phenomena proper. Because of this variety of problems, the sections suggested above are guides of more superficial character than in the other parts. They are provided primarily as reminders, and should leave the investigator free to determine emphasis in accordance with his best judgment or to add to the main headings as data and importance of the problems warrant.

The following sections are suggested:

II-1. Demographic Sources

This section calls for data on the size of the labour force; its age and sex composition; its sources in the elements of natural increase (births, deaths, and coming of age); and in external migration (either gain or loss). Comparison with general population data, classified by age and sex, would reveal changing ratios of participation in the labour force - reflecting the changing economic and social conditions that determine the extent to which various demographic groups participate actively in the country's economy.

II-2. Inter-industry Shifts

In this section the industrial distribution of the labour force will be examined over a sufficient period to reveal the movements away from agriculture and into other pursuits. Which demographic groups participate most actively in this shift; what patterns characterize the shifts within the non-farm areas proper; the accompaniments of the shift, in the way of secular unemployment, on the one hand, and problems of urbanization and housing, on the other - are to be considered here. For the countries that received substantial immigration, the distinction between the patterns of movement of the immigrant and of the native labour force is important; for the countries that lost emigrants, one should consider to what extent the possibility of emigration facilitated adjustment of the domestic labour force to changes in the demand for labour associated with industrialization.

II-3. Employment Status

This section deals with the distinction between the self-employed entrepreneurs and all employees. But further distinctions within each group are important. As among the employees, the position on the scale of the ladder from the unskilled wage-earner to the manager of a huge
/corporation

corporation should be subject to classification. Among the self-employed, family labour should be distinguished; and among the entrepreneurs the size and character of the individual firm is of obvious importance. The extent to which analysis in this section can be pushed forward in direction of revealing the structure of industry that engages these various groups of the labour force cannot be specified here; but requires careful consideration on the part of the investigator.

II-4. Quality and Training

A wide variety of information and analysis are comprised under this heading. The simplest classification would distinguish health, literacy, educational level, and level of skill indicated by occupational affiliation. That the evolving of a labour force effectively adapted to the needs of an industrial economy is contingent upon marked upward trends in all these aspects, from the levels that characterize the labour force of a pre-industrial economy, is fairly obvious; and these trends should be recorded and analyzed. But in addition, there is the association of industrialization with the use of scientific technology and with the consequent formation of increasingly complex managerial units. This requires staffing with personnel of high levels of professional or managerial skill, personnel which then plays a strategic role in the productive system. Some attempt should be made to single out the groups (professions, managerial personnel and the like) that occupy such strategic position, and trace their emergence. Attention should be paid to the extent to which in countries that enter the phase of industrialization relatively late this strategic personnel is supplied from abroad, often in connection with foreign lending; and then replaced only gradually and with some difficulties by personnel native to the country.

II-5. Conditions of Employment

This section deals with fluctuations in and security of employment, hours of work, conditions and intensity of work, modes of compensation, rates of compensation, and attendant conditions of life forced by attachment to a given job. The scope of this section is perhaps best suggested by the questions that it might serve to answer: has the number of hours in the older sectors of the economy increased, thus removing what may be characterized as concealed under-employment in pre-industrial conditions (e.g. in agriculture)? When did the decline in working hours in the newer industries begin, and how great was it? Was there any definite change in the modes of compensation of employees, and if so what were its character and presumptive purpose? Is there any evidence of changing
/intensity

intensity of labour? Is there evidence of increased cyclical and secular insecurity of employment, associated with industrialization? These questions suggest trends in conditions of employment which were connected by observers, often on the basis of experience limited to one country (particularly Great Britain), with the process of industrialization. It is important to have these trends tested in the light of varied experience in several countries.

II-6. Attitudes and policies

Since the changes in the use of the labour force affect such a large part of population and necessarily are a matter of concern to society as a whole, both the state, and semi-voluntary organizations such as trade unions, have evinced active interest and left the record of it in the form of legislation, formal or informal. This section, therefore, deals with a broad range of questions, the width of whose scope could be indicated by a mere listing. Policies were adopted and exercised with reference to: admission to the labour force, ranging from exclusion of certain groups (e.g. women and children) to requirements of professional skill for licensing, etc; immigration and emigration; internal mobility of the labour force - facilitating some types of adjustment and inhibiting others; literacy, education, whether general or technical, and the assurance of an adequate supply of strategic personnel; hours and conditions of work; controlling modes of payment, dealing particularly with prohibitions of truck system of payment, and in recent years developing in the direction of minimum wage legislation; providing assistance in dealing with problems of insecurity and unemployment; encouraging the peaceful settlement of wage disputes.

