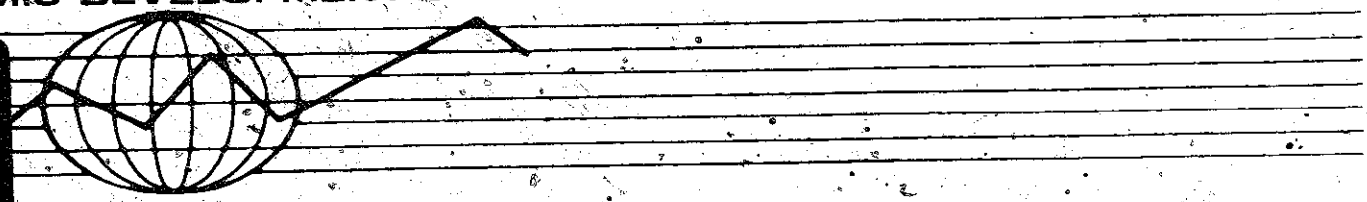

THE DEVELOPMENT IMPACT OF ECONOMIC ASSISTANCE TO LDCs VOLUME I

prepared

by

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and

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University of Minnesota

for the

Agency for International Development

and the

Department of State

March 1983

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BUREAU OF INTELLIGENCE AND RESEARCH

This study is one of a number done by academic and other research institutions for the Department of State as part of its external research program. This particular study was also supported by the Agency for International Development. External research projects are designed to supplement the research capabilities of State and other agencies and to provide independent expert views to policy officers and analysts on key questions with important policy implications.

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It goes without saying that the views and conclusions in this study are those of the authors. I would welcome your oral or written comments on the utility of this study.

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Anne O. Krueger
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APPENDIX A

THE IMPACT OF DEVELOPMENT ASSISTANCE

EXECUTIVE SUMMARY

Anne O. Krueger and Vernon W. Ruttan

This survey covers the lessons that have been learned about effective assistance to the developing countries in the three decades since the Marshall Plan. It does so by providing a survey of the literature on developmental assistance and its effectiveness.

There are four main parts of the survey. A first covers the macroeconomic aspects of the impact of developmental assistance on economic growth, including the relationships between trade policy and development. A second section covers the microeconomic aspects of development assistance. In a third section special attention is given to lessons that have emerged from experience with agricultural and rural development. Finally, there are case studies of the aid experience in five countries.

The study includes the impact of multilateral assistance, bilateral assistance (primarily by the U.S.) and assistance by private foundations. The primary focus of the study is on the impact of development assistance on economic growth. Much less attention is given to the impact of assistance on other development objectives. And no attention is paid to foreign policy objectives such as the effectiveness of assistance in maintaining a friendly government in power.

Macroeconomic Impact of Development Assistance

Concessional assistance has at most represented a net inflow equivalent to less than 2 percent of the developing countries' GNP. It would be unreasonable

to expect that development of this magnitude would have a dramatic impact on living standards. Indeed, one of the major lessons of experience with the development process is that the primary determinant of a country's growth rate, and probably also of the economic return on many individual projects, is its own economic policies. Countries that have experienced above-average rates of growth have generally managed their governmental budgets fairly well, have maintained realistic exchange rates, have avoided high and uneven rates of protection, and have usually let their labor and commodity markets function without undue restrictions. These policies alone do not guarantee high rates of growth. But serious departure from such policies for a sustained period of time has generally led to difficulties in the growth process.

The importance of "good" policy raises serious questions about the appropriate relationship between aid donors and recipient countries in conducting "dialogue" over policies. A closely related issue is whether "project" or "program" aid is more effective in furthering such dialogue. The issue of dialogue is extremely difficult. There are domestic political pressures in both donor and recipient countries. When there is "too much" influence it may generate longer-term reactions that are not conducive to appropriate economic policies. Moreover, "withholding" of aid is politically difficult. And its use may also generate inappropriate reactions.

The literature is inconclusive on whether program or project aid is the superior instrument. We conclude that a "blend" or the two, depending on circumstances, is probably appropriate. Program aid can be an effective way to support countries that are attempting to change their policies, particularly in countries that have substantial capacity to manage their

own development efforts. Project aid is most appropriate for physical infrastructure development. But neither the traditional program aid or project aid approaches are fully effective in countries which have little capacity from program management. Nor have they been effective in providing support for long-term institutional development. The development of institutional capacity in areas such as health, education, research, and community development have long gestation periods. They are intensive in their demands on professional capacity. New methods of combining the flexibility of program support with the effective technical assistance and sustained financial support by donors and national governments must be sought in these areas.

We then turn to the issue of the effect of aid on domestic savings and growth. We conclude, that the macroeconomic evidence on the impact of development assistance on savings and capital formation is not strong. Nor is it possible to demonstrate a strong positive relationship between development assistance and growth. The weak relationship between development assistance and savings and investment is not unexpected in light of poor countries' low savings rates and the relatively large contribution of aid to total investment under those circumstances. In view of the fact that development assistance has generally not been large relative to domestic capital formation and that much development assistance has been strongly weighted by political consideration it would have been surprising if a strong relationship between development assistance and economic growth had been identified.

The final issue covered in our survey pertaining to macroeconomic performance relates to the trade sector and to the links between trade policies, assistance, and growth. One of the chief lessons that emerged from the early aid experience with the developing countries in the late 1950's and early 1960's was that inappropriate trade and exchange rate

policies could sharply reduce the value and effectiveness of development assistance. Indeed, to some degree, assistance permitted countries to perpetuate inefficient economic policies.

This lesson was vividly illustrated in the case of South Korea. The period of greatest assistance, in the 1950's, coincided with a policy regime characterized by a chaotic multiple exchange rate system, import licensing, and other controls. The result was relatively slow economic growth. During that period assistance did contribute to investment in physical infrastructure, support investment in human capital, and encourage institutional innovation and policy reform. The relatively poor performance of the Korean economy in the 1950's, despite massive aid, was in large part a result of inappropriate domestic economic policies. When those policies were altered in the 1960's growth accelerated rapidly despite diminishing aid receipts.

Microeconomic Lessons

A great deal of aid experience has been with individual projects carried out at the sector level.

We start our survey of the microeconomic aspects by noting that the development and introduction of cost-benefit techniques in project planning may have been one of the most significant and important achievements of development assistance. In the 1950's the contribution of economic analysis to project design and analysis in most developing countries was relatively limited. Even when feasibility studies were undertaken, corrections were seldom made for domestic price distortions resulting from tariff and non-tariff barriers or from exchange controls. As a consequence, it became apparent that more effective analytical techniques were needed to appropriately estimate the economic rate of return in the presence of distorted

domestic product and factor prices. Cost-benefit techniques were often first used in projects financed by the World Bank, USAID, and other donors. Their use was later adopted from domestically funded projects. Cost-benefit techniques are no guarantee of project success. But their use has undoubtedly prevented some disastrous mistakes.

We then turn to assistance to education. One of the major lessons that has been learned in the course of experience with development and development assistance is the importance of a nation's human resources. In the 1950's, there was a tendency to assume that all that was required for development was increased savings and investment. The lesson of the 1960's was the importance of human capital. Once this was recognized, other questions--the relative importance of primary, secondary and higher education, the emphasis to be given to general and to technical training, and the most effective means of education in rural areas--began to be tackled. There is considerable evidence that the highest returns come from primary education as long as there is enough schooling so that literacy is retained. In some countries there has been an oversupply of university-trained graduates relative to skilled workers and technicians, and those lessons have been applied in developing assistance programs for the educational sector.

Assistance in the area of population and family planning did not emerge as an important program area until the 1970's. Our review suggests that foreign assistance has been effective in influencing governments to initiate family planning programs. Convincing the elites in recipient countries of the urgency of the population problem has been a major factor in persuading goverments to undertake these programs. A secondary lesson is that strong governmental commitment is essential for the success of family planning efforts.

Increasing agricultural production has been a major objective of many foreign assistance programs. Here, some lessons have had to be relearned, and are ill not always understood. Programs to provide subsidized credit to farmers have rarely been successful in developing viable agricultural credit institutions. Yet they continue to be the focus of major development assistance programs. Management of irrigation projects has likewise often failed to take into account the agronomic and economic constraints under which individual farmers operate. Moreover, efforts to increase agricultural production are often ineffective when prices received by farmers are held below world prices - due either to exchange rate overvaluation or to domestic programs to provide "cheap" food to urban consumers.

Nonetheless, there have been very high rates of return to investments in agriculture when programs have been effectively carried out. Agricultural research, when adapted to local conditions, has often had a very high payoff. Investment in land and water development, when complemented by technical change in crop production, has also at times been highly productive. A major lesson that emerges from experience with aid-assisted efforts to increase agricultural production is the complementarity between investment in land and water resource development, more productive agricultural technology, the education of rural people, and appropriate economic incentives.

We turn finally to the broader topic of rural development. Here, experience is generally more recent and there are many lessons in the process of being learned. Generally, satisfactory efforts at rural development entail effective organization at the community level and links to the central government. These are both difficult to achieve, and there seem to be few hard and fast rules as to how to obtain them. Successful rural development efforts, especially when they depart from narrower focus on

infrastructure and capital stock, require large inputs of human resources from the donor agencies and from the local government. This is a major reason why it has been relatively easy to achieve success at the level of the individual pilot project but so difficult to follow that success when an attempt is made to implement rural development programs on a national scale.

Country Case Studies

Finally, we turn to the experience of five countries--India, Korea, Turkey, the Ivory Coast and Ghana--to explore in greater detail the interaction of development assistance and growth. South Korea represents one of the most successful examples of rapid transition from relative stagnation to rapid economic growth since World War II. South Korea received large flows of development assistance in the 1950's and 1960's. The lessons that emerge from the South Korean experience focus on the role of aid in establishing the preconditions for rapid growth (especially in education, land reform, and infrastructural development). An interesting question, to which there is no definitive answer, is the extent to which the "policy dialogue" of the American and Korean governments in the 1950's led to the policy reforms which generated the remarkable transformation of the Korean economy.

India represents a country in which there have been major sectoral successes. The attainment of rapid increases in output in foodgrains is an example. But overall economic growth has remained relatively slow. Assistance contributed substantially to infrastructure development and capital formation in some sectors. But domestic economic policies have held the growth of aggregate output - and of per capita income - below the potential that India could achieve.

Turkey is an example of a country which achieved rapid growth for a period of years despite inefficient exchange rate policies. But these policies finally led to the serious retardation of economic growth. The current reforms are still being put in place. It is too soon to judge the extent to which they will permit Turkey to achieve higher levels of output and productivity.

The Ivory Coast and Ghana form an interesting contrast. The Ivory Coast received technical assistance and considerable project aid from the French. It adopted relatively realistic economic policies with respect to the exchange rate, protection, and the government budget. In Ghana, the policies adopted were at the opposite end of the spectrum. The outcome has been a reduction in per capita income in the past decade.

CHAPTER 1

ASSESSING THE DEVELOPMENTAL IMPACT OF ECONOMIC ASSISTANCE TO LDCs*

* This chapter was prepared by Anne O. Krueger and Vernon W. Ruttan.

1.1 Introduction

Foreign aid as an instrument through which a government attempts to strengthen the economy of another country is a relatively new phenomenon. The Marshall Plan following the Second World War was the first such effort. That Plan, put together hastily to revive the war-torn economies of Western Europe, succeeded beyond the greatest hopes of its initiators.

By the mid-1950's, it was apparent that the Western European economies had achieved such large gains that they would maintain rapid rates of economic growth through their own efforts. Foreign aid was no longer needed. However, by that time the development efforts of the newly-independent countries of Asia and the Middle East were attracting attention. It became evident that it was in American foreign policy interests to see those development efforts, as well as those in Latin America and subsequent efforts in Africa, succeed. The International Cooperation Administration, which was the successor agency to earlier Marshall Plan efforts, was charged with primary responsibility for the administration of assistance programs to developing countries.

It was recognized that initial conditions in developing countries were far different from those in war-torn Europe. There the replacement of destroyed capital stock could permit resumption of entire plants and manage-

ment and workers experienced in those endeavors could resume their activities. The role of foreign assistance in the developmental effort of developing countries was not well understood. It was natural for observers to regard the Marshall Plan success as evidence of the productivity of assistance. And it was easy to assume that the provision of resources would provide the same sort of payoff that it had earlier in the context of developing countries.

Over the three decades of development assistance, much has been learned about both the development process and about the effectiveness of alternative foreign assistance strategies. Much of the increased knowledge about alternative aid strategies is the direct result of better understanding of the process, which itself derives out of experience. Therefore, this report, which is intended to survey what has been learned about effective economic assistance, focuses upon what has been learned about development as well as upon the effectiveness of alternative instruments of assistance.

At the outset of this survey, it should be noted that the evaluation is carried out throughout on the assumption that the objective of foreign assistance is to permit developing countries to achieve higher rates of growth of per capita income than they otherwise would. Whether that achievement requires a temporary period of foreign assistance to permit a country to achieve "self-sustained growth", however defined, will be discussed below. Likewise, the compatibility of the growth objective with income distributional concerns is also a subject of discussion. But there are also other objectives for foreign assistance - such as expanding the market for exports, maintaining a friendly government in power, or increasing the goodwill of a people toward the United States (Donald, 1983). Important as these objectives may be, their consideration falls outside the scope of this survey

(and in any event might more properly be carried out by political scientists).

In the remainder of this chapter, some preliminary issues are discussed. These include: a brief discussion of some of the limitations of available techniques used to assess the effectiveness of aid (Section 1.2); a brief history of the evolution of thinking about the development process (Section 1.3); the political context of foreign assistance (Section 1.4); an assessment of foreign aid, relative to other available policy instruments, as a means of furthering the economic development of the less developed countries (LDCs) (Section 1.5); and finally, an outline of the remainder of this study (Section 1.6).

1.2 Assessing the Impact of Aid on Growth

In the remainder of this survey, the various tangible consequences of foreign assistance are analyzed and evaluated. Those tangibles, such as increased investment rates, high rates of return on projects, and infrastructural developments, are obviously important and can make a significant contribution to growth in developing countries. There is another set of factors, however, that may flow from foreign aid, which are not readily assessable. That set consists of the intangible that may accompany the aid process.

Little needs to be said here about the tangible criteria that will be used for evaluating aid and its effectiveness. This review will be guided by the perspective that, if development activity is to enhance the quality of life in developing countries, it must be capable of generating the new income streams needed to enhance the individual and social consumption that contributes to the quality of life. We will attempt, therefore, to extract from the literature what can be learned about the economic impact of development assistance and assess the factors that have contributed to success or failure of development assistance effects measured primarily in economic terms.

During the early 1970's there was increasing concern that development strategies previously pursued by LDC's and supported by donors may have had a positive impact on overall growth but did not significantly improve the living standards of the "poor majority." These concerns were manifested in arguments that the "trickle down" assumptions on which previous assistance was predicated did not materialize. They also resulted in an increased interest to evaluate the impact of development assistance on income distribution in general and on the employment and income of the poor. Later

in 1970's these distributional concerns were widened to include a broader set of considerations about the effectiveness of development assistance in meeting the "basic needs" of the poor in developing countries. This led to greater emphasis on improvement in social indicators rather than on contribution to economic growth. Social science impact evaluation methodologies tended to replace cost-benefit and rate-of-return calculations in evaluations of the effectiveness of development assistance (International Labor Office, 1977; and James Grant, 1978).

The evolution of development thinking about basic needs objectives and how to attain them has to some extent reintroduced concerns about aid's effects on growth. This is because it became clear that in many cases especially in poor countries where the bulk of the world's poor live, improvements in the ability to satisfy basic needs can only occur in the context of additional production. But concerns about income distribution and basic needs linger on in the sense that evaluation of aid's effect on growth has to take into account the pattern of growth that aid supports.

The remainder of this survey focuses on what we have learned about aid and its effectiveness in promoting growth in general and various patterns of growth in particular. To a certain extent this effect can be quantified and measured. However, aid giving affects development through a variety of ways which are rather difficult to quantify but which would be of considerable importance. It thus seems appropriate to devote a brief section to the consideration of such effects.

Inevitably, in the process of extending foreign assistance, aid officials and their foreign counterparts as well as multilateral organizations interact. Not only that, but American (and other O.E.C.D. countries') administrative requirements impose certain procedures upon aid administration. Through this process alone, it seems incontrovertible that learning and change go on.

While some contacts may lead to undesirable side effects, it seems likely that, by and large, the effects of the interaction yield positive, if unmeasurable, intangible benefits in the development process.

Several kinds of benefits can be identified, if not measured. For example, much foreign assistance consists of the provision of foreign exchange to support particular investment projects in the recipient country. Project preparation entails feasibility studies, project planning (both for the engineering and activity aspects of the project and for budgetary purposes), and the very fact that project planning has been required has undoubtedly influenced governmental procedures in developing countries, (Chapter 5). Insofar as appropriate project evaluation techniques permit governments in developing countries to utilize their scarce resources for infrastructural investments better than they otherwise would (and prevent a few large mistakes), the transmission of more effective evaluation techniques may itself have constituted a major contribution of foreign assistance to development efforts in recipient countries.

In addition to techniques of project planning and implementation, the carrying out of foreign-financed projects and the technical assistance that goes with it, may have learning effects that go well beyond the individual projects (whose immediate consequences can be assessed). Workers, foremen, and managers may learn new techniques or forms of organization that can later be employed on other projects, thus yielding a higher return on those projects than would otherwise be achieved. Those lessons may be transmitted widely throughout a particular sector (such as agriculture, health, road-building or dam construction) and thus have ramifications far beyond those estimated in evaluation of individual projects.

There are also several important assistance programs that aim at improving the technology utilized in development which are not tied to any specific capital project. Prominent among these are the programs of agriculture research supported by CGIAR. These and other projects of technology transfer tend to increase output by raising total factor productivity, rather than by providing additions to physical capital.

Another aid intervention whose effect is primarily in raising productivity is training. Thousands of training programs have been conducted under the auspices of foreign assistance. These have included the financing of foreign students' graduate study in the United States (and in other developed countries when the donor has been another country), technical training program under which foreign technicians have been enabled to participate in American industries' training and other activities, and, of course, technical training and assistance of a variety of forms in the developing countries themselves. There are unfortunately no effective techniques that can be used in evaluating the impact of economic assistance programs in raising factor productivity. Although we made an effort to evaluate what is known about these programs and their effectiveness in covering many individual topics below, the reader should nonetheless be alert to the fact that, by focusing upon what we can evaluate about foreign assistance, we may be neglecting some very important contributions.

One last aspect of intangibility of the effectiveness of foreign assistance should be mentioned. That has to do with the impact that foreign aid has had upon policies in recipient countries (Faaland, 1980). We shall, throughout this report, stress the lesson that recipient countries' domestic economic policies are a very important determinant of the productivity of aid dollars. What we cannot do is to evaluate the extent to which foreign assistance programs have influenced recipients' policies. Chapter 3 covers the

difficult questions that arise with respect to donor efforts to influence domestic policies. Nonetheless, as will be noted in the discussion in two of the case studies of Volume II (Korea and Turkey), it seems apparent that the process of aid led to a dialogue which was an important contributor to the policy changes which in fact occurred. It seems clear that, in the Korean case at least, the spectacular success that country realized in its development efforts after 1960 was due in large part to the economic policy reforms undertaken between 1958 and 1964. Those reforms, in turn, were carried out after years in which American officials had been discussing economic policy questions with members of the Korean government. While it is impossible even to guess at the relative importance of American aid as a factor leading to the Korean reforms, it seems clear that there was an influence. That intangible, in turn, came about even though the "aid dialogue" between Korea and America did not center upon those issues.

It can, of course, be argued that the intangible of influence may go the other way. In some instances, donor efforts to affect economic policies may have been misguided; there were probably also instances in which appropriate advice may have been rejected simply because it was (perhaps clumsily) advocated by aid donors. Nonetheless, it is probably no accident that most of the "success stories" of the development world - Korea, Taiwan, Brazil in the late 1960's and early 1970's, Hong Kong and Singapore - were either large recipients of foreign assistance or had policies heavily influenced by mother-country ties, (Krueger, 1982).

1.3 Development Assistance and Development Thought

There has been an important and interesting interaction between development thought and the focus of development assistance efforts since aid efforts turned to developing countries. Partly because of the success of the Marshall Plan, earlier alluded to, development thought in the 1950's was dominated by a view that capital accumulation represented the major prerequisite for development. This perspective was reflected in the neo-Keynesian growth models of the Harrod-Domar-Mahalanobis type; in the "big push" perspective of Paul Rosenstein-Rodan and Harvey Leibenstein and in the growth stage approach of Walter W. Rostow (Hagen, 1980: 84-91). The emphasis in development assistance programs of the 1950's and 1960's on capital transfer and on providing resources (aid) for infrastructure and industrial projects were consistent with these perspectives.

Development thought in the 1960's shifted in two directions. First, the availability of foreign exchange was identified as a potentially limiting restraint of growth for a number of reasons: (a) Prospects for traditional developing country exports appeared not to be good and developing countries were perceived as having a limited capacity to affect export earnings in the short-medium term, either in primary commodities or manufacturers; (b) Import requirements appeared to increase along with acceleration of domestic capital formation and industrialization and there was limited domestic capability to substitute for such imports.

These considerations led to the elaboration of the two-gap models (Chenery and Strout) which have held considerable sway in developing thinking for some time. These models can be seen as extensions of the Harrod-Domar

capital accumulation models to include another scarce factor - foreign exchange. Their impact on development assistance thinking was to provide a logical underpinning for the extension of program type lending. Such lending was supposed to fill foreign exchange gaps projected in developing country plans under alternative assumptions about growth rates and foreign exchange availability. Recent experience has shown that the foreign trade sector is much more responsive to changes in the real exchange rate and other incentives than was assumed in the two gap model. Its role in development thought has become more prominent than a decade ago.

The other focus of the 1960's was sectoral development. This focus was influenced by the emergence of the Lewis, Kanis and Fei, and Jorgenson dual economy literature (Hayami and Ruttan, 1981: 17-24). The initial emphasis on agricultural-industrial dualism was followed by an emphasis on bimodal patterns of agricultural development (Johnston), urban or modern sector dualism (Todaro), and import competing versus export oriented growth accompanied by attempts to develop multi-sector planning models to replace the earlier Harrod-Domar and two-gap models. Some were of almost baroque complexity and were rarely empirically implementable (Goreux and Manne, 1973; Taylor, 1979). The sectoral focus in development thinking had its counterpart in the initiation of sector lending especially on agriculture by AID in the late 1960's.

As sectoral development processes began to be better understood, the importance of investment in human resource development and of policies to induce technical change to overcome the constraints imposed by resource endowments began to be appreciated. The theory of "human capital" was elaborated while policies to encourage human resource development and to encourage appropriate technical changes began to rank higher in the priority pronouncements and project portfolios of development assistance agencies.

During the 1970's, development thought turned more toward attempts to understand the microeconomic behavior of the individual sectors in the development process, and away from the more macroeconomic concerns of earlier decades. In part, this was because those macro concerns had become better understood and in part it was because failure to appreciate the motivation of individual agents in developing countries had frustrated many development projects. Thus, the economics of the household, the economics of bureaucratic behavior, and the economics of technical and institutional change were focal points for analytical work and empirical analysis (Schultz, 1964; Hayami and Ruttan, 1971). Secondly, development thinking turned more towards concerns about income distribution, while the issues of capital accumulation and the foreign exchange constraint were downplayed (Chenery, 1974; Ayres, 1983). There were several reasons for this: (1) Far more possibilities of substitution between capital and labor appeared to exist so that gains in output and income could be derived through the production of less capital-intensive commodities and the adoption of labor-intensive techniques, if proper pricing of capital, labor and other inputs was adopted; (2) The process of development which emphasized capital accumulation was perceived to result in unequal distribution of the benefits from development. This was viewed as a by-product of the emphasis on capital-intensive techniques, the emphasis in expanding production of sectors which did not provide for a large expansion of employment, and the relative neglect of sectors such as agriculture where labor-intensive techniques could involve large masses of people in productive activities.

The declining importance of foreign exchange can be attributed to another set of factors of which perhaps the most important was the realization that developing countries were facing significant foreign exchange problems in good part because they were pursuing inappropriate foreign exchange and

trade policies. Evidence accumulated over the period of the late 1960's showed that countries which pursued reasonable foreign exchange and trade policies did fairly well in international trade and did not face significant balance of payments difficulties.

Paralleling the new directions in thought, the new program thrusts in development assistance reflected many of these concerns. AID's "New Direction" legislation in 1971-72, laid the ground for placing more emphasis on employment and income distribution considerations in development assistance. This was paralleled by similar developments in the World Bank a few years later (McNamara, 1973).

Later on in the decade concerns about employment and income distribution were broadened to encompass concerns about the extent to which the growth process addressed the basic needs of the poor. In a way this harks back to the "living standards" movement of the 1930's.

AID program designers and analysts became increasingly concerned about (a) identifying specific target groups among the poor in aid recipient countries, and (b) designing programs that would have a direct impact on these groups. Policy concerns placed greater emphasis on social reforms that would permit the poor to gain greater equality of opportunity and improved access to government services.

In the early 1980's, development thought and development assistance practices are once again changing. It is increasingly recognized that the success of individual developmental efforts is as much a function of the overall set of economic policies which induce individual decisions as it is of the "sound design" of individual projects. Progress in understanding economic agents' behavior in the household, in allocating land across competing crops, and in other arenas of economic activity, has pointed to the importance of understanding the incentives with which they are confronted.

It is now increasingly appreciated that development assistance can create a "critical margin" of additional resources when the policies and signals generated within a country are broadly "right". Under those circumstances, the resource transfers which were the focus of the 1950's, the sectoral issues and the human resources emphasis of the 1960's, and the microeconomic concerns of the 1970's all are seen as interactive parts of a very complex development process. Perhaps one of the most important of the emerging issues in the 1980's is the role to be played by the government sector in promoting development. Questions arise as to appropriate institutional arrangements for public activities (such as education and agricultural research and extension), provision of appropriate incentives for the private sector, political constraints on private decision making, and effective incentives for performance in public agencies.

Even now, attempts to evaluate the impacts of development assistance are limited by our understanding of the development process. These limitations are reflected in the ad hoc character of attempts to evaluate the effectiveness of development assistance efforts, as well as in our inability to evaluate the intangible factors cited above. Nonetheless, understanding of the development process has increased. As it has increased, the effectiveness of aid efforts has increased. There can be little doubt that donor agencies (and officials in recipient governments) have a greater understanding of the development process now than their counterparts did 20 or 30 years ago.

1.4 Aid in a Political Context

Most Americans would agree that the United States has a legitimate foreign policy interest in the success of the developing countries in achieving satisfactory rates of economic growth and equitable distribution of the benefits of growth. Nevertheless, foreign assistance is administered through governments. Moreover, foreign assistance is, even if its purpose were only humanitarian, an instrument of foreign policy. As such, it would be surprising if there were not a political context for assistance.[1/]

Two aspects of that context require comment here. First, there are the inevitable difficulties for foreign assistance that arise because foreign policy objectives other than enhancing growth prospects are harnessed to aid. Secondly, because aid is an instrument of foreign policy, it has been subjected to critiques from critics in donor countries from the right and the left.

Turning first to the foreign policy context of aid, several issues require mention. There is, most importantly, the consideration that for political reasons it would be difficult, if not impossible to "cut off aid" even when recipient country policies were deemed to be inimical to growth. Thus, once an aid program is in place, sharp changes in aid levels are politically difficult, if not impossible, to make.[2/]

Secondly, there have been a number of instances in which the initial intent of an aid program was to shore up a friendly government. In some of those cases, the necessity for "shoring up" arose precisely because the economy was extremely weak. To evaluate the effectiveness of aid in a context in which the underlying situation is extremely difficult or is troublesome at best.

The final aspect of the political constraint arises because many governments in developing countries have undertaken measures which they have defended on political grounds. In some cases, those measures have been questioned by economists on grounds that they are deleterious to the development effort. However, for the government of a donor country to question those policies officially is politically extremely difficult; opposition parties within the recipient country can make political capital out of "foreign interference in domestic political matters" and dialogue on those issues can turn out to be counterproductive. Thus, the fact that aid is extended by one sovereign state to another places political constraints on the nature of what can be done.[3/]

Turning to criticism of the overall program, development assistance has been under continuous ideological criticism from both the radical left and the radical right (Ayres, 1983: 11-16, 230-232). The criticism from the right has emphasized the role of foreign aid in politicizing economic activity in less developed countries (Bauer, 1976: 20-22, 84-88) and (Bauer, 1981: 131-134). It has emphasized the possible role of foreign aid in contributing to the expansion of public sector enterprise and employment. Critics have alleged that aid strengthens the control of the central planning and financial institutions over private sector economic activity. Access to external resources, it has been argued, tends to obscure the burden of economic inefficiency resulting from the poor performance of public enterprice and the distortions resulting from planning and control.

The critics from the right have also emphasized the failure of development assistance to affect "the prime determinants of material progress (which) are peoples' economic aptitudes, their social institutions, and political arrangements" (Bauer, 1976: 100). While not denying that foreign aid augments the resources available to recipient countries, the critics on the

right insist that "if a country...cannot readily develop without external gifts, it is unlikely to develop with them," (Bauer, 1976: 100).

While the critics of the right emphasize the above-mentioned points consistently, there is also some disagreement (Johnson, 1967). Some critics take the position that, while economic assistance is ineffective for stimulating economic development, it does represent an effective instrument of political strategy - to promote domestic political stability or to influence foreign policy in ways that are strategically important to the donors. In the United States, this position is usually reflected in support for expansion of the "supporting assistance" component relative to the "development assistance" component of the AID budget. Other conservatives argue that the short-term perspective of donors in the case of supporting assistance and the political backlash effects in recipient countries render development assistance as ineffective in achieving the political objectives of the donor as in achieving the development of recipient countries (Bauer, 1976: 126). The criticism of the radical right are themselves subject to two weaknesses. First, they assume that all assistance is afflicted with the mistakes that have been made in some assistance programs in the past. Secondly, they ignore the empirical evidence that assistance has been effective when government policies are appropriate. The evidence suggest that assistance has frequently been an important factor inducing governments to adopt appropriate development policies. This is illustrated in the Korea and Ivory Coast case studies.

The criticisms of the left are of the opposite nature. They are based upon the implicit premise that assistance is effective. They have emphasized the external, rather than the internal, constraints on development. At its most extreme, the left criticism has tended to view development assistance as an imperialist conspiracy - as an instrument designed to reward the

political, economic, and bureaucratic elites of the developing countries for acquiesing in the exploitation of the resources and the people of the developing countries, (Hayter, 1971).

From a more populist perspective, critics have focused on the technocratic biases in the organization and management of aid resources and on the perverse effects of development assistance on the growth of enterpreneurship and institutional development, and on income distribution and welfare in the developing countries (Griffin and Enos, 1970; Franke and Chasin, 1980). The costs of modernization are said to be borne by the poor and the gains realized by the wealthy. In contrast to the critics from the right, these results are seen not as the growing power of the state, but as deriving from the weakness of the public sector in dealing with both external and internal organized interests. These criticisms ignore the influence assistance has had in countries with relatively egalitarian income distributions (such as Korea and Taiwan) and the variety of political and bureaucratic regimes among recipient countries.

Much of the discussion of both the extreme left and the extreme right is based upon presumed, but usually undocumented, outcomes of the aid process. Both the critics from the right and the left tend to use (and abuse) empirical evidence to support conclusions rather than test hypotheses.

By far the majority of analysts of the aid process would dissent from both extreme viewpoints. But they also identify a number of criticisms of the aid process of a sort that are subject to reform. Analysts working in the reform tradition typically make the assumption, either implicitly or explicitly, that improvement in the allocation of program or project aid, and other institutional reforms, will enhance the already-positive impact of development assistance on national economic growth and improve the quality of life in poor countries (Harberger, 1962; Ayres, 1983).[4/] We also bring

to this effort a perspective that policy reform on the part of both donors and recipients is not only feasible - but that reform is preferable to either reaction or reevaluation.

1.5 Aid Relative to Other Policies

The focus of this survey is upon what is known about how foreign assistance can enhance the rates of economic growth of the developing countries. It should be borne in mind, however, that foreign assistance is only one of the activities undertaken by governments of developed countries that impact upon developing countries.

A variety of other policies and events in the developed world have an equally strong impact upon developing countries' prospects and performance. Most notable in that regard, of course, is the developed countries' trade policies and the rate of expansion of the international economy. The rapid expansion of the international economy in the 1950's and 1960's, and the relative openness of the developed countries' economies, were of crucial importance to the success of South Korea, Taiwan, Hong Kong, Singapore, and Brazil, among others, as they altered their domestic economic policies and incentive structure. To the extent that policies adopted in the OECD countries restrict future expansion of developing countries' trade, their policies (no matter how appropriate) will have a far smaller payoff than if there is ready access to developed country markets. Certainly, the payoff from foreign aid will be substantially reduced if the policies that have resulted in slow growth in the developed countries over the last decade are also accompanied by protectionist measures against LDC exports. And, for some of the middle-income developing countries, the costs to their growth of protection which prevents $1 million of their exports from reaching developed country markets may far exceed the benefit they might derive from $1 million of additional foreign assistance. Even for the very poor countries, whose development needs are so great that rapid export expansion is still in the future, protection in the developed

countries serves as a rallying cry of those who are opposed to altering the policies inimical to their growth.

It should also be noted that integration of some of the developing countries into the international economy will be much easier, both for the LDCs involved and for the developed countries, against the background of a more rapid rate of overall economic growth (which would also serve to reduce protectionist pressures). The deterioration in the terms of trade against primary commodities in the past year has cost the developing countries more than any conceivable increment that might have been made in the foreign aid budget.

Other aspects of domestic economic policies of the developed countries also inevitably impact on the rest of the world, and often especially on the developing countries. These include, but are not limited to, immigration (and guest worker) policies, the real rate of interest in the international capital market, domestic policies affecting world supplies of individual commodities (such as the E.C. common agricultural policy) and taxation of nationals working abroad.

Hence, the assessment of foreign assistance and what we know about it in this survey is far from an assessment of the overall impact of foreign economic policy, or overall economic policy, on the growth prospects and performance of the developing countries.

It is also true that different aspects of foreign economic policy affect various groups of developing countries differently. For the poorest developing countries, foreign aid is very important, and fluctuations in the terms of trade are of crucial importance. For the newly industrializing countries, by contrast, fluctuating terms of trade and foreign assistance are relatively far less important, but movements in the international interest rate and changes in protection are vital to their interests.

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1.6 Outline of the Remainder of the Survey

This study of aid is divided into two volumes. Chapters 2-10 focus on the macro and sector impacts of development assistance. Chapters 2-4 discuss development assistance through a macroeconomic perspective. Topics included in these chapters include donor influence on domestic economic policy, aid as a transfer of resources, the impact of development assistance on growth rates and development assistance and trade. Chapters 5-8 discuss development assistance through a microeconomic perspective. Topics included in these chapters include cost-benefit analysis as an appropriate tool, aid and physical infrastructure, human resource development, assistance for family planning and agriculture and rural development. Chapters 9 and 10 focus on the development of institutions to sustain agricultural development and to improve the quality of life in rural areas. Chapter 11 attempts to summarize the lessons learned from the country and sector studies. There is also an appendix which presents some data on trends in development assistance.

Volume II is made up of four chapters in which five country studies are presented. The countries chosen are important for different reasons. Chapter 12 discusses assistance to India. India is important because of the amount of aid it has received. It has received more aid from more countries than any other developing country. Thus, its projects and programs have been some of the largest. Chapter 13 discusses assistance to Korea. Korea was an early recipient of aid and is a major development success story. Its importance in a study like this is that it might provide useful, adaptable lessons for other developing countries. Chapter 14 discusses assistance to Turkey. Like Korea, Turkey was an early recipient of aid. Unlike Korea, Turkey still continues to receive aid. Chapter 15 discusses assistance to Ghana and Ivory Coast. These two

countries are interesting because of the differences in their development. At independence in 1957 Ghana was relatively well developed and had one of the highest per capita incomes in black Africa. In contrast, Ivory Coast was far behind Ghana at its independence in 1960. Twenty years later, however, Ivory Coast is far ahead of Ghana. Reasons for this are outlined in the study. These five countries provide many lessons for development assistance.

