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RESEARCH ON ECONOMIC DEVELOPMENT

by

Hollis B. Chenery

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Center for International Affairs,  
Harvard University,  
Cambridge, Massachusetts.

## RESEARCH ON ECONOMIC DEVELOPMENT

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RESEARCH ON  
ECONOMIC DEVELOPMENT

A. SCOPE OF THE FIELD

Economic development has emerged as a separate field of economics within the past fifteen years. Its central concern is the process by which economies evolve and increase their productivity. The present interest in economic development stems in large part from the emergence of a large number of new nations whose major objective is to increase their levels of income as rapidly as possible. Along with this growing emphasis on development as a primary aim of national policy has come a great increase in information which makes possible a wide variety of empirical research.

Economic development has also become a major concern of national policy in the more advanced societies of Western Europe and North America. In these countries the central problem is to maintain the relatively high rates of growth that have been achieved in the past and to reduce the undesirable effects of excessive urbanization which typically accompany the development of a mature industrial society. The emergence of new theories of development has also stimulated a reexamination of the history of the advanced countries to identify the similarities and differences between their earlier development and the evolution of the underdeveloped countries today.

The communist countries of Eastern Europe provide a third major group in which the development process shows significant differences as a result of the social structure and economic policies being pursued. There has been a great deal of study of the development of the Russian economy, but only in the past few years has a systematic analysis of socialist development on a comparative basis begun to emerge.

The problems that have received major attention in the study of economic development may be grouped under three heads:

(1) Sources of growth: the relation of increased output to increases in factor inputs (capital, labor, natural resources), technological advance, and institutional changes.

(2) Structural change: shifts in the composition of output, international trade and resource allocation that typically occur in the process of development and the nature of the causal relations among them.

(3) Effects of rising income levels on the composition of demand, the location of economic activity, the distribution of income, the rate of population increase, etc.

A theory of development must encompass all three of these interrelated aspects to some extent and they cannot be treated in isolation. The breakdown is nevertheless useful in considering the research agenda of the field.

Practically all branches of economics have some relevance to the analysis of income growth and structural change, and it is impossible to delimit sharply the field of development. In the study of poorer countries the field of development normally includes consideration of a wider range of topics --

such as savings behavior, fiscal policy, and international trade -- than is customary in the study of growth in advanced countries. The distinction is essentially arbitrary in both cases, and largely reflects the greater amount of empirical work that has been done on the mature economies.

Among other social sciences, the most closely related fields are probably political development and demography. These disciplines utilize a number of the economic magnitudes that are analysed by economists, and in turn study some of the variables that are taken as given in models of economic development. Less closely related are the parts of sociology and anthropology concerned with the process of modernization. Their analyses are normally concerned with smaller social units and their results are not so readily related to the more aggregated variables typically used in economic analysis.

#### B. RESEARCH TECHNIQUES AND ACCOMPLISHMENTS

The techniques of economic analysis have evolved from the study of mature industrial societies. As discussed elsewhere, they include (1) deductive reasoning from purely theoretical models; (2) quantitative analysis in either descriptive or econometric form; and (3) historical analysis. Research on economic development attempts to apply these techniques to a broad range of societies at different levels of development for which alternative basic assumptions may be more appropriate. In addition to adapting the standard tools to a variety of societies, the study of development has led to more systematic use of comparative analysis to

and development processes. The comparative approach is increasingly becoming the characteristic feature of research on economic development; it has in turn stimulated new technical developments in econometric and historical method.

The character of development research and its accomplishments may be illustrated by four major types of study: (1) analysis of development models; (2) country studies; (3) inter-country comparisons; and (4) development planning.

1. Theoretical Analysis of Economic Development.

The theoretical analysis of economic development attempts to show the interrelationship of changes in different economic magnitudes over time. For advanced economies, the main focus of such studies has been to identify properties of optimal growth paths under various welfare assumptions; this type of analysis is treated elsewhere. For the underdeveloped countries, the main purpose of deductive analysis has been to discover various processes by which a primitive economy can start developing and to determine possible causes of changes in the economic structure.