This list, already long, could easily be extended. Clearly, only the milestones in the long development of proper social policy, by the state and other agencies, on the matter of securing an adequate labour force and of providing it with proper conditions of work, can be indicated. In indicating these milestones, it would be particularly important from the viewpoint of further analysis, to show how these steps were made; who were the leading agents in securing them; and how the obstacles to their acceptance were overcome.

III. Material Requisites of Production

Industrialization meant (a) a different use of land; (b) a marked extension in exploitation of natural resources; and (c) a vast accumulation of reproducible capital. The present part deals with trends in the supply of these material requisites of production.

/(a) Industrialization

(a) Industrialization has affected the use of land in various ways; and since an overwhelming proportion of economic activity in pre-industrial countries is connected with land, what industrialization means in this connection is a matter of major importance. In most industrialized countries the amount of land brought into use increased considerably, due partly to increase in population, partly to greater accessibility, partly to capital expenditures on reclamation and irrigation, and partly to use of equipment that brought formerly submarginal land into economic use. Furthermore, and perhaps more important, the distribution of land among various types of use shifted markedly - with respect to products cultivated, size of productive units, conditions of tenure and the like. No study of industrialization can overlook the changing use of land as the basis for considering the consequent drastic modification in agriculture - the basic industry of the pre-industrial economy.

(b) The importance of natural resources, other than land, in facilitating industrialization has always been recognized and perhaps even over-emphasized. But it is not clear to what extent the existence of such resources is indispensable to successful industrialization. Naturally, if the latter is identified with the development of a huge steel-steam-oil-electricity complex, a country must have adequate supplies of at least coal and iron ore of the proper quality to become industrialized. But if one uses the broader definition of industrialization followed here, it is far from certain that natural resources are an important limiting factor - given the situation that any large country is usually endowed with some scarce resources that can become the basis of a substantial proportion of its industries.

A second problem here is the state of our knowledge of these depletable and irreproducible resources, particularly of subsoil minerals. Such knowledge is never complete; and a perusal of the technical literature conveys the impression that the estimates of existing reserves are a function of use - in the sense that the less use, the smaller the estimated reserve. This paradoxical result is due to the fact that exploration of reserves is a costly business and if left to private enterprises, is not pursued beyond a certain ratio to current use as warranted by market conditions. Relatively complete knowledge of reserves can be secured only if some non-business agency participates in and is ready to devote considerable resources to exploration. Even so the chances are high that the reserves will be under-estimated, since it is exceedingly difficult to assign adequate

/weight to

weight to results of future exploration once it begins in earnest; as well as to the effects of changes in technology on the economic accessibility of natural resources that now look too remote or too poor to be seriously considered. One of the tasks here is to provide a historical survey of successive estimates of reserves of important mineral resources; and in the process of their analysis to shed light on the character of the information thus secured, and its significance in any future planning.

The third aspect of supply of natural resources relevant here is the effect of any presumable shortages on international economic policy. Fear of scarcity of the more important depletable resources has often been viewed as a strong motive behind the policy of industrial states designed to secure, from some less developed countries, exclusive rights to scarce resources possessed by the latter. While foreign sources of all imports must be considered in the present part, the non-reproducible character of natural resources makes it important to emphasize them particularly in any analysis of dependence of a country's industrialization upon foreign sources.

(c) The growth in the volume and complexity of reproducible capital employed in the process of production is a most conspicuous feature of industrialization; and has been one that has perhaps attracted most attention in the past. The course of capital accumulation has ordinarily been viewed and can conveniently be approached from three standpoints:

(i) the increase in the stock of material wealth used for production purposes, with distinction among various types of capital by industrial use, durability, complexity, etc.; (ii) the disposition of capital among various agencies in the economic system (various types of business enterprise, government, individuals, etc.); (iii) the sources by which capital accumulation was financed, with consequent claims to the receipt of income yields that it may produce and less so to the management of it (covered under ii). The present part concentrates on aspect (i).

On the level of considering reproducible capital as a stock of material goods indispensable to the productive process, the main task is to secure quantitative records relating to both aggregate and specific complexes of capital goods - measures that could be used for analysis in conjunction with data on other productive factors, on output, and on other aspects of capital accumulation. Capital as used here includes not only producers' durable equipment (buildings, machinery, and the like) but also inventories of raw materials, semi-fabricates, and finished
/products.

products. Clearly, as in the case of natural resources, foreign sources of commodity capital, via imports, are to be taken into account - not only imports that added to the stock of capital goods within the country but also those that flow into consumption. Imports from abroad, like natural resources and capital within the country, are among the material requisites of a country's production.

