The
Economic Growth Center
Yale University

Report 1970-1973
# TABLE OF CONTENTS

I. CENTER APPROACHES TO RESEARCH

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

II. NEW DIMENSIONS OF DEVELOPMENT

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>12</td>
</tr>
<tr>
<td>Employment and Unemployment</td>
<td>13</td>
</tr>
<tr>
<td>Income Distribution</td>
<td>16</td>
</tr>
<tr>
<td>Technology Transfer and Adaptation</td>
<td>17</td>
</tr>
<tr>
<td>The Multinational Corporation</td>
<td>17</td>
</tr>
</tbody>
</table>

III. SECTORAL STUDIES

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Foreign Trade Sector</td>
<td>20</td>
</tr>
<tr>
<td>The Agricultural Sector</td>
<td>20</td>
</tr>
<tr>
<td>The Government Sector</td>
<td>21</td>
</tr>
</tbody>
</table>

IV. DEVELOPMENT IN OTHER TYPES OF ECONOMIES

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Developing Socialist Economies</td>
<td>23</td>
</tr>
<tr>
<td>The Japanese Economy</td>
<td>23</td>
</tr>
</tbody>
</table>

V. OTHER CENTER FUNCTIONS AND CONTRIBUTIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited Scholars</td>
<td>25</td>
</tr>
<tr>
<td>Library and Documentation</td>
<td>25</td>
</tr>
<tr>
<td>Conferences</td>
<td>26</td>
</tr>
<tr>
<td>Advisory and Related Activities</td>
<td>26</td>
</tr>
<tr>
<td>Continuing Research Support</td>
<td>28</td>
</tr>
<tr>
<td>New Appointments</td>
<td>29</td>
</tr>
</tbody>
</table>

VI. APPENDIX

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book Publications, 1970-73</td>
<td>31</td>
</tr>
<tr>
<td>Center Papers, 1970-73</td>
<td>31</td>
</tr>
<tr>
<td>Center Discussion Papers, 1970-73</td>
<td>31</td>
</tr>
<tr>
<td>Seminar and Workshop Speakers, 1970-73</td>
<td>34</td>
</tr>
<tr>
<td>Conference on the Problems of Employment and Unemployment, 1971</td>
<td>39</td>
</tr>
<tr>
<td>Conference on Agriculture in Development Theory, 1973</td>
<td>43</td>
</tr>
</tbody>
</table>
THE ECONOMIC GROWTH CENTER
YALE UNIVERSITY

Administration

Gustav Ranis, Director, 1967–; James McCabe, Assistant Director, 1972–73; R. Albert Berry, Assistant Director, 1969–72; Susanne S. Schall, Administrative Assistant, 1968–

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*As of July 1, 1973
†During part or all of the period July 1, 1970–June 30, 1973
The Economic Growth Center, established as an activity of the Department of Economics in 1961, is a research organization focusing on the problems of the developing world. Its research interests are defined in terms of both method of approach and subject matter. In terms of method, the Center sponsors studies designed to test general hypotheses concerning the problems of economic growth and drawing on quantitative information from national economic accounts and other sources. In terms of subject matter, the Center's research interests include: (1) theoretical analysis of economic structure and growth; (2) quantitative analysis of a national economy as an integral whole; (3) comparative cross-sectional studies using data from a number of countries; (4) efforts to improve the techniques of national economic measurement. In the past the research program has included field investigation of recent economic growth in 25 developing countries. More recently, using this work as a base, the main thrust of the program has been towards comparative work and the analysis of specific problems such as technology transfer, unemployment, the maldistribution of income, and population growth, in the context of different types of developing economies. The Center's research staff includes approximately 16 members of the Yale Department of Economics as well as 2-3 visiting scholars from abroad invited normally for a one-year period.

The Center administers, jointly with the Department of Economics, the training program in International and Foreign Economic Administration. It also presents a series of seminar and workshop meetings throughout the year. The Center Library endeavors to assemble significant economic and statistical publications from about 80 of the larger developing countries. This collection is open on request to scholars from other institutions. Book-length studies by the Center staff are printed and distributed by Yale University Press. Reprints of journal articles by staff members are circulated as Center Papers. Preliminary research results are distributed in the form of Center Discussion Papers.
1. CENTER APPROACHES TO RESEARCH

The Center's approach to development is distinguished by four main characteristics. First, the research aims at exploring problems within the context of an overall framework of analysis rather than attempting to give "intuitive" answers to a miscellaneous series of policy issues. Second, there is considerable emphasis on the measurable aspects of economic growth and structure, even though the importance of qualitative and non-economic information is increasingly appreciated. Third, the Center emphasizes international comparisons in order to facilitate the extension from case studies to generalizations. Finally, there has been further development of rigorous analytical models for various types of developing countries. It is our belief that the repeated interaction between theoretical work and empirical studies has provided a considerable payoff in the past and that the investment of that period will continue to enrich substantially all future research efforts.

Major research activity in the early years of the Growth Center was focused on the country analysis program, including field research on the development process in 25 countries around the world, leading to the publication of country-specific monographs and journal articles. A statement concerning the analytic objectives and thrust of that program was included in earlier reports. It was felt that, without detailed statistical investigation of the major economic variables involved and without a framework of multi-sectoral analysis to trace crucial interactions over time, no firm base would be available either for the interpretation of a country's development or for the many cross-country studies needed to test more far-reaching hypotheses. As anticipated, the country analysis program has led fairly naturally into cross-country historical studies of development and to more detailed studies of specific sectors, policies, or other aspects of development in individual countries—with the country analyst usually continuing to pursue these issues in the country of his own specialization.