Chapter 1, Assessing the Developmental Impact of Economic Assistance to LDC's, consists of six sections. Section 1.1 is an introduction. Section 1.2 briefly discusses some of the limitations of available techniques used to assess the effectiveness of aid. Section 1.3 provides a brief history of the evolution of thinking about the development process. Section 1.4 discusses the political context of foreign assistance. Section 1.5 assesses foreign aid as a means of furthering economic development of less developed countries (LDC's). It does this in relation to other available policy options. Section 1.6 is a guide to the study.

Chapter 2, Influence of Donors on Domestic Economic Policy, is divided into five sections. Section 2.1 addresses issues of "influence," "leverage" and "dialogue". Section 2.2 considers political and other determinants of economic policies within individual countries. Section 2.3 discusses the extent to which aid donors can "know" what are appropriate policy designs and policy changes. Section 2.4 discusses the difficulty inherent evaluating donor influence. Finally, Section 2.5 examines the dilemma of whether assistance should take the form of "program" or "project" aid.

Chapter 3, Development Assistance, Savings, Investment and Economic Growth, is divided into five sections. Section 3.1 examines the impact of development assistance on growth in domestic savings. Section 3.2 discusses

output growth in developing countries and capital formation. Section 3.3 looks at development assistance and its effect on country foreign exchange availability. Section 3.4 discusses the potential of aid in raising factor productivity. Finally, Section 3.5 draws some conclusions about the role of development assistance in savings, investment and economic growth.

Chapter 4, The Trade Sector and Assistance Policies, has three sections. Section 4.1 discusses the relationships between trade and exchange rate policy, general development performance, and aid. Section 4.2 examines the implications of inner-oriented, highly restrictive trade policies and unrealistic exchange rates in the context of aid. Subsections of this section deal with disincentives to agricultural production, project evaluation, assistance as a substitute for export earnings, and the use of aid to facilitate policy changes. Section 4.3 examines the linkage between macroeconomic and sectoral policy and the need for appropriate domestic economic policies.

Chapter 5, Cost-Benefit Analysis, is divided into two sections. Section 5.1 defines cost-benefit analysis. Section 5.2 examines how cost-benefit analysis is used.

Chapter 6, Assistance for Infrastructure Development, is divided into three sections. Section 6.1 describes why infrastructure projects were emphasized early on in development. Section 6.2 examines post construction issues like pricing, maintenance and benefits to recipients. Section 6.3 analyzes the distribution of the benefits when rural roads, rural electrification and rural public works projects are undertaken.

Chapter 7, Assistance for Human Resource Development, has four sections. Section 7.1 discusses the types of assistance that has been provided for education. Section 7.2 reviews the evidence on the contribution of educa-

tion to development. Section 7.3 reviews the limited evidence on the performance of different educational systems and approaches to education. Section 7.4 concludes (a) that the social rate of return to schooling has been highest at the primary level and declines for higher levels and (b) that the social rate of return is higher than the private rate at all levels. It also concludes that our knowledge of the development impact of both non-formal education and of graduate education is particularly inadequate.

Chapter 8, The Impact of International Population Assistance, has four sections. Section 8.1 briefly examines the general characteristics of family planning programs including history, the volume of activity, and the scope of activity. Section 8.2 discusses the controversy and ambivalence inherent in family planning issues. Section 8.3 assesses the impact of population assistance. Finally, Section 8.4 concludes that foreign assistance has been important in the formation of anti-natalist policy decisions; it can have a profound impact by making supplies and services available; and it appears more certain when aid flows through direct programs to reduce fertility.

Chapter 9, Assistance to Expand Agricultural Production, is divided into six sections. Section 9.1 examines the investment that aid has made in land and water resource development. Section 9.2 analyzes the impact of agricultural research and the development of institutional capacity to conduct research and technology development. Section 9.3 examines the changing roles of agricultural extension, the Benor system, and returns to investment in extension. Section 9.4 discusses land tenure reform after World War II, land tenure economics, land reform in Latin America and future directions. Section 9.5 examines the development of agricultural credit markets and the assistance provided by aid. Finally, section 9.6

concludes that there have been continuous cycles of program priorities and thrusts ; that there has been a failure to learn from failure; that there have been successes; that land tenure and credit have been important; and that there is a dynamic interrelationship between technical and institutional changes.

Chapter 10, Improving the Quality of Life in Rural Areas, has five sections. Section 10.1 discusses the rise and decline of community development. Section 10.2 examines the change in development policy which occurred in 1973 and stressed the need to "meet the basic needs of the poorest people in developing countries." Section 10.3 discusses integrated rural development programs which were outgrowths of the "new" rural development strategy of the 1970's. Section 10.4 defines the "basic needs" approach and three important components of this approach - rural roads, rural water supply, and health care. Finally, Section 10.5 reaches some conclusions about the chapter.

Chapter 11, Some Lessons from Development Assistance, has three sections. Section 11.1 examines lessons from macroeconomic assistance policy. These lessons are drawn primarily from Chapters 2-4 and from the sections dealing with macroeconomic policy in the country studies. Section 11.2 draws lessons for assistance to sector development. These lessons come mainly from Chapters 5-10 and from the country studies. Section 11.3 raises the question - what development assistance activities are feasible in an unstable economic and political environment?

Chapter 12, Assistance to India, is divided into five sections. India is an important country to study because it has received more aid from more countries than any other country. Section 12.1discusses the history of aid to India. Central to this discussion are levels of aid, the type of aid given, and implications of aid-tying. Section 12.2 examines macro-economic perspectives through a discussion of theoretical modeling exercises, an analysis of the effect of aid on income, savings, and investment and an examination of trade and devaluation. Section 12.3 analyzes the role that aid played in the development of financial institutions in India. Section 12.4 examines agriculture and rural development - types of assistance provided, the Community Development Program, the Intensive Agriculture District Program, the Indian research system, and the food grain debate. In Section 12.5 Sukhatme summarizes his findings.

Chapter 13, Assistance to Korea, has five sections. Korea was an early recipient of aid and is considered a development success story. Section 13.1 provides a brief outline of the structure and growth of South Korea's economy, particularly the period between 1953 and 1965. Section 13.2 focuses on two important questions: first, can donors contribute usefully if domestic policies are ill advised; and second, what should the role of donors be in domestic policy making. Section 13.3 discusses aid and trade focusing on import substitution policies versus export expansion policies. Section 13.4 summarizes aid to agriculture and rural development. It starts with a description of rural Korea and then briefly describes land reform, land development, rural income, agricultural inputs and quality of life indicators. Finally, Section 13.5 draws some conclusions about aid to Korea.

Chapter 14, Assistance to Turkey, has six sections. Turkey was also an early recipient of aid, but unlike Korea, it still receives aid. Section

14.1 provides an overview of Turkish economic development focusing on the three strikingly similar cycles of growth in Turkey between 1950 and 1982. Section 14.2 analyzes the economic cycles in Turkey and the ways that donors have responded especially in the 1960's and the late 1970's. Section 14.3 examines trade and aid and the way that aid helped to mask the underlying distortion between import substitution and exports. Section 14.4 reviews assistance for agricultural development focusing on agricultural inputs, land and water development, agricultural extension, research and education, and the wheat production campaigns. Section 14.5 provides information about assistance to improve the quality of rural life through education, health care, family planning, and nutrition. Finally, Section 14.6 outlines the lessons learned in providing assistance to Turkey.

Chapter 15, Assistance to Ghana and Ivory Coast, has five sections. Section 15.1 discusses the history of foreign assistance to the two countries and compares the initial situation of the two countries at Independence with their subsequent performance. Section 15.2 provides a macroeconomic assessment of foreign aid and its contribution to development through increased levels of investment or increased imports of goods necessary for development. The "two-gap model" of demand for foreign aid is discussed and tested. Section 15.3 outlines the history of rural development for the two countries. Section 15.4 discusses economic policy focusing on the problems of foreign exchange shortages and over-valued currency and the effect on import/export conditions. It also discusses the role that foreign aid can play in policy reform. Section 15.5 summarizes the lessons that can be learned from a study of aid to Ghana and Ivory Coast.

Appendix A, Allocation of Development Assistance to Five Countries, presents the broad trends in development assistance to the five countries studied in this project - India, Korea, Turkey, Ghana and Ivory Coast. Section A.1 compares overall trends in U.S. economic assistance to trends in other assistance from international organizations. Sections A.2 - A.6 present two kinds of information for each country in the study. The first is a comparison of trends in U.S. bilateral assistance to assistance from multilateral organizations. The second type of information provided is trends in U.S. assistance by the type of assistance provided (e.g., food for peace, grants, loans, etc.). Section A.7 summarizes U.S. assistance trends and shows foreign aid budget outlays for 1970 to 1985.

Footnotes

1/ For the classical discussion of the political basis for foreign assistance see Hans Morgenthau (1962). Also John D. Montgomery (1962).

2/ It should be noted that, once projects have begun, it is probably uneconomic to suspend them in midstream (if the intent is to resume them) because of the increased costs likely to be incurred. Hence, there may also be a practical reason for the difficulty encountered in attempting to make sharp changes in aid levels.

3/ One of the rationales for multilateral assistance is that it avoids such political constraints.

4/ See, for example, Arnold Harberger (1972), who states that the best assurance that development assistance agencies can have that aid expenditures will be effective "must come from the massive and rapid improvement of the procedures by which the less developed countries evaluate their own projects. The first order of business is, therefore, for the major international lending agencies to face up to the challenge of providing the necessary training for the LDCs' own project evaluation. The second order of business is to provide some mechanism to certify whether or not a country is making reasonable progress in improving its method of project evaluation."

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CHAPTER 2

INFLUENCE OF DONORS ON DOMESTIC ECONOMIC POLICIES*

* This chapter was prepared by Anne O. Krueger.

Influence of Donors on Domestic Economic Policies

A major theme of this survey is that one of the most important lessons that has been learned about the interactions of the aid process with development in recipient countries is the crucial importance of "getting the policies right." In terms of growth prospects and performance, no amount of foreign assistance can substitute for a developing country's internal policies and incentives for increasing output and improving the efficiency of resource allocation.

The question of what positive achievements foreign assistance can have, and how an assistance program can be structured for maximum effectiveness when the policies are demonstrably inappropriate, is deferred until later chapters. Before proceeding to consideration of those issues, and the lessons that have been learned about effective utilization of foreign assistance in general, it seems necessary to lay the groundwork by considering the ways in which donors can, or should attempt to, affect or influence domestic economic policies, and the ways in which such efforts might, or might not, be evaluated and contrasted across various recipient countries.

The chapter is organized as follows. The first section addresses issues of "influence," "leverage," and "dialogue." A second section considers the political and other determinants of economic policies within individual countries and the scope for donor influence. A third section discusses the extent to which aid donors can "know" what appropriate policy designs

and policy changes are. A fourth section considers the extent to which one can evaluate the influence and effectiveness of donor representatives in influencing policy choices in a particular country, or contrast that influence across a group of recipient countries. A final section considers the question of program or project assistance in light of these considerations.

2.1 "Influence," "Leverage," "Dialogue" and "Conditionality"[1/]

The question of using aid to influence the recipient country's economic policy implies an initial divergence of views between donor and recipient over various aspects of the latter's economic policy. The objective of donor influence is the reduction or elimination of the initial disagreement so as to produce convergence in donor and recipient views. Influence can be viewed as a continuum. At one extreme, the donor has complete control and imposes its will on the recipient. At the other extreme, the donor has no capacity to affect the course of recipients' policies.

The concept of an influence continuum can be used to analyze the concepts of leverage and policy dialogue. "Leverage" is the capacity to have one viewpoint prevail over the other. This may not always be the donor's. The recipient may get its way in areas of economic policy in exchange for a commitment that it will take some action favorable to the donor in some other area--for example, defense/security.

"Dialogue" is the process through which either or both viewpoints about recipients' policies may change to bridge the initial divergence between the two. The donor may convince the recipient through a dialogue that a policy change advocated by the donor is in the recipient's interest. By using "leverage" the donor may induce the aid recipient to follow certain policies not because the recipient concurs with the donor's views but because, if it does not, the donor might terminate aid, or if it does the donor might extend additional aid.

Leverage is frequently exercised by the donor providing assistance contingent on the recipient's agreeing and adhering to certain conditions in the conduct of its policy. Conditionality is thus understood to refer to the

conditions attached to the extension of economic assistance and to the consequences for the flow of this assistance if the conditions are not met.

In some cases the recipient may agree to undertake certain policy steps which it would have taken anyway. This may be done in order to satisfy the donors' desire that certain "conditions" are attached to the lending - or to satisfy internal opposition by shifting the onus for the possibly unpopular measure to the foreign donor. Cases of such "phantom" leverage are quite frequent.

In practice, it is difficult to distinguish between leverage and dialogue. Even in the most friendly and continuous policy dialogue the recipient may be conscious that in the event of disagreement the donor has the option to terminate assistance. Indeed it is difficult to visualize a pure leverage case in which no dialogue has occurred. On the other hand, explicit and strict conditioning does not mean that a dialogue which will produce a meeting of minds is impossible.

Focusing attention on the availability of leverage and conditionality as a means of influence can be counterproductive. Potential leverage usually linked to the possible size of the aid program can facilitate policy dialogue, but is neither a sufficient nor a necessary condition for its success.

2.2 Determinants of Economic Policies in Developing Countries

That there are major political considerations in the choice of economic policies and policy instruments is apparent by an examination of the political dialogue in any developed country. Despite the fact that "good economics" would suggest that economic policies should be designed to maximize the efficiency of resource allocation while distributive considerations should be met through a tax-subsidy redistributive system,[2/] economic policies in most developed countries are responsive to a number of domestic political interests - agriculture, protectionist lobbies, labor unions, and others.

In developing countries, domestic political interests are also involved in the choice of economic policies and instruments, but there is an additional consideration for many of them. That is, most developing countries have memories of a colonial legacy during which time, the colonial powers determined domestic economic policies. This historical legacy has had several consequences which must be borne in mind whenever the question of influencing domestic economic policies arises.

First, any attempt by foreign (and especially western) countries to influence domestic economic policies is regarded with suspicion and can be viewed as tantamount to an effort to reassert colonial status. The Japanese are the most reluctant to be involved in policy dialogue because of their perceptions that Asian countries where most of their aid is given will object because of World War II memories.

Second, living standards did not rise appreciably during the colonial period in most colonies. Since the colonial powers in general did not pursue activitist or interventionist economic policies, the policies advocated by donor countries and economists concerned with the efficiency

of resource allocation may be regarded as "laissez-faire" and be viewed as designed to prevent growth.

Third, in many developing countries the predominant business group has historically been a minority: the whites and Indians in Africa, the Chinese in much of Southeast Asia, and so on. Advocacy of policies which will enhance the productivity and profitability of the private sector is often perceived as advocacy of foreign interests. Indeed, a major problem for policy formulation in many developing countries is that political power is in the hands of one identifiable national, racial, or ethnic group while economic power is regarded as being held by another, minority, identifiable group. Regardless of the extent to which the "right" economic policies might in the long run benefit all groups in a particular society, the political sensitivities engendered by the minority-majority problems and by the memories of the colonial legacy impart to economic policy a sensitive political dimension for which there is probably no counterpart in most developed countries.

To say that there are strong, and possibly emotionally-based, political pressures surrounding economic policy formulation in developing countries is not to say that donors cannot, or should not, attempt to influence policies. It does suggest, however, that there are limits, which may vary from country to country and time to time, in the extent to which donors may influence recipient country policies.

There are limits on donors' desire to engage in a policy dialogue. Economic assistance usually has a variety of objectives beyond the development of the recipient. Primary among these in some donors such as the U.S. have been security considerations. A major constraint to the U.S. engaging in an economic policy dialogue with some recipients has been the fundamental political commitment of the U.S. to extend the assistance. This constraint

has not been always prohibitive. There have been cases in which a significant policy dialogue occurred, notwithstanding the basic commitment to provide the aid. But then the leverage has been typically less.

It is quite possible that "correct advice", either given in too strong a dose or pushed too far, can lead (or even force) policy-makers to move in the opposite direction. Moreover, adoption of a "correct policy" can lead to the downfall of a politician or a government, and bring into power political leaders whose policies are even more antagonistic to efficient resource allocation and growth than those prevailing when the initial policy advice is given.

The recorded instances of such reactions are numerous. Among the countries included in the case studies covered in Volume II, Ghana's 1971 devaluation may provide the best example. By any economic criteria, a realignment of the relative prices of tradable (and especially exportable) and nontradable goods was probably called for, and the government was persuaded to devalue the cedi. The political reaction, however, was so strong that the government was overthrown and the devaluation reversed within a period of months.

India's 1966 devaluation is illustrative of more subtle and problematic aspects of donor efforts to influence domestic economic policies. There can be little doubt that the rupee was overvalued in 1966. There is also no doubt that the government was essentially reluctant to devalue, and decided to do so only under considerable foreign pressure (which was effective because there was sizeable concessional aid administered by a consortium of donors). The amount of the devaluation was probably chosen with a view to choosing the minimum amount that would satisfy the donor countries. That amount was probably smaller than would have been desirable on economic grounds. Nonetheless, it was large enough to generate a

domestic political reaction, which seized upon "foreign interference" as a rationale for protest (Bhagwati and Srinivasan, 1976, Chapter 10).

The vehemence of that protest left as a legacy the "conventional wisdom" in India that devaluation was not a viable political action in almost any circumstance. For present purposes, the lesson is really a question: were donors wise to push for a devaluation which in any event was probably too small to be optimal under circumstances in which the government was reluctant and could blame foreigners for its unpopular decision? There is no ready answer to that question. Clearly, the Indian economy would have been significantly worse off in the short run had the rupee remained as overvalued as it was, and the move was a step in the right direction. That there is no definitive answer to that question is illustrative of the difficulties surrounding policy advice about economic policies which are determined in the context of a sensitive political environment.

Aid practitioners argue that the "receptivity" of the host country government is a necessary condition to the use of aid to influence economic policies. Receptivity depends first, on the validity of the economic advice; if the donor has little useful to say a dialogue is not meaningful. Assuming that the donor has something to contribute, the effectiveness of the dialogue depends on its conduct which by its very nature must be highly diplomatic.

"Dialogue" leads to an acceptance of policy advice as being in the recipient's own economic development interest. The potential for a dialogue, however, is not well correlated to the strength of the potential leverage as measured by the size of the aid program. Economic policy reform will be lasting only if the host government accepts and fully supports them. Economic policies adopted solely because large donors insisted upon them

are not likely to be forcefully implemented and may well result in the recipient's failure to meet its commitments.

A relatively small assistance program does not by itself rule out all possibilities of a dialogue over a country's policies. On the other hand, a minimum size of aid is probably necessary before a recipient can be induced to listen to what a specific donor has to say. The aid program is a useful entry point without which a dialogue would be impossible to initiate or sustain.

One advantage of program over project aid is that it facilitates discussion over important macroeconomic policy issues. Project aid tends to be administered to ministries with sector responsibility but with very little responsibility for an impact on macroeconomic policy. In contrast, program aid negotiations typically involve officials in the ministries responsible for determining overall macroeconomic policy.

It is thus desirable, in all circumstances, that recipients to the extent possible, reach their own conclusions and not feel they are undertaking policy reforms under duress. Usually donors attempt to strengthen the position of host country advocates of specific policy measures. It is often assumed that this strengthening may tip the balance of whatever internal debate is going on in favor of the donor's advice. However, the opposite outcome is also likely--with the resentment at pressure by donors being channelled to their domestic "allies" even when the policy reform has the expected results. And when the policy change is adopted but fails to achieve its intended objectives, as in India's case, the internal position of those that supported the donor's view is badly compromised.

These thoughts on the conduct of macroeconomic policy dialogue apply to some extent in other areas as well, e.g., in the context of sectoral policies or budgetary allocation decisions. However, there are important differences. The symbolic importance attached to macro-variables - such as the exchange rate - make the dialogue on such issues much more politically sensitive than on other smaller and/or less visible policy issues, such as for example those involving specific budgetary allocations. Donors' efforts in support of a sector or subsector can have the effect of strengthening a particular minister's hand in dealing with the Ministry of Finance or Planning in the allocation of domestic resources to a certain set of activities. While the fungibility of resources suggests that such influence may be illusory, claims are made frequently by aid administrators that they were successful in exerting such influence. Their typical argument is that budgetary resources while in principle fungible - in fact they are not. And the weaker the ministry in charge of the budget is, the less fungible the funds, and the greater the donor's influence.

2.3 What are the Right Policies?

It is much easier to spot policies that are patently "wrong" than it is to specify precisely "the" correct exchange rate, the "right" combination of monetary and fiscal policy, and the "optimal" rate of public investment in infrastructure, education and health. Fortunately, in developing (as well as developed) countries, rapid economic growth and rational resource allocation do not require getting all policies precisely "right". Rather, the prerequisite is the avoidance of the really big mistakes and providing generally appropriate signals and incentives for resource allocation and investment (in human, as well as physical, capital) and savings decisions.

In terms of donor decisions to attempt to influence recipient policies, however, the usual situation is one in which there are a number of large mistakes. The typical donor mission is then confronted with three sets of difficult questions: (1) in the usual political circumstances when it is unthinkable that the recipient government could alter all its "bad" policies at once, there are important questions as to which mistakes should be corrected first; (2) there are then the questions as to how much movement in the correct direction is necessary in order to be preferable to no movement; and, finally (3) there is the difficult question as to the speed at which adjustments should be made.

These questions are not unrelated, and there is no entirely satisfactory general answer to any of them. As is seen in the Korean study in Volume II, it was unthinkable during the 1950's that all the bad mistakes of Korean policy would be corrected. As events unfolded, an initial stabilization anti-inflation program was followed by a major realignment of the exchange rate and assurances to exporters that its real value would be sustained.

This, followed later by budgetary, financial, and tariff reforms, proved to be a highly successful policy package. It is not entirely clear that it was planned in its entirety from the beginning. Indeed, given the change of government which took place between the stabilization plan and the beginning of the export drive, the Rhee government would have been prevented from carrying out a plan even if it had had one. Moreover, except in the sense that American officials were constantly pointing to inappropriate (and very wrong) policies, there seems to have been little or no hope on the part of the American donors that fundamental policy reforms would be undertaken. While U.S. AID clearly was an important positive contributor to the further evolution of Korean policy after the export drive began, it was only in the "dialogue" process, and the environment that it created, that American officials could have contributed to the decisions that led to the initial major policy reforms.

Turning to the choice of policies on which to focus, there is always an element of judgement for at least two reasons: (1) there are questions as to what may be politically feasible to change; and (2) the ways in which particular policies affect resource allocation and growth are conditioned by other policies which are simultaneously in effect. The political feasibility issue is, as was seen in 2.2, a difficult issue. The question of the interaction among policies is also one which, in the final analysis, must be based on the informed judgement of economic analysts familiar with the particulars of each country's situation. For example, in the context of countries with agricultural prices to producers and consumers set by government fiat, with price controls (or public enterprises) predominant in the rest of the economy, there are severe

limits to the effects an exchange rate change may have. It might prove preferable to free up prices within the domestic economy.

That example is, however, extreme. Even in countries which attempt to control prices and regulate economic activity quantitatively, the exchange rate usually has a larger role to play than casual acquaintance with the regulations would suggest (see Chapter 4). Setting the exchange rate "right" is usually a prerequisite for efficient resource allocation. However, regulations that severely impede the labor market (minimum wage legislation, wage indexation, regulations, the imposition of social insurance schemes, or workers' rights that effectively give lifetime tenure or make layoffs virtually prohibitive) may be of greater importance in particular circumstances. In some instances, provisions for subsidized credit at negative real interest rates may be identifiable as the most pressing policy issue.

There are unresolved questions about the relative importance of price stability. While it is generally agreed that larger government deficits and accelerating growth of money supply are inconsistent with sustained rapid growth, there have been numerous cases (including Korea and Brazil) of rapid growth and double digit inflation. When numerous "distortions" are present in a developing country, and not all of them can be changed at once, the donor may lose any effect that it might otherwise have had on policy if reforms are pressed on all fronts at once. Judging which set of policy issues should be chosen for the policy dialogue requires both political judgements of feasibility, and judgements as to the interactions among distorting policy instruments.

Moreover, as exemplified by the Korean case, it is by no means certain that policy "advice" or "dialogue" has its sole effects at the time when it is undertaken. It seems reasonably clear that the policy dialogue in Korea in the 1950's influenced the climate of opinion that surrounded the economic policy changes which later occurred. Yet a contemporary observer of the Korean political and economic environment in 1958 would have simultaneously been very pessimistic about Korea's growth prospects and have correctly pointed out the limited influence of U.S. aid on Korea's economic policies.

This same lesson may also apply in the Turkish case. The reforms which started in 1981 were essentially along the lines that most donors had been advocating throughout the last half of the 1970's. Indeed, there were numerous critics (including Krueger) of donor willingness to continue assistance in the absence of policy changes. However, it may well be that the discussions surrounding earlier assistance, combined with some of the analyses of the Turkish economy carried out by AID economists, the OECD, and others, created the set of opinions which led to the 1981 reforms. Whether the Turkish authorities chose the optimal set of policies on which to focus is a question which cannot yet be answered.

The second issue - how much of a move in the correct direction makes it worthwhile to use influence or pressure to achieve it - is also difficult. Here, the Indian devaluation of 1966 and the limited moves made by the Turkish government in the latter half of the 1970's are illustrative of the problems involved. Again, the issue is political, as well as economic. In the Indian case, it seems clear that the agreed-upon devaluation, while large enough to improve the situation on economic grounds was not large enough to promise underlying and fundamental change. Meanwhile, the political costs associated with the move were very high. Even with the

benefit of hindsight, it does not seem possible to reach a definitive judgement on the optimality of donor influence. The dangers of supporting a move in the right direction that is too small to have all of the desired results but will nonetheless have negative political repercussions must be assessed in each situation.

There is, finally, a third question: the optimal speed of adjustment when policy signals are changed. Again, there is not a single, clear-cut, answer. Especially in the context of an inflationary environment, "too large" a movement of the exchange rate or a domestic price (in response to the removal of price controls) may trigger an accelerated rate of inflation and fail to alter relative prices. "Too small" a movement, however, may also fail to achieve the desired results. In general, there is probably a presumption for more, rather than less, rapid movement because of the political opposition that is likely to be aroused. But, as the recent experience in Argentina, Chile, and Uruguay indicates, the costs of misjudging the rate at which to move, and the appropriate sequence of policies to undertake, can be enormous.

The appropriate conclusions seem to be three-fold: (1) There has been a great deal of learning, in the aid experience, about the importance of appropriate policies, and of the ways in which set of distortionary policies can interact. (2) When several major distortionary policies are simultaneously in place, it is relatively straightforward to identify the set of changes which would lead to a more efficient resource allocation and rapid growth path, but it is much more difficult to judge which change should be undertaken first. Both political feasibility and economic judgements are involved. It seems clear that, on the economic side, research may yield additional insights into the questions of optimal sequencing and speed of adjustment.

On the political side, judgements will inevitably be involved and cannot be avoided. (3) Finally, donors have been slow to adjust assistance levels among countries in response to their macroeconomic policies. Greater concentration of aid resources in countries that have attempted to get their policies right would have yielded higher overall growth dividends to assistance resources.

2.4 Evaluating Donor Influence

A major lesson from the foregoing considerations is that it is exceptionally difficult to evaluate the extent to which donor agencies are exerting the "right" amount of leverage on recipient country policies. First and foremost, the "right" amount of leverage depends on the underlying political situation: what may be so offensive politically as to be counterproductive in one country may be mild exhortation in another (Arndt, 1979). Secondly, the set of desirable policy changes may differ in important ways among countries. Even in the same political climate, different rates of speed of change or sequencing of policy changes may prove advisable. Finally, there is the intangible "climate of opinion" which may be influenced by any number of donor activities, and which donors may continuously influence. "Dialogue" at a given point in time may appear to be ineffective, but nonetheless pave the way for changes in attitude and thinking that permit changes in policies at a future date.

Appreciation of these issues has grown rapidly with the experience of different developing countries and their choice of economic policies. While judgement will inevitably remain crucial in determining the type of dialogue and degree of influence donors have, appreciation of the political environment and the importance of appropriate policies has increased greatly with the aid experience. To say that there are no hard and fast rules is not to say that there has been no learning on the issue.

Bangladesh provides an interesting case study of donor influence (Faaland, 1980). The war of liberation which ended in 1971 caused well over $1.5 billion worth of damage, excluding loss of current input. Assistance was first provided by the U.N. and India. In early 1972, the Prime Minister announced the official policy that Bangladesh would accept assistance from all friendly countries so long as no "strings" were attached (Faaland, 1980: 15). Bangladesh wanted to make its own decisions and be able to coordinate its own programs.

Economic necessity forced Bangladesh to become heavily dependent on foreign aid. Its primary need was for commodity assistance - food, fertilizer, pesticides, spare parts - which was available only from the U.S. and other western countries in sufficient quantities. Donors, however, were more interested in project support and in completing projects started prior to the war. Nearly 40 percent of aid committed was tied to projects but the level of disbursements was very low reflecting the economy's inability to absorb such assistance effectively.

In 1974 a consortium of donors was formed to coordinate their many activities in Bangladesh, to formulate policies for development and to provide in-depth information on the state of the economy. This consortium gave donors even more power and leverage in Bangladesh than they had had previously. As a result of the consortium they had a formal organization whose role was to scrutinize the economy and make decisions for Bangladesh. By 1974 Bangladesh was so heavily dependent on foreign aid that there was very little that it could do. During the period 1973-78, over 70 percent of food and capital goods and about 60 percent of imports of intermediate

goods were paid for by foreign assistance. Foreign assistance has financed typically over 75 percent of public development expenditures (Faaland, 1980: 28-29).

Experience with the donor consortium was mixed. Bangladesh needed commodity aid to get its economy going again but donors preferred to give project aid. Much of the project aid was not disbursed because the economy could not absorb it all. When commodity aid was given, it was subjected to more scrutiny than other forms of aid. Complex accounting procedures slowed down project implementation and aid disbursement. Food aid was used as a lever to change internal rationing policies and to discourage exports of jute to politically sensitive countries. Bangladesh was forced to take over pre-liberation projects it did not want and repay the debts on them. A number of very able Bangladeshi economists, including members of the Planning Commission, felt that donor representatives, with less experience and less expertise, were forcing the Bangladesh government to make unwise economic decisions - "too often exhibiting arrogance combined with authority derived from their being representatives of agencies and interests with large resources," (Faaland, 1980: 181).

Review of the history of the Bangladesh donor consortium does provide some useful lessons. Whether donors act individually or through a consortium they can be expected to use the leverage available to them to influence policy in a manner that they view as both constructive for the recipient country and consistent with the economic and political interests of the donor. The question is, therefore, not whether there will be donor influence but what is the most effective way of organizing policy dialogue between donors

and recipients. The Bangladesh experience suggests that some degree of independence from any individual donor agency or group may be desirable. While there are benefits to be realized by coordinating the contributions of aid donors, too much coordination may give the donor group too much power. No matter how a consortium is organized, donors, including the United States, will play a limited role unless the members they appoint to consortia are professionally competent.

It also seems reasonable to anticipate that with continued experience the interaction between donor consortia and national governments can become more effective channels for policy dialogue. In this connection it is interesting to note that the Director of the Bangladesh Agricultural Research Council (BARC) has recently initiated an agricultural research consortium among donors who provide support for the Council (Ruttan, pursuant to discussion with BARC Director). This consortium is chaired and the agenda established by the BARC. It appears that both the BARC and the donors have found the consortium a useful device for providing more balanced and stable support for agricultural research in Bangladesh. In our judgement, the utility of donor-recipient consortia organized at the sector (i.e., agriculture, health, education, and transportation) level should continue to be explored.

A final question arises with respect to the relative merits of bilateral and multilateral assistance. Bilateral assistance has the obvious advantage that an individual donor can exercise greater discretion in the allocation of assistance resources. The disadvantages of bilateral assistance include a greater tendency for politicization of assistance, the high cost to individual donors of maintaining professionally competent staffs, and the costs of duplication and redundancy in assistance activities. It seems evident that

bilateral and multilateral assistance institutions each have advantages and disadvantages and that both types of institutions will continue to be important.

2.5 Program Versus Project Aid

One of the oldest dilemmas of foreign assistance centers around the question of whether it should take the form of "program" aid or "project" aid. "Program" aid is provided as general support for a country's overall development objectives and thus is destined to finance additional imports while project aid supports particular investment activities in the recipient country. There are also several mixed forms of assistance. Sector aid focuses on particular sectoral objectives but can be composed of a series of linked projects or it can primarily involve non-project assistance such as budget support to a particular ministry or it can be a mixture of both. Depending on its composition sector aid can thus be more or less projectized.

Early thinking about assistance focussed on the proposition that, by financing particular projects, donors could influence the investment programs of a recipient country along preferred lines. The difficulties with this general defense of project aid lie in the fungibility of resources. Unless a donor finances a project that would not otherwise be undertaken at all, the donor's decision to undertake project A will simply permit the government to undertake whatever was the marginal project on its list of preferred investments. If a recipient country knows that the donor believes that more resources should be devoted to a particular sector - agriculture for example - the recipient can simply cut down its own planned expenditure on that sector and encourage donor projects in it.[3/]

Program aid, as an alternative, it can be argued, can be based upon an examination of the overall set of policies that a particular country undertakes. The difficulties with this argument are several: 1) there are often important political reasons why a donor (especially bilateral donors) has an interest in good relations with the country; as such cessation or

severe cutbacks of assistance because of disagreement with the program are difficult, if not impossible; 2) while donors can negotiate over a government's overall economic policy, the domestic political sensitivities discussed in Section 2.2 are an important limit to the scope for such negotiations; and 3) the judgement issues raised in Section 2.3 become exceptionally important under program lending.

On the other hand in the context of influencing recipient policy there are certain advantages to program type aid.

Program aid has a higher scarcity value to the recipient because few donors are willing to provide it but when provided, the amount given per country is relatively large. As a result, the potential leverage is also relatively high.

Program aid is a flexible instrument. It is quick disbursing, it can be increased or decreased at the margin or delayed in timing, and can be released in tranches. One can therefore support economic policy changes as they occur, as well as monitor their implementation. Project assistance, by contrast, cannot be turned on and off easily, and its potential leverage on economic policies is correspondingly weaker.

Finally, program aid is more relevant to a discussion of macroeconomic policies or conditioning in that area. It is much more difficult to develop a policy dialogue on macroeconomic issues on the basis of projects in individual sectors whose links to macroeconomic policy are tenuous, however large the project. Thus program aid is unquestionably the superior form if it is considered desirable to attempt to use leverage to change macroeconomic policy and condition assistance through time related performance criteria. If influence is to be exerted primarily through a policy dialogue the choice between project and non-project aid is more equivocal. There may

be policy issues of importance outside the macro sphere which could be addressed through the sector or project mode.

There is probably no "ideal" resolution of these issues. It may well be that, given the political constraints surrounding bilateral aid (and the technical assistance components of many aid projects), a combination of program and project lending is appropriate, with program lending increasing in importance during periods when governments are undertaking genuine and sustained efforts at policy reforms. This issue is assessed in Chapter 15 as we summarize the overall lessons of the development experience.

Footnotes

1/ This section and section 2.5 draws on the concepts discussed in U.S. Agency for International Development (1982).