The major sections suggested for this part follow the order of discussion just indicated: land, other natural resources, reproducible capital. However, imports are segregated for separate treatment, and a separate section is also provided for the essentially non-quantitative story of the variety of policies, formulated and followed by the state and other organizations, relating to the use of land and of other natural resources; encouragement of accumulation of reproducible capital; and imports.

III-1. Changing Use of land

This section ranges from the basic data on the amount of land, distributed by its most important uses (cropland, forest and timber land, grazing land etc.), and the proportion of population to it, to the more difficult problems residing in the institutional and economic characteristics of agriculture based on land. Changing amounts of land under cultivation; changing distribution of such land by the type of culture practiced on it; changing allocation of land among various agencies (private enterprises, the state, etc.); changing distribution of land among farm enterprises of varying size and type (by tenure) - all of these are key trends in the industrialization process, observed with particular reference to the role of agriculture in the latter.

III-2. Other natural resources

The basic data called for in this section relate to estimates of reserves for each important mineral resource, in the historical succession of such estimates and with a careful distinction between proven, probable, etc. These estimates, as well as those of current and past depletion, are to be in physical units, with some indication of quality; and in the case of related items (e.g. all fuels), are to be converted to units of service in use. Conversion of estimated resources to years of probable use, under current or assumed conditions of use, is also to be provided. In addition to domestic natural resources, sources and modes of access - either by imports in regular trade channels or by more legally binding forms of ownership abroad - to foreign natural resources are to be indicated. Of particular importance

/is the problem

is the problem whether increasing industrialization did or did not intensify such dependence upon foreign sources; as well as the extent to which an ample supply of domestic natural resources was a vitally determining factor in the success of industrialization.

In this section emphasis is to be given to non-reproducible and depletable resources. The limitation to depletable would, however, bar water power resources which should be included. Other non-depletable resources (rivers, coast lines, etc, and e.g. climate) are extremely important; but they constitute a constant factor, which is fairly well known and which need not be stressed in the present study concerned largely with the long term changes that constitute or underlie industrialization.

III-3. Reproducible capital

This sector of total wealth may well have been covered more adequately in part I than any of the material requisites of production discussed in the present part. In that sense, the data, discussion and analysis under the present heading, in which reproducible capital is still viewed as a congeries of physical assets, (rather than from the financial or other standpoints), are supplementary to those in part I. Here considerably greater attention can be paid to various types of reproducible capital (structures, machinery, inventories); to a more detailed industrial breakdown, both as to industries producing or contributing to the production of the capital and as to industries using it; and to a more careful study of the historical trends in capital accumulation.

Particularly important here and not emphasized in Part I is the extent to which the building up of reproducible capital, especially of an advanced technological character, came from foreign sources and may have been accompanied by the usual consequences of such dependence.

III-4. Imports

The share of these in the supply of non-reproducible and reproducible capital has already been emphasized under III-2 and III-3. But in addition imports of all goods should be recorded, and the trends of the shares to total domestic supply studied - for these are also material requisites of production; and their availability from foreign sources must be noted.

With respect to these foreign sources, the degree of concentration and hence of dependence of a given country upon imports from a limited number of foreign sources is particularly important. So is the question

/as to what

as to what particular sectors of a given country's economy are particularly dependent upon foreign sources. One may note that the shift in the character of imports accompanying industrialization, from emphasis on highly fabricated products to that on raw materials, changes the character of dependence, but does not in and of itself make it any less binding.

III-5. State and other policies

This section, deals with policies laid down by the state, and backed or qualified by other organizations, with reference to use of land; exploration, ownership, and exploitation of natural resources; promotion of inventions and encouragement of accumulation of reproducible capital, particularly of the advanced technology type; and imports. It may well be advisable to treat of these policies separately under each of the four sections already indicated in this part, in close conjunction with the data relating to the long term trends in the availability and use of these material requisites of production. The mention of policies under separate head here is in the nature of a reminder, not of insistence on completely separate treatment.

With reference to capital and other requisites of production, not only the state but many other organizations are also of some, if of lesser importance. Group and class interests connected with use of land and of other natural resources with spread of technological knowledge and accumulation of reproducible capital with imports have all been active, both in formulating attitudes and trying to have them accepted by the body social. All of such activities, insofar as they serve to account for the broad trends in the use and accumulation of material requisites of production, or for the absence of such trends where objective conditions have apparently warranted them, should be within the focus of attention of the investigator.

Some of the problems closely related to the present part, particularly those dealing with the spread of modern technology, are outlines for treatment in part VI.