Other members of the faculty, working on more general interpretations of the development process, have benefited from the substantial wealth of information built up on a country basis. A major out-growth of this effort, for example, has been the analysis of the labor surplus economy model by Fei and Ranis and the elaboration
of other typologies for countries undergoing development. One evolving typology relates to the initial resource endowment in an economy, with the land surplus case and the labor surplus case being useful polar constructs; another leans heavily on country size and the relative importance of trade. Our analysis, moreover, pays special attention to the existence of distinct historical phases in the growth process, e.g., import substitution, export promotion, etc. Finally, some characteristics of a country and of its growth problems may be related to the particular type of colonial rule it experienced at an earlier stage.

As more information has become available on the economic structure and other characteristics of less developed countries, some shifts in the major emphasis of research have occurred. Both previous research and current developments in many less developed countries have led to increasing doubts as to whether rapid rates of growth could, in themselves, provide the solution to such fundamental problems as unequal distribution of income and unemployment. As a result there has been, at the Center, a gradual increase in the direct research emphasis on these issues, but always in relation to the question of the growth of output itself and the extent of the necessary trade-off, if any, among the various objectives. The causes of population growth and, in turn, its implications for growth, distribution, and employment are coming in for increased emphasis. Moreover, partly because of their complex roles and their impact on the joint determination of output growth and income distribution, issues of foreign investment and of the nature of technological transfer and adaptation are receiving increased attention.

Two multi-country research programs have followed in the wake of the original Country Analysis Program: a study of unemployment in ten developing countries now in its final stages and a smaller pilot study of income distribution in three countries which is just beginning. In both cases, the countries selected have represented typologically different economic structures and regions of the world. A major focus of these projects has been to view the income distribution and employment problems in relation to both the initial factor endowment characteristics and the different historical phases in which the several types of economies find themselves in the effort at transition to modern growth.
Another aspect of the Center's gradual shift in research emphasis is reflected in the increased attention paid to Mainland China, Cuba, and a number of socialist developing countries in Eastern Europe. Moreover, the interesting historical case of Japan has been receiving increased attention.
II. NEW DIMENSIONS OF DEVELOPMENT

Population

The program in the economics of population growth has encompassed three main areas. The first concerns the relationship of economic and other modernization variables to demographic variables, in particular fertility; the second involves the effects of the demographic transition on the rate and structure of economic growth; the third consists of an evaluation of factors determining migration and the effects of migration, in turn, on urban and rural fertility.

Simon Kuznets has completed studies of differences in rates of natural increase by per capita income group and by region. His study of rural/urban differentials in fertility, viewed in an international cross section, takes advantage of the recent spread of census data to a larger number of developing countries. The comparisons for the late 1950s show that the internal rural-urban comparison within the developing countries or within the developed countries, while persistently showing a lower fertility in the urban areas, reveal only narrow differences. These internal differences serve to explain only a minor portion of the international differences in fertility between the developed, more urban, and the developing, more rural, societies. An intriguing implication of the findings is the evidence that, in such a developing area as Latin America, where substantial urbanization has taken place during the last few decades and where rural-urban differentials are wider, the failure of the aggregate fertility measures to decline indicates a rise in fertility either in the urban areas, or in the rural areas, or both.

A study by Ghazi Farooq and Baran Tuncer represents an attempt to determine the effects of modernization on the observed fertility pattern in the 62 provinces of Turkey over the 1935-65 period. This analysis shows a definite negative relationship between socio-economic advancement and the level of fertility. On the regional level, there emerges an interesting geographical grouping of the provinces, with the westernmost (closer to Europe) typically more economically advanced and with lower fertility. In the chain relationship model, the variables immediately affecting fertility are female literacy and marital rates, with the influence of the former consistently stable.
and more important over time. The literacy or education level variable emerges as a composite variable of both fertility control knowledge and the effects of modernization, and can be expected to continue its negative and substantial influence upon fertility in the future.

The research on migration has centered around two studies: one by Gary Fields has attempted to explain the fact that, despite rapid urban-rural migration in developing countries, wage income per laborer in urban exceeds that in rural areas by a considerable margin. James McCabe has been working on factors affecting an urban household's willingness to accept unemployed migrants.

Further research will be conducted by Simon Kuznets, James McCabe, Mark Rosenzweig, and Daniel Siever. The topics will include an expanded investigation of fertility differentials across income and regional categories, the demographic transition in Tropical Africa, and determinants of fertility in the agricultural sector with emphasis on migration.

**Employment and Unemployment**

A major organized research effort of the Center over the past three years has focused on the employment experience of ten developing countries: Ghana, Kenya, and Zaire in Africa; Brazil, Chile, Colombia, and Mexico in Latin America; and South Korea, Taiwan, and historical Japan in Asia. These countries represent major typological differences in both size and factor endowments. One phenomenon common to all during one historical period or another (later, in the case of the relatively land-rich African type) is their labor surplus condition which has often been referred to as a situation of "disguised" unemployment or "underemployment." It is associated with a situation in which, in some substantial parts of the economy, labor is paid more than what it actually contributes to output at the margin. Such a phenomenon is often characteristic of the family farm where family members' income shares are likely to be determined institutionally. As an institutional arrangement it may be inefficient, but it is sometimes necessary, from a social point of view, in order to ensure that a certain percentage of the population receives at least a minimum subsistence income. This is the situation found in
such countries as South Korea, Taiwan, Colombia and Japan in the post-Meiji period.