2/ This statement ignores the possibility--indeed the likelihood--that redistribution might not be neutral with respect to the efficiency of resource allocation. When distributive goals cannot be achieved without an efficiency loss, then the "right" economic policies cannot be unambiguously defined, and policies aimed only at economic efficiency will be non-optimal. For present purposes, however, the point at issue is that there are intense domestic political interests in the choice of policies and policy instruments, and aid donors can achieve results opposite to those intended if they are perceived to be interferring in internal political affairs of a recipient country.

3/ There is a persuasive argument that many donor-financed projects have had an important component of technical assistance in them that could not have been transmitted in the absence of the projects. For that reason, project aid may anyway be preferred to program aid. The above argument is centered only on the contrast of project and program aid as a response to the desirability of influencing recipient policies. Another consideration, not central to the discussion here, is that project aid typically finances only the foreign exchange cost of projects. As such, it may have distortionary effects, as recipients seek projects with a high foreign exchange content. These may well be non-optimal in choice of technique (because high foreign exchange content is likely to be related to the capital intensity of the project).

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CHAPTER 3

DEVELOPMENT ASSISTANCE, SAVINGS, INVESTMENT AND ECONOMIC GROWTH*

* This chapter was prepared by Vasant Sukhatme. It has been reviewed by Costas Michalopoulos.

The effect of economic assistance on overall output and income growth of the recipient is inherently difficult to analyze. On one hand, analysis on a country-by-country basis is inherently judgemental. But on the other hand, cross section analysis of the relationship between assistance and growth is marred by the fact that successful assistance leads to the termination of assistance. Moreover, as illustrated by the Turkish case, unsatisfactory growth may be the cause of assistance.

As noted in the Introduction, aid can affect macroeconomic growth in various ways. At the simplest level, aid represents foreign savings. If these savings are additional to domestic savings, and if they are channelled to domestic investment, then in the context of a simple model of capital accumulation, aid can potentially stimulate growth by increasing the rate of domestic capital formation. Foreign aid also provides access to imports of goods and services. As a result it has been argued that aid can promote growth, if growth is subject to a "foreign exchange" constraint.

Most of the analysis of the impact of aid on growth focus on these rather simple notions. They have ignored some of the more complex aid-growth interactions of potential significance: Aid's impact in raising total factor productivity as well as its role as a catalyst in promoting policy change, or mobilizing additional domestic resources.

The potential effect on total productivity is obvious - although its measurement quite difficult. Aid programs can and do aim to improve the recipient's factor productivity through the introduction and spread of new technology, through training and through managerial and other improvements. Improvements in factor productivity in turn can be shown to play a significant role in promoting developing country growth. Aid of course can also support

or promote inefficient resource allocation with adverse effects on productivity.

Aid can also be a catalyst for improved policy making as discussed in Chapter 2. It can provide the underpinning for the continuation of ineffective policies. Recipients' policies are often the most important factors that differentiate good growth performance from bad. But it is very difficult to document the effect of assistance on the policies pursued by recipients of development assistance.

In general both aid's role in raising or reducing total factor productivity or as a catalyst for change do not lend themselves to the simple cross-country/time series analyses that characterize investigation in this field. The rest of this chapter will summarize the findings of past research and identify some issues which may warrant additional inquiry. First, the evidence of the relationship of aid to domestic savings and capital formation is analyzed. This is followed by a discussion of analyses of aid's contribution to growth in the context of a "foreign exchange" constraint. The final section draws some tentative conclusions about the current understanding of the aid to growth relationship and explores some possibly useful areas for further analysis.

3.1 Development Assistance and Savings

One of the key questions explored in the literature on the impact of development assistance on growth is its relationship to domestic savings. A number of writers have examined this relationship by considering savings functions in the form:

(1) $S = f(Y,F)$

where S denotes domestic savings, Y gross national product, and F foreign capital inflows. Then, using cross-section data from a number of countries a regression equation relating Y and F to S is estimated using ordinary least squares. If the estimated coefficient of the F variable turns out to be negative and statistically significant, the inference usually drawn is that foreign capital is used at least in part as a substitute for domestic savings. If the estimated coefficient turns out to be positive, then the inference drawn is that inflows of foreign capital spur efforts towards generating greater domestic savings. The analysis usually does not distinguish between economic assistance and foreign capital inflows. Thus with few exceptions (Papanek, 1972 and 1975) it is impossible to distinguish between the impact of aid as such and other flows.

Early analysts such as Kaj Areskoug (1969) and Griffin and Enos (1970) argued that foreign assistance contributed little, if anything, to economic growth and domestic savings. Griffin and Enos on the basis of cross-section evidence from 15 countries in Latin America for 1957-64, concluded that "the general tendency is that the greater the capital inflows from abroad, the lower the rate of growth of the receiving country" (Griffin and

Enos, 1970: 318). Their explanation was that governments often refrain from raising taxes but expand consumption after aid begins and so do private entrepreneurs who receive loans from abroad (Griffin and Enos, 1970: 321). As a result, gross domestic savings as a percentage of GNP tends to fall.

Similar conclusions were reached by Weiskopf (1972) using a two-gap model. He first identified 17 developing countries whose growth he judged to have been subject to a savings constraint, and then estimated a relationship between ex ante savings, income, foreign capital inflow and exports as follows:

(2) $S^* = f(Y,F,E)$

where Y again is gross domestic product, F is net foreign capital inflow (defined as the trade deficit), and E is total exports. In the regressions F is regarded as exogenous. For each of the 17 countries the coefficient of F turned out to be negative, and statistically significantly different from zero. The inverse relationship held up also when he used pooled time series data for the 17 countries to estimate the overall ex ante savings function. According to the pooled estimates the impact of F on S is highly significant, and approximately 23 percent of net foreign capital inflows substitute for domestic savings. Weiskopf's results are probably the strongest in the literature showing a negative relationship between capital inflows and savings. While they are based on a two-gap model which has been heavily criticised, the results are basically independent of the main criticisms of that model.

Gupta on the other hand in his cross section study of 50 developing countries found no relationship between capital inflows and domestic savings [Gupta, 1970]. Similarly inconclusive have been the findings of Bhagwati and

Srinivasan (1975b) who looked at the aid/savings relationship in India in a time series framework.

Bhagwati and Srinivasan explored the hypothesis that India's absorption of foreign aid adversely affected her savings effort. For various sub-periods and for the entire period 1951-52 to 1969-70, they estimate the linear regression equations such as in 1 above. With the exception of the period 1951-52 to 1965-66, the coefficients of foreign capital inflow either current or lagged were not significantly different from zero, implying that external resources did not influence domestic savings. However, when they postulated domestic savings as a function of domestic expenditures (that is, Y + F) rather than income (Y) alone, they "cannot rule out altogether the possibility that external resources substitute for domestic savings," (Bhagwati and Srinivasan, 1975b: 232). In summary, they argue that there is not enough evidence, and at best the evidence conflicts, to say whether the absorption of external resources adversely affected India's domestic savings effort.

The inconclusiveness of the findings on the aid to savings relationship has led different analysts to explore different variations of the same theme - Bhagwati and Grinols (1975a) asked: "How much does this matter?" More specifically, they asked whether the influx of foreign capital in reducing domestic savings "postpones, or renders infeasible, the reaching of self-reliance," (Grinols and Bhagwati, 1975a: 416). They developed a simple version of the Harrod-Domar model and discuss simulation runs of savings and the savings ratio, with and without aid, for a number of less developed countries.

Using the negative coefficient obtained by Weisskopf for the foreign aid variable in the savings equations, they analyzed how long it would take for savings, with capital inflow, to recover to the level that would be reached without the inflow. The growth in income (and hence savings) from the higher investment (induced by capital inflow) would be larger, the larger the output-capital ratio. At an output-capital ratio of 0.3, it would take anywhere from 2 years (for Colombia) to 92 years (for Jordan) for the savings level with foreign aid to catch up with savings levels without aid capital inflow.

The results for the savings ratio analysis show that the savings ratio with aid remains below the savings ratio without aid for a very long time even though the former may increase. But where a country is a high saver to begin with, the initial negative savings impact of aid is small.

In contrast to Bhagwati-Grinols who worked with a constant level of aid inflow, Dacy (1975) considered the issue of how the growth rate might be affected after aid has been discontinued. Dacy considered three phases: pre-aid, aid, and post-aid. When aid begins, total saving (defined as domestic plus foreign saving) increases as does the level of income. Both savings and income continue to rise during the period of aid. If aid is to promote the growth rate in the long run, "the economy must develop sufficient impetus during the aid phase so that the growth rate will follow some (path) ... higher than the no-aid growth path after aid has been discontinued" (Dacy, 1975: 552). This impetus is lost if government saving declines in consequence of aid, that is, if there is an increase in government "expenditures on programmes, such as defense, internal security, higher pay for civil servants,

and education, programmes that could easily absorb more than the amount of aid a country is likely to receive," (Dacy, 1975: 555).

Dacy disaggregated total savings to analyze private and public sector savings behavior. If there is an increase in non-productive government expenditures as a consequence of aid and if these expenditures "cannot be cut back once implemented" then it is certainly plausible that the growth rate will fall (Dacy, 1975: 560). But his analysis also suffers from methodological shortcomings. For example, it does not appear reasonable to lump government expenditures on education in the same category as higher salaries for civil servants nor to assume that either or both are necessarily "non-productive".

On balance Dacy concludes that a given amount of aid is more likely to stimulate post-aid growth the higher the initial domestic savings ratio, the lower the percentage of aid tapped for government consumption and the longer the term of aid. This conclusion points to the importance of the recipients' policies framework in utilizing aid as a key determinant of the aid/growth relationships--a theme to which we shall return later.

It should be noted that in none of the more recent studies is it even suggested that assistance is completely offset by reduced domestic savings. Rather, the question is how much assistance is additional. Obviously, the answer will vary among countries. In Korea, where the policy dialogue influenced the decision to raise incentives to save after 1964 it could be argued that aid led to higher domestic savings than would have otherwise been realized. It seems apparent, except when policies are exceptionally perverse, substantial additionality is achieved.

3.2 Development Assistance, Capital Formation and Growth

Paralleling these analyses of aid and savings, another series of studies similar in conception have been undertaken that attempts to explain output growth in developing countries. In these studies output growth is related to capital formation, from domestic and foreign savings as well a other variables, such as labor, export performance etc., in various combinations of cross-country/time series analyses. These studies esentially assume a neoclassical growth framework with growth in capital and labor inputs explaining output growth. However, they disaggregate between domestic and imported capital and other variables which aim to capture other aspects of developing country performance--especially indicative of efficiency in resource allocation.

The basic equation used in such models is

(3) $Y = f(K_d, K_f, L)$

Michalopoulos and Jay (1973) showed in the context of such a model that labor inputs (L), foreign capital inflow (K_f), as well as capital formation from domestic savings (K_d) were positively related to output growth (Y) using cross-country analyses for 39 developing countries in the 1960s. Their results were subsequently confirmed and extended by Balassa, (1978) to cover a different range of countries and later periods. In both cases the indications were that the effect of capital inflows on output growth, while positive, was small--indeed smaller than the impact of domestic savings.

These results are similar to Papanek's findings (1973). He also used cross-country analysis to examine the relationship between GNP growth and aid, other capital inflows, and domestic savings. His analysis did not include labor inputs or other "efficiency" indicators. On the other hand, he distinguished between 'aid' and other capital inflows.

His conclusions were that savings and foreign inflows "explain" about one-third of GDP growth in his sample of Asian, African, and Latin American countries. The coefficient for the aid explanatory variable was found to be nearly twice that of the other independent variables. Some interesting regional differences in the estimated equations were also observed. For example, "savings and foreign inflows, and especially aid, have the most unequivocal impact on growth in Asia and the Mediterranean countries.... coefficients are distinctly lower for the Americas and barely significant" (Papanek, 1973:123).

Finally, a relatively recent survey article by Paul Mosley (1980) attempted to determine whether the relationship between foreign aid inflows income and savings estimated using 1960's or earlier data would hold over different samples and different time periods, as well as whether a lag structure would improve the results.

Using data from the 1970's he estimates by two-stage least squares a model of lagged response of GNP to aid for a sample of less developed countries stratified by income level. The coefficients of determination for the equations where growth of GNP is the dependent variable are generally very low. Only "between 4 and 25 percent of growth in LDC's in the 1970's is explained by domestic savings and capital flows from abroad (Mosley, 1980: 82). Mosley goes on to add that "this poor explanatory performance is not surprising, given the number of other variables that can influence growth . . . but it does suggest that the investment/GDP ratio, once seen as an over-ridingly important determinant of growth in LDC's must no longer be seen in this way" (Mosley, 1980: 82, emphasis in the original).

When the countries are stratified by income level, aid is seen to be positively correlated with growth in the poorest countries but negatively correlated with growth for the middle income countries. There are also many differences between donors: U.K. aid is positively and significantly correlated with per capita output growth, French and Scandinavian aid is insignificantly correlated with growth, but U.S. aid is positively correlated only in the middle-income countries.

Whether the analysis focused on the aid-domestic savings relationship or their value in explaining economic growth, the results obtained by most analysts are weak, and on occasion contradictory. The weakness of the results obtained reflects both the weakness of both the concepts and data utilized.

First, a savings function must explain savings behavior both by the public and private sector. It is difficult to the call the savings functions estimated in the 1970's, such as those by Weisskopf, as functions explaining savings behavior. The microeconomic foundation of such functions is especially weak since savings or investment are seen solely as an alternative to consumption rather than as a way of redistributing consumption in a temporal sense.

Second, the analysis focused on net capital inflows--often estimated through the current account of the balance of payments not aid. There is little assurance that the inflow while "capital" in one sense, did not in fact add to domestic consumption rather than savings. But this should not be viewed as an indictment of aid. Economic assistance during these earlier periods of analyses was a much greater proportion of capital inflows than it is today. But it surely was not the whole--and the proportion tended to vary significantly country by country. Mosley's results point to the fact

that the relationship between aid and growth is stronger in the lower income countries where the ratio of assistance to total capital inflows and to domestic investment is higher.

Even when aid is looked at separately, it is quite evident that some forms of aid are much more likely to involve raising domestic consumption than investment. Roughly 20% of U.S. assistance for example over the years has consisted of food aid. It is doubtful that any significant portion of such aid resulted in increased capital formation of the recipient. Indeed, under provisions of PL 480 an effort is made to assure that food and shipments will not substitute for other commercial food shipments — and thus add to total consumption. Similarly, there is no presumption that USAID programs involving budget support under the Economic Support Fund (ESF) or similar previous programs result in additional capital formation. Thus it is quite important in any further analysis to (a) disaggregate between aid and other capital inflows; (b) to disaggregate among countries at different levels of income; and (c) disaggregate between different kinds of aid in terms of its relationship to domestic savings and consumption.

3.3 Development Assistance and the Foreign Exchange Constraint

Given the extensive attention given to the role of aid in relieving a foreign exchange constraint in the 1960's, very little empirical evidence exists to support the hypothesis that development assistance has indeed been an effective instrument in overcoming such constraints. What little evidence does exist suggests that development assistance has not had a positive impact on growth via its effects on country foreign exchange availability.

Massell, Pearson, and Fitch (1972) looked at development assistance in its role of augmenting foreign exchange availability. They distinguished three components: exports of goods and services, net public foreign capital inflows, and net private capital inflows. Using both lagged and current values of these variables, Massell, et al, concluded that the three types of foreign exchange receipts have markedly different effects on various indicators of development such as annual gross fixed capital formation, GNP, and aggregate imports of goods and services. In terms of overall impact, private capital inflow was judged to have the greatest impact on all three of the above indicators of development. Each additional dollar of private foreign capital inflows were judged to have the greatest impact on all of the above three indicators of development. Each additional dollar of private foreign capital was estimated to generate approximately one dollar each of imports, investment, and GNP within a two-year period. Public foreign capital (most of which was foreign aid) resulted in a smaller net increase in imports and in investment and is "quite ineffective in stimulating GNP." There is, of course, the same difficulty in interpreting these results as in evaluating

the relationship between assistance and savings. The successful countries are able to resort to private capital markets.

In addition, there are some cases in which large inflows of aid essentially of a program type have occurred in response to a perceived need to shore up the very shaky balance of payments position of a country where a donor has a special foreign policy interest. Sometimes this has been done in conjunction with IMF stabilization programs as in Turkey, sometimes independently. In such cases, it could be argued that the influx of assistance either permitted the implementation of a liberalization program with positive long-term growth effects or enabled a recipient to avoid a significant domestic retrenchment which would have adversely affected growth. But because assistance of this kind is frequently extended to countries with low overall growth patterns, any positive effect that aid may have had in averting a crisis does not show up in cross country anlayses of the type that have been attempted. Also, where aid was extended, sometimes in massive amounts, in the absence of a good economic policy framework, it tended to have little impact on growth either in the short or the longer term.

On balance, it would seem that given the small size of economic assistance relative to foreign exchange availability in most countries, the importance of the countries' own policies in determining their balance of payments situation as well as the inherent conceptual difficulties associated with the "exchange constraint" concept, little weight should be attributed to this mechanism in gauging the effectiveness of economic assistance.

3.4 Productivity Growth and Policy Reform

Analyses of aid in the past have tended to treat all forms of aid as one and treat all aid as capital inputs. In a sense aid is that. But the methodology thus constructed does not capture the effects of aid in causing productivity growth, and thus there is a presumption that on this count at least the benefits from aid have been underestimated.

The important potential of aid in raising factor productivity was recognized in the recent study by Mikesell [1982]. Using developed country estimates, this study focused attention on the fact that growth in factor inputs typically explains only a portion of output growth. What he did not mention are studies that show that in the developing countries growth in factor inputs tends to explain even less of total output growth than in the developed countries. Mikesell did not attempt to explore systematicaly the effect of assistance activities in raising productivity. To do this requires a disaggregation of aid by type.

A significant portion of aid programs consist of technical assistance efforts. The objectives of these activities are to raise productivity by introducing new, more productive technologies, training, improvements in management, all of which can have an impact on improving productivity. While in theory these activities can have a significant positive impact on development this impact is not readily measurable. This is in part because their output is diffused among sectors, in part because they often are provided in the context or become a part of a capital project.

There is substantial evidence that the technology transferred to developing countries through the technical assistance efforts of aid agencies in agriculture especially in the introduction and spread of the HYV has

greatly contributed with the rapid expansion of agriculture output (Chapter 9). Similarly, recent information about the effects of the international effort to eradicate onchocerciasis suggest that this technical assistance activity can have significant long-term effects not only in improving health but also in raising productivity of a significant portion of the population in central and West Africa.

There are many such examples. However, there is a dearth of information that systematically evaluates the effect of technical assistance efforts in raising productivity in individual countries or in individual sectors across countries.

Training is another significant component of assistance programs. Economic returns to projects involving human resource development in developing countries have typically been shown to be quite high. But there is limited information relating to the aggregate effect of training in raising productivity in the recipients (Chapter 7).

In general evidence about how aid promotes efficiency, through technical assistance or through the introduction or spread of more productive technology, training or other mechanisms that tended to raise factor productivity, has not been systematically studied. It would appear that an important area of future inquiry on the impact of assistance should be its effects on productivity.

3.5 Some Conclusions

In summary, it is clear that we cannot conclude on the basis of the cross-country evidence that aid generally and unambiguously has had a significant positive effect on developing country growth. At best the evidence suggests that such a general impact, when it has been discovered, has been modest. This finding is not unexpected given that aid is biased toward countries that (a) "need" assistance because of poor performance and (b) the lower relative importance of aid as a capital input in total savings and investment in the more successful countries. Aid is likely to be more important when the country is poorer - since other flows are less important and domestic savings typically lower.

The nature of aid's contribution depends on the kind of aid provided. Most analyses suffer from the drawback of lumping all aid together - when it is well known that there are great differences between the potential impact of for example, a road project, a food aid program and a program of technical assistance designed to introduce a new technology. The lumping of all types of aid together has also had the result of focusing attention on the role of aid as a capital input or as an addition to foreign exchange earnings. This tendency in turn has resulted in neglecting to evaluate aid's impact in raising productivity - and as such has probably led to a general underestimate of the positive effect of aid.

Finally, whether a country takes advantage of the potential that aid in its many dimensions offers clearly is a function of a country's own economic policies. These can also be affected by the donor-recipient relationship - both the economic policies and the donor-recipient relationship are country specific and can best be examined in a single country context. It is only through intensive analysis at that level that further insights on the macroeconomic effects of aid are likely to be developed.

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CHAPTER 4

THE TRADE SECTOR POLICIES AND THE IMPACT OF ASSISTANCE*

* This chapter was prepared by Anne O. Krueger.

THE TRADE SECTOR AND ASSISTANCE POLICIES

There is perhaps no sector of developing countries' economies about which more has been learned than the trade sector. And there is no sector in which the policies adopted are more crucial in affecting all aspects of economic activity and the outcome of other sectoral programs.

The interrelationships between the trade sector, trade policies, and the effectiveness of aid are complex. In countries where trade and exchange rate policies have been unrealistic, aid projects in other sectors of the economy have often been adversely affected, and aid resources have been significantly less productive than in cases where trade and exchange rate policies have been appropriate.

In this chapter, the lessons that have been learned are reviewed. Of necessity, we start by sketching the relationships between overall trade and exchange rate policy, general development performance, and aid. We then proceed to indicate how the productivity of aid is affected by the types of trade policies pursued, illustrating with examples from the experience of aid policy in the five countries.

4.1 The Exchange Rate, Trade Policy and Development

It has long been accepted by economists that free trade is the economic policy that will provide the most rational resource allocation except in special circumstances.[1/] Under such circumstances, a unified exchange rate (either fixed or floating) would insure that relative domestic prices equalled those on the international market and thus that producers would act in accordance with comparative advantage.

However, when establishing policies they believed would foster rapid economic growth, policy makers in most of the developing countries rejected the notion of comparative advantage. In part this was because the doctrine was misunderstood to imply that they would always produce only primary commodities. Two different, not mutually exclusive, reasons were given. Some believed that the potential for increasing export earnings was severely limited (so-called "elasticity pessimism"). Others wanted to encourage the development of domestic industries which it was believed could not start without a considerable degree of protection from imports. Policy makers in developing countries generally chose to adopt quantitative restrictions as a means both of protecting of domestic industry and of restraining excess demand for foreign exchange.

Once in place, such restrictions tended to become increasingly severe over time.[2/] Both because the demand for imported machinery and equipment rose with efforts to stimulate development and because import demands tended to be underestimated, excess demand for imports increased with time. Instead of altering the exchange rate, the authorities in most developing countries chose to restrict imports through licensing systems and other mechanisms.

The results were two-fold: (1) The increasingly restrictive licensing system conveyed higher and higher levels of protection to domestic producers of import-competing goods. (2) Failure to adjust the exchange rate meant that production for export was increasingly unattractive relative to production for the domestic market.

In consequence, export earnings failed to grow at the same pace as the demand for imports, and the disequilibrium in the system intensified over time. For present purposes three points about this system are important to note: (1) domestic relative prices provided poor signals for evaluating the true relative attractiveness of alternative production activities; (2) exportable production was discriminated against via the exchange rate overvaluation, the high cost of domestically-produced import substitutes and also by the pull of resources into heavily protected import-substituting industries; and (3) because of the dislocations caused by increasingly severe balance of payments problems, rates of economic growth tended to slow down over time until corrective action was taken. Thus, many developing countries experienced "cycles" of growth. First, a balance-of-payments crisis would force a slowdown in economic activity. Finally, the situation would become sufficiently desperate so that the regime would be liberalized and the exchange rate altered to a realistic level. There would then follow a period of slow growth during which export earnings would increase and import demand would be relatively low due to the low level of domestic incomes. When foreign exchange reserves started accumulating the authorities would again relax the import regime. Imports would boom, domestic production would expand rapidly, export earnings would fail once again to keep pace with rising imports, and another balance-of-payments crisis would ensue.[3/]

4.2 Relationships Between the Trade Regime and Development Assistance

In the context of the aid relationship, the inner-oriented, highly restrictive trade policies and unrealistic exchange rates had several implications. First, aid efforts to assist certain key sectors of the economy were less successful than they would have been had the exchange rate been appropriate. Second, some projects that appeared worthwhile at prevailing domestic prices and exchange rates were in fact economically unsuitable when realistically evaluated. Third, during the periods during which foreign exchange "shortages" were becoming more stringent, aid receipts substituted for export earnings and as such permitted non-optimal economic policies to persist longer than they would have had aid foreign exchange not been available. Fourth, aid assistance with the transition from restrictionist to relatively more liberal trade policies had an extremely high payoff, and was one of the most effective forms of assistance possible. Fifth, the experiences with the trade sector demonstrates the difficulty of sectoral assistance programs which are independent of overall macroeconomic policy evaluation.

Each of these lessons is extremely important and is discussed in more detail in the subsections that follow.

Disincentives for Agricultural Production

That aid assistance to some key sectors was less effective than it might have been is aptly illustrated in the case of agriculture. Here, many aid projects were designed to increase production of selected key commodities often by subsidizing inputs and credit in an effort to make production

more profitable and hence more attractive (Chapter 9). In many cases, however, the value of the implicit subsidy to inputs was far less than the disincentive inherent in an overvalued exchange rate. In India, for example, the overvaluation of the exchange rate in the early 1960's constituted a tremendous disincentive for producers to grow export crops (Bhagwati and Srinivasan, 1975). The relative domestic prices of these crops (including especially tea and jute) were so low that supply failed to grow as rapidly as it would have at more favorable prices and India's share of the world market fell sharply. Meanwhile, agricultural assistance projects were addressed to increasing the supply of these and other commodities (Chapter 11).

More generally, the failure of agricultural production to grow at satisfactory rates in many developing countries was at least in part a function of the relatively low prices producers received for their outputs. Those relatively low prices in turn were a reflection of the exchange rate, which would have been more realistic had alternative exchange rate and trade policies been pursued. Assistance to encourage agricultural production would have had a substantially larger payoff in the presence of realistic exchange rate and trade policies.

The same conclusion pertains to industrial activities with export potential. In the developing countries which pursued inner-oriented trade policies, the traditional export industries were generally at a disadvantage contrasted with the newly-developed, import substitution industries. In many of those instances (again including India where there was a special Export Promotion Unit within USAID), aid projects were developed to encourage exports. Those projects would either have been more effective or unnecessary in the presence of a more realistic exchange rate.

Evaluation of Projects

Use of "border" or international prices is appropriate for evaluating the benefits and costs of individual projects (Chapter 5). Even when analysts are fully aware that domestic prices diverge from international prices, adjustment of estimated costs and benefits to take these divergences into account is difficult.

In early aid experience, however, even those adjustments were seldom attempted and project evaluation (which is probably one of the areas where aid made a considerable long-run difference to developing countries' governments abilities to allocate their internal resources more rationally than had earlier been the case) was generally based on existing prices. Some aid-financed projects, especially in the industrial sector, turned out to be in industries and sectors which were heavily protected and in which, therefore, allocating resources was wasteful.[4/]

Among the lessons that have been learned by almost all foreign assistance agencies is the importance of evaluating projects at international prices. Moreover, it is becoming increasingly widely recognized that, if the exchange rate is permitted to become significantly overvalued for a protracted time period, and if the exchange control regime is increasingly restrictive, project evaluation becomes subject to increasingly wide margins of error.

Assistance as a Substitute for Export Earnings

Especially in the 1950's and early 1960's when the cumulative difficulties inherent in restrictionist trade regimes had not yet become evident, governments recognized that their "foreign exchange shortages" constituted an effective constraint on their ability to undertake investment projects

and permit rapid economic growth. In many instances, transfers of aid permitted significantly higher levels of investment in the short run than would otherwise have been possible, given available sources of foreign exchange. And, given that trade and exchange policy was what is was, there can be little doubt that foreign aid permitted growth at rates in excess of what would otherwise have been attainable. However, since the dislocation associated with increasingly restrictive trade policies inevitably implied a slowdown in growth rates, aid may have postponed the time at which governments were forced to take corrective actions.

This does not mean that all foreign assistance during periods of restrictive exchange regimes were counterproductive. On the contrary, it can be argued that some forms of assistance (such as transport development, increasing productive capacity in agriculture, and educational investments) provide the resources with which a country can benefit when its economic policies are appropriately realigned. In the absence of such preconditions, the benefits accruing to the adoption of rational economic policies may be small because of infrastructural and other supply bottlenecks.

This is amply illustrated by the Korean experience (Chapter 13). During the 1950's, when American aid was at its peak, the Korean government pursued a highly restrictive trade regime. Although the growth rate was moderate, infrastructural investments undertaken with AID support, expansion of education, the delivery of inputs to the agricultural sector, and other activities were undertaken.

The trade and exchange rate policies were gradually reversed from 1958 to 1961, after it was recognized that American aid would not grow at a rate that would permit domestic economic growth. Korea's rapid economic growth

in the 1960's was in marked contrast to the moderate growth of the 1950's and the structure of the economy was transformed. To say that aid had not been productive in the 1950's would clearly be mistaken; many of the projects then undertaken were essential to permitting the high rate of expansion in the 1960's. However, it is also the case that the availability of foreign exchange from aid sources in the 1950's permitted the perpetuation of multiple exchange rates, rapid inflation, and a highly restrictionist trade regime longer than would otherwise have been possible.

Although understanding of the development process is not yet adequate to permit precise determination of when foreign assistance simply becomes a substitute for needed domestic policy reforms, there has been growing awareness of the problem. In some instances, American political interests have dictated that assistance should continue in instances where AID officials were well aware of the shortcomings of domestic economic policies. The political constraints upon aid levels are probably a more important deterrent to reducing aid in instances of extremely irrational domestic economic policies than is the lack of understanding of the problem.

The issue is inherently a difficult one, both because assistance can provide the foundation to support later growth and because it is difficult, if not impossible, to evaluate the feasibility of changes in economic policy. In some instances, efforts by foreign donors to persuade aid receiving countries have had the opposite result, and it is exceptionally difficult for anyone to evaluate the scope for policy changes.

Facilitating Policy Changes

While some aid may have been counterproductive in permitting ill-advised economic policies to continue longer than they otherwise would have,

a highly productive use of aid resources has been to encourage and facilitate the transition to more realistic policies. Of necessity, any such transition is extremely difficult and politically hazardous[5/] (Cooper, 1971; Krueger, 1978).

It usually starts from a point of extreme dislocation and a balance of payments crisis. Even if economic policies are realigned appropriately, a country which is constrained to rely upon its own sources of foreign exchange to finance imports during the transition is likely to have to undergo a prolonged period of recession if it is to permit the domestic economy to make the necessary adjustments. This increases the likelihood of political difficulties, a change in government, and abandonment of the program. Foreign aid can permit an increased flow of imports (or at least prevent the necessity of a reduced flow) during the transition period, thus permitting a higher level of economic activity consistent with import liberalization. An outstanding example of the productivity of this sort of use of foreign assistance is the Turkish devaluation of 1958. There, the realignment of policies was accompanied by an increased flow of imports. Inflation was reduced from the double-digit range (in excess of 20 percent) to less than 5 percent, while simultaneously export earnings grew rapidly and the rate of economic growth exceeded 5 percent in the year following the change in policies.

4.3 The Linkage Between Macroeconomic and Sectoral Policy

As the above discussion indicates, there are major difficulties in carrying out sectoral assistance programs independently of any assessment of overall economic policies. Not only is knowledge of the trade and payments regime (and of other aspects of domestic economic policies) essential for appropriate project evaluation, but assistance can have vastly enhanced payoffs when undertaken in the context of appropriate domestic economic policies.

There is little question that appropriate relative prices and rewards for producers' economic activities are the most important single inducement to rational resource allocation. That implies that foreign assistance devoted to facilitating production increases in sectors where relative prices are depressed by domestic economic policies is far less effective than it would be were relative prices appropriately aligned. While it is impossible to set forth a single formula to cover all cases, it would certainly appear to be the case that aid donors' willingness to increase and decrease recipients' shares of aid in response to their domestic policies, whether or not they engage in policy dialogues with recipient countries, would enhance the overall productivity of aid.

Footnotes

1/ These circumstances were originally understood to include such phenomena as the infant industry argument; the presence of externalities; and other distortions in the economy. In recent years, however, it has come to be recognized that in most circumstances, interventions other than trade policy will generally yield an economic outcome superior to a departure from free trade. Moreover, economists have come to question whether, even if the optimal intervention cannot be undertaken, a trade intervention will have the desired result (Baldwin, 1969).

2/ The reasons for this tendency have been analyzed in numerous cases. See, for example, the USAID-sponsored country studies in the National Bureau of Economic Research project on Foreign Trade Regimes and Economic Development, the results of which are summarized in two volumes: (Bhagwati, 1978; Krueger, 1978; Little, Scitovsky and Scott, 1970).

3/ This process is described in detail for Turkey in Chapter 14. For a description of this cycle as it applied to Latin America, see (Diaz-Alejandro, 1981).

4/ See, for example, Chapter 14 for a review of lending activities of the Industrial Development Bank of Turkey, which was initially USAID-financed. While the Industrial Development Bank later adjusted its criteria as economists learned about the dangers of using domestic prices, some Industrial Development Bank projects as well as some directly AID-financed projects (including especially the Eregli Iron and Steel Mill) turned out to be high cost import substitution activities.

5/ (Cooper, 1971; Krueger, 1978).

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CHAPTER 5

COST-BENEFIT ANALYSIS*

* This chapter was prepared by Anne O. Krueger with the assistance of Marsha Blumenthal.

The preceeding chapters have focussed upon the macroeconomic impact of assistance. In fact, however, most foreign assistance --multilateral as well as bilateral -- has been extended in support of specific projects. These projects have been specific investments, or series of investments, in particular fields -- irrigation, electric power, roads, railroads, telephone, ports, health, education, and sanitation, just to name some of the prominent ones.[1/] In subsequent chapters, substantive issues and lessons emerging from experience in these sectors, and experience in particular countries are reviewed.

In this chapter, the purpose is to provide an overview of the techniques of analysis that have been developed and applied as a means of attempting to achieve an efficient and rational allocation of aid (and other) resources. These techniques, known as "cost-benefit" analysis, were gradually developed over the period since 1950 in response to experience countries had with their public investment programs.

In the early days of assistance efforts, projects appear to have been financed with little prior planning or evaluation. Many of these encountered enormous difficulties due to a variety of causes:huge cost overruns; long delays in implementation; low utilization rates of completed projects due to poor planning (as, for example, when there were no feeder roads to serve a main road or when railroad and road capacities were expanded simultaneously and independently to carry the same traffic), misestimation of demand levels, or technical difficulties.

Economists and others concerned with improving the efficiency of resource utilization began devising techniques of analysis with which projects could be "evaluated" ex-ante, to insure that they would contribute significantly to development efforts. By the 1980s, cost-benefit analysis has been widely accepted as an instrument around which projects should be appraised. Not only have development assistance agencies (including US AID and the World Bank) themselves used cost-benefit techniques (and participated in their development and refinement), but they have been leaders in getting developing countries themselves to adopt variants of cost-benefit analysis for their own investment programs.[2/]

Many observers believe that the transmission of cost-benefit techniques to developing countries may in itself have constituted one of the enormous contributions of foreign assistance. Arnold Harberger, for example, insists that the best assurance development assistance agencies can have that aid expenditures will be effective "must come from the massive and rapid improvement of the procedures by which less developed countries evaluate their own projects," (Harberger, 1972: 638).

As discussed in this chapter, cost-benefit analysis is a technique used in the aid evaluation process. However, it should be borne in mind that, using cost-benefit techniques to help recipient countries prepare projects for aid financing is probably simultaneously training government officials in those countries to use the same techniques for other projects.

5.1 What is Cost-Benefit Analysis?

Cost-benefit analysis is a process, which, by its nature, imposes a discipline on officials involved in deciding upon the projects to be undertaken in aid (and other) efforts. In its finished form, the cost-benefit analysis for a project provides officials with an estimate of all the project costs and of the stream of benefits likely to accrue from a particular project. However, those estimates themselves require effort: estimation of the costs of a project requires engineering and other inputs, and, indeed, a plan of work to construct the item -- dam, port, road, steel mill, or whatever -- under consideration.