The nature of these studies will be illustrated by three types of theory which utilize different approaches. They have in common an attempt to identify the effects of assumptions that are appropriate for underdeveloped economies but which are significantly different from the assumptions usually made for advanced countries.

a. Dual economy theories. One of the most fruitful types of development model is based on a breakdown of the economy into a modern of capitalist sector and a backward or subsistence sector. In the pioneering study of Arthur Lewis, the process of development is characterized by the expansion of the capitalist sector, a consequent increase in savings and investment, and a transfer of labor out of low productivity rural activities to more productive occupations in the modern sector. This general framework suggests a number of testable hypotheses about the development process, such as the conditions on which surplus labor can be removed from the subsistence sector, the rising rate of savings and investment in the capitalist sector and the behavior of relative prices. These have been explored in a number of empirical studies for individual countries.

b. Balanced growth theories. The notion of "balanced growth" is based on an assumption that complementarity or relatively fixed proportions is the predominant feature of the demand for final goods as well as for intermediate goods used for further processing. On these assumptions, an increase in total income will require that the output of each sector of the economy be increased in determinate proportions, modified only by the possibilities of external trade. On the further assumption that trading possibilities are relatively limited, balanced growth theory implies that an increase in income can only be secured by channeling labor and capital in predetermined proportions to different economic sectors. The failure of market mechanisms to perform this allocative function adequately provides an explanation of lack of growth, and the determination of the proper proportions becomes an essential element in development planning.

This type of theory contrasts with the neo-classical model of general equilibrium, which assumes sufficient substitutability among factors and products and sufficient responsiveness in the economy to allocate resources according to their relative productivity. The several versions of balanced growth theory suggest an agenda for empirical research which has not been pursued very far, so that its practical value is largely untested.

c. Disequilibrium theories. Both the dual economy and balanced growth theories imply that continued development will only take place if capital and labor flow in specified proportions to different sectors of the economy and that the market cannot be relied on to carry out this allocation process efficiently. These ideas are carried further in theories which assume that "structural disequilibrium" is the normal condition of underdeveloped economies and that the price mechanism must be supplemented by government intervention to bring about continued growth.

This diagnosis is used to explain and prescribe for the chronic disequilibrium in the balance of payments that characterizes many underdeveloped countries. A similar set of assumptions leads to a focus on the shortage of entrepreneurs and decision making capacity as the key elements in accelerating growth rather than an overall shortage of capital or natural resources. Most planning models are based on some version of the disequilibrium system, which leads to what may be called a "bottleneck theory" of development in contrast to the classical focus on total resources and technological improvement.

## 2. Countries Studies.

The great bulk of empirical research on economic development takes the form of studies of individual countries. The more traditional studies are largely descriptive; they attempt to put in historical perspective the various factors that have affected the course of economic development. More recently, country studies have become more analytical and have attempted to provide a test of one or more of the hypotheses derived in development theory. A further refinement of this technique is to select several countries which are similar in some respects (e.g. cultural heritage, levels of income) so that differences in development performance can be associated with some of the observed differences in the remaining factors.

Country studies have contributed to the scientific progress of development economics by narrowing the range of plausible hypotheses and focusing on certain problems as being characteristic of groups of countries. The description of the development process in terms of bottlenecks and structural disequilibrium is supported by most studies of countries in the course of development, such as those of Latin America. In this region the failure of market mechanisms and of government policy to maintain equilibrium in the balance of payments and the resulting distortion of the productive structure emerge as more important impediments to further growth than any overall shortage of resources.

A second major characteristic that is highlighted in a number of country studies is the prevalence of regional inequalities and the tendency of development to be concentrated in a few favored regions. This empirical observation has focussed attention on the regional aspects of development policy and the probable conflict between the social goals of maximizing total income and increasing regional equality.

### 3. Intercountry comparisons.

The attempt to develop a separate set of assumptions as a basis for development theory and to go beyond the arbitrary classification of countries as "developed" or "underdeveloped" has led to widespread quantitative analysis of intercountry data. Interest in this approach is heightened by the difficulties and limitations to more traditional types of econometric analysis when applied to underdeveloped countries. The available time series are typically short and unreliable for earlier years, and there has been relatively little success in estimating economic relations from time series analysis. There is, however, a rapidly growing body of data on the principal economic magnitudes for recent years in fifty or more countries.

The main objective of intercountry analysis has been to determine similarities and differences in the economic structures of countries at similar income levels. The work of Simon Kuznets in particular has revealed broad similarities in patterns of savings and investment,

consumption, production, labor use and other structural characteristics. One important result of this type of analysis has been to dispel the notion of a discontinuity between advanced and underdeveloped countries, since virtually all elements show a continuous variation with rising income. A second important result has been to provide a basis for comparing the historical changes in the more advanced countries to the present-day patterns of intercountry variation. The rise of the share of industry with rising income levels is quite similar in both cases, as is the fall in the share of agriculture. Of equal interest are the differences among countries that are statistically associated with their size, natural resources and other characteristics. These findings provide an empirical perspective for further work on development theory and policy.