Ghana and Zaire operate differently, to the extent that labor and land are both in surplus at the same time. In these countries, where there is still a great deal of cheap unutilized land, the minimum real wage may not be institutionally determined as in the pure labor surplus case just described. Rather, it may reflect the maximum amount that a representative individual can produce on a plot of land of any dimension. In the Ghanaian case, the existence of a real wage specified in this manner, combined with the institutional share-cropping arrangement (in this case, for cocoa) causes a labor surplus phenomenon to exist. This arrangement is such that labor is paid a proportion of its average product, which may well be significantly above its marginal product. The degree to which a distortion exists depends on the availability of surplus land and the marginal product of labor on that land. In the case of the plantation sector in Zaire, labor may be paid more than its actual marginal product to compensate for the high relative risk of being laid off because of the wide fluctuations in crop prices and unstable management conditions in this sector.

The use of such classifications, aside from pinpointing the nature of the unemployment problem and the reasons for its existence, has helped us determine ways of efficiently allocating our own scarce resources for research. To date, we have put relatively little effort into the difficult, and thus far elusive, task of attempting a precise measurement of exactly what portion of the total labor force suffers from underemployment in any particular country case. Instead, most of our effort has focused on the central issue of how to achieve reallocation of this labor force from inefficient (or non-existent) pursuits to areas of efficient utilization, i.e., where compensation and contribution to output tend toward equality.

One important point already established is that the degree of underemployment is closely related to the stage of historical development, as well as the relative factor endowment. High levels of underemployment frequently accompany what has been described as the "import-substitution" stage of development. Policy changes that facilitate the advent of the next phase, involving replacement of the traditional primary product exports by new, labor-intensive industrial ex-
ports, can serve to solve the unemployment problem in a productive fashion, and have been found in such cases as Taiwan, South Korea, and Colombia.

Most of the developing countries analyzed, however, are presently still engaged in the import-substitution phase. There is evidence that this phase of development, provided that it is not excessive or unduly prolonged, may be necessary in the sense that it has beneficial effects with regard to the elimination of underemployment in the long run. This goes beyond the classic infant industry argument for protection. We have shown first that, during this period, managerial and entrepreneurial skills are developed that make indigenous labor-using innovations and the expansion of labor-intensive industrial exports possible later on; second, that one of the main methods of achieving increases in both output growth and the increased efficient utilization of labor seems to be via substantial output mix and adaptive technology change—with enhanced participation by medium and small-scale, including rural, industry. The success of such a restructuring appears to be highly dependent on the evolution of a more "open economy" type of policy package, and the development of a transport infrastructure and adaptive engineering capacities that may but do not necessarily take place during the import substitution phase.

A good deal of work has also been done looking across industry scales within LDCs that are, in the main, still heavily engaged in import substitution policies. For example, though producing the same commodities, Mexico’s border industries (facing a competitive international market) show much more labor-intensive technology than her domestically-oriented industries (facing a protected domestic market). Similarly, our work on Colombia indicates that medium and small firms in the same industry have lower capital-labor ratios and are more productive in the sense of having higher output-capital ratios than do larger firms. This phenomenon, found elsewhere as well, is undoubtedly related to the fact that small firms face more realistic (higher) interest rates and (lower) wage rates than large firms. An important related policy question is the extent to which small scale producers can be linked to international trade in a situation where they are denied, relative to large firms, “fair game” access to credit and to scarce foreign exchange.
Income Distribution

While the study of employment in developing countries is nearing completion, a number of other projects, both group and individual, have been initiated more recently. One such investigation involves the analysis of factors determining the size distribution of income in three developing countries: Taiwan, the Philippines, and Colombia. The main purpose of this research is to arrive at a now almost completely absent understanding of the causal relationships between growth and distribution of income, based on market determination, distortions in the market, the distribution of physical and educational assets, and direct fiscal actions by government. Once we have a clearer picture of how the size distribution of income is determined, we intend to focus on those relationships that are quantitatively more important than others and should therefore be the prime focus of attention for policy makers. The selection of the right policy mix for a particular developing country must again, we believe, be guided by a historically and typologically sensitive approach. Once we understand the appropriate type of growth path for different historical sub-phases in different types of developing countries, the next step is to specify the policy packages that will facilitate moving towards such a path. Ideally such a choice should serve to diminish or eliminate any conflict between growth and income distribution objectives, as the example of Taiwan seems to demonstrate.

The three countries to be studied differ substantially in their development typology as well as in terms of the historical growth phase they have reached. Taiwan is a representative of the labor surplus natural resources poor open dualistic family. The Philippines and Colombia are representatives of the family of the relatively natural resource rich, open dualistic economies—one with a much longer (typically Latin American) experience with import substitution behind it. Kenya, a small open African economy, is at a somewhat earlier stage of human and infrastructural preparedness for the transition to modern growth. The selection has thus been influenced by typological considerations and hoped-for relevance to other members of the same families.

The work we have described thus far is confined to a few sectors particularly relevant to the country being studied. However, some interesting work is also being conducted at the Center involving many
more sectors and the use of input-output models. This includes the work of Richard Weisskoff on Puerto Rico and that of Ronald Soligo on (West) Pakistan.