IV. Financing of Expansion

This part deals with the following key questions in any study of patterns of industrialization: (a) from what sources was capital accumulation financed? (b) by what channels were small individual savings mobilized and directed to that part of the economy needing additional capital? (c) how did the organization of the savings and financing mechanisms affect the supply of savings and their direction
/into investment

into investment in various industries? (d) what was the relation between the distribution of private income by size and among various socio-economic groups and the volume of savings by individuals, as well as the channeling of these savings into various investment outlets? (e) what was the relation between the industrial and organizational structure of business, and the sources and destination of business savings? (f) what role did the state play in mobilizing savings and channeling them into investment? This list of questions can easily be expanded, but the illustrative examples above are sufficient to indicate the range of problems to be illuminated by data called for in this part.

A glance at this field of domestic financing of capital expansion suggests a great imbalance in it between the meager supply of directly relevant quantitative data and the abundance of monographic studies of various credit and other institutions, that act as assemblers of savings (and on some theory, as producers of them via forced savings resulting from credit creation) and as judges among alternative investment channels. The ultimate organization of data in this field will, perhaps more than in other parts, be a matter of trial and error. We can only emphasize here the need for comprehensive statistical records of the volume and composition of savings by source, and of the major channels by which such savings are directed towards investment in the producing system. If, in addition to such records, analysis of the characteristics of the financial agencies in the field is feasible, all the better. But from the viewpoint of the present study the quantitative account is of primary importance; a historical discussion, in verbal terms, of the major financial institutions cannot be substituted for it.

In addition, there is, of course, the whole realm of foreign capital funds. Past studies in the field assign an important role to capital investments by the more developed countries as a factor in the industrialization of the less developed countries. Whether such a role accords with facts, as revealed by empirical data, remains to be seen. Whatever may be said of the political significance of foreign capital investments i.e. of the consequences of such investments to the political life of at least some debtor countries, one may question the crucial importance of their economic contribution.

At any rate, it is a problem still to be thoroughly investigated in the light of available evidence.

Another facet of the problem on which the data in this section should shed some light is that from the viewpoint of the creditor rather
/than debtor

than debtor country. At what point in the industrialization process does pressure for making investments abroad emerge? What determines the volume of such capital investments, and what is their origin in the productive and business system of the creditor economy? Is there any association between the past (and perhaps even current) experience of the given country as a debtor on the international capital investment account and its drives and policies as a creditor?

The evidence in the field suggests that foreign capital investments are perhaps less affected by purely economic forces than other aspects of industrialization; but do reflect political and other pressures. Countries which reveal a fair amount of economic rationality in the internal behavior of their economies and in short term international transactions (such as trade in commodities) that do not involve long term commitments, act quite differently in the case of long term foreign capital investments. Whether such subjection of international capital flows to non-economic compulsions is only a surface impression that might be dispelled by closer analysis is hardly a question that can be fully answered by the evidence to be provided here. Here we must set the much more modest task of assembling the main evidence in the field, as much of it as possible in quantitative form, to portray the volume and composition of foreign capital investment that accompanied industrialization in the given country; as well as to indicate the political and other corollaries of such investments.

The following sections are suggested:

IV-1. Volume and Sources of domestic savings

In this section the volume of savings and their origin within broad categories of domestic sources - individuals, non-profit institutions, business, government, would be treated. The measurement and analysis would then be extended within each broad category. For individuals, the volume of savings originated at the different levels of income distribution by size, or with different socio-economic groups would be distinguished; and cash savings or savings of the type available for investment outside of the individual's household be distinguished from immobile savings. For business enterprises, gross (including depreciation and other reserves) and net (undistributed profits, savings), preferably excluding individual firms that would be best treated with individuals, would be covered. For such savings both the magnitude and the form which they assume within the enterprise (addition to cash or credit balances, inventories, reduction in debt, capital /equipment,

equipment, etc.) would be recorded. A similar analysis would cover non-profit institutions. For governments, savings would assume the form of excess of current receipts over current expenditures; and become embodied in some form of capital investment by the government. Quasi-business enterprises under government auspices would be treated like business enterprises, although kept separately in the account.

IV-2. Volume and sources of foreign capital

While the emphasis here is on foreign capital funds placed within the country, this section also comprises capital funds placed by the country abroad. In either case, the volume, source or destination abroad, the character of the lending - short or long term, direct or indirect, are to be covered. Non-economic aspects of foreign investments, such as various conditions that may bind the use of funds within the country or of a given country abroad, are to be particularly noted. The experience with foreign investments, distinguishing sectors of the economy favoured by this category of savings and the record of payments and defaults are also to be singled out for attention - more so than in the case of domestic savings placed within the country.