Some believe that the discipline of obtaining careful engineering and cost plans in itself is a major guarantee against project failures. Mason and Asher, writing about the World Bank, asserted that "The Bank's painstaking procedures for the identification, preparation, appraisal and supervision of projects account not only for the absence of corruption but also for the fact that, with few exceptions, its completed projects have done about what they set out to do and have resulted in rates of return in excess of the rates of interest paid." (Mason and Asher, 1973, p. 699).

However, cost benefit analysis goes beyond this to examine the benefits that will accrue to the project. This typically focusses attention upon the probable demand for the project's output -- the reduced costs of truck haulage resulting from a better road, the value of electricity produced at a hydroelectric site, etc. -- and, when done properly (in the context of the overall program

for a particular sector of the economy, such as transport), can influence project design (by making it to a more appropriate scale, insuring the ancillary investments that will make the investment usable or altering the investment to make it so) to increase the benefits from it.

Thus, even the discipline of trying to estimate costs and benefits can lead to significant improvements in project design and execution in ways that reduce the scope for horrible mistakes and increase the probable payoff from the project.

However, cost-benefit analysis goes beyond this simple planning procedure. Early project evaluation tended to estimate benefits and costs, take the ratio of them, and stop there. However, in the context of the economies of developing countries, and especially those that adhered to unrealistic exchange rates and protectionist trade regimes that drove the prices of import-substituting goods well above their international prices, it became evident that merely estimating costs and benefits in financial terms was inadequate. It is pointed out in the Turkey case that some larger aid financed investments were inappropriate precisely because such adjustments were not made in the cost-benefit calculations.

The biggest and most important refinement in the technique has been to evaluate both inputs and outputs at international (border) prices, rather than domestic prices.[3/]

Thus, some of the projects that were financed in the late 1950s and early 1960s that proved to be uneconomic, such as the Eregli Steel Mill discussed in Chapter 14 would not be undertaken today. This is because project planners would use the

international, rather than the domestic, price of steel in making their evaluations in modern conditions.

Other adjustments are also occasionally made. In some developing countries, where the wage rate is artificially high, project evaluations have been made using the "shadow" wage rate for labor (i.e. a number more accurately reflecting the cost of the labor). In countries where credit rationing at artificially low interest rates is prevalent, project evaluators use "shadow" interest rates more appropriately reflecting the opportunity cost of capital.

When benefits and costs are both estimated (at present prices, so that the artificial effect of inflation is netted out), the benefit-cost analysis is completed by transforming the estimates into either a benefit-cost ratio, or preferably, an estimate of the economic rate of return on the project. Obviously, the economic rate of return must be positive, and usually a cutoff number, such as 10 percent, is chosen.[4/] When the benefit-cost ratio itself is used, some minimum cutoff point is also chosen, with the benefits estimated for a "typical" year in the life of the project.[5/]

It can be argued that any criterion of project evaluation is open to the criticism that the analyst may be excessively optimistic or pessimistic or that some agencies bias the estimates to obtain favorable estimates of project benefits. But the advantage of going through a formal cost-benefit analysis is that the numbers and procedures can be critically reviewed.

5.2 How is Cost Benefit Analysis in Fact Used?

A great deal more can be done with cost-benefit analysis in the hands of a good user: the analyst can test how sensitive is his estimate by altering his assumptions (as to the length of time before the project comes on stream, the future world price of the commodity, and so on). He can examine alternative projects that might fill the same general needs to choose that which yields the highest rate of return, and examine alternative techniques that might be chosen (hydroelectric or thermal power, truck or rail transportation, etc) to ascertain which is likely to be most economic.

To be sure, there are some unresolved questions. Recently, some users of project evaluation techniques have advocated the use of "distributional weights", thus giving larger weights to benefits accruing to the poor than to the rich as the result of a project. Others, most notably Mishan (1982) have dissented strongly, arguing that valuation of outputs and inputs should remain independent of judgements over income distribution. Another difficult issue pertains to whether it makes sense to use a set of "shadow prices" for public sector investments when the private sector is maximizing subject to market prices.

However, actual use generally falls far short of even the modest sophistication of adjusting for shadow wages and interest rates. Indeed, in a review of aid projects, Morrison and Arreaga-Rodas (1981) found that cost-benefit analysis was not always undertaken and that, even when it was, border prices were not always used.

Others, such as Tendler (1975) have pointed out that project loan officers are under pressure within their agencies to "produce" projects within a time period that corresponds with the budget cycle. There is thus a possibility that loans officers may undertake project evaluation with an eye to justifying a project already decided upon.

Despite these concerns, there can be little doubt that a great deal has been learned about the management of projects over the past several decades, and that techniques of project evaluation have contributed importantly to improved effectiveness of aid. While it may be the case that some projects are still not evaluated according to border prices, the present situation is nonetheless vastly different than that prevailing two decades ago when no one even thought about the relation between border and domestic prices. It is undoubteddy the case that the discipline of project evaluation itself enables better projects to be undertaken. In addition, as mentioned at the outset, the exercise of project evaluation undertaken by representatives of donor governments also provides officials in recipient countries with experience in these techniques.

In terms of what has been learned about techniques of improving living standards through foreign aid, it must be concluded that progress in developing and improving cost-benefit techniques has been among the most valuable and important.

Footnotes

1/ Aid financing to the private sector, and private sector projects, has sometimes been done directly. However, it has often proved administratively preferable to establish Development Finance Corporations (DFC's) to finance private sector projects. These DFC's have been leaders in utilizing variants of cost-benefit evaluation for private sector projects.

2/ For a description and analysis of the ways project evaluation was carried out in a number of developing countries in the mid-1970's see (UNIDO, 1979).

3/ For a full exposition of these techniques and the importance of using border prices, see (Little and Mirrlees, 1969; Lal, 1974).

4/ In the early days of aid, project evaluators sometimes mistakenly used a cutoff rate of return equal to the actual (and artifically low) cost of government borrowing in the domestic market. It is increasingly recognized that that procedure is far too lenient in project selection.

5/ For a theoretical analysis of the relationship of rate of return estimates to cost benefit calculations see (Radner, 1963). While rate of return calculations are in theory preferable to cost benefit ratios, in practice the "big mistakes" are detected by either criterion when appropriately used. For a discussion of their use in practice see (Krueger and Tuncer, 1979).

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CHAPTER 6

ASSISTANCE FOR INFRASTRUCTURE DEVELOPMENT*

* The initial draft of this chapter was prepared by John Klock. It has been reviewed by Costas Michalopoulos.

Assistance for Infrastructure Development

In the past three decades a significant portion of economic assistance to the developing world has been concentrated on physical infrastructure. By this we mean primarily transportation, power generation and distribution, as well as irrigation and telecommunication. This emphasis was much greater in earlier periods. For example roughly 75% of World Bank lending between 1946 and 1961 went for transportation and electric power generation.

In 1979 about a quarter of all bilateral assistance allocable by sector went to public utilities. The proportion of World Bank lending to infrastructure had fallen to about 32% in 1982.

6.1 Emphasis on Infrastructure Development

The reasons for the earlier emphasis can be found in a combination of theoretical perceptions about the development process and pragmatic aspects of international development cooperation and administration. On the theoretical side, it was felt that the absence of transportation, power and other infrastructure was an important barrier to economic development for a variety of reasons: (a) a certain minimum of infrastructure is a precondition to any economic activity and essential to the transformation of subsistence to market economies; (b) infrastructure activities generate significant external economies and as such could provide stimulus to other economic production; (c) the presence of indivisibilities and scale economies in these activities made them attractive candidates for investment in the eyes of supporters of the "big push" doctrine such as Rosenstein-Rodan.

Such activities were also considered as appropriate targets of economic assistance by international donors. The fact that they were thought to require large amounts of capital for efficient operation was considered to require external resources to supplement those of the developing countries. Their import intensity made them attractive targets for international donors that normally financed only the import component of investment. Since they were usually in the public sector it made it easier for donors to obtain commitments on related local currency financing and subsequent maintenance.

The appropriate technology for the projects was thought to be available from international engineering and consulting firms which could be relied upon to implement the projects efficiently. Finally, the projects appeared to lend themselves more readily to accurate economic calculation of their future costs and benefits.

The decline in the proportion of economic assistance devoted to infrastructure over time is due to several factors:

In the first instance, the simple fact that a number of projects were financed means that some of the developing countries' needs have been filled. Notwithstanding the significant infrastructure needs present in many parts of Africa and elsewhere, the developing world as a whole today has more developed infrastructure systems than thirty years ago. This is especially true of such sectors as multi-purpose dams, railroad systems or truck roads. This is not to a small extent due to the efforts of international donors. At the same time the balance has shifted because of shifting perspectives about the nature of the development process and the appropriate role of infrastructure projects. A second factor was that some problems arose in implementing projects and in their contribution to development resulted in shifts in the nature of the infrastructure projects themselves. The lessons that can be drawn from this experience are outlined below.

Linkages to Other Sectors

The notion that infrastructure development would alone lead to expansion of economic activity was never seriously espoused in development practice. Aside from the fact that historical experience suggested that in North America, for example, a lot of infrastructure followed rather than preceded development, it was clear early on that (a) a variety of other constraints (e.g., human capital, organization, technology) need to be addressed simultaneously to stimulate the growth process; (b) unless capital infrastructure was fully utilized, it entailed huge costs in capital - the very factor that was extremely scarce in developing countries.

The potential benefit of new infrastructure in stimulating development is undeniable. A recent AID evaluation showed that where new roads made transport possible for the first time, costs were greatly reduced. In one case (Anderson and Vandervoort, 1982) hauling prices were reduced by a factor of 15. Similarly, new road projects substantially improved prices received by farmers and reduced prices paid for inputs such as fertilizer. Improved transport has also permitted farmers to diversify cropping patterns to include more perishable cash crops and to increase the land area under cultivation. However, these improvements in agriculture would not have been as pronounced or even occurred at all in the absence of the complementary introduction of new technology through agricultural extension, the development of credit institutions and the improved utilization of water resources.

Similar examples of linkages between other types of infrastructure projects and related productive activities can be listed. One of the key questions is the degree to which planning of sequences of investment decisions is necessary to maximize the efficiency of investment both in infrastructure and in related activities.

Complementarities put a premium on the design of integrated programs involving detailed sectoral plans of economic activities linked to the infrastructure projects. Over time the high expectations about the contributions of detailed planning to development have been tempered by two factors: (a) the realization that human resource limitations in developing countries place severe constraints on effective planning; (b) a greater appreciation of the importance of market signals in informing decisions about investment allocation. As a result, donors have tended to eschew the big, complex infrastructure projects - or where undertaken - see, e.g., the Mahaweli project in Sri Lanka - they have taken great pains to phase activities carefully so

as to minimize capacity underutilization and to keep infrastructure development in step with expansion of other economic activity.

The Big is Beautiful Syndrome

The capital and import bias of infrastructure projects especially in earlier periods has been well documented (see Tendler, Inside Foreign Aid.) Imported components typically account for 60% of power project costs. Electric power generation, port facilities, railway systems and trunk roads all tend to be subject to economies of scale over a significant range of output. They also tend to be capital intensive. Distorted factor prices in developing countries which have tended to favor capital over labor have combined with perverse incentives among donors and aid recipient administrators that have favored import intensive and larger projects to produce a heavier emphasis on capital-intensive infrastructure in earlier days of aid-giving than was warranted.

The market distortions in developing countries are discussed in chapters 6 and 9. On the donor side, aid regulations have frequently limited donors' contributions and financing solely to the import component of specific projects. This is due to various factors: a desire to promote donor exports through aid tying; a perception that donors can alleviate directly a "foreign exchange constraint" by funding of foreign exchange costs; a desire by donors to ensure that the recipient contributes a share of the project costs - that which involve local currency financing. All these factors have tended to bias project design towards import-intensity in all projects and were of considerable importance in infrastructure projects.

The capital intensity and the size bias derive from a related set of factors: The technology developed by international engineering and consulting firms has usually been geared to factor proportions in developed countries - and has typically been more capital intensive than appropriate in a developing country context. Its incompatibility has been frequently disguised, however, by factor price distortions in developing countries. The bias extends both to factor proportions used in the provision of the service and in the technology used in construction. Furthermore, there is an administrative bias in aid-giving towards large projects - the effort of organizing, obtaining the necessary internal approvals and overseeing the implementation of a single $100 million power project is much smaller than the comparable effort required to fund ten projects of $10 million each.

Over time these problems have received increased attention by the donor community and the developing countries. While some of the biases are still present, there have been considerable changes in the nature of donor assistance to infrastructure. The changes have moved projects in two broad directions: project modes which are less capital intensive and more divisible have been given greater preference; and efforts have been made to adopt more labor-intensive techniques especially in construction.

The shift to less capital intensive and more divisible modes is manifested in (a) the reduction of the share of railway transport relative to roads in general (50% through 1961 to 6% in 1982); (b) the increase in the share of rural feeder roads relative to main arteries; for example in 1975-77 the former represented 93% of the mileage built by the World Bank compared to 38% in 1965; (c) greater emphasis in irrigation in secondary and tertiary canal building and water management and conservation as compared to headworks

construction; (d) experimental work in the development of mini hydro projects and alternative sources of renewable energy.

The question of adapting and using more labor-intensive technology in construction has attracted considerable attention especially in road transport projects. The possibility of labor substitution in other types of infrastructure, e.g., power generation has appeared to be quite limited.

Labor-based construction methods can save costs of road building as well as help relieve the employment problem in developing countries. Though local conditions vary widely, the World Bank suggests the general range for a wage below which highly labor-intensive techniques save money is $2.50 a day, and between $2.50 and $4.50 a mix of labor and equipment emphases is called for (Tendler, 1979a: 1-2). AID projects in Kenya and Colombia which used such techniques were considered successful (Anderson and Vandervoort, 1982: 9). Even where some intermediate or mixed technology may be more appropriate to urban and arterial roads, labor-based construction is clearly appropriate to rural roads. Partly this is because they are less likely to be paved, and because they are shorter, and thus more suitable for piecemeal and decentralized methods. Use of heavy equipment may also be more difficult in rural areas due to unfriendly terrain.

Cost savings are often offset by other factors. A recent AID summary evaluation reported four projects which had aimed to use labor-based methods, but two of these scrapped them when the high cost of maintaining schedules became evident. The delays were primarily due to time and manpower needed to organize and supervise unskilled workers.

Equipment-intensive arterial projects are administratively "clean": they are usually managed by a single contractor and cohere in space and

time. Overhead on labor-intensive projects consists more of training and supervision than of equipment. Many work teams or small contractors are likely to be involved, and schedules follow seasonal availability of labor rather than time costs of idle equipment (Tendler, 1979a). High use of staff time from the development agency is considered a source of delay in changing to labor-using methods (Anderson and Vandervoort, 1982: 9). This is a general issue not limited to aid-financed activities. In a general analysis of labor-saving technology in Indonesia, Timmer found the constraint on staff time in recipient government to be a source of bias toward capital-intense projects whether or not aid is involved. Interestingly enough he also reported the potential for graft to be greater in capital-intensive projects (Timmer, 1975: 12).

Sometimes there is the stigma of low standards attached to labor-intensive construction whether donor financed or local, since, inevitably contractors, engineers and, not incidentally, administrators will be more familiar with the equipment-using methods. The goal of fostering labor-intensive construction can thus become a task in institution building when capital-intensive methods are entrenched. New personnel may have to reach decision-making levels and political support developed.[1/] Tendler suggests that donors seek out institutional environments more compatible with the goals and means represented by labor-based technologies. "All the persuasion and technical assistance of donor organizations dedicated toward the adoption of labor-based techniques will count for little if there are no forces in the institutional environment which also dictate that approach," (Tendler, 1978a: 43).

It may be a good idea to turn to local entities, many of which are already familiar with labor-intensive methods and less exacting standards. This approach would also have the advantage of mobilizing local participation, and local decision making which could provide greater motivation especially for much needed future maintenance work. Or the responsibility can go to some national agency with non-technical priorities. In either case a new administrative apparatus may need to be developed, requiring many lessons and procedures to be relearned.

When most of the possible useful arterial roads are already complete, a pilot project may be embedded in regular road building assistance to discover the prospects and the problems of labor-based technology in a careful way. The time spent on such a project will also allow engineers and administrators to get accustomed to the new strategy.

Paved roads, usually technology and capital intensive, are not just administratively clean, they are technically clean as well. They are easier to maintain than unpaved roads and they can generally accommodate any kind of traffic which might want to use them. The standards of curvature, gradients, alignment, etc., by which they are built are often important to safety and operating costs of vehicles using them.

When feeder roads are upgraded, the job is easier if they were originally built to standards appropriate to paved roads, but without the paving. Effort may be duplicated if they must be "rebuilt" when the time comes to pave them. In the case of the Tanzam penetration road, an estimated $2 million out of a total of $5 million in paving costs could have been saved by paving the road as it was built, rather than later. However, discounting

future costs and benefits may lead to the conclusion even in a case of such "clear" savings that if the improvement is not needed now the extra expense is not justified. In the Tanzam example, if the paving was delayed just three years and the discount rate is 15% the present value of the eventual cost would be less than the cost of the present improvement.

6.2 Post Construction Issues

Problems of appropriate technology, design and implementation in infrastructure projects are frequently overshadowed by issues that arise after the projects have been completed. The main difficulties arise in three areas--in part interrelated--pricing of services, maintenance, and benefits to recipients.

Pricing

Several problems of pricing of services related to infrastructure projects can be identified.

First, there are problems of arbitrary pricing of services--usually too low to recover the cost of providing of the service as well as cover the capital costs of the project.

Second, there are problems of efficiency in resource allocation when countries consciously use pricing policies especially of public utilities (including transport) to subsidize users either in order to stimulate a particular economic activity or to promote income distribution objectives.

Third, there are general financial problems of institutions established with donor support whose low overall charges do not assure their financial viability. These problems spill over to the maintenance problems to be discussed below. They also have resulted in requests of supplementary donor assistance to shore up ailing institutions.

Finally, there are technical issues surrounding the establishment of user charges for particular services in the context of rural settings.

Examples of inappropriate rates that have led utilities to financial difficulties abound. For example,

"In Uganda there were very strong debates within the Uganda Electric Board when the World Bank required the UEB to raise its electric power rate" to allow the UEB to meet its debt payments and achieve financial soundness. The Bank also required reforms to reveal the board's financial status accurately (Friedmann, et al, 1966: 411).

In Latin America autonomous public corporations evolved, sometimes through donor pressure, to operate infrastructure and related sectors. "Such corporations have been favored because of their more businesslike attitudes and greater immunity from political pressure than regular government departments," (Friedmann, et al, 1966: 439).

Public utilities are particularly vulnerable to government regulation in times of rapid inflation, when the regulated sector may be a convenient place to hold down at least some price rises, while their own operating costs are rising due to inflation. This was the case in Brazil where the power company was foreign and so particularly likely to draw fire (Tendler, 1968: 44, 49).

Some of the glaring inefficiencies in differential pricing were demonstrated by the experience in railroads in the 1960's. In many developing countries the rails had a monopoly on hauling, and governments took advantage of this situation to use the railroads for development and other political goals. Rate systems were often extremely distorted, and when competition from road transport became available the traffic paying artifically high rates deserted, leaving railroads with customers expecting artificially low rates to continue. Governments were often reluctant for political reasons to remedy this, and capital investments suffered, leading to further deterioration of the rail system and the seeking of additional assistance from international donors to shore it up.

The promoting of rural electrification and the importance of proper water management has raised the question of metering in rural areas and of water charges. Metering might not be a good idea in rural areas due to its high cost and the utilities' weakness in the area of distribution. However, flat rates, which are favored by developing countries tend to result in an effective subsidy to the wealthier by the poorer users, since the former use more power per month. One possibility suggested (Tendler, 1979b: 7-9) is to institute charges based on appliances in the home or some such likely index which does not require constant monitoring.

The subsidization of rural enterprise by reduced electric rates is also a matter of controversy. The World Bank has opposed this practice because the businesses spend only a small portion of their income on electricity and can afford to pay rates which cover costs (World Bank, 1975a: 27, 46). The World Bank also has opposed the use of declining block rates, especially in rural areas. It does, however, suggest pricing below average cost in the initial years of a project because as demand expands later the average cost will decrease, and to help promote use at first. Since costs are inevitably higher in less dense rural areas, prices should be higher there on average (World Bank, 1975a: 52).

Maintenance

The problem of assuring proper maintenance of infrastructure projects once completed has been acute over the years and impressions are that it is not getting significantly better.

Typically, donors are loath to provide financing for maintenance or other recurrent costs over an extended period. While usually, there is provision for financing of some maintenance costs, there is a presumption that the recipient would pick up the financing of maintenance and other recurrent

costs either upon completion of the project or after a specified period. The approach rests on the premise that this is the best way to assure the commitment of the aid recipient to the project. Donors also veiw financing recurrent costs in general and maintenance in particular as providing financing for current consumption rather than investment--something they like to avoid. It also involves primarily local cost financing, which not all of them are willing to provide for a variety of reasons (see above).

On the recipient side provision of maintenance funding is usually inadequate, notwithstanding commitments to donors. In cases where user charges can be used to defray costs, charges are frequently too low putting a squeeze on maintenance services; in cases where institution of user charges is not readily feasible, the allocation of funding from general revenues is not obtainable because (a) tax revenues are usually scarce; (b) maintenance is given lower priority than construction. Why maintenance is given lower priority than construction, although the benefit cost ratio in such activities is often very high (Kuhn, 1971) is a matter of conjecture. It has been argued that new construction in general and of roads in particular is politically more attractive. In roads, it has also been argued that construction represents much more technically challenging and interesting tasks for highway department officials and engineers.

As a consequence of both recipient and donor policies infrastructure maintenance in many developing countries is in dire straits. The primary effect in most cases has been that within a few years many roads constructed with international assistance are in very bad repair. This is a frequent observation in evaluations and a usual complaint of communities in the areas served by the projects.

The secondary effects of poor maintenance vary. Sometimes aid recipients are led to "overbuild", paving roads before traffic warrants it because paved roads require less maintenance. Furthermore, when they do deteriorate and begin causing problems, paved roads must often be "rebuilt", offering the chance to appeal for capital assistance, and satisfying the bias of highway departments towards construction activity. On the other hand underbuilding has also been a problem perhaps traceable to the same roots. In a desire to maximize construction given available funding, developing countries may build many substandard roads and let those which turn out not to be useful simply fall apart. Inadequacies of those which are used can be turned into political justification for improvement, a construction activity (Tendler: 48, 50-51).

Donors have not yet found an answer to the maintenance problem. Perhaps the answer lies in finding institutional likages which will tie maintenance to construction. One way to do this in road building is to have the community which benefits from a road be responsible, and enpowered, to maintain it. If the community also helps with construction, the skills needed to maintain it can be fostered at the same time, as well as a sense of responsibility for it. Or a person who lives along the road may be put in charge of maintenance, given simple tools and paid a monthly fee after verification that maintenance work is done. This "line-man" system was used in the past in presently developed countries.

Other policy recommendations (e.g., by AID) include making outside financing contingent of the country's maintenance, increasing host country maintenance capabilities including agencies clearly responsible for maintenance, inclusion of maintenance as a topic in planning and evaluation processes, and increased community involvement (Anderson and Vandervoort, 1982: 46-48).

In addition it is clear that lack of donor coordination in financing capital projects exacerbates the problem. A variety of donors in several African countries have agreed to undertake capital projects each with an allegedly strong commitment by the recipient to finance their recurrent costs upon their completion. In many cases the totality of the recipient commitments is so large as to exceed any likely revenues available either through user charges or through general public revenues available to the recipient's government. There is a need for a coordinated look at the balance between capital and non-capital assistance in individual countries in order to prevent significant deterioration of the infrastructure being put in place a few years hence.

6.3 The Distribution of Benefits

The relative capital intensity of many donor-financed infrastructure activities has made it quite clear that, with some exceptions, the impact of infrastructure construction and the provision of services would be of limited value in directly raising employment and labor incomes. Thus the direct impact of such investment in raising the standard of living of the poor whose main income generating asset is their own labor is likely to be limited. Their benefits were expected to result indirectly from the economic activity stimulated by infrastructure investment. For example, the building of a dam was expected to stimulate increased agricultural production and rural incomes through irrigation. The construction of a road would decrease transport time to market places, permit the expansion of perishable cash crop sales and result in similar increases in agricultural incomes. In addition, some explicit efforts have also been made over the years to improve the standards of living of the rural poor through rural public works and rural electrification programs.

In the 1970's, concerns were raised in developing countries and among donors that the benefits of growth in many developing countries were not spread widely and that limited progress was being made in addressing the basic needs of the poor. These concerns focussed frequently on the distribution of the indirect benefits resulting from infrastructure projects. Results of recent evaluations on the impact of roads and rural public works and rural electrification which shed some light on this issue are discussed below.

Roads

Rural roads reflect the bulk of recent road building efforts by donors. Their construction is more labor-intensive and to the extent that rural communities tend on the average to have lower incomes than urban centers--there may be a presumption that these roads tend on the whole to have a stronger direct positive effect on the poor than previous donor efforts focussing on major arterial construction. However, this is only a judgement--since there is no empirical evidence in support of it--especially evidence which attempts to evaluate the effects of major urban transport network on farm income or on urban job creation.

The key issue that has been raised about rural roads is the extent to which the relatively better off farmers capture a disproportionate share of the economic benefits of such transport because of their position in the local power structure and their better access to complementary inputs.

The distributional impacts of several of AID's road projects (Anderson and Vandervoort, 1982) generally depended on many other factors, such as land tenure and simultaneous government efforts to spread modern agriculture technology. The poor benefitted from rural roads, but unless the communities reached by the roads had secure and stable land tenure, the well-off benefitted more. In Honduras the roads were part of a package including land reform, cooperatives, agricultural services and credit, and small farmers were the main beneficiaries. Similarly the roads permitted better access to health care and increased the willingness of teachers to work in rural areas--both resulting in direct benefits to the poor.

However, the analysis showed that some compensatory effort may be required to keep projects from increasing income inequality: More affluent

farmers are more able to take advantage of opportunities by changing more rapidly to the more advanced technologies, purchasing complementary inputs, and acquiring information, because they are not as constrained by cash requirements and are perceived as more creditworthy--or simply by virtue of their control of local or central government administration.

Women benefitted along with men from increased mobility. They may also have gained more freedom due to access to the more modern environment of the cities, as with women in Liberia who found it easier to get a divorce. However, also in Liberia, improved income opportunities at major resource centers draw men from their families, and increased cash cropping drove subsistence farming, often done by women, back from the roads into the bush.

Interestingly, roads were universally seen as beneficial even by people displaced by subsequent results.

> "This favorable view is easy to understand. Immediately after road construction come more visitors, new things to buy, broadened opportunities, more exciting weekly markets, and often, rising agricultural income. The harmful effects, such as accelerated deforestation and lower nutrition, often follow more slowly and are harder to connect to the roads. And roads symbolize development and progress to most people," (Anderson and Vandervoort, 1982).

Rural Electrification

The benefits of electrification are already largely available to urban consumers in developing countries. Projects in the past have helped to provide capacity to meet growing demand, or to overcome shortages. In addition there has been considerable effort to increase rural electrification.

Various rural electrification projects have placed emphases on different goals. Some have emphasized household consumer benefits of electrification while othershave concentrated on stimulating economic activities (Tendler, 1979b: 4; World Bank, 1975).

USAID programs, for example, have focussed to a greater extent than the IBRD on household consumer benefits. This orientation is largely due to the fact that AID's electrification projects have been promoted and implemented largely by the National Rural Electric Cooperative Association (NRECA), which evolved its approach from experience with rural cooperatives in the U.S. in the 1930's. The consumer orientation was reinforced by the perceived success of the electrification of countryside in the Philippines, which was intended to help the government there resist subversive influence (Tendler, 1979b: 4-5). It should be noted in this connection, however, that AID's evaluation of the Philippine projects indicated that the expected economic benefits--even if realized--which they were not--would not alone have justified the project.

World Bank policy suggests that while some attention should be given to non-quantifiable benefits such as the improvement in the quality of life, the benefits are likely to be less important in the case of electrification than in certain other sectors such as water supply or education. Electricity is not considered as much of a necessity as some of these other sectors which deserve great weight on social grounds. Moreover, alternative sources of light and energy though generally inferior are available even on the poorest regions.

Limited experience in some countries, e.g., El Salvador, indicates that economic returns to rural electrification projects can be significant with IRR's in excess of 10%. In this connection it appears that village demand alone is not sufficient to yield such return. It is only when demand for farm uses and agro-processing industries that the economic returns are substantial. This appears to be a critical factor in determining the economic returns of such projects.

Rural Public Works

In an effort to promote more labor intensive infrastructure development, a number of donors including AID have supported rural public works programs in a number of developing countries. Rural works programs can be defined as public sector activities undertaken with labor-intensive techniques with two primary objectives: (1) generating new employment and income opportunities among low-income groups and (2) creating productive assets usually in infrastructure.

Experience with such programs has been mixed. Thomas and Hook (USAID, 1977) undertook an extensive review of developing countries experience in this area in the preparation of an AID manual in 1977. Their conclusions were that, though rural works are useful means of alleviating unemployment and of promoting rural development, they only result in temporary alleviation of these problems. Rural works can stimulate and augment agricultural and rural development programs, but they are not substitutes for them. Also rural works programs can be more useful instruments in some developing countries but not others.

The common characteristics of countries that have used works programs successfully are:

- High population density relative to arable land. Countries such as Indonesia, Bangladesh, Korea have used these programs effectively, while much of Africa and the Middle East have too low population densities to implement these programs successfully.
- Agricultural dependence and instability of agricultural output. In Tunisia and Morocco, rural works arose in the context of fragile economies and yearly fluctuations in grain output.

- Another important factor is availability of administrative competence. Where lacking, e.g., Afghanistan with its Provincial Development Program 1971-72, programs have suffered from poor administration and low quality projects.

Thomas and Hook suggest that, in general, well-financed, effectively administered programs might succeed in absorbing approximately up to perhaps 10% of estimated rural unemployment (depending of course on the size of the program and the amount of unemployed). Cost benefit studies of rural works programs show that they can be productive in rigorous economic terms. If they become inefficient, it is as a result of poor planning and implementation. Experience also suggests that even though rural works programs are generally not capable of any major redistribution by themselves, they can have moderately redistributive effects in conjunction with other redistributive efforts.

Footnotes

1/ Indeed some institution building in donor countries may also be needed. Some years back AID had set up a pioneering, but unsuccessful, program in a U.S. engineering school to develop curricula based on labor-intensive techniques appropriate for road construction in developing countries.

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CHAPTER 7

ASSISTANCE FOR HUMAN RESOURCE DEVELOPMENT*

*This chapter was prepared by Wallace Huffman with assistance from John Klock.

CHAPTER 7

ASSISTANCE FOR HUMAN RESOURCE DEVELOPMENT*

Human resource, especially education, programs have been an important category in national budgets of most developing countries for over twenty-five years. Development assistance agencies first became seriously interested in these programs during the 1960s. The rapid recovery of Europe and Japan after World War II began to impress people such as T. W. Schultz that expenditures on education, health, and information were investments in people rather than consumption expenditures. These countries recovered much faster than expected because a smaller share of their human capital stock had been impaired by the war than of their physical capital stock.

This chapter focuses more narrowly than its title might suggest. The main emphasis is assistance for education. Some other types of human resources are only touched upon briefly.

7.1 The Nature of Assistance to Education

External economic assistance to education of developing countries has been by a number of different methods. These include supplying teachers, educational techniques and technologies, textbooks, and technical experts; institution building; study grants abroad; and capital outlays. The relative emphasis on methods has changed over time. The early educational assistance of most donor agencies was focused primarily on supplying classroom teachers.[1/] This seemed at the time to be a pressing but enormous task. During the 1960s, AID emphasized institution building, the training of those who will teach others. The emphasis during the 1970s shifted to non-formal or participant training and technology-based mass media education. (See Method and Shaw, 1981.) AID funding for basic education has fallen sharply in recent years.

Although external economic assistance to education of developing countries is significant, it is clear that most (80-90%) of the direct and forgone earnings cost of education is borne by developing countries (Phillips, 1976). The external assistance comes from bilateral sources, of which AID is one; multilateral sources, where the World Bank is the largest donor; and from private foundations (e.g., Ford and Rockefeller) and voluntary agencies.[2/]

Some countries in the early stages of development have limited political-economic capacity to mobilize resources to increase the rate of investment in human resources. Investment in some types of human resources, e.g., primary education, seem likely to have large (absolute and relative to other forms of capital) expected pay-offs as sources of economic growth and productivity. Thus, a role for external assistance is to invest in high-payoff human resources of these limited capacity less developed countries.

7.2 Education's Contribution to Development

It is now widely accepted that schooling produces skills that are productive. These skills change the quality or type of services that an individual can perform in the market, in agriculture, and in the household. At the primary schooling level, formation of basic competences (literacy, numeracy, and general cognitive skill) are important skills to be acquired. At higher schooling levels, one of the most useful skills seems to be learning how to learn (Welch, 1979). This includes the ability to perceive and to clarify new classes of problems and the ability to solve them. These are skills that permit individuals to easily adjust to the economic changes that modern economic growth (Kuznetz) entails.

There are now a large number of empirical studies that have been performed in both developed and developing countries on the economic consequences of investing in schooling. Much of the general evidence on rates of returns is summarized by Psacharopoulous (1973, 1981) and Bowman (1980). Evidence for farmers is summarized by Schultz (1975), Welch (1979) and Jamison and Lau (1982). Evidence on other effects of schooling are scattered throughout recent professional publications.

General Evidence

A large number of rate of return and growth accounting studies have been completed, and they provide indications of the contribution of education to economic growth. George Psacharopoulous (1981) has compiled evidence on rates of return to investments in schooling at primary, secondary and higher education levels for 44 countries at

diverse levels of development. He places twenty two of these countries in the developing category. His latest study updates earlier evidence (Psacharopoulous, 1973) by replacing old evidence with results from new studies where available for 11 of his original 32 countries and by adding evidence on 13 new countries. An attempt is made to include rates of return that are comparable across countries. Reported rates of return are unadjusted marginal rates (where possible) on an investment for going from one major educational level to another.[3/]

The evidence on social rates of return are of primary interest for drawing inferences about development assistance and most of the discussion is focused on them. Some general patterns to the evidence emerge when social rates of return are averaged by level of education and country development type. See Figure 7.1. The patterns are:

1. For each level of development, the average rate of return declines as the education level increases.
2. For a given educational level, the highest average rate of return is obtained in developing countries.
3. For all country types and educational levels, the highest average rate of return is obtained by primary education.
4. In developing (and perhaps other) countries, the average rates of return to investments in education at any of the three levels are relatively high and seem likely to compare favorably with or exceed expected returns on a large class of alternative investments.

These rate of return patterns suggest that primary education should

Figure 7.1. Social rates of return to education by level and country development type (%)

Country type	No. of countries[a/]	Educational Level		
		Primary	Secondary	Higher
Developing	22	27	16	13
Intermediate	8	16	14	10
Advanced	14	-- [b/]	10	9

Source: G. Psacharopoulous (1981: 329).

[a/] See Figure 7.2 for the countries that are placed in each type.

[b/] Not comparable because of lack of control group of illiterates.

receive major emphasis in educational investment strategies for developing countries.

Average rates of return to education across countries hide considerable intercountry variation in rates of returns. Table 7.2 presents evidence on social and private rates of return by education level for all 44 countries (Psacharopoulous, 1981: 327). Although social rates of return to primary education exceed 50 percent in Morocco, Uganda and Venezuela, the rate of return to primary education in India, South Korea, and Ghana is considerably less than the average for the group of 22 developing countries. In some of these countries, the social rate of return to secondary education exceeds the rate for primary education.[4/]

Although the social rate of return is appropriate for assessing the worthiness of educational assistance project, individuals should make their educational decisions based upon private rates of return. In almost all countries, the private rate of return to education at each level exceeds the social rate of return, but for primary and secondary education, the differences are generally small. For higher education, the private rate of return is generally considerably higher (5-10 percentage points). These private vs. social rate of return differences by level may explain the relative over-investment in higher education or in college graduates relative to primary and secondary education in developing countries (Krueger, 1971). Development assistance agencies must be careful that they are not unduely influenced by private (individual) interests in making choices on the level of education to fund.