**Technology Transfer and Adaptation**

The process of the transfer of technology from developed to developing countries, as well as the environment in which indigenous innovations and local adaptations of imported technology are likely to occur, is being analyzed by Ranis. The nature and location of research and development efforts aimed at "appropriate" technology, the kinds of engineering skills required, the impact of different ownership patterns (as between multinational corporations and indigenous firms, for instance) are all part of the framework of this analysis. A summary paper on the results of this work to date, entitled "Technology Choice, Adaptation and its Impact on Industrial Sector Labor Absorption in Developing Countries: A Review of the Evidence," has been completed.

Labor-using adaptations are often highly efficient in the context of many developing countries characterized by labor surplus. Our analysis has indicated that, while an increase in the price of capital relative to labor is necessary, it is by no means sufficient for the achievement of the required innovative response. In addition to the appropriate price signals, implementation of efficient adaptations depends on entrepreneurial and institutional endowments and the nature of the science and technology infrastructure. For example, because of differences in climate, factor proportions, machine speeds, etc. may differ considerably across countries. Thus, given the country-specific character of a particular process, domestic R&D institutes and adaptive engineering schools may be essential if significant increases in labor-capital ratios are to be achieved. The Center is planning a study of the impact of such factors affecting the spread of adaptive technology in several developing countries.

**The Multinational Corporation**

A number of Growth Center faculty have been active in the study of the multinational firm (MNC) as such. The main topics of investigation have been: (1) the relevant characteristics influencing
the future effectiveness of foreign subsidiaries, from the point of view of the host country as well as of the mother firm; (2) the effects of nationalization on productivity; (3) the impact of the expansion of international subsidiaries on LDC output growth and employment; and (4) the association of diversification abroad with overall MNC earnings stability.

Several interesting findings concerning the role of the MNC in the development process have already resulted from this research. A study of such firms in Kenya, for example, indicated that, at least in some operations, foreign subsidiaries are not only more productive in the sense of having a higher output-capital ratio, but also employ more persons per unit of capital than do their indigenous competitors. Our analysis has shown that greater benefits may be obtained for the host country by allowing an extractive industry such as copper mining to be foreign owned, and taxing a portion of its profits, than, for example, by nationalizing it. The possibility of a cooperative relationship between U.S. firms and Latin American countries has been shown to be substantial, provided there is a reasonable change in expectation and attitude on both sides. An initial draft of a book examining the empirical evidence relating to multinational subsidiaries in LDCs has been completed by Benjamin Cohen.

Related agri-business investigations by Vahid Nowshirvani examine the impact of past direct foreign investment as well as the potential for such future investments in the agriculturally-related industries in particular. The sectors involved are agricultural inputs industries such as food processing. The basic hypothesis of this study is related to the fact that, until recently, such investment was confined to the production stage and, to some extent, to the processing stage in the higher income regions. With rising incomes, rapid commercialization of agriculture and an increasing pace of technological change within LDC agriculture, the pattern of investment is likely to change, becoming more concentrated in the agricultural supply industries and at the processing stages in LDC subsidiaries of MNCs. The impact of this trend, in terms of altered output, trade and employment patterns will be studied.

The specific aspects of the problem being examined are: (1) possible biases in the technology used, both in the input and in the processing industries; (2) the role of the foreign subsidiaries in inducing
further technological change in the agricultural sector proper; and (3) the possible effects on consumption due to the likely creation of barriers to further entry. The assessment of the costs and benefits from the LDC viewpoint of such investment, together with a knowledge of how the multinational firms view the situation, will hopefully aid both parties in reaching mutually beneficial investment strategies.
III. SECTORAL STUDIES

The Foreign Trade Sector

The effects of trade policy on development has been a perennial topic of investigation at the Growth Center. Work is now being conducted not only on the growth effects of import substitution policies, such as tariffs and quotas, but also on whether and how much developing countries can affect the level and composition of their exports. Carlos Diaz Alejandro has been concerned with the relation of promotion policies other than exchange-rate devaluation to industrial export expansion in Colombia. This investigation has been undertaken in connection with a book-length study of the impact of trade policies on development in that country. A general survey article, "Trade Policies and Economic Development," has recently been completed by Diaz. It summarizes the theoretical literature and supporting empirical evidence for the developing world. Richard Brecher has been concerned with the fact that cocoa may be a relatively capital-intensive export sector in Ghana, the expansion of which may result in increasing unemployment.

The Agricultural Sector

Robert Evenson has been concerned with the overall development impact of international agricultural research. For the next 20 years at least, investment in research and extension will be of major policy importance. Since international agencies alone may be allocating $100 million per year for this purpose, decisions will have to be made with respect to many alternative investment patterns, including choices between international and domestic adaptive research and between research and extension efforts within the LDCs. A recent compilation of data on research and extension investment for all the major countries of the world (except the People's Republic of China) allows comparisons not heretofore possible. These show quite clearly, as expected, that LDC investment in research is low relative to developed country expenditure patterns. Somewhat surprisingly, however, they also indicate that investment in extension, when expressed in terms of public-sector extension workers per unit of agricultural output, is actually higher in LDCs than in the developed countries. Both
a general model and one specific to wheat and maize production have been examined to determine the effectiveness of research. These models imply "internal rates of return" to investment in research of approximately 40 percent.

The Government Sector

Thomas Birnberg, in collaboration with Stephen Resnick, has been examining, historically and quantitatively, the process of economic development in a cross-section of ten countries in Asia, Africa and Latin America, from about 1900 to 1938. This process is described and analyzed, using an econometric model designed to explain how common internal and external forces simultaneously determined the growth of the colonial trade and government sectors in these ten countries. The main internal causal agent is specified as government expenditures directed towards the promotion of exports. The main external forces are changes in real incomes, domestic prices and trade policies in the developed world, and their impact on colonial export demand.