#### 4. Development Planning and Policy.

The current interest in economic development is largely due to its concern with government policy. A high proportion of research on development is aimed at providing a better basis for decisions on resource allocation and other aspects of long term economic policy.

One of the most significant developments has been the construction and testing of empirically based models designed to determine the choices available to policy makers. In concept, these planning models draw on the techniques of operations research and systems analysis in an attempt to relate decisions on individual aspects

of resource allocation to policy decisions elsewhere in the economy.

Two types of research illustrate the trends in this field. One is the development of multi-sector, economy-wide models of the input-output type, which have now become the analytical core of the development plans of many countries in the process of industrialization. The current use of these models is to determine the consistency among different aspects of a development program, but they are being extended to determine the effects of alternative assumptions and to aid in the search for more effective plans.

A second type of study is concerned with resource allocation in a single sector, such as agriculture or water resources. Earlier work was devoted to applying benefit-cost or other criteria for resource allocation within sectors. The need to broaden the analysis to encompass indirect effects and sectoral interdependence is reflected in more recent studies, which try to bridge the gap between partial analysis and overall planning models.

A notable by-product of research on planning models has been the refinement of the concept of opportunity cost in the form of the "shadow prices" of a linear programming model. From being a fairly esoteric concept ten years ago, shadow pricing has now become a standard tool of development planners.

### C. FUTURE RESEARCH

Development research is gradually shifting from the formulation of general theories based on casual empiricism to the testing of hypotheses from historical and statistical data. A continuation of this trend toward greater scientific rigor is highly desirable. To achieve it will require organization of continuing research groups which can invest in data collection and push the analysis of problems beyond the typical one-man effort.

#### 1. Problems for study.

Almost every problem in economics needs to be re-examined in the variety of conditions that exist in the underdeveloped countries. Priority in this research agenda should be given to those areas in which the poorer countries appear to differ most significantly from the advanced countries and which can contribute most to an overall understanding of the process of development. The following are examples of such priority areas.

##### a. Production relations and the transfer of technology

Since the first requirement of development policy is to raise total output, a better understanding of production relations in both the traditional sectors of agriculture and the newer industrial sectors is needed. Work to date suggests that the transfer of technology from more advanced countries requires a variety of changes outside of the productive unit in order to be effective. Research in this field will

therefore have to look more broadly at the social and economic environment than has so far been possible in most cases.

b. Acquisition of skills. Progress in understanding the sources of increasing productivity has come largely from a better identification of the human inputs into the production process. There is an urgent need to measure the use of skilled labor in various sectors more accurately and to evaluate alternative methods of supplying these skills. No underdeveloped country has made more than a beginning in this type of analysis.

c. Resource mobility. The disequilibrium theories discussed above point to the difficulty of moving resources to areas of greater need and high productivity as being a significant difference between underdeveloped and advanced countries. On present evidence, it is not clear whether this relative immobility results primarily from lack of knowledge, aversion to the risk of new activities, or misguided policies which prevent future needs from being reflected in market incentives. Studies of labor markets, entrepreneurial behavior, and the structure of prices would all contribute to the explanation of this phenomenon.

d. Trade and development. Imports are more critical to developing countries than to mature ones because they supply a variety of commodities that are otherwise unavailable or could only be produced at much higher cost. Imported machinery

is also a major carrier of technological change. Some of the greatest failures of development planning have occurred in the estimation of import requirements and export possibilities. Since relatively little is known about the long-term comparative advantage of underdeveloped countries, efficiency considerations tend to be ignored in trade policy.

e. Taxation and savings. The optimal savings levels derived from formal models are almost invariably considerably above the rates actually achieved in developing countries. Further study of the social and institutional aspects of mobilizing savings should lead to a more realistic specification of savings relations in formal theory as well as to better policy measures.

## 2. Data and Methods.

The results of research over the past fifteen years on these and other important problems must be considered rather disappointing in relation to the interest and activity in the field. The relatively low productivity of much current research stems in large part from its limited scale and lack of continuity. Perhaps three quarters of the research on economic development (like that in other branches of economics) consists of unrelated efforts of single individuals working for six months or a year on different topics. The primary motivation is the publication of journal articles rather than a cumulative attack on the central problems of the field.