Supporting evidence on the contribution of education to general economic growth are presented in the compilation of evidence (1) from

Figure 7.2. Returns to Education by Level and Country Type (%)

Country	Survey year	Private			Social		
		Prim.	Sec.	Higher	Prim.	Sec.	Higher
Africa							
Ethiopia	1972	35·0	22·8	27·4	20·3	18·7	9·7
Ghana	1967	24·5	17·0	37·0	18·0	13·0	16·5
Kenya*	1971	28·0	33·0	31·0	21·7	19·2	8·8
Malawi	1978					15·1	
Morocco	1970				50·5	10·0	13·0
Nigeria	1966	30·0	14·0	34·0	23·0	12·8	17·0
Rhodesia	1960				12·4		
Sierra Leone	1971				20·0	22·0	9·5
Uganda	1965				66·0	28·6	12·0
Asia							
India	1965	17·3	18·8	16·2	13·4	15·5	10·3
Indonesia	1977	25·5	15·6				
South Korea	1967				12·0	9·0	5·0
Malaysia	1978		32·6	34·5			
Philippines	1971	9·0	6·5	9·5	7·0	6·5	8·5
Singapore	1966		20·0	25·4	6·6	17·6	14·1
Taiwan	1972	56·0	12·7	15·8	27·0	12·3	17·7
Thailand	1970	56·0	14·5	14·0	30·5	13·0	11·0
Latin America							
Brazil	1970		24·7	13·9		23·5	13·1
Chile	1959				24·0	16·9	12·2
Colombia	1973	15·1	15·4	20·7			
Mexico	1963	32·0	23·0	29·0	25·0	17·0	23·0
Venezuela	1957		18·0	27·0	82·0	17·0	23·0
Intermediate							
Cyprus	1975	15·0	11·2	14·8			
Greece	1977	20·0	6·0	5·5	16·5	5·5	4·5
Spain	1971	31·6	10·2	15·5	17·2	8·6	12·8
Turkey	1968		24·0	26·0			8·5
Yugoslavia	1969	7·6	15·3	2·6	9·3	15·4	2·8
Israel	1958	27·0	6·9	8·0	16·5	6·9	6·6
Iran	1976		21·2	18·5	15·2	17·6	13·6
Puerto Rico	1959		38·6	41·1	21·9	27·3	21·9
Advanced							
Australia	1969		14·0	13·9			
Belgium	1960		21·2	8·7		17·1	6·7
Canada	1961		16·3	19·7		11·7	14·0
Denmark	1964			10·0			7·8
France	1970		13·8	16·7		10·1	10·9
Germany	1964			4·6			
Italy	1969		17·3	18·3			
Japan	1973		5·9	8·1		4·6	6·4
Netherlands	1965		8·5	10·4		5·2	5·5
New Zealand	1966		20·0	14·7		19·4	13·2
Norway	1966		7·4	7·7		7·2	7·5
Sweden	1967			10·3		10·5	9·2
United Kingdom†	1972		11·7	9·6		3·6	8·2
United States	1969		18·8	15·4		10·9	10·9

Figure 7.2. (Continued) Sources of rate of return data:

Ethiopia	from Hoerr (1974, table 3).
Kenya	private rates, from Fields (1975, table II).
Malawi	preliminary estimate based on Heyneman (1980a).
Morocco	from Psacharopoulos (1976, p. 136).
Sierra Leone	from Ketkar (1974, table 5).
India	from Pandit (1976) as reported by Heyneman (1980b, p. 146).
Indonesia	from Hallak & Psacharopoulos (1979, p. 13).
Malaysia	from Lee (1980).
Philippines	from ILO (1974, p. 635).
Singapore	from Clark & Fong (1970)
Taiwan	from Gannicott (1972)
Brazil	from Jallade (1977, table 4).
Colombia	regression-derived from Fields & Schultz (1977, table 8A, col.(4)).
Cyprus	from Demetriades & Psacharopoulos (1979, table 9).
Greece	from Psacharopoulos & Kazamias (1978, table 19.1).
Spain	from Quintas & Sanmartin (1978, table 1).
Turkey	from Krueger (1972, table 4).
Yugoslavia	from Thomas (1976, table 3).
Iran	from Pourhosseini (1979).
Puerto Rico	from Carnoy (1972).
Australia	from Blandy & Goldsworthy (1973, p. 9).
Belgium	from Meulders (1974, table II).
France	from Eicher & Lévy-Garboua (1979, chapter 5).
Italy	based on income data from Bank of Italy (1972, table 10).
Japan	from Umetani (1977, pp. 113-114).
United Kingdom	private rates from Psacharopoulos & Layard (1979, table IX).
USA	from Carnoy & Marenbach (1975).

Ghana, Nigeria, Uganda, South Korea, Thailand, Chile, Mexico, Venezuela, Israel, Canada, Denmark, Germany, Netherlands, New Zealand, Norway, Sweden and the United Kingdom (social returns only) from Psacharopoulos (1973, p. 62).

Notes
* Social rates refer to 1968. † Social rates refer to 1966.

Source: Psacharopoulous, G., "Returns to Education: An Updated International Comparison," Comparative Education 17 (October):321-341.

regression estimates of earnings functions in 20 countries at diverse levels of development, summarized by Psacharopoulous (1981: 328) and (2) growth accounting studies for countries at diverse levels of development, summarized by Bowman (1980: Table 3) and Hicks and Boroumand (1980).

The Productivity of Education in Agriculture

In attempting to assess the productivity of education in agriculture, a different approach must be taken than for wage workers. The reason is that a large share of the labor in agriculture is provided by the farm family and a relatively small share is wage labor hired from other households. Because these effects of education are largely outside the wage sector, they are not subject to some common criticisms of the human capital approach to earnings (i.e., screening and signaling effects). A production framework is useful. Farmers' education (and other investments) may enhance the economic efficiency of agricultural production.

The following efficiency concepts have proved useful: (1) a firm is technically efficient if it is on the production possibility frontier or transformation function. Technical inefficiency occurs when the firm faces the opportunity of, but does not choose, an activity vector containing more of some outputs and less of some inputs, holding other quantities unchanged; (2) A firm is allocatively efficient if it is technically efficient and if it meets all the marginal conditions for optimization, say profit maximization. Thus, the proper mix of inputs and outputs must be chosen in order to be allocatively efficient.

Investments in farmers' education and extension information (Section 9.3) may enhance both the technical and allocative efficiency of agricultural production. However, the potential efficiency gains are conditioned by the nature of the economic environment. It is now widely accepted that resources are more efficiently allocated in traditional settings than in modern, technically dynamic environments (Schultz, 1975; Welch, 1979). The new technology is a product of agricultural research (Section 9.2). In a market-oriented economy, a technically dynamic environment increases the demand for farm level information and skills to process it over what would be demanded in a stationary environment. Furthermore, in a dynamic technical environment where evaluative skills are at a premium, the comparative advantage of basic formal schooling over on-site experiences or imitation of other is likely to be substantial. This is an environment where the viable skills are those of learning to learn.

A considerable amount of evidence has accumulated on the contribution of education to agricultural production since Griliches' early studies (1963, 1964) for U.S. agriculture. Much of this evidence has been compiled and evaluated by Schultz (1975), Welch (1979), and Jamison and Lau (1982). Their summaries indicate that a number of different methodological approaches within a production framework have been applied to investigate different aspects of education's contribution to agricultural production.

A common procedure has been the direct fitting of an aggregate production function to state or county level data. For U.S. data, this procedure has been quite successful in the sense of producing positive and statistically significant effects of farmers' schooling on farm sales or agricultural productivity (e.g., Griliches, 1963, 1964; Fane, 1974; Khaldi, 1975; Huffman, 1976, 1980; Evenson, 1978).

New and creative approaches have been developed for direct tests of allocative efficiency. Khaldi (1975) and Fane (1975) approach allocative efficiency by contrasting hypothesized minimum cost of realized output with actual cost. Each finds, using aggregate average data for U.S. farm, that the proportional difference between actual cost and hypothesized minimum cost declines as farmers' average schooling level rises. Huffman (1974, 1977) and Petzel (1976) approach allocative efficiency in a different way by focusing on the rate of adjustment over time by farmers to new technology and changes in relative prices. Both find that farmers adjust there resource use faster as their average schooling level increases. A recent study by Wozniak (1983), using U.S. micro-level data, also finds a positive

and statistically significant effect of farmer's schooling on the probability of adopting a new and profitable livestock gain-enhancing feed additive.

For developing countries, farmers' schooling and agricultural extension enhance agricultural productivity when there is a technically dynamic environment. Jamison and Lau (1982) have compiled and summarized evidence from production functions fitted to 38 farm-level data sets from developing countries. The studies are limited to the production of field crops and the sources are summarized in Figure 7.3. In Figure 7.4 their summary is reproduced, which shows the estimated coefficient and t-ratio of education in the production function and an estimate of the percentage increase in output for each additional year of education.

There are a broad range of findings among the studies. In six of the data sets, farmers' education has a negative (but statistically insignificant) effect on farm output. In the remaining 31 studies, the effect of education on output is positive and usually statistically significant. Several of the studies suggest that a threshold number of years of schooling (4 to 6 years) must be attained before farmers' education has a consistent, persistent and statistically significant effect on agricultural production. This is an important issue for developing countries where more evidence is needed.

For 31 of the studies, Jamison and Lau were able to prepare reasonably comparable estimates of the percentage increase in farm output or productivity attributed to farmers having 4 years of education rather than none. Forty-eight percent of the (unweighted)

Figure 7.3. Data Base Used in Each Study

Reference to study	*Area and date of data collection, sample characteristics, and crops*
Calkins (1976)	Nepal, 1973–74. Sample of small farms in five panchayats of Nuwakot district of central Nepal. Rice and wheat.
Chaudhri (1974)	India, 1961–64. Reanalysis of a sample population of twenty-one villages in the wheat belt of Punjab, Haryana, and Utter Pradesh. Wheat.
Halim (1976)	Philippines, 1963, 1968, 1973. Subsample of an earlier random sample of households in twenty-eight representative rice-producing barrios of Laguna district.
Haller (1972)	Colombia, 1969. Stratified random sample of farms in Chinchiná, Espinal, Malaga, and Moniquira regions. Tobacco, coffee, corn, cassava, guayaba, cotton, sesame, rice, and livestock.
Harker (1973)	Japan, 1966. Representative sample of 971 middle-aged rice farmers in central and southern Honshu, Shikoku, and in the Fukuoka areas of Kyushu. Rice.
Hong (1975)	Korea, 1961. Subsample of random census sample of 1,200 farm households in nine provinces. Rice and other crops.
Hopcraft (1974)	Kenya, 1969–70. Subsample of a stratified random sample of 1,700 small farms collected for the Small Farm Enterprise Cost Survey. Maize, livestock, and tea.
Jamison and Lau (this volume)	Malaysia, 1973. Subsample of FAO/World Bank survey of 800 rural farming households in monoculture paddy area of Muda Irrigation Project, Kedah and Perlis States, West Malaysia. Rice.
Jamison and Lau (this volume)	Korea, 1973. Subsamples of a national survey of 2,254 farms in nine regions of South Korea. Rice and other crops.
Jamison and Lau (this volume)	Thailand, 1972–73. Reanalysis of a stratified random sample of farm households from twenty-two villages in the Chiang Mai Valley. Rice.

Figure 7.3 (continued)

Reference to study	*Area and date of data collection, sample characteristics, and crops*
Moock (1973)	Kenya, 1971–72. Farms in Vihiga Division that received loans for the purchase of hybrid maize seeds and fertilizer and comparison farms that were not loan recipients. Maize.
Pachico and Ashby (1976)	Brazil, 1970. Sample of farm households in four communities of southern Brazil collected by University of Rio Grande de Sul. Mixed field crop and livestock.
Patrick and Kehrberg (1973)	Brazil, 1969. Survey of 620 farms in five regions of eastern Brazil. Maize, beans, coffee, beef cattle, and dairy cattle.
Pudasaini (1976)	Nepal, 1975. Random sample of 102 traditional and mechanized farms in Bara District. Rice, wheat, and sugarcane.
Sadan, Nachmias, and Bar-Lev (1976)	Israel, 1969–70. Population of 1,841 dairy farms under the supervision of the Settlement Agency in Israel.
Sharma (1974)	Nepal, 1968–69. Subsample of a stratified random sample of households in fifteen village panchayats in Rupandehi. Rice and wheat.
Sidhu (1976, 1978)	India, 1968–71. Sample of 150 farms in the Ferozepur district of Punjab, 1968–69; farms in four districts of Punjab, 1970–71. Wheat.
Wu (1971)	Taiwan, 1964–66. Records of bookkeeping farms: 249 farms in twenty-five hsiangs collected in 1964; 246 farms in twenty-six hsiangs collected in 1965; 154 farms in thirteen hsiangs collected in 1966. Rice, banana, pineapple, sweet potatoes, sugarcane, and poultry.
Wu (1977)	Taiwan, 1964–66. Reanalysis of a sample of 310 bookkeeping farms in three mixed farming regions; presumably same data set as Wu (1971).
Yotopoulos (1967)	Greece, 1963. Subsample of a random sample of 650 households in 110 villages and three cities of Epirus. Wheat and cotton.

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Source: Jamison, D. T. and L. J. Lau (1982), Farmer Education and Farm Efficiency (Baltimore: Johns Hopkins University Press):22-23.

Figure 7.4. Formal Education and Agricultural Productivity

Area and study	*Sample size, N*	*Coefficient of education on agricultural productivity*	*t statistic*	R^2	*Estimated percentage of increase in output for one additional year of education*[a]	*Comments*
Brazil, Candelaria (Pachico and Ashby 1976)	117	0.126	0.89	0.71	2.69	Education was positively related to output among highly commercialized farms.
Brazil, Garibaldi (Pachico and Ashby 1976)	101	0.207	1.92	0.69	4.60	Education was positively related to output among highly commercialized farms.
Brazil, Guarani (Pachico and Ashby 1976)	63	0.072	0.55	0.67	1.49	Preliminary analysis of data indicated that less than 5 years of schooling had no significant effect on output.
Brazil, Taquari (Pachico and Ashby 1976)	101	0.244	1.66	0.68	5.53	Education was positively related to output among highly commercialized farms.
Brazil, Alto São Francisco (Patrick and Kehrberg 1973)	82	−0.013	−0.65	0.44	−1.29	Returns of schooling were negative in the traditional agricultural regions, but became positive and increased as the regions became more modern among the five samples.
Brazil, Conceicao de Castelo (Patrick and Kehrberg 1973)	54	−0.009	−0.75	0.82	−0.90	None
Brazil, Paracatu (Patrick and Kehrberg 1973)	86	−0.017	−1.41	0.59	−1.69	None
Brazil, Resende (Patrick and Kehrberg 1973)	62	0.010	1.11	0.55	1.01	None
Brazil, Vicosa (Patrick and Kehrberg 1973)	337	0.023	2.86	0.62	2.33	None
Colombia, Chinchiná (Haller 1972)	77	−0.008	−0.13	0.75	−0.29	None
Colombia, Espinal (Haller 1972)	74	0.140	1.80	0.71	6.10	None
Colombia, Málaga (Haller 1972)	74	0.047	0.94	0.53	3.09	None
Colombia, Moniquirá (Haller 1972)	75	−0.049	−1.02	0.79	−3.12	None
Greece (Yotopoulos 1967)	430	0.138	2.06	0.79	6.47	The marginal product for one year of education was 606.40 drachmas.

(*Table continues on the following page*)

Figure 7.4. (Continued)

Area and study	*Sample size, N*	*Coefficient of education on agricultural productivity*	*t statistic*	R^2	*Estimated percentage of increase in output for one additional year of education*[a]	*Comments*
India, Punjab, Haryana, and Utter Pradesh (Chaudhri 1974)	1,038	Family average 0.116	5.04	0.59	Insufficient information to calculate	Marginal product of family education was calculated as 107.04 rupees a year. Marginal product of education of household head was calculated as 153.12 rupees a year. No base was given. Chaudhri (1979) provides further analysis based on this same data set and calculates rates of return to education that are high indeed.
		Household head 0.114	3.65	0.59	—	
India, Punjab (Sidhu 1976) (traditional and Mexican wheat varieties)	236	0.038	1.90	0.92	1.49	Education was related to production efficiency but more strongly to allocative efficiency.
India, Punjab (Sidhu 1976) (Mexican wheat)	369	0.036	2.25	0.92	1.41	In an analysis using gross farm sales as dependent variable, Sidhu finds a positive effect of education, not quite statistically significant, resulting in a 1.1 percent increase in value of sales for 1 year of education. Sidhu and Baanante (1978) use profit and factor demand functions with the same data and find a positive (but statistically insignificant) effect of education.
Israel (Sadan, Nachmias, and Bar-Lev 1976)	1,841	21.100	4.20	Not given	Marginal value added was US$21 per year of wife's schooling (1.08 percent of gross value-added of production).	None
Japan, Honshu, Shikoku, and Kyushu (Harker 1973)	971	Correlation: with gross farm sales, 0.02; with communication behavior and agricultural adoption variables added, 0.31.	Not significant ($p < 0.001$)	0.38	Not applicable	None

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Figure 7.4. (Continued)

Area and study	*Sample size, N*	*Coefficient of education on agricultural productivity*	*t statistic*	R^2	*Estimated percentage of increase in output for one additional year of education*[a]	*Comments*
Kenya, Vihiga (Moock 1973)	152	Indicator: 4 or more years, 0.067	1.60	0.64	1.73	An indicator variable for 1 to 3 years of education had a negative coefficient.
Kenya (Hopcraft 1974)	674	Indicator: 2 to 3 years, −0.023; 4 to 6 years, −0.163; primary school, −0.148	−0.30 −2.19 1.50	0.56	−3.26	Results are for maize production, for which the coefficient of labor on output was negative. The production functions for aggregate output, which had a positive labor coefficient, had education coefficients that were essentially zero.
Korea (Hong 1975)	895	Log-linear 0.712 Cobb-Douglas 0.927	3.05 1.46	0.85 0.85	Units of equation were hard to interpret, so figure could not be computed.	Some empirical conclusions of this study are difficult to interpret.
Korea (this volume) (mechanical farms)[b]	1,363	Continuous 0.022	4.97	0.66	2.22	Analysis was also undertaken with discrete variables representing different educational levels.
Korea (this volume) (nonmechanical farms)[b]	541	Continuous 0.023	2.95	0.61	2.33	The coefficient of labor on output was negative in this study.
Malaysia, Kedah and Perlis (this volume)	403	Indicator: literate, 0.109; 1 to 3 years, 0.071; 4 or more years, 0.186	1.61 1.14 2.60	0.69	5.11	None
Nepal, Bara (Pudasaini 1976)	102	0.014	1.71	0.90	1.3	Positive effect of schooling on farm revenue. Tractor-hiring and pumpset-owning farms (the modernizing variable) were more efficient than traditional, whereas farms with tractors and farms with both tractors and pumpsets were not significantly different from traditional farms in terms of efficiency.

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Figure 7.4. (Continued)

Area and study	*Sample size, N*	*Coefficient of education on agricultural productivity*	*t statistic*	R^2	*Estimated percentage of increase in output for one additional year of education*[a]	*Comments*
Nepal, Nuwakot (Calkins 1976)	540	Indicator: 7 or more years. 0.53	3.53	0.77	Could not be computed because means of other independent variables not given.	The coefficient for 0 years of education was not significantly different from the one for 1 to 6 years of education. For 7 or more years, however, the coefficient was significant. The evidence thus suggests a minimum threshold of 6 to 7 years before education affects productivity.
Nepal, Rupandehi (Sharma 1974) (wheat farms)	87	Indicator: literate, 0.142	1.80	0.84	5.09 (Computed using literate as equal to 3 years of education.)	None
Nepal, Rupandehi (Sharma 1974) (rice farms)	138	Indicator: literate, 0.082	1.78	0.95	2.85 (Computed using literate as equal to 3 years of education.)	None
Philippines, Laguna, 1963 (Halim 1976)	274	0.020	1.53	0.77	2.0	None
Philippines, Laguna, 1968 (Halim 1976)	273	0.019	1.26	0.70	1.92	None
Philippines, Laguna, 1973 (Halim 1976)	220	0.027	2.25	0.80	2.74	None
Taiwan (Wu 1971) (rice farms)	333	0.007	0.53	0.60	0.7	Simple rate of returns for 1 year of additional schooling computed from 1 to 12 years decreased at a steady rate. Thus, there was no evidence of a threshold effect.
Taiwan (Wu 1971) (banana and pineapple farms)	316	0.038	2.83	0.65	3.87	None
Taiwan (Wu 1977)	310	0.009 quadratic form(s) −0.066 0.005	0.95 1.82 2.12	0.87	0.9	Marginal productivity of education in crop production changes from negative to positive at 6.6 years of schooling of the farm operator. The quadratic formula shows this clearly: Where $a_1S + a_2S^2$ was entered in equation $a_1 = -0.066$, $a_2 = 0.005$.

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Figure 7.4. (Continued)

Area and study	*Sample size, N*	*Coefficient of education on agricultural productivity*	*t statistic*	R^2	*Estimated percentage of increase in output for one additional year of education*[a]	*Comments*
Thailand, Chiang Mai (this volume) (chemical farms)[c]	91	0.031	2.10	0.76	3.15	The coefficient for education has an increase between the indicator for primary education (4 years) and more than 4 years. Indicator: < 4 years = 0.030; = 4 years = 0.124; and > 4 years = 0.280 for all equations.
Thailand, Chiang Mai (this volume) (nonchemical farms)[c]	184	0.024	2.27	0.81	2.43	The coefficient for education has an increase between the indicator for primary education (4 years) and more than 4 years. Indicator: < 4 years = 0.066; = 4 years = 0.108; and > 4 years = 0.132 for all equations.

a. These figures were computed from the formulas in the text.
b. Farms using no mechanical equipment are labeled "nonmechanical;" others are labeled "mechanical."
c. Farms using no chemical fertilizer or other chemical inputs are referred to as "nonchemical;" others are referred to as "chemical."

Source: Jamison, D. T. and L. J. Lau, Farmer Education and Farm Efficiency (Baltimore: The Johns Hopkins University Press):26-34.

increases are between 4 and 12 percent.[5/] Furthermore, they conclude that farm productivity for this diverse set of studies increases on average by 8.7 percent as a result of farmers completing 4 years of education (Jamison and Lau, 1982: 8).[6/]

The effects of farmers' schooling on agricultural productivity in low-income countries are much larger in modern technical environments where there are new decisions to be made than in traditional ones. Several pieces of evidence are relevant. First, Jamison and Lau were able to classify 23 of the 31 data sets in their survey into modern versus traditional technical environments.[7/] Under modern conditions, they find that effects of farmers' education on agricultural productivity are substantially greater than under a traditional environment. The mean (unweighted) increase in output from 4 years of education under traditional conditions is 1.3 percent compared with 9.5 percent under modern or modernizing conditions (Jamison and Lau, 1982: 38).

Second, Haller (1972) collected data for farms in four regions of Colombia. In two of the regions, farmers employed traditional resources, but in the other, modern inputs are widely available. Both the traditional and modern sectors were further selected such that each would have one region specializing in a single crop and another in which farms engaged in a variety of activities. Only for the modern multiple-activity region does he find statistically significant positive effects of farmers' education on farm production.

Third, Ram (1976) has fitted gross output, value added by all inputs other than commercial fertilizers, and value added by traditional inputs (all inputs other than fertilizers, tractors, and

iron plows) to examine the contribution of farmers education as the scope of decision-making widens. He uses farm averages for 150 districts of India in 1960-61 and 1970-71. For both years and all three specifications, Ram finds significant positive contributions of farmers' schooling. He also finds that the output elasticity of farmers schooling is higher in the value-added specification where education can affect more decisions than in a gross output specification and also in "progressive" as opposed to "backward" districts.

Fourth, Jamison and Lau (1982) fit profit functions to farm-level data for Thai rice farmers. The profit function is the modern approach to investigating the effects of education on farm efficiency. They split a sample of 254 farms into 91 that used chemical inputs (fertilizers and insecticides) and 184 nonchemical using farms. For the chemical using farms, there are two variable input (labor and chemical inputs) and two fixed inputs (capital and land). Only for the chemical using farms is years of formal education completed by the head of the farm household positively and significantly related to farm profit.

Thus, it seems that farmers' education in developing countries does enhance agricultural productivity when the schooling is of sufficient duration to create permanent basic competencies and when agricultural technology is dynamic. There are, however, some related issues which are unresolved. First, how are farmers' education and agricultural extension (Section 9.3) interrelated in affecting agricultural productivity? Are they substitutes, complements or

unrelated? Second, does farmers' schooling have a significant effect on the probability of adopting profitable new farm inputs and technologies? More research is needed on these issues.

Schooling for farm or rural people has some important income effects beyond its effect on agricultural production efficiency. These effects are reflected in the probability of wage work participation and in wage rates for this work. Sumner (1981), using data from a sample of five villages in central Guatemala, and Rosenzweig (1980), using census data for landless and landholding Indian households, find positive effects of schooling of rural males on their probability of wage work. In the Guatemalan data, additional schooling and full literacy significantly reduce the probability that the wage work is agricultural and increases the probability of nonagricultural employment. In these Guatemalan data, schooling has positive and statistically significant effects on wage rates at nonfarm jobs. However, at farm jobs the only significant effect of schooling on wage rates comes from being fully literate. Additional years of schooling have no significant effect on agricultural wage rates. Rosenzweig did not distinguish between agricultural and nonagricultural source of employment for Indian households. He finds, however, that an individual's schooling is not an important predictor of wage rates.

Research on these farm and wage labor market interrelations are relatively recent. They are important for understanding some of the necessary human resource adjustments that modern economic growth entails. More quality research is needed.

Education and Household Production

The "new home economics" provides a framework in which schooling of adult household members, especially women, can enhance the efficiency of household production and family welfare and affect labor force participation decisions (Nerlove, 1974; Michael and Becker, 1973; Becker, 1981). In this model, the input of human time of one or more household members and other inputs, e.g., farm raised or purchased, are transformed by the technology of household production into commodities for final consumption or intermediate human capital, e.g., children, health, skills. Efficiency effects of education, especially for women, and information are logical in this framework.

Women's education affects fertility, child mortality and labor force participation rates. Schultz (1981) summarizes much of this evidence. There is a strong negative correlation between women's education and child mortality rates at all levels of economic development. The exact reason for this effect of women's education on child mortality is not known. Further research is required. The evidence for the effect of women's education on child numbers is not as strong. At very low schooling levels, additional schooling may increase family size because of reduced mortality rates. At higher educational levels, additional women's schooling seems to reduce family size and to increase their labor force participation rate, but it is important to control for other household variables (Schultz, 1981: 115-220; Cochrane, 1979). Other studies include Schultz, 1974; Ben-Porath and Welch, 1976; Rosenzweig and Evenson, 1977; Rosenzweig and Schultz, 1980; Cochrane, et al., 1980. These studies do show that schooling for women has

important economic effects even if they allocate a large share of their time to raising a family. Thus schooling for women should be a part of a human resource assistance program.

Rosenzweig and Wolpin (1982) provide estimates of the joint effects of governmental health, education and family planning programs as well as source of water on rural Indian household fertility, child mortality and schooling. They combine district-level and household data from the census and find that rural households in India view fertility and the two characteristics of children, schooling and health, as substitutes in consumption. Child schooling and child health are shown to be complements. The results have the important implication that a number of government programs targeted toward human resources are mutually reinforcing. The results suggest that reductions in the cost of medical services, contraceptives and schooling and the improvement of water sources are mutually reinforcing alternatives for implementing the joint policy goals of reducing population growth and increasing human capital formation. Further research is needed, however, to investigate the effects of nonrandom assignment of (or participation in) governmental programs on these household decisions.

Education has important effects on the household sector. More research is needed, however, before the size of social returns to human resources employed largely in the household sector can be compared with the market sector.

7.3 The Efficient Production of Education

Developing countries face important decisions about how to acquire their training.

Manpower Planning

Manpower planning studies have not been a useful guide for deciding on skills to produce. Manpower economics is a form of planning that became popular during the 1960s. Rates of economic growth were postulated and then manpower demands or requirements were derived using Leontief-type fixed coefficient input-output models. These models have been heavily criticized (Bowman, 1980) and they have not predicted well. Labor demand is stated in terms of numbers of workers for occupational categories rather than in general skill levels that are supplied. Education levels are rigidly linked to occupational categories and there is no contribution of additional education to productivity with an occupational category. The planning models largely deny the role of changing relative prices and changing technology in determining input-output ratios and labor demand. Other studies have found high substitution possibilities for labor of different types when some time is allowed for adjusting to economic incentives (Psacharopoulous, 1982). Thus, there has been a declining confidence in manpower planning approaches.

Alternative Forms of Education

There is a wide range of alternative forms of education, nonformal adult education, general information, on-the-job training or apprenticeships and formal vocational-technical and general education. Although other criteria have sometimes been used, the social choice among different

types of education seems to reduce to expected social rate of return considerations.

Most schools enhance the productive potential of their students at market or nonmarket activities. Vocational-technical schools focus on preparation for a more narrowly defined occupation than general schooling, perhaps requiring intermediate skill. These schools frequently do not prepare graduates to enter careers that are open ended (Bowman, 1980) or to pursue higher education. Vocational schools are, however, extremely diverse in training opportunities, duration, and quality of instruction.

The following five factors have been gleaned from the literature and apply to considerations on educational alternatives.

1. General skills, e.g., math, language, science, can be most efficiently obtained before adulthood in schools; specialized skills can be efficiently acquired through on-the-job training in firms or some type apprenticeship.
2. Vocational-technical training seems to be an efficient source of intermediate level skill in many developing countries.
3. High level technical schooling may not be socially efficient. Schooling in high level technical disciplines is socially more expensive in terms of faculty, laboratories, and equipment than general schooling (Psacharopoulous, 1982). Thus, technical education must produce larger income streams than general education in order to have the same rate of return.
4. In an economically and technically dynamic society, basic competencies or the skill to learn new things quickly are scarce

skills. Thus, the importance to developing countries of quality basic education at the primary and secondary level cannot be overlooked.

5. In a modern economic environment, decoding and distributing information may have a high social payoff. The critical factor is that the information must be useful to farmers and households in better attaining their private objectives.

Training of Scientists and Other Highly Educated Individuals

An early concern of AID and some other donor agencies has been the limited capacity in developing countries to perform development policy analysis at the macro-economic and sector level and project planning. A later concern has been the limited capacity to take advantage of technology and scientific discoveries in other countries. It became apparent by the mid-1970s that an effective national research system must have significant research capacity in order to successfully screen, borrow, and adapt scientific knowledge and technology to their own resource and institutional environment (section 9.2).

AID and other donor agencies have invested significant amounts of funds into graduate education. This has taken the form of assistance to graduate educational training in recipient countries (e.g., visiting scholars, general institution building) and to funding students for training in other countries, primarily the donor country-participant training (Phillips, 1976). Some resources in scientist training and research are extremely scarce, especially in areas where the frontiers of knowledge are being advanced rapidly. This suggests that careful consideration must be given to the location of training (and research)

programs. There is also a strong belief that institutions in the developed countries have a comparative advantage in training scientists for developing countries rather than in developing technology-oriented research for them (Chapter 9).[8/] However, the economic analysis of (alternative) scientist and professional training approaches is a neglected area. The small amount of work that has been done has focused largely on the brain-drain issue (Grubel and Scott, 1977; Glazer, 1978).

It is well known that the size of the labor market expands as individuals obtain higher levels of schooling (Becker, 1975). Furthermore, individuals frequently find that they can increase their private return by immigrating to another country. During the 1960s, the net flow of highly educated individuals was largely from Europe to the United States. More recent a concern has risen about immigration from developing countries. The magnitude of this immigration may be significant but it is not well documented because of poor recorders on border crossings (Grubel and Scott, 1977: 4). However, to the extent that developing countries avoid overinvesting in higher education, they should be able to reduce the net loss of highly skilled individuals. More research is needed, however, on this so-called brain-drain issue.

7.4 Some Conclusions

Although development assistance agencies and some national governments were slow to recognize the importance of investments in education, education and other forms of human resources are now generally receiving high priority in developing countries. The role for external assistance is to invest in high payoff human resources in less developed countries that have a limited political-economic capacity to mobilize resources for economic growth and productivity. Following this policy, development assistance agencies may be able to have a significant impact on economic growth with their modest sized budgets.

Investments in human resources change the quality of human time, and a large body of accumulated evidence shows that these investments have effects in labor markets, agriculture, and households. Economic analysis performed during the 1970s of the effect of investments in education on market earnings in developing countries shows:

1. The social rate of return to education is highest at the primary level and declines for higher levels of education.
2. The social rate of return to education is lower than the private rate of return at all levels but the difference between the two are relatively large for higher education. These private vs. social rate of return differences may explain the relative overinvestment in higher education in many developing countries.
3. The average social rate of return to investments in education at any of the three levels is relatively high and

seems likely to compare favorably with expected returns on a large class of alternative investment projects.

In the early years, schooling for rural people received low priority. It is now clear that the productivity of farmers' education is very low, perhaps zero in a traditional environment. However, in a modern technically dynamic environment, farmers' education increases agricultural productivity significantly. Thus, the joint investment in agricultural research, agricultural extension, and farmers' education should be given high priority.

Recent evidence shows that education for women has significant effects on households. Increasing women's schooling reduces child mortality and family size but increases their labor force participation rate. Although social rates of return for the nonmarket effects have not been estimated, education for women should be part of human resource assistance programs.

Except for agricultural extension, relatively little is known about the social rate of return to investments in nonformal education. More research is needed.

Development assistance for graduate education in both donor and recipient countries has been sizeable. We, however, know relatively little about the economic benefits to developing countries from these efforts. Have these investments significantly improved the quality of development planning analysis or of the productivity of (agricultural) research in developing countries? A related issue is the unknown size and cost to developing countries of human resources that permanently emigrate to developed countries.

Footnotes

1/ U.S. governmental foreign assistance to education was scattered among several agencies before AID was organized in 1962.

2/ The World Bank made its first educational loan in 1963. By 1980 it had funded over 200 educational development projects. World Bank lending priorities are currently focused on primary and nonformal education.

3/ The levels are primary graduate vs. illiterate, secondary graduate vs. primary graduate, and higher education graduate vs. secondary graduate.

4/ There are some objections to rate of return computations for education: (1) Measured returns to education are heavily based upon earnings data. Individuals allocate only part of their time to working for a wage and education might increase the productivity of nonmarket time. Also, wage rates in noncompetitive sectors might be determined by some arbitrary rule. (2) Nonschooling characteristics of individuals, e.g., ability, family background, motivation, are the primary determinants of quality of labor services rendered. (3) Schooling is nonproductive in the sense of only screening or certifying pre-existing skills. A growing body of evidence suggests that (2) and (3) are not serious problems. (Summaries appear in Bowman (1980) and Psacharopoulous (1981)). In principle adjustments could be made for deficiencies stated in (1).

5/ When percentage changes in output are weighted by the reciprocal of the standard error to adjust for differences in the reliability of the estimated coefficient of education, 64 percent of the increases are between 4 and 12 percent.

6/ The weighted average percentage increase is 7.4 percent (Jamison and Lau, 1982: 45).

7/ An environment was identified as traditional if it included primitive technology, traditional farming practices and crops, and little reported exposure to new methods. An environment was identified as modern if it included availability of new crop varieties, innovative planting methods, erosion control, and the availability of modern inputs such as fertilizers, insecticides, and tractors or machines (Jamison and Lau, 1982: 38).