An important contribution of this research is the demonstration that the same econometric model identifying the above forces can be applied to describe the process of economic development in all ten countries. But, although the historical development process was characterized by a similar structure for every country's trade and government sectors, the research also found important inter-country differences within that process.

The results, moreover, yielded the significant cross-sectional conclusion that colonial history is more important than regional history in explaining the differences in the historical development of the ten countries studied. Four countries economically linked to the United Kingdom—Egypt, India, Jamaica and Thailand—were found to have the lowest productivity of government expenditures directed towards export development, and thus the least dynamic development process. The Japanese colony, Taiwan, and the three countries linked to the United States—Chile, Cuba, and the Philippines—had the highest productivity. However, the three countries tied to the U.S. were least able to capture the benefits of real income increases in the developed world. Furthermore, the United States has found it easiest to substitute between its domestic production and imports from the three
countries tied to the United States. In terms of major historical events, the economic losses from World War I were highest for countries under direct colonial control of the United Kingdom, while the largest losses from the Great Depression of the 1930s occurred in countries linked to the United States. In spite of these very important historical differences, the same model works well in explaining the wide range of observed historical growth rates of exports in these ten countries, the large shifts in their terms of trade and trade balances, and the dramatic growth in their public revenues and expenditures.

Lloyd Reynolds is undertaking an analysis of current and capital expenditures by general government for 24 less developed countries over the post-war period 1950-1970. These countries are well distributed by continents and, except for the exclusion of very small countries, can be taken as representative of the less developed world. As compared with earlier work, the distinctive features of this study are: (1) it brings to bear for the first time a large body of time-series data (previous work has been almost entirely by cross-section methods); (2) its main emphasis is on the expenditure or output side (previous work has dealt largely with tax structures); (3) in addition to output effects, it explores the impact of government operations on income distribution and employment, subjects that are becoming increasingly important in studies of development.
IV. DEVELOPMENT IN OTHER TYPES OF ECONOMIES

The Developing Socialist Economies

Eastern Europe: An examination is being undertaken of the economic policies of the relatively underdeveloped Socialist countries—Bulgaria, Rumania and, to some extent, Hungary. These countries are now net importers of capital goods. One of their principal planning objectives is to obtain self-sufficiency or become net exporters of these goods. J. Michael Montias is examining the impact of this trade objective on overall growth and development in these countries.

Some related theoretical analysis is being undertaken by Montias on the comparative structure of economic systems. This work is both descriptive and comparative and focuses, in part, on the problems that occur when different hierarchies interact. Here emphasis is given to different methods of coordination. In addition, different means of information diffusion and their implications for economic efficiency are evaluated, with particular attention to how the superior official in a hierarchy obtains information and at what level of aggregation. Information obtained from a lower tier is generally received in aggregated form. It must frequently be further aggregated to pass it on to still higher levels. Montias is developing quantitative measures of subordinates' autonomy and of the increments in autonomy due to aggregation of controls.

Mainland China: The Center has recently expanded the scope of its investigations to the development of Mainland China. This country is the extreme example of the large developing country. Although per capita output growth was very slow over the centuries, there is evidence that total output did respond to rapid increases in population. A main objective is to contrast the historical rules of growth with those of the more recent post-revolutionary period. An initial study has been undertaken by John Fei of factors determining the extent and shape of the "standard market" of traditional China. This investigation highlights the importance of transport cost in determining internal trade patterns in large countries such as Mainland China.

The Japanese Economy

The research on contemporary Japan has embodied several themes: the role of capital markets, Japanese-American economic
relations, and a projection of Japan's position in the world economy in the 1980s. Hugh Patrick has been focusing on Japan's position in 1980 and attempting to appraise the policy implications of that position for Japan, the European Community, etc. In collaboration with Professor Gary Saxonhouse of the University of Michigan, Patrick will attempt to project, under various assumptions, Japan's overall trade and balance of payments position and its evolving comparative advantage at a rather disaggregated industry level. A book-length manuscript will be near completion by the end of 1973.

Patrick has also examined extensively the role of financial intermediation during the course of Japan's postwar economic growth. The main focus here has been on the sources of finance of the private sector and particularly the role of domestic capital markets. Japan, Patrick shows, represents an anomalous case where the reliance of corporations on external finance is extremely high, yet their reliance on bond and stock issues is extremely low. This has come about because the financial system has provided substitutes for bond and stock issues in the form of long-term and, to some extent, even short-term loans. The apparent willingness of financial institutions to rely, to a substantial degree, on loans rather than equity is explained by the fact that the risk of big business bankruptcy is borne mainly by society rather than by creditors.
V. OTHER CENTER FUNCTIONS AND CONTRIBUTIONS

Invited Scholars

In continuation of earlier practice, the Center has welcomed foreign and domestic visitors interested in pursuing research on some area of development and being in contact with the Center Staff. Some of these visitors have been financed in full by the Center while others have received support from a foundation or other source, with the Center providing research, library, and secretarial services. Visitors during the three years covered by this report include:

1970-71
Irving Friedman  International Bank for Reconstruction and Development
Yoav Kislev  Hebrew University, Israel
Bertram Silverman  Hofstra University
Laurence Stifel  Thammasat University, Thailand
Baran Tuncer  Ankara University, Turkey
U Tun Wai  International Monetary Fund