IV-3. Channels of placement

This section deals with the various types of credit and other institutions that take care of the placement of savings, largely those of individuals but also of some part of business savings - whether they come from within the country or from abroad; whether they are invested within the country or elsewhere. The structure of savings by the channel of placement is of considerable importance insofar as different channels of placement are, by legal or institutional barriers, restricted to investment of savings in some limited sectors of the economy (cf. insurance companies, particularly life, and trustee funds). The extent to which a quantitative record of savings by channel of placement can be secured depends upon the available data. But even in absence of the latter, an appraisal of the country's credit and other institutions from the viewpoint of their effectiveness in both mobilizing savings, or attracting them from abroad, and of their skill in selecting the proper investment channels for the savings thus mobilized, is of obvious usefulness in analyzing this particular factor in industrialization.

IV-4. Relation between sources and destination

Some types of savings are of a character in which their source predetermines the place in the economy in which they are bound to be
/invested.

invested. In pre-industrial countries in general the tie between sources and destination would tend to be much closer than in the developed industrial countries - which may be one reason why neither the volume of savings, nor the economic effectiveness with which they are used are relatively as great as in the developed economies. The statistical tie-in between the sources and destination of savings is extremely difficult, and it cannot be reasonably expected that it would be feasible, except at very infrequent intervals and in very few countries. Nevertheless, attention should be paid to this point; and the line of analysis from origin of the savings to their use in finance, i.e., to provide the economic power for expansion in specified sectors of the country's economy should be drawn, no matter how tentatively.

IV-5. State and other policies

In almost all countries the state played a strategic role in assuring the proper functioning of credit institutions as mobilizers and placers of savings, either by regulating them or by assuming some of these functions itself. In any account such as the present the analysis of measures designed to assure the proper flow and investment of savings should be disentangled from the wider complex of policies dealing largely with currency and price level problems. The state was likewise important with respect to foreign capital investments, either in the way of providing proper guarantees for attracting such investments from abroad; of regulating the latter when they have been made; or of controlling and supervising any lending from the given country abroad. All these measures and policies are to be recored, at least in broad outline; and appraised, as to their effectiveness in assisting the country's industrialization.

The private business system of the country has also contributed greatly to the evolving of forms and institutions that would effectively mobilize savings in the service of economic development. Some of these whether originated by industrial enterprises proper or by the financial institutions, are to be noted - with an indication of the specific circumstances that stimulated them and the particular problems which they served to solve. The variety of financial institutions, on the one hand, and the complexity of various types of business unit organization in the production field proper, on the other - both characteristics of developed industrial economies must be taken into account, as an important factor by which the specific conditions under which savings originate with various economic units and the specific conditions under which they must be used in the productive system have been harmonized in the direction of maximizing savings and investments. A complete account of these types, forms and policies would be extremely difficult, if not impossible; but at least a bird's eye view of the most important elements would be feasible and useful.

V. The Disposition of Output

The output of an economy, even if strictly defined as to netness, flows to at least four major categories of purchasers: individuals and households viewed as consumers; business enterprises viewed as purchasers of net capital additions; the state and other non-profit enterprises viewed as purchasers of net additions to capital under their management; units abroad not included in the three categories just listed, who may be net purchasers of the goods of a given country. If, in order to study more closely the mechanism and dimensions of economic development, we use some gross totals of output (gross of capital consumption, of imports, of intermediate product of government), the same four categories may still be distinguished, but the shares of some as purchasers and recipients of output will become somewhat larger.

The present part deals with the important problems involved in the way an economy manages to apportion the output turned out among various categories of agents within the country; or allows some part to flow out of the country to consumers abroad. With the striking increase and the magnitude of total output (net or gross with respect to items mentioned above) being the crucial characteristics and accompaniment of industrialization, how is this larger output 'sold' (using the term in the broadest sense) to the various categories of purchasers? What proportion flows to individuals and households within the country, its ultimate consumers, and how do they manage to secure the means with which to purchase this increasing output? What major categories of consumer goods can be distinguished in the output, and are there any major shifts in the distribution of consumer goods among these categories as industrialization progresses? What proportion of total output is accounted for by business capital formation, gross or net? What proportion of total output, gross of intermediate product of government, flows to government? Is there always an increase in the proportionate share of government as a result of industrialization or urbanization, and how widespread is it? What proportion of total output, gross of imports (of commodities and services) is accounted for by all exports (of commodities and services) and have there been any common trends in these proportions with the development of industrialization in the different countries? These questions are illustrative of the problems with which the present part deals.