8/ Between 1960-64 and 1975-79, the number of Ph.D. degrees awarded in fields associated with agriculture and home economics by U.S. land-grant universities to foreign students increased by 240 percent (National Academy of Science data). The share of Ph.D.s awarded to foreign students have also increased over this period by 6 percentage points.

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CHAPTER 8

THE IMPACT OF INTERNATIONAL POPULATION ASSISTANCE*

* This chapter was prepared by Gayl D. Ness.

The Impact of International Population Assistance

International population assistance is a relatively recent phenomenon. It is limited in amount, narrow in scope, highly controversial, and its impact varies. In global terms, this assistance can be said to have had a substantial impact on population policy, a marked but varying impact on family planning programs, and only an indirct impact on fertility itself. In terms of specific bilateral cases, population assistance activities can show some of the most striking successes and smashing failures to be found anywhere ir the field of foreign assistance.

In what follows we shall begin with a general description of the character and amount of international population assistance. This is a necessary prelude to considerations of its impact. The issue of impact will be seen to be as difficult to deal with, both conceptually and empirically, as it is for other sectoral programs. Nonetheless, we believe that a general judgement of positive impact is warranted.

8.1 General Characteristics

Recency. International economic development assistance has been a prominant element on the world scene since the end of World War II. During this 38 years the world's industrial nations have developed a wide range of activities to channel billions of dollars in grants, loans and technical assistance to virtually all of the world's less developed countries.

Population assistance is of much more recent origin. The International Planned Parenthood Federation, the Population Council, the Ford Foundation, and the Swedish government, began to provide small amounts of assistance to population activities only in the late 1950s. Neither the United States nor the United Nations provided funds for population activities in technical assistance until 1966. Even then, initial efforts were modest in amount and limited to a few nations. The real expansion in funds and activities has only come in the past decade. Thus the depth of experience in population assistance is far less than it is in all other sectors

Amount Since its very small beginnings in the mid-1950s, total international population assistance has totalled no more than 4 billion dollars. It currently runs just under $500 million per year. By contrast, total economic assistance during the past 38 years has amounted to about 400 billion dollars, and currently is just above $20 billion per year. Thus total population funds constitute

only about 1 percent of all economic assistance, and currently run at about 2.5 percent of total annual economic assistance. [1/]

Population assistance has grown rapidly in the past decade. Up until 1975 total assistance amounted to only about 1.5 billion dollars. Thus more than half of all international population assistance has been allocated in the past 5 to 7 years. This makes an assessment of impact more difficult, since there has not been sufficient time to see how mature programs work in a variety of settings and what effect they can have.

In its source, population assistance resembles the general patterns of overall development assistance. The United States has been the largest single donor, but its proportion of total assistance has gradually declined over the past decade or more. As in the rest of development assistance, the great majority of funds comes from less than a dozen industrial countries. Between 1965 and 1980 the United States provided about 55 percent of all population assistance. Sweden has retained a second place with only 10 percent. Seven other countries together have provided about one-quarter of the total. In descending order they are Norway, Japan, The United Kingdom, Canada, The Netherlands, West Germany, and Denmark. [2/] More recently Australia has increased its population assistance substantially and in October 1982, Italy announced that it would allocate one

percent of all its development assistance to population activities.[3/]

The relatively small number of countries providing population assistance simplifies some of the accounting problems. First the OECD and more recently the UNFPA have undertaken annual assessments of all populatin assistance. The UNFPA has been especially effective in developing a standard accounting framework for population assistance, but this has not solved all of the conceptual problems. Basically, we are left with accepting as "population assistance" whatever donor nations record as population assistance. Some years ago the OECD recommended that more precise accounting of the amount and impact of population assistance should involve counting funds received by the host countries, but there is as yet no systematic procedure for this accounting.[4/]

Scope About two-thirds of all international population assistance has gone to support national family planning programs in the less developed countries. This has involved the provision of equipment (such as vehicles and surgical instruments), contraceptive supplies, and some recurrent program costs (staff salaries, training, and international travel). Biomedical research (in search of better contraceptive methods), basic data collection (support for national population censuses and population surveys), and information-education-communication activities have accounted for most of the rest. Small amounts have

been allocated consistently to basic social science research,(especially on the determinants of fertility) and to conferences and promotional activities aimed at producing more effective population policies.

The mix of activity support has followed trends determined largely by the stage of policy development of individual host countries. For countries with official antinatalist policies, external funds have gone largely to support national family planning programs. For those without such policies, assistance has gone for basic data collection, social science research and policy analysis.

These conditions have varied markedly by region. For example, Asia had already experienced the development of antinatalist policies and family planning programs prior to the surge of international assistance. Thus family planning has absorbed the great majority of population funds since the beginnings of assistance programs to Asia. In the early 1970's, before most Latin American countries had made antinatalist policy decisions, assistance there went largely to basic data collection. After the policy decisions were made, by mid-decade, family planning came to account for more than half of all population assistance. Today, the great majority of assistance to Africa goes for basic data collection, for the population censuses and surveys that will provide the information on which it is hoped fertility limitation policies will be based.[5/]

One deviation from this pattern is found in the case of China. Antinatalist policy was proposed in China following its first Communist census of 1953. For the next twenty years the policy vacillated between anti- and pronatalism, following ideological swings from industrialization to revolutionary aims.[6/] Since the early 1970s China has pursued a vigorous program of fertility-limitation. This was all done without international population assistance. Only recently has China become a major recipient, and a major item of current support is for China's population ce sus.

Thus the major emphasis on support for family planning programs facilitates the assessment of the impact of foreign assistance, but the distinct regional differences caution against any single global evaluation.

8.2 Controversy and Ambivalence

International population assistance has always been surrounded with a great deal of controversy. Until 1966 key Western nations blocked the inclusion of population in United Nations technical assistance programs, and the United States government refused to provide assistance for fertility-limitation during the same period.[7/] Even after the UN and the US decided to provide assistance for population activities, controversy continued and at points increased. It surfaced clearly in the 1974 Bucharest World Population Conference, where Third World nations resisted the family planning programs being promoted by Western nations, and argued that "development is the best contraceptive." The major lines of the debate over population assistance have followed "development versus family planning" lines (or demand versus supply lines). Third World countries argued that development alone would bring about the needed limitation of fertility and that a New International Economic Order was needed rather than family planning programs to address the problem of rapid population growth.[8/]

At this time the controversy has largely subsided. Both donors and recipients recognize the urgency of the problem, and both recognize that socioeconomic development and family planning programs can play complementary roles in changing reproductive beavior. Both also recognize that many forms of development assistance have direct and

indirect impacts on population growth and fertility. There is still some ambivalence, however. Sweden has recently considered curtailing population assistance. It appears uncomfortable supporting fertility limitation in the Third World at the same time that it pursues pronatalist policies at home.[9/] In the United States population assistance has come under attack from groups opposing abortion, despite the fact that US population assistance does not include abortion assistance and deliberately distances itself from abortion aspects of the national family planning programs it does support.

Controversies over population assistance programs also arise in recipient countries with multi-ethnic populations. Such populations experience political tensions when different ethnic groups fear that fertility-limitation policies are aimed at altering ethnic balances.[10/] International assistance programs inevitably get involved in these domestic controversies.

These patterns of controversy and ambivalence present a generalized obstacle to international assistance programs. They inevitably affect the level and type of impact assistance programs can have. That is, it can be expected that, other things being equal, population assistance programs will have greater positive impact in homogeneous than in multi-ethnic populations, or that they will have greater impact where controversies are less salient than where they are more salient politically. These are only

brief illustrations of the difficulties in assessing the impact of foreign assistance. Unforeseeable, exogenous conditions affect the impact of all forms of international assistance, but they are especially troublesome in population assistance, due to the controversial nature of the problem.

8.3 Assessing the Impact

Assessing the impact of international population assistance presents a number of thorny conceptual issues on both the input and output sides. On the input side we could, for example, include the full range of economic assistances. Health, education, agriculture and industrial development assistance programs all can be seen to have an impact on population.[11/] On the output side population planning could include policies and programs related to fertility, mortality, migration, or distribution.[12/] Tracing all of these connections would be a herculean task, even if it were possible, and it is certainly beyond the scope of this chapter. We shall simplify the problem by focusing on the impact of international population assistance on current national policies to limit fertility.

Even this simplifying orientation does not eliminate all problems, however. There remain accounting problems on the input side, conceptual problems on the output side, and strategic problems in determining impact. On the input side, the lack of standardized accounting practices means that there will be errors in counting population assistance resources. A few examples must suffice to illustrate the range of problems involved. Prior to the establishment of international population assistance programs, resources were provided for population censuses, but were not counted as population assistance. Now they constitute a distinct accounting category, and in some cases the amount is

substantial. The links between census assistance and the desired outcomes on which impact is assessed are not at all clear, yet the census assistance will be part of the data on which judgements are based. It does not seem likely, for example, that the census assistance currently provided to China will have a direct impact on fertility-limitation programs or on fertility, but those funds will still be counted as inputs against which to assess impact.

A similar inflation of population assistance is seen in the World Bank loans for population activities over the past decade. For the most part these are loans for the construction of primary health care facilities. Thus they support a wide range of activities, not all of which affect population programing directly or significantly. If these funds are counted in the impact assessment, assistance programs will appear far less cost-effective than if they are excluded. There are many similar accounting problems on the donor side, all of which argue for some caution in assessing the impact of international population assistance.

On the output side, fertility-limitation programs must be disaggregated into three major components if we are to gain some understanding of the impact of foreign assistance. First, there is the process of policy formulation, marked by the adoption of an antinatalist, or fertility-limitation, policy.[13/] Second there is the organizational implementation of that policy, marked especially in the formation of national family planning programs, but also in such legal

changes as removing restrictions on contraceptive import and distribution. Finally, there is the impact on fertility, which is usually assessed in any of three ways. Family planning programs work first by recruiting acceptors for the new contraceptive methods. Program acceptors, along with acceptors of non-program methods (either market distributions, or the use of some traditional fertility-limiting behavior)[14/] affect the prevalence rate, or the proportion of eligible couples who actively practice contraception. Finally, there is the impact on fertility itself, which can be assessed by a variety of statistics (the decline of the crude birth rate, CBR, or the total fertility rate, TFR, for example).

All of these steps in the process vary in such things as timing and strength, and foreign assistance can be assessed against any or all of them. The steps in the process are causally connected theoretically, empirically, and intuitively. Thus the impact on any one of the steps could be expected to have an indirect impact on steps further down the line. That is, an impact on policy can be expected to have indirect impacts on both program formation and on fertility decline; an impact on programs alone can be expected to have an impact on fertility decline as well. The connections between the steps are not fixed, however, and there is much room for variation. A strong policy statement might be followed by very weak programmatic

action; or a strong program might turn out to have little new or independent impact on actual fertility.

The causal connections are, however, theoretically clear and established. Policy decisions affect large scale public health programs as well as some aspects of private market distribution. An official decision for an antinatalist policy can open both networks to the flow of modern contraceptives; a negative decision can keep these networks more or less closed. When a policy decision is made it becomes possible for administrators to construct programs and for foreign governments to engage in direct technical assistance for program support. Thus policy formation does make a difference. This also implies that foreign assistance that helps to establish a fertility-limiting policy can also be credited with some indirect impact on fertility.

The linkage between family planning programs and prevalence rates or fertility decline has been the subject of much ideological and methodological debate, and some measurement. The evidence at present supports the argument that programs do have an independent, significant impact on fertility decline, largely through reaching populations that are typically isolated by terrain, by poverty or by ignorance.[15/]

The strategic problem in that of establishing the link between foreign assistance and population policy, programs or fertility decline. It is not sufficient, for example, to

show that family planning programs have an impact on fertility and then to argue that since foreign donors assisted the programs they should be credited with some positive impact. A brief example can illustrate the dangers of this not uncommon line of reasoning. Rosenzweig (1981) reviews micro-level studies in India and Columbia, which "...indicate that where family planning is present fertility and child mortality are reduced." Before foreign donors take comfort from this, however, it is useful to review the Population Council (Williamson, 1982) experience in Bohl in the Philippines. In that case an integrated family planning and maternal and child health project had no impact on fertility and even experienced an increase in infant mortality. Since this program was almost completely foreign-designed and funded, it would be possible to conclude that foreign assistance had either no, or a negative impact.

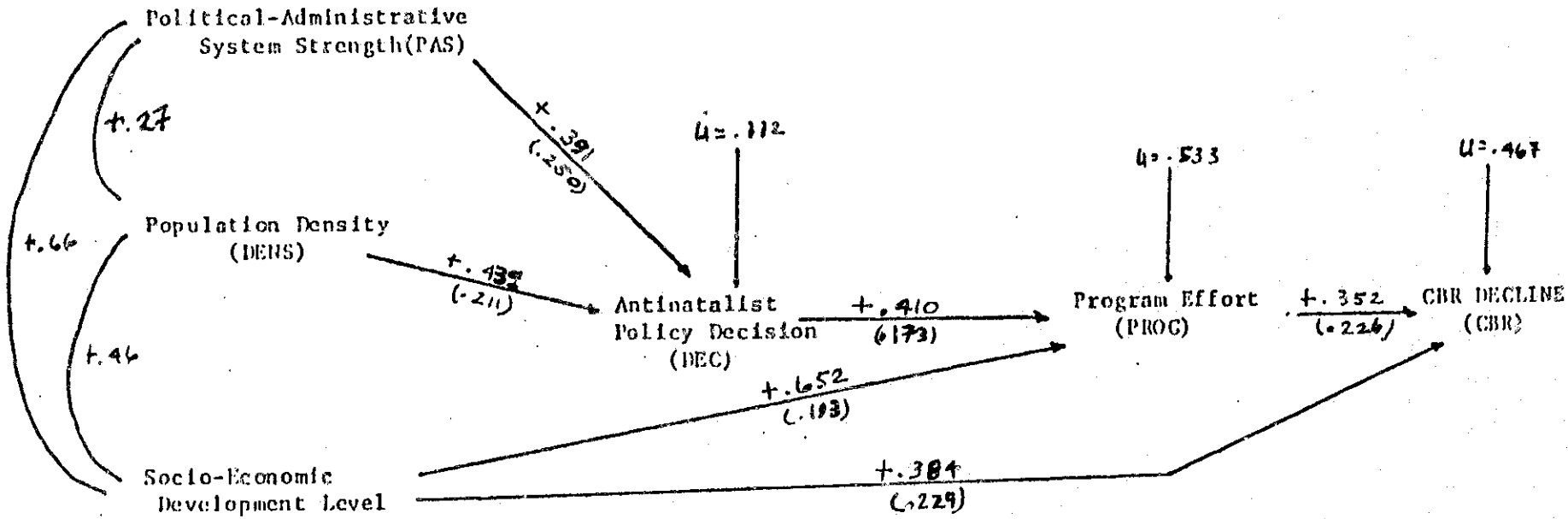
We do not support this conclusion, but it does caution us to focus specfically on the link between foreign assistance and population programming. We shall proceed by reviewing general arguments, a cross-national study and specific country program evaluations to determine what can be said about the impact of foreign population assistance. We shall also confine our observations largely to Asia.

There have been very few serious attempts to examine the impact of foreign assistance on the overall process from policy formation to fertility decline. The OECD has

provided a series of excellent reviews of international population assistance, beginning with the results of an international conference in 1968.[16/] Its reviews discuss overall problems of such assistance with sensitivity and clarity, but they do not undertake systematic and comprehensive assessments of its impact. In 1979 the Australian National University's Development Studies Center produced a volume on international aid, in which Gavin Jones explored international population assistance. This provided an historical review of the controversies and the flow of assistance, and made a spirited defense of such assistance. It did not, however, provide a systematic assessment of the impact of that assistance on population processes. A series of more critical assessments of population assistance has been put forward by Demerath (1976), and Bondestan and Bergstrom (1980), but these are more ideological than systematic attempts to assess impact.

Ness and Ando (forthcoming, 1983) have developed a path-analytical model of the policy-program-fertility process for 21 Asian countries, which speaks to the issue of foreign assistance impact. Some of their results are shown in the two path models in figures 8.1 and 8.2. They have developed what they call a political-ecological perspective on the process of population change in Asia. This leads to the assessment of both political and ecological impacts on the three part process of policy formation, program implementation and fertility decline. They have argued that

Figure 8.1. Path Diagram of the Determinants of Crude Birth Rate Decline, Family Planning Program Effort, and Antinatalist Policy Decision for 21 States of Asia 1960-1975.



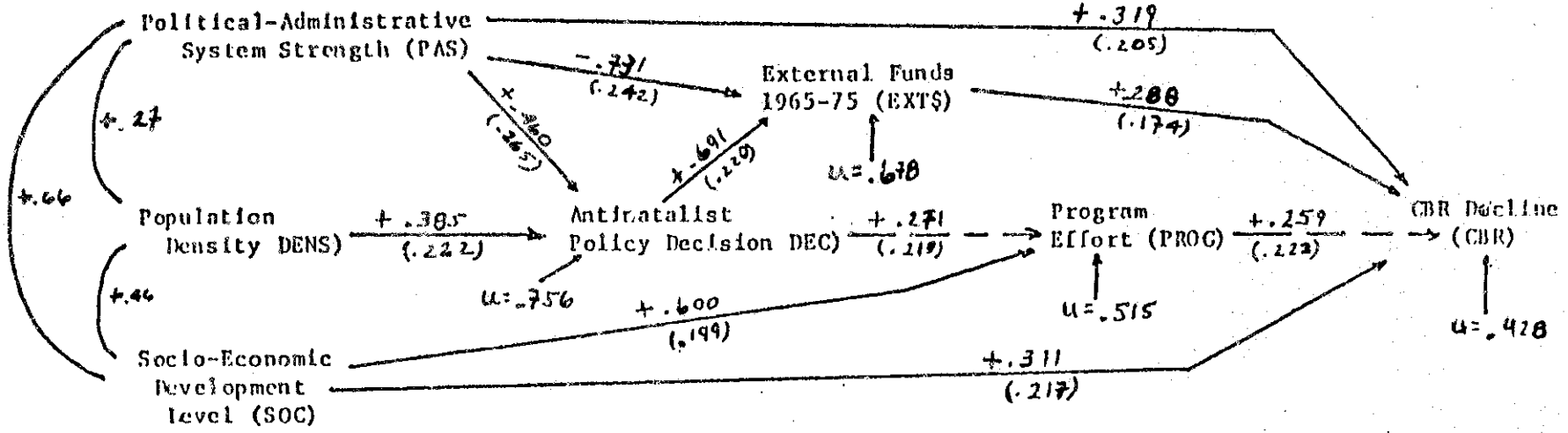
Equations

Y(DEC) = .391PAS + .439DENS + .039SOC
(.250) (.211) (.271)
F= 3.836 Sig.= .029 R^2= .404

Y(PROG) = -.171PAS + .082DENS + .410DEC + .652SOC
(.190) (.168) (.173) (.193)
F= 10.083 Sig = .0003 R^2= .716

Y(CBR) = .185PAS + .163DENS + .043DEC + .384SOC + .352PROG
(.177) (.155) (.182) (.229((.226)
F= 10.740 Sig = .0002 R^2= .782

Figure 8.2. Path Diagram of the Determinants of Crude Birth Rate Decline, Family Planning Program Effort, External Financial Assistance, and Antinatalist Policy Decision for 21 States of Asia 1960-1975



Equations

Y(DEC) = .460PAS + .385DENS + .045SOC + .177EXT$ F=3.011 Sig = .050 R^2=.429
(.265) (.222) (.274) (.208)

Y(EXT$) = -.731PAS + .691DEC + .096DENS + .257SOC F=4.694 Sig = .017 R^2= .540
(.242) (.220) (.214) (.246)

Y(PROG) = -.024PAS + .271DEC + .067DENS + .600SOC + .201EXT$ F=8.301 Sig = .0006 R^2= .735
(.238) (.219) (.169) (.199) (.196)

Y(CBR) = .379PAS - .203DEC + .149DENS + .371SOC + .288EXT$ + .259PROG F= 10.431 Sig = .0002 R^2= .817
(.205) (.198) (.146) (.217) (.174) (.222)

for Asia this process was driven largely by internal national conditions, with little direct impact from foreign assistance. The path diagram in figure 8.1 shows the outcome of the statistical estimation of their hypothesized process. This supports the view that the strength of the political-administrative system combines with population density to affect the timing of the antinatalist policy decision.[17/] The strength of the family planning program, or policy implementation, was determined by the timing of the policy decision combined with the level of socioeconomic development.[18/] Finally, the rate of fertility decline was determined by the strength of the family planning program combined with the level of socioeconomic development.

Into this basically closed-system, national model, Ness and Ando added a measure of foreign population assistance. This was the total amount of population assistance received from all donors between 1965 and 1975, divided by the population of the receiving country. The data shown in figure 8.2 support the following interpretation. Strong political systems in Asia came to antinatalist decisions largely from internal efforts to promote economic development and social justice. They mobilized resources internally and had a substantial impact in the direction of reducing fertility and population growth. The weaker political systems relied more on external assistance, which flowed more freely after the nations themselves made their antinatalist policiy decisions. The foreign assistance also

had some impact directly on fertility decline, though actually how this worked is still uncertain. Foreign assistance had a positive, but quite weak, impact on family planning program strength. (The regression coefficient from foreign assistance to program strength in figure 8.2 is positive, but it is not statistically significant.)

In effect, foreign population assistance supported what the stronger political systems were already doing in the way of fertility reduction, and it helped the weaker systems do what they were not fully capable of doing themselves. This is, to be sure, only one of a number of possible interpretations of the results of the multiple regression analysis, but it was supported by more detailed examination of cases identified as multivariate outliers. It cannot be taken as fully conclusive, but it is one of the few attempts to develop a theory of foreign assistance and population planning and to test the theory with quantitative data.

Other assessments of the impact of international assistance rely more on specific case analysis. They tend however, to focus on the more successful cases, showing how they have become successful, rather than on the causes of the equally impressive failures. Two studies in Southeast Asia can illustrate the positive side of this argument.[19/] An AID evaluation of the Indonesian program (Heiby, Ness, Pillsbury, 1979) was specifically concerned with the AID impact on that program. The evaluation accepted the general evidence that the Indonesian program had indeed had a

positive impact on contraceptive use and a depressing impact on fertility, primarily in East Java and Bali. It found that US AID had developed a low profile program in Indonesia that supported the efforts of local elites to move the program out from its clinic base to the village. AID's major contribution was in developing an administrative process that moved money rapidly from Jakarta to the provinces, thus stimulating local leadership and initiative, which adapted the general aims of the program to local conditions. For a variety reasons that now appear largely as historical accidents, US AID was able to support strong local initiatives to build an effective program.

US AID also undertook an assessment of the Thai family planning program (US Aid 1980) in which it found some positive impacts from the foreign assistance. In this case, it appears that it was the AID decision to finance contraceptive supplies at a sufficient level so that they could be provided free to the rural poor that was in large part responsible for the positive impact.

Two things should be noted from these two evaluation reports. First, there was no cumulation from one to the other. That is, the findings of the Indonesian evaluation could have been treated as hypotheses to be tested in Thailand. They were not. The Thai case constituted a separate evaluation, focused on itself. The reports permit inferences to be made, but they missed the opportunity for a cumulative and continuous assessment of the manner in which

foreign assistance can have an impact on fertility and fertility decline.

Perhaps more important, each evaluation shows that the foreign assistance encompassed a wide variety of activities, including long term training of local staff, support for local planning, operational and research institutions, and program support closely tailored to the immediate needs of each country. Both countries had the advantage of having foreign and local staff who were technically competent and strongly committed to producing success in program performance. In neither case was the support short-lived, nor did it produce quick results. Further, it was in both cases merely one element in a large program of support for development activities, although it was in both cases a specialized type of support for family planning.

A similar evaluation of the Philippines family planning program (Family Health Care, 1977) produced less hopeful results from the perspective of foreign assistance. Again, the cumulative and comparative potential of the evaluation was not realized, as the evaluation focused only on the Philippines. It found that the family planning program itself was deficient in leadership, management, and impact on the rural poor. It could also have noted, however, that this failure occured <u>despite</u> the massive amounts of foreign assistance Philippines population planning had received. Ness and Ando, for example, found that between 1965 and 1975 the Philippines received more absolute funds, and far

more percapita funds than either Thailand or Indonesia. The failure in the Philippines alongside the successes in Indonesia and Thailand have gone unanalysed in the agency's evaluation studies. They do, however, fit the theoretical arguments and empirical analysis Ness and Ando have provided. In effect, this argues that foreign assistance has little if any real initiative power. It can help strong programs that are supported by political leaders, but it cannot produce either the program strength or the program support by itself.

The Philippines program provides additional experience on the conditions of both success and failure in international population assistance. US AID was among many donors that has often urged the Philippines to move its program out from the clinic to the village. Donor experiences in Indonesia and Thailand were in this case being deliberately transplanted to the Philippines. The external stimulus supported Filipino elites who were also convinced of the necessity of providing services at the village level. The result was an "outreach" program modelled on the successful Indonesian program. Put in place in 1977, the outreach program has shown some striking successes. (Laing, 1981, Herrin and Pullum 1981) Service provision was overcoming barriers of distance, cost, and fear and ignorance. Contraceptive prevalence rates increased in many areas and even where they were not rising, use was shifting from less reliable to safer contraceptive

methods. Foreign donors played a substantial role in supporting Filipino elites who wished to see higher levels of program performance, and foreign donors paid a large share of the cost of the outreach program.[20/] It appeared that after 15 years of assistance, foreign donors were beginning to show a substantial impact on the problem of Philippines population growth rates.

Success proved elusive, however. Early in the next decade, top level political and administrative changes that turned out to be decidedly antipathetic to family planning.[21/] From 1982 the budget of the Population Commission was cut, drastic leadership changes proved highly disruptive, and serious attempts were made to turn the orientation from family planning service provision to primary and secondary level population education programs. Here again the controversial nature of population programs has raised substantial obstacles in the way of effective programming. Foreign donors can claim some credit for the advances in policy and program made during the last half of the 1970s, but it would be inaccurate to hold them responsible for more recent set-backs.

Lacking more comprehensive and detailed analyses of the impact of foreign population assistance, we can only suggest the ways in which this assistance can have an impact on the three stages of population planning. If this cannot produce definitive statements of impact, it can at least establish a

set of questions, or an evaluation agenda, that would move in this direction.

The first problem is that of promoting the formualtion of an antinatalist policy decision. There has been a great deal of relatively modest and inexpensive activity in this direction. Support for international organizations, like the United Nations with its full schedule of conferences constitutes perhaps the most dramatic type of policy-promoting activity. Even the internal decisions that were made in Asia were strongly supported by international assistance to development planning activities in general and to the regional (ECAFE and ESCAP) organizations that convened conferences and technical meetings on the planning process. As development planning matured, it almost inevitably produced decisions for fertility-limitation activities. This has been true in capitalist, socialists and mixed political economies.

Before the UN and the US became major population donors, the role of promoting policy decisions was played with intelligence and sensitivity by the private foundations. The Ford, and Rockefeller Foundations, the Population Council, and the International Planned Parenthood Foundation all played active roles. They convened small meetings of national elites, produced papers identifying the implications of rapid population growth, and provided support for the travel and study of decision makers from the high fertility nations. Comparable roles are being

played today by international agencies in AID's "Rapid" project and the UN's Parliamentarians project. These are part of a wide variety of travel, conference, and training projects that have their impact primarily on the current and future elites of the high fertility nations. The funds involved are small, but the impact appears to be substantial. It should be noted, of course, that the impact now only appears to be substantial. There has been no systematic evaluation of the processes of policy formation that can establish the type and amount of impact coming from international population assistance.

A more definitive assessment of the impact of foreign assistance on policy formation is rendered more complicated by the fact that the relationship between foreign assistance and policy formation flows strongly in both directions. Foreign assistance to strategically placed elites has produced some policy decisions, but those policy decisions have also produced or increased the flow of foreign assistance to the recipient country. Modest support for travel and information flows can help to produce policy decisions. But then when the policy decisions are made, the way is open to the larger flow of foreign assistance to support program activities, which have much larger absorptive capacities.

Foreign assistance can also help to strengthen existing family planning programs. The most visible form this support takes is through commodity provision. Contraceptive

commodities constitute a substantial cost for any national program, and shortage of supplies is often an obstacle in weak programs or weak political-administrative systems. In this case, international population assistance has had a positive impact. It is only a slight exaggeration to say that today no national program need experience shortages of contraceptive suplies. The world community, or the major population donors appear ready to meet virtually any need, either for imports or for assistiing in establishing local production capacities. Here again, the foreign support is available, but can only be realized when a national program management sees the need and makes the proper requests.

In addition to commodity support, foreign assistance helps to build facilities (this is especially true of World Bank loan assistance), train personnel, provide specialized technical assistance (for activities from warehousing to service statistics), to purcahse needed equipment, and sometimes even to pay staff salaries.

This, then, represents an area in which it should be relatively easy to assess the impact of international population assistance. We need only ask how much financial support has gone to family planning programs, for what kinds of activities, and then determine whether there is any relation between this type of support and the strength of the individual family planning programs. There are, to be sure, intractable problems of distinguishing the impact of foreign assistance from the impact of domestic support. Our

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impressions at present are as stated above. Foreign assistance cannot reverse major weaknesses in the political and administrative system of a given country. It can, however, help to promote the implementation of policies the national leadership desires to see carried out. It can also convince internal elite of the importance of family planning.

Although the number of major donors is small in the population field, their numbers and diversity present a difficult problem in assessing the impact of assistance. In individual field situations, there is often a great deal of cooperation and collaboration among donors, but there is also competition and lack of coordination. In either case, with more than one donor, it is often difficult to distinguish which specific donor actions have been responsible for either the successes or the failures of a given program. The Indonesian and Thai evaluations cited above noted the cooperative action of donors, but did not attempt to go beyond general statements of relative impacts.[22/]

Finally, the links from foreign assistance to fertility-limitation are especially difficult to identify in any systematic manner. There are many indirect flows that are readily apparent. Assistance to education tends to raise female school attendance, which raises the age of marriage, and the acceptance of contraceptives within marriage, and thus tends to reduce fertility. The path is,

however, long and tortuous and many of the elements are only loosely connected. Much the same can be said for health assistance, and especially for the type that attacks infant mortality. Assistance for sewage, clean and abundant water supplies, increased agricultural production, or specific nutrition programs often have an indriect impact on the decline of infant mortality, and this in turn tends to increase the demand for contraceptives. This, too, is a long a tortuous path with many loose connections, rendering it almost impossible to undertake a reasonable assessment of the impact of assistance on fertility.

8.4 Some Conclusions

In the assessment of the impact of international assistance on population, and especially family planning, programing, there is much confusion, uncertainty and controversy. There is little hard and systematic comparative analysis, which could provide more effectively grounded if not definitive answers. It is possible, however, to make a number of tentative summary judgements. These are partly impressions from observations of a number of cases, partly suggestions from the few systematic evaluations that have been made, and partly questions that remain to be answered.

a. Foreign assistance has probably been most effective in the formation of antinatalist police decisions. Here relatively modest funds, supporting information flows, and directed at national elites, have helped to sharpen perceptions of the urgency of the population problem, and to identify both its local dimensions, and the points at which some effective leverage can be gained through creating national family planning programs.

b. Assistance to family planning programs, or policy implementation, can be more massive and can have a profound impact through making supplies and services available especially to the poorest of the poor, poor rural women. Where there have been successes, this is largely where the they have been achieved. In this case, funds for contraceptive supplies and a wide variety of other

activities indicated by very specific national conditions, constitute the type of assistance that is useful. Here, however, it is more difficult for foreign donors to gain leverage. The impact of assistance depends primarily on the political will and administrative capacity of the host government. If both are high, foreign assistance can have a substantial impact. If both are low, even large amounts of foreign assistance can be almost totally without impact.

c. The impact of foreign assistance on fertility is far easier to identify when it flows through direct programs to reduce fertility. Foreign assistance to general social and economic development, to health, education, or agricultural production cannot yet be shown to have a direct impact on fertility.[23/] These are, of course, important aims in international development assistance in their own right, and need not be defended by reference to their impact on fertility. That they are important in their own right is indicated by the allocations of foreign assistance. Support for agricultural devlopment, for health or for education have consistently been far greater in magnitude than support for population programs. But the other side of the argument is important as well. If fertility decline is a policy aim, the foreign assistance that will have the most directly discernable impact appears to be direct assistance to fertility limitation programing.

Footnotes

1/ OECD Annual Reviews provide the basic figures. The above figures are in current dollars, thus they overstate considerably the magnitude of real international assistance, but the relative shares of total and population assistance are not affected.

2/ See Gayl D. Ness, "Organizational Issues in International Population Assistance," in World Population and Development ed. Phillip Hauser (Syrause: Syracuse University Press, 1979): 615-49.

3/ Personal communication Rafael Salas.

4/ R. Hankinson, Population Assistance to Asia 1960-1970 (Paris: OECD, 1972).

5/ See Gayl D. Ness and Hirofumi Ando, The Land is Shrinking: Population Planning in Asia forthcoming (Baltimore: Johns Hopkins University Press, 1983): chapter 2, for a fuller analysis of these regional differences.

6/ Ness and Ando, Ibid., chapter 3. However muchinternational population assistance can help countries develop effective population programs, China reminds us that it can also be done without such assistance.

7/ See Richard Symmonds and Michael Carder, The United Nations and the Population Question, (New York: Mc Graw Hill, 1973), and Jason L. Finkle and Barbara B. Crane, "The Politics of Bucharest: Population, Development and the New International Order," Population and Development Review 1, 1 (September 1978)

8/ See Stephen Isaacs, Population Law and Policy (New York: Human Sciences Press, 1981), especially chapter 2, for a good review of the debate. Finkle and Crane (1978) also providea sobering review of the West's narrow family planning focus at Bucharest.

9/ On Sweden's domestic policies see Alison McIntosh, (1983).

10/ Ethnic-political tensions relevant to population policies are reported, inter alia, in India (Frankel 1977), Sri Lanka (UN, ESCAP, 1976), and Malaysia (Ness, 1976). The list could easily be expanded.

11/ Various development assistance program have an impact on fertility, for example, through raising levels of socioeconomic development. (Rosenzweig, 1981). They also ave impact on mortality, but these are generally considered

as results of health programs. Few development programs attempt to affect migration and distribution.

12/ See Finkle and McIntosh (1979) for a good discussion of the many meanings of population policy.

13/ It is important to recognize the profound policy revolution that this represents. Virtually all governments throughout human history have been pronatalist. Thus the recent shift to antinatalism as official policy represents a revolutionary change. There is also something of a revolutionary character in the focus on reducing marital fertility. In the past, whenever the community or the government attempted to regulate population growth, it was usually either by encouraging outmigration or restricting marriage; almost never by direct intervention into marital fertility.

14/ In a number of countries the use of such traditional methods as withdrawal or abstinence constitutes a substantial proportion of the couples practising contraceptive behavior.

15/ See, for example Freedman and Berelson (1976), Berelson and Mauldin (1978), Srikantan (1979), Rosenzweig (1981) and Ness and Ando (forthcoming, 1983) for evidence of program impact. See also, however, Hernandez (1980) for a dissenting opinion. Evaluations of programs in Indonesia (Heiby, Ness, and Pillsbury, 1979), Thailand (US AID 1980) and even the Philippines (Laing, 1981) show clearly that moving family planning outlets to the villages and directly reducing the costs of contraceptives was in large part responsible for the increase in acceptors and prevalence rates.

16/ OECD, Development Center, Population Assistance and Research, proceedings of the First Conference of the Development Center (Paris: OECD, 1968). The most recent review was prepared for a conference in November, 1982.