1971-72
Ghazi Farooq  Institute of Development Economics, Pakistan and Bangladesh
Mo-huan Hsing  Academia Sinica, Taiwan
Nurul Islam  Bangladesh Planning Commission
Yoav Kislev  Hebrew University, Israel
Brian Pollitt  Cambridge University, England
Edita Tan  University of the Philippines
Baran Tuncer  Ankara University, Turkey

1972-73
Ghazi Farooq  Institute of Development Economics, Pakistan and Bangladesh
Egbert Gerken  Technical University of Berlin, West Germany
Sung-Hwan Jo  Sogang University, South Korea
Jorge Katz  Instituto Torcuato di Tella, Argentina
Library and Documentation

The Growth Center Library houses a unique collection focused on the statistical, economic and planning frameworks of 100 developing countries. Considered second only to the joint IMF-World Bank facility in terms of scope and completeness, this library's particular strength resides in its holdings of 3,800 regularly issued sources of LDC statistical data, as well as irregularly issued government documents.

Cognizant of its role as a major national resource, the Growth Center Library extends its services far beyond Yale's boundaries. Inter-library loans with other universities and institutions, an "open-door" policy towards visiting scholars from all over the world, and internships for LDC librarians intended to assist them in organizing their own collections—all serve as channels for sharing the benefits of expertise developed here.

Conferences

In November 1971, a conference covering the Center's work on problems of employment and unemployment in developing countries was attended by representatives of other universities, the Agency for International Development and the World Bank. Scheduled seminars and discussions were based on papers presented by Center faculty and alumni.*

In May 1973 Lloyd Reynolds, on behalf of the Growth Center, organized a conference in Bellagio, Italy, on "Development Theory and Policy: The Role of Agriculture." Twenty participants, recognized leaders in the field from universities around the world, delivered papers which will be published by Yale University Press in 1974.†

Advisory and Related Activities

The Center, as an institution, does not offer policy advice, but its work is both problem and policy-oriented. Moreover, individual scholars are frequently sought out for important advisory roles by

*See Appendix, Section V.
†Ibid, Section VI.
U.S. and LDC governments, the World Bank, foundations and other international organizations concerned with development. Our current country experience includes Argentina, Bangladesh, Chile, China, Colombia, Ghana, India, Indonesia, Iran, Japan, Kenya, Mexico, Nigeria, Pakistan, Philippines, South Korea, Taiwan, Turkey, and Zaire.

Most of these efforts, especially during 1970-73, were directed toward improving policy determination within the LDCs as well as policies focusing on relations between the developed and developing world. This has been especially true with respect to the major portions of our attack on solving the problem of LDC unemployment, perhaps “the” major concern of policy-makers both here and abroad during the past few years. The related issues of income distribution, LDC technology transfer, and the role of the multinational corporation in this context represent issues of the greatest current concern to both foreign aid officials and recipient governments.

The Growth Center administers a special M.A. level program of training for civil servants and economists from the developing countries. Under this International and Foreign Economic Administration (IFEA) Program, a total of more than 250 such individuals have studied at Yale to date. Candidates for this program are normally nominated and financed by the employing agency or institution in the developing country. The curriculum emphasizes the integration of theory and policy, particularly in the areas of money, trade and economic development. Most of the alumni of this program are now active in responsible policy-making positions in the developing world; e.g., one is Minister of Planning in Brazil; another heads the Research Department of the Mexican Central Bank, a third is Minister of Finance in South Vietnam; the Bank of Japan has at least 10 active alumni in top managerial positions and continues to send us a top-notch candidate each year.

The Center has also played an active role in directly assisting a number of research institutions in the developing countries. The most important and formal such linkage has been with the Pakistan (now Bangladesh) Institute of Development Economics. Another is a more informal treaty of friendship governing research interests as well as teaching interchange with the Instituto de Pesquisas Economicas in Sao Paulo, Brazil. The Center’s Director is a member of the Foreign Advisory Board of the Korean Development Institute and
other senior staff members have occupied similar positions in Colombia, Japan and Taiwan. Members of such overseas research institutes have benefited from time spent in New Haven working at the Center. For example, the Director of the Institute of Economic Research at Taiwan’s Academia Sinica recently spent a year at Yale, as did the head of the Bangladesh Planning Commission.

**Continuing Research Support**

The Center retains close contact in a variety of ways with its alumni. Former Center staff members who had accepted other appointments as of July 1973 are as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution and Location</th>
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<tbody>
<tr>
<td>Werner Baer</td>
<td>Vanderbilt University</td>
</tr>
<tr>
<td>Albert Berry</td>
<td>University of Western Ontario, Canada</td>
</tr>
<tr>
<td>Charles Frank</td>
<td>Princeton University</td>
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<tr>
<td>Marsha Goldfarb</td>
<td>University of Maryland</td>
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<tr>
<td>James Hanson</td>
<td>Brown University</td>
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<tr>
<td>Gerald Helleiner</td>
<td>University of Toronto</td>
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<tr>
<td>Michel Hervé</td>
<td>UNESCO, Paris</td>
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<tr>
<td>Samuel Ho</td>
<td>University of British Columbia, Canada</td>
</tr>
<tr>
<td>Shane Hunt</td>
<td>Princeton University</td>
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<tr>
<td>Stephen Hymer</td>
<td>New School for Social Research</td>
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<tr>
<td>Paul Kuznets</td>
<td>Indiana University</td>
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<tr>
<td>James Land</td>
<td>Rice University and St. Thomas College</td>
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<tr>
<td>Mark Leiserson</td>
<td>International Labour Office, Geneva</td>
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<tr>
<td>Markos Mamalakis</td>
<td>University of Wisconsin</td>
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<tr>
<td>Andrea Maneschi</td>
<td>Vanderbilt University</td>
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<tr>
<td>Donald Mead</td>
<td>Development Advisory Service, Ethiopia</td>
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<td>Van Doorn Ooms</td>
<td>Swarthmore College</td>
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<td>Howard Pack</td>
<td>Swarthmore College</td>
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<tr>
<td>Frederic Pryor</td>
<td>Swarthmore College</td>
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<tr>
<td>Stephen Resnick</td>
<td>University of Massachusetts</td>
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<tr>
<td>Clark Reynolds</td>
<td>Stanford University</td>
</tr>
<tr>
<td>Charles Rockwell</td>
<td>University of California, Irvine</td>
</tr>
</tbody>
</table>
We are proud of this distinguished group of alumni, some of whom have continued to participate in the work of the Center after their departure and will continue to do so in future years.