The area is clearly so wide that thorough coverage is impossible. The processes and institutions involved in the flow of goods from the productive system to the country's ultimate consumers (individuals and /households

households) are a complex network of business agencies engaged partly in production, partly in transportation and trade, and partly in financing; of governmental and public agencies concerned with the welfare of consumers and the proper relation between participation in production and participation in consumption; of deeply rooted patterns which govern the mode of life, and hence the mode of consumption, of the individuals and households that comprise the nation. The levels and long term trends of the shares of output secured by business enterprises in the form of business capital formation are the result of intricate interaction between technological factors that determine the necessary ratio between capital stock and current output; social and economic factors determining the rate of growth in current output that is wanted from business enterprises; and the shifting weight of various branches of the productive system under business auspices, branches characterized by different ratios of investment capital to current output. The demands of the state for economic goods, whether in the short or the long run, are affected by a great variety of factors, many of them non-economic in character, ranging from the relatively simple ones of greater need for public services as results of urbanization and of growing complexity of the economy to the relatively unstable forces that determine the needs for armaments - for internal security or external defense and aggression. It cannot be expected that the present study would succeed in laying bare the complex of factors as they determined the longer trend accompaniments of industrialization in the way output was distributed to be used by consumers, business, and government. But an attempt should be made at least to record these trends; and to discern the institutional and economic framework by which the sale or distribution of output to these major groups of users and for major categories of use was accomplished.

The following sections are suggested:

V-1. Volume and Composition of Output, by Major User

This section deals with the basic allocation of output among ultimate consumption, business capital formation, government purchasing, and exports. Within each category further major segments, by type and function of product can be distinguished. In the flow of goods to consumers, the broad categories by durability and type of need satisfied; in domestic business capital formation - by character of the capital goods; in the flow to government - by social function the goods intend to serve; in the flow of exports - by type of product, relating to the general categories of domestic output.

/V-2. Distribution

V-2. Distribution of Consumer Goods

This section deals with the economic mechanism by which the individuals and households who comprise the nation were, in the course of industrialization, provided with an increasing volume of goods for the satisfaction of their wants. The relation between distribution of income and consumer expenditures, by size of income classes and by socio-economic groups; the structure and organization of the distributive and transportation system which bridges the space, time, and other gaps between the output of consumer goods and their final destination within the ultimate consuming units; the gradual marketization of this flow and the effect of urbanization, with the attendant dependence of the consuming unit on its position in the pecuniary network of the economy - all of these trends and relations are within the purview here. The pressures put upon individuals and households to increase their consumption, to provide a wider basis for economic growth under some conditions of organization of society, or to reduce their consumption, while still participating actively in production, under different systems of organization of the national economy, should be clearly set forth.

V-3. Flow to Business Enterprises

The additions, gross or net, to capital of business enterprises out of current output, are the main topic of this section. Some of this material may already have been covered under accumulation of reproducible capital in Section III-3; and the financing of such additions in part IV. Nevertheless, it is of value to consider it here as a category in the distribution of current output; and particularly attempt to relate it to the current flow of total output. The level of the share of business capital formation to total output, or to the part of it accounted for by business enterprises; and the trends in that share in the process of industrialization are of importance. In the underdeveloped economies the problem is one of explaining the low level of this share and the factors that might have to be overcome in order to raise it. In the developed industrial economies, the declining trend of this share suggested by many observers, is to be investigated; and its causes and implications explored.

V-4. Flow to Government

This section deals with the part of current output, gross or net, that flows to government. Its proportionate magnitude, the trends in such magnitude; the shares by the major function which government perform; the methods by which the flow is financed, and the implications for the longer term development of the country's economy are to be explored.

/A somewhat

A somewhat distinct problem is presented by enterprises conducted under government auspices, but managed on quasi-business principles - i.e., with an attempt to sell the product at prices adequate or more than adequate to cover directly involved in turning out the product of the enterprises. This sector could, perhaps, be most properly treated under Section V-3, as a distinct group of business enterprises.

V-5. Flow into Exports

Here a comparatively full account of the share of total output, gross of imports, that flow abroad - either commodities or services - is to be given. Broad categories of commodity exports and of services delivered abroad, as well as some important single commodities (raw materials, key types of equipment, and the like) are to be distinguished. The proportions of such exports to domestic output, either in broad groups or for the important single commodities, are to be established; and the trends in such shares studied. The main destinations of exports are to be distinguished, in order to trace the lines of dependence upon foreign markets. The emphasis is on exports, not only as one of the ways in which a part of the growing output accompanying industrialization is 'sold', but also as exhibiting the changing character of the relation of the given economy to the rest of the world. Is industrialization accompanied by diversification of exports, both as to their composition and as to the countries of destination? Is it accompanied by an increase or decrease in the relative proportion of exports to domestic output?