17/ The measure of political-administrative system strength used an expert-completed grounded coding device, combining three different dimensions, which had been identified in prior theoretical and empirical work. The three dimensions were the strength of the central government, the commitment to national economic development, and the capacity for monitoring social and economic change. The intercoder reliability of their instrument was found to be high.

18/ The level of socioeconomic development used an index of three conditions in combination: infant mortality, percapita GDP, and female school enrollment. The strength of the family planning program was taken from a measurement

developed by Mauldin and Lapham (1972), and updated by Freedman and Berelson (1976).

19/ See John Haaga (n.d.) for a review of the two evaluations set in a larger theoretical framework.

20/ According to our estimates, the Philippines has received a total of about 135 million dollars in external assistance, from 1962, when private associations provided modest program support, until 1980. In the four years during which the outreach program has been in operation, 1977-1980, foreign assistance amounted to just over $62 million, for an average of more than $15 million per year. In the six years preceeding this, foreign assistance totalled over $63 million, for an annual average of just over $10 million

21/ Personal communication Robert Hackenberg. Accounts of various changes, and the disruption in Population Commission leadership appear in various issues of the Far Eastern Economic Review, and in local Philippines "undergrcund" papers.

22/ A research project currently being conducted at the University of Michigan's Center for Population Planning may offer some help here. It is collecting data on assistance by donor and recipient for all of Asia over the past 30 years. Conceivably from this it will be possible to determine whether the proportion of assistance that comes from specific donors has any relationship to program performance.

23/ This is not to argue that such impacts do not exist. On the contrary, we expect there are such impacts and 104d legislation has produced many arguments for salutory impacts. Our point is only that systematic studies do not now exist to show the impact. Further, given the highly complex nature of the relationships, a conclusive demonstration of the independent impact of foreign assistance on fertility <u>through</u> other development programs may be impossible to find.

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CHAPTER 9

ASSISTANCE TO EXPAND AGRICULTURAL PRODUCTION*

* This chapter was prepared by Vernon W. Ruttan with the assistance of Mary Forsberg and Kent Miller. The section on "Land Tenure Reform" has been reviewed by Philip Raup and the section on "Agricultural Credit Markets" by Dale Adams.

CHAPTER 9

ASSISTANCE TO EXPAND AGRICULTURAL PRODUCTION

Development assistance programs have made major investments with the objective of directly expanding agricultural production. In this category we consider investment in land and water development; the design and development of agricultural research institutions; and the design and development of agricultural extension services. Development assistance has also been directed to the design and reform of rural institutions with the objective of releasing the constraints on production or redirecting the income flows resulting from production in a more equitable manner. In this category we consider land tenure reform and the development of rural credit institutions.

This chapter reviews the evidence that can be drawn from the literature on the impact of investments to expand agricultural production. In the next chapter we review the literature on impact of development assistance on the quality of life in rural areas.

9.1 Land and Water Resource Development

During the 1950's and 1960's investment in land and water resource development represented a major claim on the development budgets of many developing countries and of the bilateral and multilateral assistance agencies.

There were several reasons for the large physical infrastructure investments during this period. A major economic rationale was that public benefits exceed private benefits by such a wide margin that only the public sector could afford to undertake them. Spillover or secondary development impacts were believed to substantially exceed the benefits that could be captured in the form of price or user charges.

There was also a strong presumption that investments in transportation, communication, power, irrigation, and related facilities were a necessary precondition for economic growth. It was assumed that until these facilities were brought to a "critical minimum" level the payoff to private economic activity would be inadequate to induce the investment necessary for sustained growth. This argument has been buttressed by the political appeal of "monumental" infrastructure investments, such as big dams and superhighways.

A further reason for the large share of external development funds allocated to physical infrastructure investment is that highways, railroads, and irrigation could be planned and developed in "project units" which were amenable to the algebra of conventional cost-benefit calculations. This was in contrast with investments in such activities as research and education which

presented, at both the conceptual and empirical level, more difficult problems for cost-benefit or cost-effectiveness calculations.

By the late 1960's the World Bank had financed approximately 50 irrigation projects (Otten and Reutlinger, 1969). These developments were primarily of three types. The most dramatic were the "big dam" gravity irrigation projects. Among those which have received major attention and have absorbed substantial resources are: the Gezira scheme in the Sudan; the Aswan High Dam in Egypt; the Indus River Plain salinity problem in Pakistan; the Lower Mekong River scheme involving Thailand, Cambodia, Laos, and Vietnam; and the Bhakra Nangal project in the Punjab, India. These projects have all involved public sector investment with major foreign assistance.

There was also substantial interest and investment in the opening up of new lands for settlement. Such projects were often conceived as methods of reducing the population pressure in settled areas by the transmigration of peasants to frontier areas. In Peru, development of the interior areas on the eastern slope was undertaken to reduce the population pressure on the Andean highlands. In Indonesia transmigration to the outer islands was undertaken to reduce the population pressure on Java. Such projects have also frequently involved substantial commitment of foreign aid and credit and technical assistance.

A third pattern of land and water resource development involved intensification of production on lands already being cultivated. This has meant investment at the individual farm or local community level in land leveling, drainage, pump irrigation, and other improvements leading to more effective soil and water management. This pattern of development may be highly capital-intensive in some economies and highly labor-intensive in others.

In several countries the development of "big dam" gravity irrigation systems has been of major importance as a source of growth in agricultural output (Hertford, 1970a and 1970b). In Mexico, for example, the expansion of irrigated acreage from 1.5 million hectares in 1926 to approximately 3.5 million hectares in the late 1960's set the stage for the rapid diffusion of technical change in wheat and maize production. Reed Hertford has estimated that in the absence of irrigation the annual increase in demand for purchased inputs by Mexican farmers would have risen at less than 3.5 percent, rather than at the annual rate of 9.2 percent achieved between 1940 and 1965 (Hertford, 1970b: 100).

Yet the more typical experience with gravity irrigation projects was disappointing. Costs per-man-year of additional employment and per unit increase in output have been high. A review of the performance of eight ongoing irrigation projects indicated that project execution was more expensive than anticipated in the original studies. In most cases, however, the realized rates of return remained positive. Even after revision, the projected rates of return were between 15 and 20 percent for four projects and slightly higher for two others (Otten and Reutlinger, 1969: 5, 6). By the mid-1960's, however, it was becoming increasingly difficult to find projects that would meet even the "soft" cost-benefit criteria employed by the international lending agencies and the national development assistance programs (President's Science Advisory Committee, 1967; Clark, 1967).

The experience with new settlement projects has also been highly unsatisfactory. An analysis of the performance of 24 new land development schemes in Latin America concludes: "Few spheres of economic development have a history of reputation for failure to match that of government sponsored

colonization in humid tropical zones," (Nelson, 1970). There is a record of consistent discrepancy between initial projections and results. Internal rates of return have been grossly overestimated. In Africa, where land settlement schemes have frequently been coupled with tractor mechanization schemes, there has also been a consistent record of failure (Eicher, Zalla and others, 1970).

The third pattern of development, involving intensification of production on lands already cultivated and greater scope for local and farm level planning and decision-making, has been relatively more successful. A particularly interesting example of such development has been the rapid expansion of tube-well irrigation in both East (Indian) and West (Pakistan) Punjab (Falcon and Gotsch, 1968). Initially the tube-well development proceeded less rapidly in East Punjab than in West Punjab, because of constraints on the drilling of tube-wells in canal command areas. When these restraints were lifted and policy was directed toward a system of coordinated groundwater-surfacewater development, there was a rapid growth of tube-wells in East Pakistan. Walter P. Falcon and Carl H. Gotsch estimate that the additional water accounted for about half of the increased output in West Punjab and more than one-third of the increase in crop output in East Punjab between 1953/54 and 1965/66.

Two important conclusions have been drawn from the Punjab experience: "The first and foremost lesson has involved the response to economic stimuli demonstrated by Punjab cultivators on both sides of the border. When prices have changed to favor the production of certain crops, the farmers have reacted; when cost-price relationships have improved for inputs, they have used larger quantities; when a new and profitable technology has become available, they have innovated," (Falcon and Gotsch, 1968: 43).

The second conclusion centers around the similarity of the input package and the dissimilarity of the policies that have been used in East and West Punjab. In spite of the policy differences the growth rates of crop output were essentially similar. ". . . These successes also lend support to the recent approaches to agricultural development which have emphasized the role of technology embodied in new inputs, and which have placed relatively less emphasis on the role of direct technical assistance to individual farmers," (Falcon and Gotsch, 1968: 45).

A conclusion which we would stress, perhaps more strongly than Falcon and Gotsch, is the strategic role of technical change in making use of the new inputs profitable to Punjabi farmers. Advances in the technology of tube-well irrigation and in the technology of fertilizer manufacture sharply reduced the costs of these two strategic inputs. And more recently the development of fertilizer-responsive crop varieties has further increased the rate of return to irrigation investment and fertilizer use.

During the 1970's, there has been a rather distinct shift in land and water resource development efforts. Increased attention has been given to issues of efficiency and equity in project implementation and management. This has involved more careful analysis of the technical and economic aspects of (a) transmission of water to farmers' fields, (b) the allocation of water among farmers, and (c) efficient on-farm use of water.[1/]

As an example, the World Bank's standard package for improving existing irrigation canals in India traditionally contained the following components: (1) lining the main canal; (2) land leveling below the outlet; (3) constructing a field canal network below each outlet to bring water up to suboutlet blocks of 5-8 hectares; (4) rotational irrigation between these suboutlet blocks; and (5) formation of water users' associations at the outlet level. Recently a shift in emphasis has begun to take place, reflecting greater

concern at how main systems are actually being operated (Wade, 1982: 171). There has been a similar shift in emphasis by U.S. AID. Several recent AID and World Bank irrigation evaluations (Wade, 1982; Steinberg, et al, 1980; Benedict, 1982) have cited management as the major factor accounting for differences in project effectiveness. This has led U.S. AID to place greater emphasis on managerial training for irrigation system managers. Since fewer large irrigation projects are being built because only the expensive sites are left, the emphasis is turning towards more efficient use of what already exists.

The importance of effective management for system efficiency can be illustrated from recent AID project evaluation studies in Korea and Sudan. The Korean project involved an attempt to achieve efficient and equitable delivery of water to farms in an area that was already intensively cultivated (Steinberg, et al, 1980). Three factors were important in the success of the project. One was that the project had available to it an effective Korean engineering and management staff. A second factor was effective organization of the institutions that supplied inputs and services. A third was the organization of farmers into strong Farm Land Improvement Associations. The Associations were able to take responsibility for managing water distribution and collecting irrigation fees. They were also able to bring pressure to bear on their members for efficient water use and on system management for effective performance.

In contrast to the Korean project, the Rahad Project in the Sudan is an example of a project with many problems. It was undertaken to develop underutilized water resources and extend intensive crop production into an area that had not been formed intensively with the hope that it would expand production of export crops (Benedict, et al, 1982: iii). AID's contribution to this project was to supply equipment and spare parts for the construction

of the irrigation works and for land preparation. Recently AID has supplied mechanical cotton pickers and vehicles to facilitate the mechanism of field operations. In 1982 the Rahad Project had just completed its fourth growing season, during which cotton yields declined each year and incomes were lower than required to break even (Benedict, et al, 1982: iii).

The evaluation team identified several causes for the decline in cotton production which seemed to point to a need for better administration of the Corporation which runs the irrigation project. Because of perceived labor shortages, production was highly mechanized. Mechanization weakened the linkage between worker incentives and farm management decision making (Benedict, et al, 1982: C-5). One of the problems with the system was that farmers either did not get water or it came at inappropriate times during the growing season. The major problem was not with the system but with the need to improve the management of the project and increase worker incentives (Benedict, et al, 1982: 17).

Robert Wade also makes a case that India's irrigation projects suffer from lack of trained managers. At present over 80 percent of the non-professional (non-engineer) staff of an irrigation canal have no training related to the job they have. There is the notion that professional irrigation engineers need some acquaintance with agronomy but they receive no training in management (Wade, 1982: 181).

The importance of effective farmer representation in planning and management of irrigation systems has received emphasis in recent literature. When farmers did not get water in Rahad, they had no effective mechanism for dealing with the inefficient system management. In Korea, a strong farmer organization acted to reinforce effective management. Furthermore, farmers have information resulting from their experience that could be tapped instead of hiring expensive engineering personnel. The opportunity cost of

the farmer's resources may be less than that of the civil service technical staff (Small, 1982: 4-5).

In spite of the emerging concern with more effective irrigation management, the problems that attracted observers' comments in the 1960's and the 1970's remain important. Robert W. Herdt, commenting on his observations in Asia noted that:

> "With the commitment of most development assistance agencies to agricultural and rural development, there is great pressure to lend money for agriculture, with irrigation receiving a disproportionate share. Irrigation projects attract development banks and aid agencies because they utilize large amounts of capital, result in highly visible infrastructure and provide a service that nearly everyone agrees is a requirement for development. At the same time, agencies charged with operating completed projects have many problems--difficulty in collecting water fees from farmers, difficulties in operating systems, shortages of water, and lack of community cooperation in maintaining systems, among others. Part of the reason for these difficulties may be that too many resources are made available for irrigation too quickly. As a result, the lack of 'absorbtive capacity' of irrigation agencies results in inefficient projects. Another reason for the difficulty is that the productivity of systems is often overestimated and the costs are often underestimated so the implementing agencies have unrealistic expectations about the financial payoffs," (Herdt, 1979).

9.2 Agricultural Research*

The capacity to develop and manage agricultural technology has been increasingly recognized as one of the most important variables accounting for differences in agricultural productivity among nations. The returns to investment in land and water resource development have typically remained low unless accompanied by simultaneous efforts to advance the technology of crop and livestock production.

Historical evidence suggests that those countries that have been successful in generating rapid technical change in agriculture have found it necessary to develop the institutional capacity to conduct the agricultural research and technology development that has enabled them to follow a path of technical change consistent with their own resource and cultural endowments. Those countries that have attempted to rely primarily on borrowed agricultural technology have rarely developed the capacity to adopt and manage the borrowed technology in a manner capable of sustaining agricultural development.

The location specific nature of agricultural technology, particularly the biological and chemical technology required to sustain more intensive

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* This section summarizes material treated in considerably more detail in two previous reviews (Arndt, Dalrymple and Ruttan, 1977; Ruttan, 1982). Other useful studies include Moseman (1970); Committee on African Agricultural Research Capabilities (1974); Drilon (1975 and 1977) and Ardila, Trigo and Pineiro (1981). The Ardila, Trigo and Pineiro paper is based on a series of studies conducted under the project on National Agricultural Research Systems in Latin America by the Interamerican Institute for Agricultural Cooperation (IICA). For an attempt to document the growth in resources allocated to the support of agricultural research by national governments and assistance agencies see Boyce and Evenson (1975) and Oram (1981).

crop and livestock production - of increasing output per hectare - was not widely recognized in the agricultural assistance programs of the 1950's. And, it was not until the late 1960's after the yield enhancing capacity of modern wheat and rice varieties was demonstrated in the tropics that the bilateral and multilateral assistance agencies began to make substantial investments in support of agricultural research. Center support for improvement in agricultural research had been dominated by an "extension" bias or what has recently become more fashionable to term, a "technology transfer" orientation.

The Emergence of the International Institute Model

Three approaches have been employed in organizing support for agricultural research in the developing countries. These can be described as the counterpart, the university contract, and the international institute models.

The counterpart model refers to a situation where an individual scientist (often referred to as an "expert" or "technician") or a scientific team is assigned by an assistance agency to function in an advisory role in close cooperation with counterpart scientists or professionals in national research agencies. The staff member from the external technical assistance agency is typically viewed as an expert who functions in an advisory role relative to his or her national counterpart.

It was gradually recognized, however, that the transferability of expertise from temperate- to tropical-region agriculture was severely limited. The scientific knowledge needed to improve both agricultural productivity and institutional performance could only be obtained by the development of location-specific research capacity on the part of both expatriate and indigenous scientists. As a result, by the mid-1960's, the use of foreign "experts" as advisers was increasingly regarded as an inadequate response to the technical and scientific assistance needs of the less-developed countries.

The university contract model typically has involved the establishment of a special relationship between a university in a developed country and a university in a less-developed country. At times, it has also been employed to link a consortium of institutions in developed countries and/or less-developed countries. Occasionally, the link has also involved a ministry-level research division or institute. The university contract model has been employed where institution building and training have represented the major objectives of technical assistance activity. In India, for example, support by the USAID agency led to the establishment of a major agricultural university in each state (Chapter 12). The development of these new universities was, in most cases, supported through a contract with a major U.S. university.

In the past, the university contract model has not provided an environment conducive to the long-term commitment of professional resources to the pursuit of scientific and technical research on problems of agriculture in developing countries by staff members of institutions in developed countries. It has made an important contribution to the training of large numbers of agricultural scientists from developing countries at the postgraduate level. But the university contract model has not, with few exceptions, been an effective instrument for research leading to the discovery of new knowledge or the invention of new technology needed to expand productive capacity in developing countries.

In the United States, a new effort has been initiated (under Title XII of the International Development and Food Assistance Act of 1975) to establish a more adequate financial and administrative environment for the participation of the U.S. colleges of agriculture in an effort to strengthen national research programs in the less-developed countries. Experience thus far

seems to indicate that the lessons of the 1960's - that the comparative advantage of institutions in developed countries lies more in the training of scientists from less-developed countries than in technology-oriented research for the less-developed countries - will have to be relearned.

Between the mid-1960's and the early 1970's, the international research and training institute model emerged, in the perception of the international aid agencies, as the most effective way to organize scientific capacity to generate technical change in agriculture for the developing countries. The international institute model draws on two historical traditions. One is the experience of the great tropical research institutes that played an important role in increasing the production of a number of export commodities, including rubber, tea, sisal, and sugarcane.

The international institute model draws more directly on the experience of the Rockefeller Foundation in Mexico and the Ford Foundation and the Rockefeller Foundation in the Philippines in support of the research that led to dramatic increases in food crop production, particularly wheat and rice. The complex of international agricultural research institutes listed in Figure 9.1 evolved directly from two institutions, the International Rice Research Institute (IRRI) and the International Center for Improvement of Maize and Wheat (CIMMYT), established by the Rockefeller Foundation and the Ford Foundation in 1959 and 1963. The Rockefeller Foundation's agricultural sciences program was initiated in 1943 with the establishment of the Office of Special Studies (Oficina de Estudies Especiales) in cooperation with the Mexican Ministry of Agriculture.

The success of the wheat program in Mexico led to conversations between the Ford Foundation and the Rockefeller Foundation about the possibility of collaborating on a program in Asia. After a good deal of investigation, an

Figure 9.1. The International Agricultural Research Institutes

Center	Location	Research	Coverage	Date of Initiation	Core Budget for 1980 ($000)
IRRI (International Rice Research Institute)	Los Banos, Philippines	Rice under irrigation, multiple cropping systems; upland rice	Worldwide, special emphasis on Asia	1959	16,119
CIMMYT (International Center for the Improvement of Maize and Wheat)	El Batan, Mexico	Wheat (also triticale, barley): maize (also high-altitude sorghum)	Worldwide	1963	17,035
IITA (International Institute of Tropical Agriculture	Ibadan, Nigeria	Farming systems: cereals (rice and maize as regional relay stations for IRRI and CIMMYT); grain legume (cow-peas, soybeans, lima beans); root and tuber crops (cassava, sweet potatoes, yams)	Worldwide in lowland tropics special emphasis on Africa	1967	15,106
CIAT (International Centre for Tropical Agriculture)	Palmira, Colombia	Beef; cassava; field beans; swine (minor); maize and rice (regional relay stations to CIMMYT and IRRI)	Worldwide in lowland tropics, special emphasis on Latin America	1968	14,998
WARDA (West African Rice Development Association)	Monrovia, Liberia	Regional co-operative effort in adaptive rice research among 13 nations with IITA and IRRI support.	West Africa	1971	2,768
CIP (International Potato Centre)	Lima, Peru	Potatoes (for both tropical and temperate regions)	Worldwide, including linkages with developed countries	1972	8,048
ICRISAT (International Crops Research Institute for the Semi-Arid Tropics)	Hyderabad, India	Sorghum; pearl millet; pigeon peas; chickpeas; farming systems; groundnuts	Worldwide, special emphasis on dry semiarid tropics, non-irrigated farming. Special relay stations in Africa under negotiation	1972	12,326
IBPGR (International Board for Plant Genetic Resources)	FAO. Rome, Italy	Conservation of plant genetic material with special reference to crops of economic importance	Worldwide	1973	3,124
ILRAD (International Laboratory for Research on Animal Diseases)	Nairobi, Africa	Trypanosolasis; theileriasis	Mainly Africa	1974	10,443
ILCA (International Livestock Center for Africa)	Addis Ababa, Ethiopia	Livestock production system	Major ecological regions in tropical zones of Africa	1974	8,986
ICARDA (International Centre for Agricultural Research in Dry Areas	Lebanon Syra	Crop and mixed farming systems research, with focus on sheep, barley, wheat, broad beans, and lentils	West Asia & North Africa, emphasis on the semiarid winter precipitation zone	1976	11,825
IFPRI (International Food Policy Research Institute)	Washington, D.C. United States	Food policy	Worldwide	1975	2,400
ISNAR (International Service for National Agricultural Research)	The Hague, Netherlands	Strengthening the capacity of national agricultural research programs	Worldwide	1979	1,199

Sources: J. G. Crawford, "Development of the International Agricultural Research System," in *Resource Allocation and Productivity in National and International Agricultural Research*, Thomas M. Arndt, Dana G. Dalrymple, and Vernon W. Ruttan, eds. (Minneapolis: University of Minnesota Press, 1977), pp. 282-83. Budget data for 1980 were obtained from the Secretariat for the Consultative Group on International Agricultural Research, World Bank, Washington, D.C.

agreement was reached between the two foundations and the government of the Philippines to establish the International Rice Research Institute in the Philippines. The agreement was signed in 1959. By 1962 the institute's facilities had been constructed, a staff was being recruited, and the program was under way.

During the late 1960's, the Ford Foundation and the Rockefeller Foundation again collaborated in the establishment of the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria, and the International Center for Tropical Agriculture (CIAT) in Palmira (near Cali), Colombia. With the establishment of these two new centers, it became apparent that the financial requirements of the system would soon exceed the capacity of the two foundations. Consultations were held between the Ford and Rockefeller Foundations, the World Bank, the Food and Agriculture Organization, and the United Nations Development Program (UNDP) in 1969. Following several informal meetings in January 1971, a formal meeting was held in May of 1971 to organize the Consultative Group on International Agricultural Research (CGIAR). The initial membership included the World Bank, the FAO, and the UNDP as sponsors, plus 9 national governments, 2 regional banks, and 3 foundations. Membership had grown to 39 institutions by 1980.

The leadership for the Consultative Group is now centered at the World Bank, which provides a chairperson and a secretariat for the group. To provide technical guidance for its work, the Consultative Group established the Technical Advisory Committee (TAC). The TAC consists of a chairperson and 12 scientist members. The FAO provides the TAC secretariat. Technical matters such as new institute initiatives and program changes at existing institutes are referred to the TAC for technical review before action by the

CGIAR. The TAC develops draft policy statements for the CGIAR's consideration on priorities within the system and has the authority to initiate investigations and to suggest initiatives and program changes to the CG on its own initiative. Since 1976, the TAC has been charged with the responsibility of organizing comprehensive quinquennial reviews of the programs of the several international research centers and with the periodic analysis of programs that have common elements in the several centers, such as cropping systems or mechanization research.

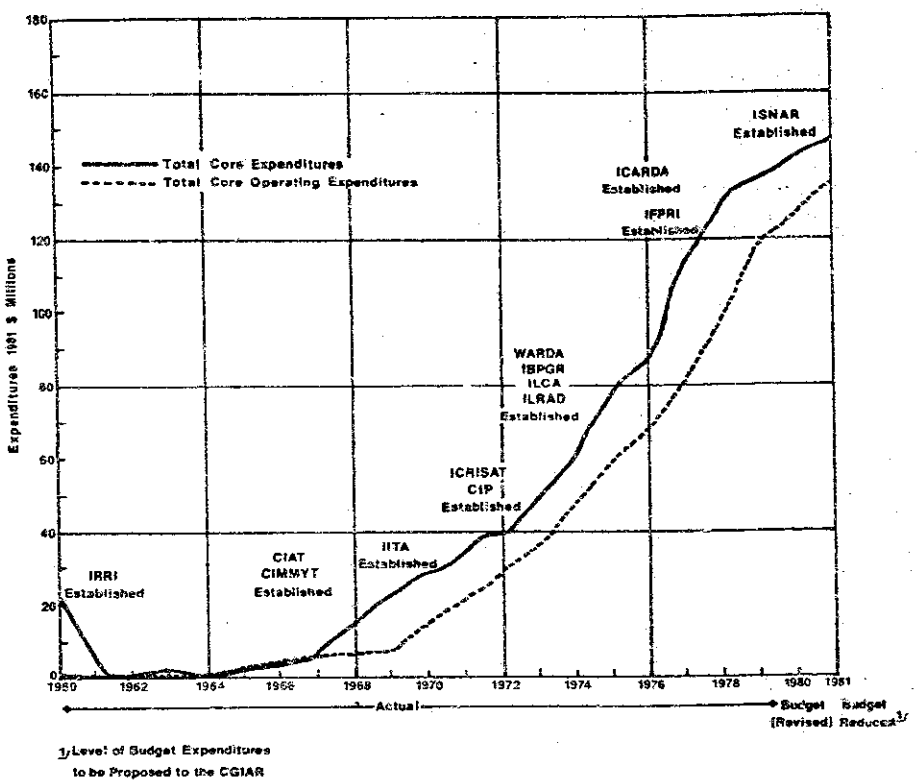
The international research system has grown rapidly. Expenditures rose from only $1.1 million in 1965 to almost $120 million in 1980 (see Figure 9.2).

Strengthening National Agricultural Research Systems

By the mid-1970's, it had become increasingly clear that the productivity of the international agricultural research system was severely constrained by the limited research capacity of many national systems and that the adaptation and dissemination of the knowledge and technology generated at the international institutes was dependent on the development of effective national systems. Robert E. Evenson (1977) demonstrated that the ability to screen, borrow, and adapt scientific knowledge and technology requires essentially the same capacity as is required to invent new technology. Capacity in the basic and supporting biological sciences is at least as important as capacity in applied science.

The outreach programs of the international institutes, even when working through networks such as the international wheat research network, the inter-Asian corn program, and others, did not have the capacity to take on the role of strengthening national systems. The regional commodity networks played an

Figure 9.2. International Agricultural Research Centers' Annual Core Expenditures and Core Operating Expenditures, 1960-1980 (in terms of constant 1981 dollars)



Source: CGIAR Secretariat 1980 (Washington, D.C.: World Bank).

important role in enabling the institutes to conduct research and to test materials and methods under diverse ecological conditions, but they could not assume a larger role without diverting effort from the institute's research programs. By the mid-1970's, only a few national systems - those of India, Brazil, and the Philippines, for example - had developed the managerial and professional capacity to effectively absorb, transmit, and adapt the knowledge and technology that were becoming available to them through the international institutes, from developed countries' research systems, and from the stronger developing countries' institutions. The bilateral and multilateral assistance agencies had no alternative, therefore, but to place the strengthening of national research systems high on their assistance agendas.

As a concensus regarding the importance of strengthening national agricultural research systems has emerged, it has also become apparent that there are serious flaws in the methods that donor agencies have been employing to support the development of national research systems and in the policies pursued by national governments in developing their national agricultural research systems (Ruttan, March 1981; May 1982).[2/] Among the problems that have emerged are the following:

- Excessive investment in research facilities development relative to scientific staff
- Excessive administrative burden, combined with inadequate identification of priorities
- Experiment station location decisions based on political rather than scientific consideration

- Lack of congruence between research resource allocation and economic importance of commodities in regions
- Cycles of development and erosion of capacity in a number of national systems

Returns to Investment in Agricultural Research

The results of a large number of studies of the contribution of research to productivity growth from both developed and developing countries have been assembled in Figure 9.3. [3/]

There has been some skepticism expressed about the results of the rate of return estimates. The presentation of the early hybrid corn and sorghum studies in the form of "external" rather than "internal" rate of return estimates did result in considerable confusion concerning interpretation of the estimates. A review of the body of literature summarized in Figure 9.3 impresses one with the increasing sophistication that the authors of the more recent studies have displayed in responding to the limitations of some of the earlier studies. The effect of more careful model specification, more complete measurement of costs, and greater caution in estimating benefits appears to have resulted in a downward bias in a number of recent studies (see Ruttan, 1982, pp. 252-254).

In spite of the deficiencies in research organization and management noted above, almost all of the studies indicate high rates of return to investment in agricultural research - well above the 10 to 15 percent (above inflation) that private firms consider adequate to attract investment. It is hard to imagine many investments in either private- or public-sector activities that would produce more favorable rates of return.[4/]

Figure 9.3.

Summary Studies of Agricultural Research Productivity

Study	Country	Commodity	Time Period	Annual Internal Rate of Return (%)
Index Number:				
Griliches, 1958	USA	Hybrid corn	1940-1955	35-40
Griliches, 1958	USA	Hybrid sorghum	1940-1957	20
Peterson, 1967	USA	Poultry	1915-1960	21-25
Evenson, 1969	South Africa	Sugarcane	1945-1962	40
Barletta, 1970	Mexico	Wheat	1943-1963	90
Barletta, 1970	Mexico	Maize	1943-1963	35
Ayer, 1970	Brazil	Cotton	1924-1967	77+
Schmitz and Seckler, 1970	USA	Tomato harvester, with no compensation to displaced workers	1958-1969	37-46
		Tomato harvester, with compensation of displaced workers for 50% of earnings loss		16-28
Ayer and Schuh, 1972	Brazil	Cotton	1924-1967	77-110
Hines, 1972	Peru	Maize	1954-1967	35-40[a] 50-55[b]
Hayami and Akino, 1977	Japan	Rice	1915-1950	25-27
Hayami and Akino, 1977	Japan	Rice	1930-1961	73-75
Hertford, Ardila, Rocha, and Trujillo, 1977	Colombia	Rice	1957-1972	60-82
		Soybeans	1960-1971	79-96
		Wheat	1953-1973	11-12
		Cotton	1953-1972	none
Pee, 1977	Malaysia	Rubber	1932-1973	24
Peterson and Fitzharris, 1977	USA	Aggregate	1937-1942	50
			1947-1952	51
			1957-1962	49
			1957-1972	34
Wennergren and Whitaker, 1977	Bolivia	Sheep	1966-1975	44
		Wheat	1966-1975	-48
Pray, 1978	Punjab (British India)	Agricultural research and extension	1906-1956	34-44
	Punjab (Pakistan)	Agricultural research and extension	1948-1963	23-37
Scobie and Posada, 1978	Bolivia	Rice	1957-1964	79-96
Pray, 1980	Bangladesh	Wheat and rice	1961-1977	30-35
Regression Analysis:				
Tang, 1963	Japan	Aggregate	1880-1938	35
Griliches, 1964	USA	Aggregate	1949-1959	35-40
Latimer, 1964	USA	Aggregate	1949-1959	not significant

Figure 9.3. continued.

Study	Country	Commodity	Time Period	Annual Internal Rate of Return (%)
Peterson, 1967	USA	Poultry	1915-1960	21
Evenson, 1968	USA	Aggregate	1949-1959	47
Evenson, 1969	South Africa	Sugarcane	1945-1958	40
Barletta, 1970	Mexico	Crops	1943-1963	45-93
Duncan, 1972	Australia	Pasture Improvement	1948-1969	58-68
Evenson and Jha, 1973	India	Aggregate	1953-1971	40
Cline, 1975 (revised by Knutson and Tweeten, 1979)	USA	Aggregate	1939-1948	41-50[c]
		Research and extension	1949-1958	39-47[c]
			1959-1968	32-39[c]
			1969-1972	28-35[c]
Bredahl and Peterson, 1976	USA	Cash grains	1969	36[d]
		Poultry	1969	37[d]
		Dairy	1969	43[d]
		Livestock	1969	47[d]
Kahlon, Bal, Saxena, and Jha, 1977	India	Aggregate	1960-1961	63
Evenson and Flores, 1978	Asia—national	Rice	1950-1965	32-39
			1966-1975	73-78
	Asia—International	Rice	1966-1975	74-102
Flores, Evenson, and Hayami, 1978	Tropics	Rice	1966-1975	46-71
	Philippines	Rice	1966-1975	75
Nagy and Furtan, 1978	Canada	Rapeseed	1960-1975	95-110
Davis, 1979	USA	Aggregate	1949-1959	66-100
			1964-1974	37
Evenson, 1979	USA	Aggregate	1868-1926	65
	USA	Technology oriented	1927-1950	95
	USA	Science oriented	1927-1950	110
	USA	Science oriented	1948-1971	45
	Southern USA	Technology oriented	1948-1971	130
	Northern USA	Technology oriented	1948-1971	93
	Western USA	Technology oriented	1948-1971	95
	USA	Farm management research and agricultural extension	1948-1971	110

Figure 9.3. continued

Source: Robert E. Evenson, Paul E. Waggoner, and Vernon W. Ruttan, Economic Benefits from Research: An Example from Agriculture," *Science*, 205 (September 14, 1979), pp. 1101-7. Copyright 1979 by the American Association for the Advancement of Science.

a. Returns to maize research only.

b. Returns to maize research plus cultivation "package."

c. Lower estimate for 13-, and higher for 16-year time lag between beginning and end of output impact.

d. Lagged marginal product of 1969 research on output discounted for an estimated mean lag of 5 years for cash grains, 6 years for poultry and dairy, and 7 years for livestock.

Sources for Table 10.3: The results of many of the studies reported in this table have previously been summarized in the following works.

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James K. Boyce and Robert E. Evenson, *Agricultural Research and Extension Systems* (New York: Agricultural Development Council, 1975), p. 104.

Robert Evenson, Paul E. Waggoner, and Vernon W. Ruttan, "Economic Benefits from Research: An Example from Agriculture," *Science*, 205 (September 14, 1979), pp. 1101-7.

Robert J. R. Sim and Richard Gardner, *A Review of Research and Extension Evaluation in Agriculture* (Moscow, Idaho: University of Idaho, Department of Agricultural Economics Research Series 214, May 1978), pp. 41, 42.

The sources for individual studies are

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N. Ardito Barletta, "Costs and Social Benefits of Agricultural Research in Mexico" (Ph.D. dissertation, University of Chicago, 1970).

M. Bredahl and W. Peterson, "The Productivity and Allocation of Research: U.S. Agricultural Experiment Stations," *American Journal of Agricultural Economics*, 58 (November 1976), pp. 684-92.

Philip L. Cline, "Sources of Productivity Change in United States Agriculture" (Ph.D. dissertation, Oklahoma State University, 1975).

Jeffrey S. Davis, "Stability of the Research Production Coefficient for U.S. Agriculture," (Ph.D. dissertation, University of Minnesota, 1979).

R. C. Duncan, "Evaluating Returns to Research in Pasture Improvement," *Australian Journal of Agricultural Economics*, 16 (December 1972), pp. 153-68.

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P. Flores, R. E. Evenson, Y. Hayami, "Social Returns to Rice Research in the Philippines: Domestic Benefits and Foreign Spillover," *Economic Development and Cultural Change*, 26 (April 1978), pp. 591-607.

Figure 9.3. continued

Z. Griliches, "Research Costs and Social Returns: Hybrid Corn and Related Innovations," *Journal of Political Economy*, 66 (1958), pp. 419-31.

Z. Griliches, "Research Expenditures, Education and the Aggregate Agricultural Production Function," *American Economic Review*, 54 (December 1964), pp. 961-74.

Y. Hayami and M. Akino, "Organization and Productivity of Agricultural Research Systems in Japan," in *Resource Allocation and Productivity in National and International Agricultural Research*, Thomas M. Arndt, Dana G. Dalrymple, and Vernon W. Ruttan, eds. (Minneapolis: University of Minnesota Press, 1977), pp. 29-59.