New Appointments

New appointments during the period 1970-73 included:

Mary Ann Baily, Ph.D. (M.I.T., 1973)
Richard Brecher, Ph.D. (Harvard University, 1971)
Lucy Cardwell, Ph.D. (M.I.T., 1973)
Gary Fields, Ph.D. (University of Michigan, 1972)
James McCabe, Ph.D. (University of Pennsylvania, 1970)
Mark Rosenzweig, Ph.D. (Columbia University, 1973)
Richard Weisskoff, Ph.D. (Harvard University, 1969)
APPENDIX


II. Center Papers, 1970–73


177. Carlos Díaz Alejandro, *Some Aspects of the Brazilian Experience with Foreign Aid* (Reprinted from Trade, Balance of Payments and


III. Center Discussion Papers, 1970–73


120. James Hanson, *Federal Expenditures and the Political Economy*
123. James Hanson, Trade, Growth, and the Heckscher Ohlin Theorem, September, 1971.
126. U Tun Wai, Financial Intermediation and National Savings in Developing Countries, August, 1971.
138. Albert Berry, Aspects of the Optimal Interest Rate, April, 1972.

IV. Seminar and Workshop Speakers, 1970–73

1970–71

Gerald K. Helleiner (University of Toronto)

Joseph Stiglitz

Carlos Diaz Alejandro

Mahbub ul Haq (Pakistan Planning Commission and International Bank for Reconstruction and Development)

Tsuneihiko Watanabe (Kyoto University)

“Socialism and Development in Tanzania”

“Rural-Urban Migration, Surplus Labor and the Relationship Between Urban and Rural Wages”

“Labor Productivity and Other Characteristics of Cement Plants: An International Comparison”

“Seven Sins of Economic Planners”

Abram Bergson  
(Harvard University)  
B. S. Minhas  
(Indian Statistical Institute  
and Economic  
Development Institute  
of the International Bank  
for Reconstruction and  
Development)  
Richard Easterlin  
(University of  
Pennsylvania)  
T. Paul Schultz  
(RAND Corporation)  
Richard Brecher  
(Harvard University)  
R. Albert Berry  

J. Dirck Stryker  

Mrs. Brooks Byrd  
(formerly of the Harvard  
Economic Research  
Project)  
Stanislaw Wellisz  
(Columbia University)  
Yoav Kislev  
(Hebrew University)  
Constantine Vaitos  
(Junta Acuerdo de  
Cartagena of the Andean  
Group)  

1971-72  

Albert Berry  

Branko Horvat  
(Graduate School of  
Economics, Belgrade)  

“Comparative Productivity Growth:  
COMECON-OECD Since 1950”  
“Towards a Production Function with  
Dated Inputs of Water”  

“Relative Income and Fertility”  

“A Model of Household Fertility De-  
cision-Making”  
“Optimal Commercial Policy for Mini-  
mum Wage Countries”  
“Income Distribution and the Relative  
Efficiency of Large and Small Farms  
in Colombia”  
“Peasant Farming in Land Surplus Econ-  
omies”  
“The Crude Oil Industry and Leontief’s  
Dynamic Model”  

“Consumption Leakages Out of Develop-  
ment Loans”  
“Capital Adjustment with a U-Shaped  
Average Cost of Investment—An Op-  
timal Control Analysis”  
“Transfer of Resources and Preservation  
of Monopoly Rents”  

“Controversial Issues in Current Co-  
lombian Development Plans”  
“Self Management in the Enterprise”
Hollis B. Chenery (International Bank for Reconstruction and Development)
Martin Weitzman and Jon Cohen
Joseph Stiglitz
Constantine V. Vaitos (Acuerdo de Cartagena Lima, Peru)
George Johnson (University of Michigan)
Gary Fields (University of Michigan)
Dennis DeTray (RAND Corporation)
Glenn Jenkins (University of Chicago)
Pranab Bardhan (Indian Statistical Institute)
Thomas Birnberg and Benjamin Cohen
Thomas Birnberg and Stephen Resnick
Louis T. Wells, Jr. (Harvard University)
James McCabe
Dirck Stryker
Richard Nelson

1972–73
Bela Balassa (Johns Hopkins University)
Robert Evenson

“A Comparison of Development Strategies”

“A Marxian Model of Primitive Accumulation”

“Alternative Theories of Wage Determination and Unemployment in LDCs”