V-6. State and other Policies

Both the state and other organized groups in the economy are concerned with the ways in which an economy's current output is distributed among the various categories of claimants or purchasers. Legislation and voluntary activities relating to protection of consumers, furthering of business capital formation, and stimulation of exports have a long history. In that history the most important single problem, at least in the developed industrial economies, has been to prevent monopolistic domination of markets, to the detriment of the general body of consumers and of the free enterprise that would lead to the most efficient use of technological opportunities. The emphasis in this section should, therefore, be not on state policies relating to its own budget, but on state and social policy designed to assure an efficient flow of output from the productive system to the purchasers. The field for consideration here is therefore, quite wide. The study will have to make the proper

/selection

selection of the major policies to be considered. Two groups of such policies can be suggested, judging from a brief glance at the field:

- (a) policies designed to protect the consumers and business enterprises, in the way of assuring them a buyer position on a free and relatively honest market;
- (b) policies designed to assist the domestic enterprises in their efforts to expand foreign markets.

The former group of policies ranges from relatively minor items such as the proper labeling of products to major and complicated matters such as anti-trust policy; the latter ranges from minor items such as permitting associations for the promotion of foreign trade to major policies such as the use of the force to provide lasting protection for the country's traders in some other parts of the world.

VI. The Agents of Industrialization

Industrialization is, in the immediate order of consideration, an extension of modern technology to problems of production (the latter term understood most widely). It, therefore, requires a sufficient spread of technical knowledge and skill, of the 'know-how' and this means in turn that in some way or other a country that becomes industrialized accumulates knowledge sufficient to solve the various problems that arise in adapting the available techniques to the specific production tasks in the specific conditions of the country. Some account of how such knowledge is acquired, in addition to whatever data tell us about the emergence of industries embodying modern technology or related facts on the movements of products, workers, or financial capital, is required in the present study; and is suggested as one of the topics for consideration in the present part.

Furthermore, industrialization, being of profound and far-reaching consequences not only to the economic but to the whole social life of a country, usually means that some groups gain the process; and others lose, at any rate in the short run. In the older countries, particularly, industrialization means a violent and painful dislocation of established economic and social patterns, and imperils the intrenched positions of some social groups. Naturally, industrialization is resisted by these groups; and will be carried through successfully only if other groups, cognizant either of its long run benefits to society as a whole or of its short-term benefits to themselves, are strong enough to overcome opposition and to prevent any attempts by the opposition to stifle industrialization in its infancy. In any account of industrialization, the analysis of the
/role of

role of these active agents and carriers of the process and, in so far as possible, of the conflicts of opinion about it is indispensable.

Finally, as industrialization accomplished a marked transformation of material conditions in the economy - of production, distribution, and consumption - there inevitably follows a concurrent change not only in economic motivation, but also in the place of economic values in the whole set of values that govern social life. This change in economic and social values may differ from country to country, as result of differences in historical heritage prior to onset of industrialization and of differences in the governing institutions under whose auspices industrialization has in fact been carried through. But it is possible that through all such diversity of value changes accompanying industrialization in various countries, a diversity that must be clearly recognized and considered, there are some strands of similarity. Thus one can suggest that in general there must have been an increased emphasis on economic values as an accompaniment and effect of industrialization; and a lowering in the scale of other social values associated with status positions in pre-industrial society. Another example of a common tendency is the greater spread of common economic values through society as result of the closer ties among its various parts that resulted from the greater integration of the economy through the development of means of transportation, communication and economic organization that are part and parcel of the industrialization process. It would be one of the tasks in the present part to indicate at least the broad outlines of the changes in economic motivation, and of the position of economic value in the whole set of social values, that accompanied industrialization in the given country.

The three groups of problems and questions just suggested for consideration in the present part hardly lend themselves to quantitative study; and appear to be among those least explored in past studies in the field. For this reason not only is the classification into sections suggested below of the most tentative order, but, even the notes under each section head are of only suggestive value. In this whole area the widest discretion is to be left to the investigator conducting the study; and the greatest reliance will have to be placed on his ability to find an approach to the problems that would permit of effective handling, compatible with assurance of objectivity of the analysis.

The following sections are suggested:

VI-1 Carriers of technological knowledge

This section would try to identify the various means by which
technological

technological knowledge has been adapted to the needs of the country. The course of inventions within the country, reflected quantitatively in some countries in the patent statistics and sometimes identifiable on an individual, single invention basis; the promotion of technological research under private, public and governmental auspices; the changes in social attitude towards technological change, particularly the shift from opposition to tolerance on the part of labour; the timing and concentration of technical advance as it has affected the several industries of the country, whether such advance originated outside or within the country - are illustrative of the topics to be treated here. One must also pay particular attention here to the problem already noted under II-4, the role of foreign technical personnel in countries that entered the phase of industrialization relatively late in its spread across the world. The discussion in this section should be linked with that in section II-4.