Serious work on most of the problems outlined above requires a considerable investment in basic data for individual countries and groups of countries. In addition to the type of statistics normally gathered by governments, there is need for information on firms and households that can only be collected by survey methods. As indicated elsewhere (Morgan paper), there are considerable economies of scale inherent in survey research that make it much more attractive to a continuing research organization than to an individual investigator. Only small beginnings have been made in a few countries (such as India) in developing such information.

Within the next few years it should be possible to have twenty-year series for a number of economic magnitudes on a comparable basis in a large number of countries. This sort of data base would permit the testing of hypotheses as to similarities and differences in the development process, using a combination of time-series and cross-section analyses. These results would provide a much better foundation for development theories than now exists. This approach can also be extended to include political and sociological variables that would permit some links to be made with the study of political and social development.

Models for planning and policy purposes will be improved by the results of the empirical studies suggested above. The focus of policy analysis on the variables that are central to decision making provides a further basis for establishing priorities for empirical work.

### 3. Organization and Financing.

Much of the basic research in economic development can only be done effectively in the countries concerned. There are currently perhaps a dozen significant non-governmental economic research organizations in the underdeveloped countries (notably India, Pakistan, Chile, Brazil, Argentina, Israel, Uganda, and the Philippines) in which a beginning has been made at data collection and systematic research. Almost all of these groups receive American foundation support. There is also a considerable body of governmental research, particularly in planning groups, but only a small portion of it is available to outside scholars.

Foreign scholars wishing to study underdeveloped countries can work much more effectively in association with a research group in the country. Increasing the number of such groups and improving their quality and commitment to empirical work is one of the most important requirements for better research on economic development.

A second organizational requirement is to strengthen research groups in the United States and to support the collection of basic data that can be made generally available. The Yale Growth Center is the leading example of investment in systematic data collection, but its experience is not yet long enough to judge the results of this experiment. It is clear, however, that data collection and analysis should go together and that several data centers with different types of specialization will be needed. The problem of ready access to such data collections on an economical basis also needs to be worked out.

There are considerable economies of scale inherent in most aspects of the basic research program outlined above. The need to collect basic data, to maintain ties with overseas research groups and to develop comparative studies all argue for more organized research. This trend should not lead to the regimentation of individual scholars, but rather to the further development of centers for the comparative study of related problems.

The organizational models for such activities will probably have to be found in the natural sciences. There are few examples in economics of a balanced combination of laboratory facilities (data base, computation center, etc.) and broadly based individual research. The aim should not be to replace the individual researcher but to make it possible for him to work more effectively.

I have not made any detailed estimates of the cost of such a program. Taking rough orders of magnitude, the total volume of non-governmental research on economic development in the United States might rise from an existing level of \$3-4 million per year to \$8-10 million over a ten year period. The critical part of this program would be to stimulate and support the collection of data on a centralized basis for general use. A significant part of the funds would be required to finance data collection and research in the underdeveloped countries.

#### D. SIGNIFICANCE OF THE RESULTS

It is a commonplace that the progress of the poorer countries is one of the major problems of our time. Both technical possibilities and political will make the prospects for finding solutions much more promising than at any time in the past. To a large and increasing extent, the ideas on which economic policy is based in the developing countries derive from research in the advanced countries, particularly the United States. The potential benefits of increased knowledge of economic development are probably as great as in any branch of social science.

Scientific research on economic development has been extremely dependent on American resources and initiative. Not only has specialization in this field proceeded more rapidly in this country, but various types of empirical studies have also originated here. It is a common observation among Latin American economists that they can only get a regional perspective of their own countries by coming to the U.S. for study. With the exception of Africa, the U.S. is also the first choice for economic training of students in most of the under-developed countries.

The effects of this research effort are increasingly visible in the policies of the developing countries. Since **the majority of senior economic officials in the under-developed countries have received their training in** Western institutions, the transmission and acceptance of

new ideas and planning methods has been quite rapid. It is to be expected that these trends will continue, and that the U.S.-based research activities in this field will continue to have a high payoff.

The policies of the advanced countries attempting to assist the poorer nations have also been significantly influenced by the growth of knowledge about economic development over the past two decades. Although political factors have proved at least as great an obstacle to technical improvements in aid administration as in development policy, the basic principles on which both multilateral and bilateral aid programs are run have shown marked improvement in the past ten years.

Apart from its immediate applications to policy making, increased knowledge of the economic development of different societies should be of substantial benefit to economic science as a whole. Its effect would be to broaden the empirical base of economic analysis and to make it less culture bound. In the longer term, much of the work on non-Western countries should be absorbed into the other functional specialties of economics and each would acquire a greater comparative perspective.