“Inter-Country Income Distribution and Transnational Corporations: Reasons and Mechanisms”

“Wages, Employment, and Income Distribution in Kenya”

“Rates of Return to Education in Kenya”

“Substitution between Quantity and Quality of Children in the Household”

“Measurement of Tax Incentives for Sectoral Expansion”

“Size, Productivity, and Returns to Scale in Agriculture: An Analysis of Indian Farm Level Data”

“A Theoretical Analysis of Partial Economic Reform”

“A Model of the Trade and Government Sectors in Colonial Economies”

“Joint Ventures of the Multinational Enterprise in Developing Countries”

“Optimal Growth and the Distribution of Income and Capital”

“Population Density, Capital Investments and Growth: The Franc Zone”

“Recent Exercises in Growth Accounting: New Understanding or Dead End”

“Alternative Methods of Project Evaluation”

“Productivity Change in Indian Agriculture, 1953–1971”
Richard Weisskoff and Edward Wolff

Gordon Winston (Williams College)
Alan Kelley (Duke University)
Lance Taylor (Harvard University)
Grant L. Reuber (University of Western Ontario)
Michael Montias
Celso Furtado (The American University)
Besim Ustunel (University of Ankara)
Ronald Findlay (Columbia University)
Jorge Katz (Instituto Torcuato di Tella, Buenos Aires)
James McCabe and David Sibley
Simon Kuznets
Gary Fields

Yair Mundlak (Hebrew University)
Thomas Birnberg

“Linkages and Leakages: Import Dependency and Export Promotion in Puerto Rico”
“Capital Utilization and Investment”
“Population Growth, Savings and Dependency Rates, and the Pace of Economic Development”
“Short Term Policy in Open Developing Economies”
“Some Aspects of Private Foreign Investment in Less Developed Countries”
“System Structures and Economic Development”
“An Analysis of the Brazilian ‘Model’”
“Growth, Trade, and Technology: From Trade-Generating Growth To Growth-Generating Trade”
“Primary Exports, Manufacturing Production, and Development in a Dual Economy”
“Technological Change and Industrial Growth in Argentina”
“Optimal Foreign Borrowing Under Export Uncertainty”
“Differential Fertility, Distribution, and Development”
“The Private Demand for Education in Relation to Labor Market Conditions in Less Developed Countries”
“Effects of Factor Market Distortions on Differential Growth”
“Dynamic Properties of Colonial Development”
V. Conference on the Problems of Employment and Unemployment, 1971

Gustav Ranis


Gustav Ranis and John C. H. Fei

“Growth and Employment in South Korea and Taiwan”

Howard Pack

“Employment and Industrial Growth—Some Cross-Section Results: 1953–63”

Robert Evenson

“Employment in Indian Agriculture”

Richard Brecher

“Disguised vs. Open Unemployment: A Trade-off”

Markos Mamalakis

“Employment and Unemployment Dimensions of Production, Distribution and Allocation in Chile”

James McCabe

“Employment in the Congo: A Preliminary Investigation”

Albert Berry

“Unemployment as a Social Problem in Urban Colombia: Some Preliminary Hypotheses and Interpretations”

Ronald Soligo

“Factor Intensity of Consumption Patterns in West Pakistan”

Werner Baer and Jose Almeida

“The Transfer of Technology and Labor Absorption in Brazil”

VI. Conference on Agriculture in Development Theory, 1973

Lloyd G. Reynolds

“An Overview”

Economics of Peasant Production

Gerald K. Helleiner

“Smallholder Decisionmaking: Tropical African Evidence”

E. K. Fisk

“Response of Nonmonetary Production Units to Contact with the Exchange Economy”

James A. Mirrlees

“A Pure Theory of Underdeveloped Economies”
Tenure Systems and Economic Responses

David M. G. Newbery "The Choice of Rental Contract in Peasant Agriculture"
Samuel P. S. Ho "Selection of Land Tenure Systems: Some Alternative Hypotheses"
Mahar Mangahas "An Economic Theory of Both Tenant and Landlord: A Philippines Case"

Generating and Diffusing New Agricultural Technology

Vernon W. Ruttan "Technology Transfer, Institutional Transfer, and Induced Technical and Institutional Change in Agricultural Development"
Robert Evenson "Technology Generation in Agriculture"

Interaction of Agriculture and Non-Agriculture in Development

R. Albert Berry "Special Problems of Policy Making in a Technologically Heterogeneous Agriculture: Colombia"
John W. Mellor "Modernizing Agriculture and Theories of Economic Growth"
T. H. Lee "Savings, Financial Transfer, and Investment in Agriculture: The Case of Taiwan"
Michael Lipton "Intersectoral Resource Transfers from Agriculture to Non-Agriculture"
Raj Krishna "Measurement of the Direct and Indirect Employment Effects of Agricultural Growth with Technical Change"
Allan C. Kelley and Jeffrey G. Williamson "General Equilibrium Analysis of Agricultural Development: The Case of Meiji Japan"
Agriculture, Growth and Trade

Hla Myint

"Agriculture and Economic Development in the Open Economy"

John C. H. Fei and Gustav Ranis

"Agriculture in Two Types of Open Economy"

Walter P. Falcon and C. Peter Timmer

"The Political Economy of Rice Production and Trade in Asia"

Comparative Studies

Shigeru Ishikawa

"Peasant Families and Agrarian Community in the Process of Economic Development"

Z. Kozlowski

"Agriculture in the Economic Growth of the East European Socialist Countries"