VI-2 Agents of industrialization

This section deals with the emergence, identity and role of the groups that served as spearheads of the industrialization process, in the sense of breaking through the various obstacles and taking the chances on success of industrialization ventures. Domestic entrepreneurs, foreign entrepreneurs, the state are among the groups that come most easily to mind; but they had various allies - the groups concerned with the strength and growth of their country, but not actively engaged as either entrepreneurs or state officials; professional groups concerned with application of modern technology, but not in an entrepreneurial position. The emergence of all these groups within the country; their activity in actually carrying through key industrialization projects or in paving the way for them; the duration and conditions of their service as active agents of industrialization, with particular attention to the danger of their becoming obstacles shortly after successful accomplishment of some task - are topics for treatment here. The conspicuous personalities in the process - the captains of industry, the great economic statesmen, the great propagandists of the new economic and technical order - are easily identifiable. The analysis, however, should go beyond them and try to survey the emergence and activity of the larger groups involved.

VI-3 Conflict of attitudes toward industrialization

The present section will try to formulate the major prevailing attitudes and their relative strength, on the basis of records that lend
/themselves

themselves to objective statement only with great difficulty. The records referred to are not theoretical disquisitions on the subject that may appear in various writings by scholars in the social sciences. They are of opinions widely entertained in society, either among distinct social groups or often claiming the basis of a wider consensus. They will be found in the programmes and pronouncements of political parties or of associations claiming to represent the interests of important groups in society; in the discussions within the political bodies of the nation (particularly the legislative) of various problems connected with industrialization; in the writings of people who have claims to social leadership rather than to scholarly attainment; and in the written reflections of timely social issues, particularly those that provoke substantial agitation and lead to conspicuous popular movements.

The problems involved in dealing with this topic cannot be fully foreseen, nor treated here. One can only suggest at present that: (a) at one level of analysis, the threats and promises to group interests extended by the process of industrialization be clearly recognized, and hence the bases of negative and positive attitudes established; (b) at the next level of analysis, the reformulation of attitudes that may have their origin in group interests be again clearly recognized, such reformulation being a conscious or unconscious design to induce society (and particularly neutral groups) to accept a given group's attitude as binding upon society at large; (c) at a third level of analysis, consideration must be given to the mechanism by which the conflicting attitudes are resolved into decisions, subsequently to be enforced by whatever means society has for enforcement. The scheme of approach just outlined is highly tentative, and may be based upon a faulty conception of the relation between group interests, their formulation as planks urged for a nation's programme, and their implementation in legislation and administration. But it is presented here as an illustration of one possible line of approach.

VI-4 Changes in values

This section deals with changes in economic motivation accompanying industrialization, as well as with the shifts in the position of economic and on the scale of social values. That the answers to the questions as to why people work, how highly economic success is valued as compared with success in religion or in public service, what criteria people consider when choosing among various modes of economic activity (for themselves or for their children), have changed for a given
/country

country between the time prior to industrialization and later times seems obvious. The difficulty lies in finding the objective evidence that would support with reasonable acceptability any statements concerning such shifts in value; would permit a more precise formulation of the changes that have in fact occurred than is possible at present; and would serve to distinguish clearly the specific elements of change in motivation and scale of values. It is possible that techniques for dealing with such problems have been evolved in the disciplines of sociology and cultural anthropology; and that some assistance may be secured from them.

While the problem is important, it is easy to exaggerate the role of human and social will in the process of industrialization - and particularly easy to overstate the importance of individual motivation. Naturally, individual will and motivation are of cardinal significance in accounting for all human behaviour, - economic behaviour as a species of the latter, and behaviour leading to industrialization as a sub-species. But there is a genuine question as to whether the dynamic, the changing element that is the engine of industrialization does not lie in the objective factors of cumulative knowledge and social and economic institutions that provide the changing framework within which relatively constant human nature operates. To say that some countries accomplished industrialization successfully because they exerted sufficient strength of will to do so, and others did not because they did not will it sufficiently, is perhaps to put emphasis on the wrong aspect of the complex process of social change. For the question then arises as to why there had been that difference in will; and the answer to that question inevitably leads to an analysis of factors residing in the historical heritage; i.e., the existing and intrenched social and economic institutions, in the supply of natural resources, in the position within the political framework of the world, and the like. In other words, change in motivation and values, while important is itself a factor in industrialization, is also a product of the latter, a reflection of changes in objective conditions whose analysis is the main burden of the earlier parts of the study.