R. Hertford, J. Ardila, A. Rocha, and G. Trujillo, "Productivity of Agricultural Research in Colombia," in *Resource Allocation and Productivity in National and International Agricultural Research*, Thomas M. Arndt, Dana G. Dalrymple, and Vernon W. Ruttan, eds. (Minneapolis: University of Minnesota Press, 1977), pp. 86-123.

J. Hines, "The Utilization of Research for Development: Two Case Studies in Rural Modernization and Agriculture in Peru" (Ph.D. dissertation, Princeton University, 1972).

A. S. Kahlon, H. K. Bal, P. N. Saxena, and D. Jha, "Returns to Investment in Research in India," in *Resource Allocation and Productivity in National and International Agricultural Research*, University of Minnesota Press, 1977), pp. 124-47.

M. Knutson and Luther G. Tweeten, "Toward an Optimal Rate of Growth in Agricultural Production Research and Extension," *American Journal of Agricultural Economics*, 61 (February 1979), pp. 70-76.

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T. Y. Pee, "Social Returns from Rubber Research on Peninsular Malaysia" (Ph.D. dissertation, Michigan State University, 1977)

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C. E. Pray, "The Economics of Agricultural Research in Bangladesh," *Bangladesh Journal of Agricultural Economics*, 2 (December 1979), pp. 1-36.

A. Schmitz and D. Seckler, "Mechanized Agriculture and Social Welfare: The Case of the Tomato Harvester," *American Journal of Agricultural Economics*, 52 (November 1970), pp. 569-77.

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A. Tang, "Research and Education in Japanese Agricultural Development," *Economic Studies Quarterly*, 13 (February-May 1963), pp. 27-41 and 91-99.

E. B. Wennergren and M. D. Whitaker, "Social Return to U.S. Technical Assistance in Bolivian Agriculture: The Case of Sheep and Wheat," *American Journal of Agricultural Economics*, 59 (August 1977), pp. 565-69.

9.3 Agricultural Extension

Publicly supported agricultural research systems were firmly established in a number of European countries, in North America and in Japan during the latter half of the 19th century. Extension services designed to transfer new agricultural technology to farmers were established somewhat later - typically during the first quarter of this century.

Research and extension services were also established in a number of countries in Latin America, Asia and Africa by national governments and colonial regimes prior to World War II. The extension services were often quite different than the North American model. In many of the colonial countries they were directed to the needs of the expatriate managed plantation sector. In a number of countries the extension services performed regulatory functions as well as educational and related technology transfer activities.

The Changing Role of Agricultural Extension in Development Assistance

When the United States became involved in development assistance during and after World War II, development or strengthening of extension programs represented a major focus of development assistance (see the Turkey and India case studies). There was a firm conviction among U.S. development assistance personnel and on the part of many U.S. scholars that inefficient resource allocation among "irrational tradition bound" peasants was a major constraint on agricultural development. There was also a perception that

the enormous differences in levels of productivity between developed and developing countries could be overcome by the strengthening process of technology transfer. These perspectives resulted in an "extension bias" in agricultural development assistance policy during the 1950's.[5/] The technology transfer or extension bias was particularly strong in the early U.S. development assistance programs in Latin America (Mosher 1957; Rice 1974).

By the mid-1960's there was considerable disillusionment among the administrators of development assistance programs and by development scholars with the impact of assistance for the development of agricultural extension programs. It became apparent that agricultural technology was much more location-specific than had been anticipated. And a new generation of scholars began to look upon peasants in developing countries as "poor but efficient" (Schultz, 1964). The attention of development assistance agencies, administrations and the flow of development assistance funds began to shift from the support of agricultural extension programs toward agricultural research.

By the mid-1970's concern with the effectiveness of technology transfer programs linking the new knowledge and the new technology emerging from agricultural research was resulting in renewed attention to the problem of agricultural extension. This shift was reinforced by a new set of concerns regarding equitable access to technology and the need to strengthen communal institutions.[6/] In the next sections we give particular attention to the emergence of new extension focus - the training and visit system - under World Bank auspices. In the final section we review some of the limited evidence on the economic returns to investment in extension.

A New Focus on Extension

The new focus on agricultural extension owed much to the imagination and energy of the Israeli extensionist Daniel Benor. From an initial successful effort in the Seyhan Irrigation Project area in Turkey (see Chapter 14), Benor has evolved an extension model, referred to as the "training and visit system" that has been further tested and adopted in a large number of developing countries. The World Bank has been a particularly enthusiastic supporter of the training and visit system.[7/]

Benor and his associates have identified constraints that they felt had to be overcome in order to implement successful extension programs. These include:

- Organizational deficiencies, particularly the lack of a single direct line of technical support and administrative control for the field level extension worker.
- Dilution of effort as a result of diffuse responsibility for education, information, regulatory and other rural development program responsibilities.
- Unrealistic assignments regarding the number of farmers extension personnel were responsible for reaching combined with lack of adequate transport support.
- Inadequate or outmoded training.
- Lack of adequate articulation between research and extension.
- Inferior status accorded extension workers - "low status, low morale and low pay."
- Duplication of services.

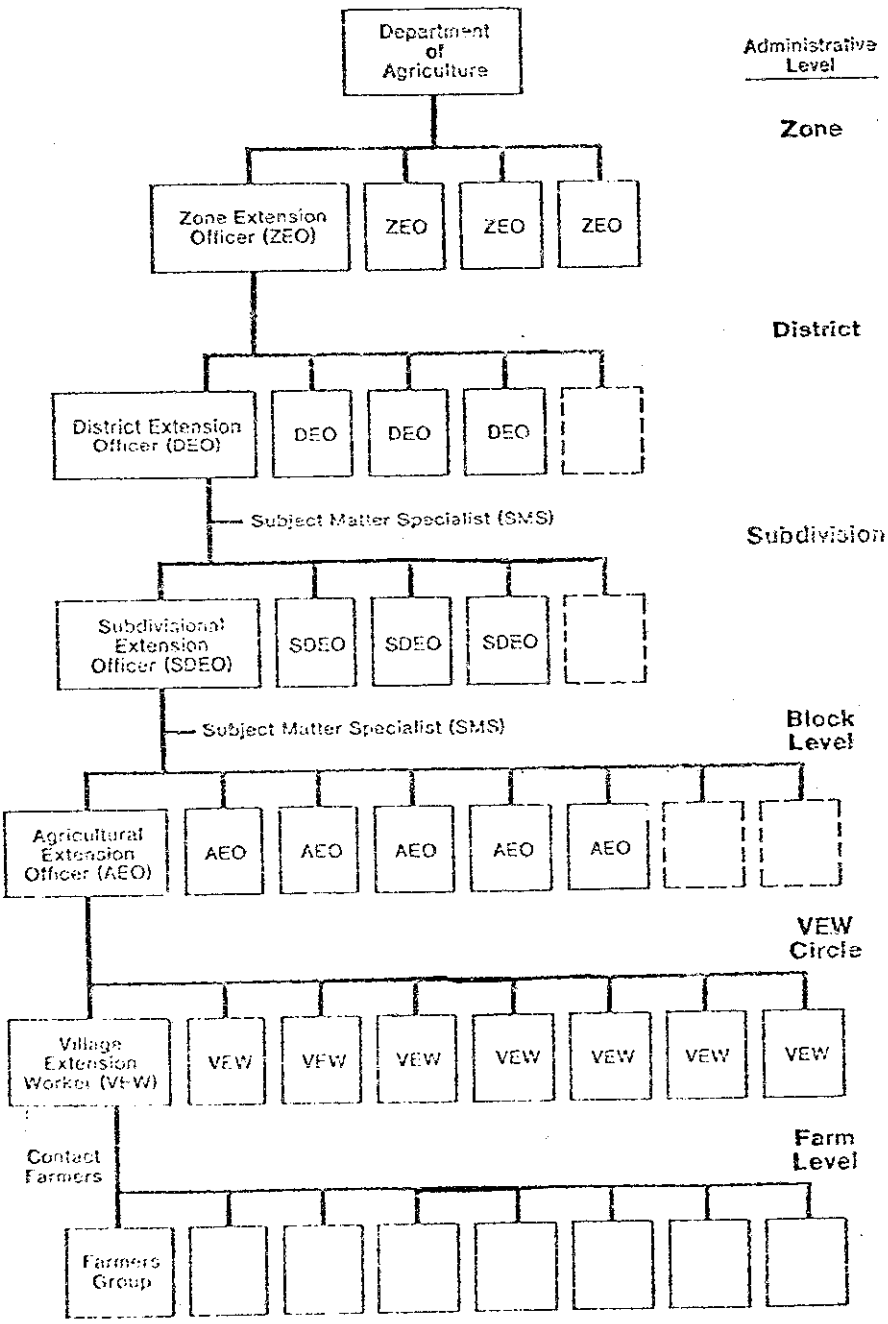
Benor suggested a specific series of reforms needed to revitalize extension efforts.

The basic technique employed in the T & V method is "a systematic program of training of the Village Extension Worker (VEW) combined with frequent visits by him to farmers' fields," (Benor and Harrison, 1977: 19). The highly regimented schedule of the VEW requires that he be involved for one day each week with intensive training related to the specific information he must convey to farmers during a given week (or fortnight). He is responsible, in turn, to visit each relatively small group of contact farmers he works with once a week for a half day or once a fortnight for a full day. "This schedule of visits and training takes up 10 of the 12 working days in the fortnight. During the remaining two days the VEW will make extra visits to supervise field trials, arrange special extension activities, make up visits missed because of illness or holidays, and complete whatever office work is necessary," (Benor and Harrison, 1977: 23). This schedule allows for close monitoring by his supervising Agricultural Extension Officer (AEO) and by local farmers who come to expect visits on a regular basis.

Figure 9.4 shows this organizational scheme as it has been applied in India.

The T & V system is organized in such a way as to overcome the most important deficiencies discussed above. First, workers in the T & V system are to concentrate on extension exclusively. Second, the T & V system features an institutionalization of linkages between research and extension. These linkages occur at all levels of the extension heirarchy through contact with researchers for training and interaction. A third emphasis of the T & V system is its stress on extending agricultural techniques which present a very low level of risk for farmers. Finally, the T & V method is geared

Figure 9.4. Organization Pattern of Intensive Extension Service on One of the States in India



Source: Benor, Daniel and James Q. Harrison. (1977). Agricultural Extension: The Training and Visit System. The World Bank, Washington, D.C., (May).

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toward the goals of both immediate and future success. In an attempt to break out of tne vicious cycle of low farmer responsiveness and low morale among extension personnel, the T & V system attempts to build confidence within the extension worker himself and farmer confidence in the extension worker through immediate success.

The T & V extension system was first implemented in Seyhan (Turkey). Benor reports that this project increased cotton yields from 1.7 to over 3 tons per hectare in three years (Benor and Harrison, 1977: 3). After the success of the Turkish program, the T & V system was initiated in 1974 as part of three Command Area Development Projects in India--two in Rajasthan state (Chambal and Rajasthan Canal) and one in Madhya Pradesh. "In Chambal, Rajasthan India), farmers increased paddy yields from about 2.1 tons to over 3 tons per hectare in two years. Combined irrigated and unirrigated wheat yields in Chambal, Madhya Pradesh (India), rose from 1.3 tons to nearly 2 tons per hectare after one season and have since risen higher," (Benor and Harrison, 1977: 3).

Subsequently, in mid-1975, the T & V system was initiated in six districts in West Bengal. Later in that same year, the government of West Bengal decided to reorganize its extension service over the entire state to the T & V system. By 1977, the Indian governments of Orissa, Rajasthan, Madhya Pradesh, Assam, and Bihar adopted decisions to reform their existing extension service to the T & V system. The total cost of these Indian projects, begun from May 1974 through June 1977, was $151.5 million. The World Bank has provided substantial financial assistance to these projects. The World Bank loaned $70.7 million to these extension reorganization efforts (Cernea and Tepping, 1977: 85).

The T & V system has been used as a model for reorganizing the extension services in other states of India since 1977. Throughout the latter half of the 1970's, use of the T & V system spread to Bangladesh, Burma, Indonesia, Nepal, Sri Lanka, and Thailand, as well.

Benor adds that the cost of the Indian extension programs was actually quite low relative to the payoff figures cited earlier. Since the T & V reform involved redeploying existing extension staff, the incremental cost "would normally be around $0.50 to $1.50 per hectare per year. The cost to farmers is very small as well, for the initial focus of the extension service in most areas is on the improvement of basic agricultural practices . . . which require more work but little cash and bring sure results," (Benor and Harrison, 1977: 4).

While the results achieved appear impressive the training and visit system has not escaped criticism. The criticisms have typically focused on (a) organizational constraints, including the difficulty of meeting the organization and training requirements of the system and the rigidity of the training and visit model, and (b) the contact farmer is regarded by some critics as a major source of bias in the distribution of benefits from the system.[8/]

Particular attention has been given to the training and visit system because of its widespread adoption. There are a number of other innovations in the organization, management and staffing of extension activities. Reference to these are included in Steinberg, et al, (1982), Korean Agricultural Research: The Integration of Research and Extension; McDermott and Bathrick (1982), Guatemala: Development of the Institute of Agricultural Science and Technology (ICTA) and its Impact on Agricultural Research and Farm Productivity and Hobgood, et al, (1980) Central America: Small-Farmer Cropping Systems. These latest reports offer promise of offering guidelines for the development of more productive agricultural extension programs.

Returns to Investment in Agricultural Extension

In assessing the impact of extension programs, particularly as they impact the development process, it is important to note some significant differences in the extension investment patterns between LDC's and DC's. "Extension programs have expanded at a much slower rate than research programs in the most highly developed regions, while they have been expanded at relatively high rates in Africa, Latin America and Asia," (Evenson and Boyce, 1975: 4). The Evenson and Kislev study (1975) reports that "the developing countries spend more on extension than on research, whereas the developed countries spend 1.8 times as much on research as on extension," (page 19). This pattern is shown by the data in Figure 9.5.

Several other interesting findings emerged in the study by Evenson and Kislev. They report that "in 1965 the developing countries spent 11 percent of the world research budget, 20 percent of the extension budget, and had 17 percent of the research and 47 percent of the world extension personnel," (Evenson and Kislev, 1975: 16). Also, "the less developed countries spend rougly 60 percent as much per scientist and only 22 percent as much per extension worker as the developed countries," (Evenson and Kislev, 1975: 19).

Evenson and Kislev draw this conclusion about investment in extension:

> In terms of dollars, the developing countries appear to invest less than the developed countries, although they spend much more on extension than on research. When the comparison is based on numbers of extension workers per dollar of production, however, the developing countries have relatively high investment levels in extension--almost twice that of the developed countries. The emphasis on extension in the developing countries may make sense, given the relative prices they apparently pay for scientists and extension workers; but it may also be based on the erroneous assumption that there exist easily transferable superior technologies which simply have to be put in practice in traditional agriculture to transform it into a modern sector (Evenson and Kislev, 1975: 26).

Figure 9.5. Expenditures on Agricultural Extension by Region, 1959-1974

Region	Total Expenditures in Millions of 1971 Constant U.S. Dollars 1959	1965	1971	1974
Western Europe	99.4	169.5	196.6	183.3
Eastern Europe and USSR	128.0	90.0	230.0	250.0
North America and Oceania	163.1	198.4	263.5	287.6
Latin America	32.4	51.1	102.8	121.9
Africa	90.7	161.0	217.0	224.5
Asia	73.2	160.0	249.5	258.5
World Total	586.8	930.0	1259.4	1325.8

Source: Evenson, Robert E. and James K. Boyce (1975), Agricultural Research and Productivity (New Haven: Yale University Press).

This final point is very important. "It is simply a myth too widely held in many donor agencies and countries that research of value is on the shelf or can be transferred with little adaption from country to country," (Lowdermilk, 1981: 18). In order for extension to be effective, a strong supporting research program which develops region-specific technology and methods must be in place.

Evidence on rates of return to extension is much less adequate than in the case of research. Figure 9.6 summarizes the findings of the recent major studies in this area.

Of particular significance are the two Indian studies (Evenson and Jha and Mohan and Evenson):

> First, these studies . . . estimated the contribution to the agricultural research system in India so a direct comparison of the estimated returns to investment in research and investment in extension and the more general rural development program, the Intensive Agricultural Districts Program, is possible. This comparison shows that investment in research has been much more productive. Secondly, the Indian studies were among the first to be based on a technology-transfer specification (Evenson and Boyce, 1975: 108).

It might be added that given the extremely limited number of studies of returns to extension in developing countries these studies take on further significance since their results heavily influence any general conclusion that can be made about extension in LDC's.

Evenson's conclusion that extension yields a low rate of return seems to be fairly widely accepted among agricultural economists. Huffman writes, "When these potential sources of bias are taken into consideration, the rate of return to agricultural extension seems to be modest or better in the United States, modest in India and difficult to assess in the other studies," (Huffman, 1978: 974). Stavis interjects the comment, "To increase

Figure 9.6. Summary of Returns to Extension Studies

Study	Country (Data Set Year)	Type of Study	Conclusion
1. Patrick and Kehrberg (1973)	Brazil–Eastern (1968)	Production function	Extension, number of direct contacts of farmers with extension agents during the study year, had positive but generally not statistically significant effects on value added in farm production.
2. Evenson and Jha (1973)	India (1953–54 to 1970–71)	Productivity change	Extension, index of maturity of extension program, contributes significantly to agricultural productivity change only through interaction with research programs. Investment in extension programs yields a 15%–20% social rate of return.
3. Huffman (1974)	United States-Corn Belt (1959–64)	Allocative efficiency-production	Extension (days, average for 1958 and 1960, allocated to crops by agents doing primarily agricultural work) and education are substitutes in inducing optimal nitrogen fertilizer usage on hybrid corn. The marginal value of extension time on this one decision is estimated at $4.48 per hour of extension agent time allocated to crops or a social rate of return of 1.3%. Total social return from enhanced decision-making suggested to be in excess of 16%.
4. Mohan and Evenson (1975)	India (1959–60 to 1970–71)	Productivity change	The Intensive Agricultural Districts Program (presence vs. absence) contributed to more rapid agricultural productivity change. The social rate of return realized on the investment was 15%–20%.
5. Huffman (1976a)	United States, Iowa, North Carolina, Oklahoma (1964)	Production function	Extension, agent days allocated three years earlier to crops and livestock activities by agents doing primarily agricultural work, contributes significantly to level of agricultural production. The marginal product of extension is $1,000–3,000 per day.
6. Mooch (1976, 1978)	Kenya-Vihiga, (a western division) (1971)	Production function	An index of crop related extension contact with male and female farm operators during the last year contributes significantly to corn (maize) yields. Extension and education are substitutes in corn production; extension interacts positively with the rate of nitrogen fertilizer application on male operated farms (1978).
7. Huffman (1976b)	United States, Iowa, North Carolina, Oklahoma (1964)	Production function	Same as for Huffman (1976a) except marginal product of extension $1,000–2,500 per day.
8. Halim (1977)	Philippines-Laguna Province (1963–68–73)	Production function	An index of extension contact with farms, derived by weighting frequency of contact over previous five years, contributes positively and significantly to agricultural production. Marginal products imply a "relatively high return of extension contact."
9. Huffman (1977)	United States-Corn Belt (1959–64)	Allocative efficiency	Same as Huffman (1974) except marginal value of extension time on this one decision is estimated at $600 per day of extension agent time allocated to crops or a social rate of return of 110%.
10. Evenson (1978)	United States (1949–71)	Productivity change	Extension, expenditures on applied farm management research and on applied agricultural engineering research are combined with expenditures on extension activity and deflated by number of commodity-subregions, interacts negatively with education and positively with applied research. The internal rate of return on extension expenditures is 110%.
11. Huffman (1978)	United States, Iowa, North Carolina, Oklahoma (1964)	Production function	Extension is measured as days allocated to crops, livestock, and planning and managing farm businesses and as days allocated to the separate components. Emphasis is placed on holding factors constant that may be correlated with the extension variables. Marginal product of extension is sensitive to output mix (livestock vs. crop), ranging from very large to negative values. Crop extension performs better than other components.

(continued)

Figure 9.6. Summary of Returns to Extension Studies (continued)

Study	Country (Data Set Year)	Type of Study	Conclusion
12. Pudasaini (1981)	Nepal, Bara, and Gorkha Districts (1979-80)	Production and profit functions	Extension, contacts with farmers during the study year (in rice, wheat, sugarcane or total farm in modernizing Bara; or in rice, wheat, maize or total farm in more traditional Gorkha district), had positive or negative but generally not statistically significant effects on the individual crop output, value added, gross revenue, or profits of the farms of both districts. The above findings remained valid even when extension was included as three separate variables (x_1:1-5 contacts, x_2:6-9 contacts and x_3:more than 9 contacts) rather than a single variable, or even when it was included as a zero-one variable rather than a continuous variable. Education and extension were weak substitutes in the farm decision making process.

SOURCE: Wallace E. Huffman, "Assessing Returns to Agricultural Extension," American Journal of Agricultural Economics 60 (December 1978), p. 973.

NOTE: Huffman, identifies four potential sources of bias in the measurement of returns to extension: (a) production function estimates, which focus on the effect of extension on production, do not capture the effect on factor choice (downward bias); (b) extension is typically treated as a current input rather than a capital input (upward bias); (c) most studies, except Evenson and neglect the interaction between research and extension (upward bias); (d) none of the studies include the effect of private sector information activities (upward bias). Huffman concludes that after taking into account the potential sources of bias the rate of return to extension is modest or better in the United States, modest in India and difficult to assess in the other countries. In our judgement failure to include private sector information may result very little bias since the cost of the information activity is included in the cost of inputs purchased from the private sector.

The sources of the individual studies are:

Evenson, Robert E., "Research, Invention, Extension and Productivity Change in U.S. Agriculture: An Historical Decomposition Analysis." Paper presented at Symposium on Research and Extension Evaluation, Moscow, Idaho, May 21-23, 1978.

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Mohan, R. and R.E. Evenson, "The Intensive Agricultural Districts Program in India: A New Evaluation," Journal of Development Studies 11 (1975): 135-54.

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Patrick, G.F. and E.W. Kehrberg, "Cost and Returns of Education in Five Agricultural Areas in Eastern Brazil," American Journal of Agricultural Economics 55 (1973): 145-53.

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factor productivity, the authors of this study believe investment in research systems normally have a higher payoff than investments in extension systems," (Stavis, 1979: 14).

While the conclusion that rates of return to extension investment are quite low relative to research, investment does not negate the importance of public extension programs. It does seem to emphasize the importance of continuing experiments in the organization and management of extension programs. This is an area where institutional innovation may have a relatively high payoff.

9.4 Land Tenure Reform

Tenure reform has been viewed as essential to the mobilization of labor resources and the generation of productivity growth in both liberal and Marxist development perspectives. Economic logic and economic history combined in the early post-World War II period to produce a remarkable unity in doctrine to the effect that an agricultural sector in which an owner-cultivator system predominates achieves a more efficient allocation of resources and makes a greater contribution to national economic growth than under alternative systems.

Land Reform After World War II

The analytical support for this position drew on a tradition that extended back through Marshall to the classical economists (Jaynes, in press). The classical economists recognized that in a world of imperfect land, capital and credit markets, sharecropping represented an improvement over wage labor because of its positive incentive effect. The classical economists also recognized that sharecropping provides the workers with less incentives to work than a fixed rate tenant or an owner-cultivator would have. The classical perspective was confirmed by Marshall (1920). It was reexamined again within the framework of the Hicksian neo-classical theory of the firm in the 1940's and early 1950's (Schultz, 1940; Schickele, 1941; Heady, 1947; Johnson, 1950; Heady and Kehrberg, 1952; Drake, 1952; Georgescu-Roegen, 1960). The major conclusion that emerged from this re-

analysis of the relationship between tenure and productivity was "that there is no substitute, from the standpoint of sheer productivity, and irrespective of sociological considerations, for an owner-operated agricultural system," (Drake, 549).

This perspective led to a major emphasis on land reform in the technical and economic assistance efforts of a number of national and international development assistance agencies after World War II. The post-World War II commitment by the United States to land reform as an instrument of political and economic policy was initiated with the reforms carried out in Japan in 1947 under the authority of the Supreme Commander for the Allied Powers (SCAP). The success of the Japanese land reform was an important factor in U.S. support for land reform in other countries of East Asia in the early 1950's and in Latin America, under the Alliance for Progress, in the 1960's.[10/]

The analytical deductions were, during most of the post-World War II period, regarded as consistent with historical experience (United Nations, 1951; Agency for International Development, 1970). The post-World War II land reform experience in Japan, Taiwan, and Korea has been widely interpreted as supporting the proposition that an agrarian structure consisting of extremely small owner-cultivator family farms could be economically viable, reasonably efficient, and capable of sustaining rapid increases in agricultural productivity. Analysis of the earlier modifications in tenure arrangements in Japan, beginning with the abolition of feudal privileges and the conversion of the land tax to a cash rather than a commodity basis during the early years of the Meiji Restoration, also supported the proposition that the resulting improvements in incentives complemented efforts to introduce new crop varieties, higher levels of fertilization, and other changes in cultural practices (Kaihara, 1961; Ogura, 1963; Dore, 1958; Cheng, 1961; Hsieh and Lee, 1958).

Experience from the post-war land reforms in other developing countries, however, did not provide the same degree of support for the historical generalizations as the East Asia experience. In many countries land reform legislation was badly or perversely administered.[11/] Furthermore, the growing body of empirical evidence on the relationships among farm size, tenure and productivity was frequently inconsistent with the ordering suggested by the logical deductions. In the smaller size ranges, share tenants frequently achieved higher yields than owner-operators. Even in the larger size classes, owner-operators frequently did not exhibit any clear-cut productivity differentials relative to other classes. It was frequently noted that the highest levels of productivity were achieved by owner-tenants - typically small landowners who cultivated rented land in addition to their own land. There was one issue, however, in which the results of the empirical investigations were relatively unambiguous. Where the land reforms were effectively carried out, there were substantial income gains to the beneficiaries of the reforms (Ruttan, 1966; Cheung, 1969; Dovring, 1970; Mangahas, Miralao and Reyes, 1976).

The New Land Tenure Economics

The lack of consistency between the logical deductions and the empirical observations regarding the efficiency of alternative land tenure institutions gave rise, in the late 1960's and 1970's to a "new land tenure economics" that attempted to explore the economic rationale for the persistence and relative efficiency of share tenancy.[12/]

The catalyst for the new land tenure economics was Stephen N.S. Cheung (1968, 1969) who proposed a model in which the rural wage rate is exogenously determined and in which tenure arrangements and size of unit

were endogenous. In the Cheung model the contract terms are the product of economic forces and the equilibrium solution to the contract choice problem takes into consideration the optimizing behavior of both the landlord and the tenant. By this, Cheung meant that competition among landlords for tenants and among tenants for land tends to result in rental contract terms, that lead to "efficient" use of inputs and an optimum level of output. The conclusion he drew from the theoretical analysis was that "the inefficiency argument is illusory. The implied resource allocation under private property rights is the same whether the landowner cultivates the land himself, hires farm hands to do the tilling, leases his holdings on a fixed rent basis, or shares the actual yield with his tenant," (Cheung, p. 4).

Cheung tested his model against the experience of the rent reduction phase (1949-52) of the Taiwan land reform. One effect of the reform was an adjustment in input use. The area cultivated by owners increased and the area cultivated per tenant farmer decreased. Intensity of labor use and fertilizer inputs on tenanted farms rose relative to owner-cultivated farms. Cheung concluded that the tenancy reforms had resulted in inefficiency in factor use. "The significantly higher labor-land ratio in tenant farms than on owner farms implies that the marginal product of land in tenant farms was higher and the marginal product of tenant labor was lower than similar resources employed elsewhere," (Cheung, 1968, 127). Cheung also interpreted the traditional data drawn from pre-World War II China as a refutation of the efficiency argument against share leases and as consistent with the conclusion from his theoretical analysis - under a well defined system of private property rights different leasing arrangements do not lead to differences in farming intensity (pp. 72-87). Cheung's analysis led to the conclusion that tenure reform is both unnecessary and redundant. And he implies that a more appropriate approach would focus on the development and reform of property rights.

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The publication of Cheung's work was followed by an explosive growth in the literature cast within the new land tenure economics paradigm. This literature has, however, led to a substantial qualification of the Cheung conclusions.[13/] Cheung's insight that contractual terms, the share arrangements for factor costs and product receipts for example, are endogenous and that the equilibrium solution is a product of joint maximization on the part of both the landlord and tenant has been generally accepted. But it is now generally understood that Cheung's model achieves its efficiency outcome because it simply assumes away the two problems that were the central concerns of the classical and neo-classical analysis - "the negative incentives of sharing and the difficulty of monitoring effort," (Binswanger and Rosenzweig, 1981: 23). It should also be noted that although Cheung interpreted his results as applicable to both owner-cultivation and the several rental arrangements, his empirical analysis focused primarily on the effects of reform in rental arrangements. This focus has been retained in much of the "new land tenure" literature.

The key features of the evolving new land tenure literature have been summarized in Figure 9.7 (Binswanger, unpublished) and Figure 9.8 (Binswanger and Rosenzweig, pp. 30, 31). The major implication of this literature is that the persistence of sharecropping rests on a combination of factors including (a) the difficulty of solving the labor and management incentive problems in a direct labor management system, and (b) on the persistence of imperfections in the factor and product markets.[14/] Another way of stating the same point is that given substantial underdevelopment or imperfection in factor and product markets, share tenure has represented a more efficient method of minimizing transaction costs than direct labor

Figure 9.7. Tenancy Models

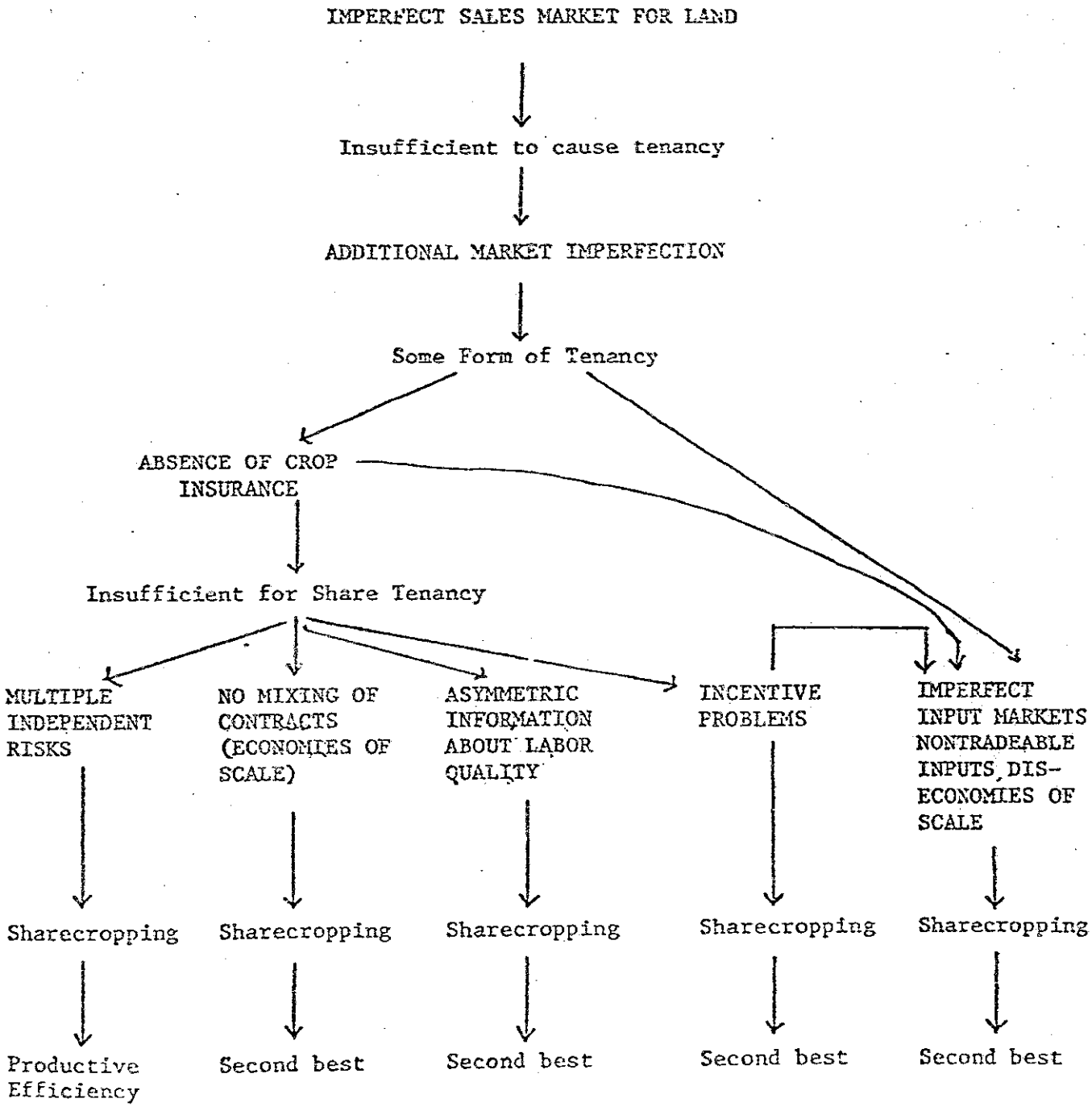
			COMPLETE ENFORCABILITY OF ALL CONTRACT TERMS					NONENFORCABILITY OF LABOR INPUT				
			1	2	3	4	5	6	7	8	9	10
		Main features	Cheung (1969)	Newbery version of Cheung (1975)	Newbery Stiglitz Multiple Risks (1979)	Newbery Stiglitz (Hallagan) Screening (1979)	Jaynes Capital Rationing Model (1979)	Marshall's Footnote Model	Bardhan Srinivasan (1971)	Stiglitz Costly Supervision (1974)	Braverman & Srinivasan Tied Contracts (1981)	Bell & Zusman ; Nash Cooperative Games (1980)
TERMS	1.	Output Share	L	L	L	L	LTA	E	LR	LR	LR	LTA
	2.	Tenancy Size	L	LTA	LTA	LTA	LTA	E	T	LR	LR	LTA
	3.	Other Parameters					Input share and fixed rent LTA			Fixed rent LR	Borrowing from landlord and rate LR	Fixed rent and input share LTA
CASES	4.	Incentive Effects To Work To Apply Inputs	L	LTA	LTA	LTA	LTA LTA	T	T	T	T	T T, also management
	5.	Risk and Risk Aversion										
		Risk in Production		Yes	Yes	Yes				Yes		Yes
		Risk in Labor Market			Yes							
		Tenant Risk Averse		Yes	Yes	Yes				Yes		Yes
		Landless Risk Averse		Yes	Yes					No		Yes
	6.	Imperfect Markets										
		Credit and/or inputs					Absent				Imperfect	Perfect
		Management and/or Bullocks					Nontradeable					Nontradeable
	7.	Other alternatives considered										
		Self cultivation		Yes	Yes		Yes		Yes	Yes	Yes	Yes
		Fixed rate tenancy		Yes	Yes	Yes	Yes		No	Yes	No	Yes
		Tenant can work elsewhere		Immaterial since labor input LTA - - - - - - - -					No	No	No	Yes
OUTCOMES	8.	Productive Efficiency	Yes	Yes	Yes	Second best	Second best	No		Second best	Second best	Second best
	9.	Tenants Welfare = Wage Laborer's Welfare	Yes	Yes	Yes	Not for higher quality workers	No		Yes	Yes	Yes	No
	10.	Special Features	Risk and Transaction costs introduced ad hoc		Sharecropping Cropping essential to reach Pareto efficiency	Choice of Contract only means to assess worker quality	Landlords supervision time is fixed and scarce. Landlord monopolist		Excess demand for land. No equilibrium	Constant returns to scale control of plot size is crucial		Bilateral monopolistic bargaining on all LTA variables

Symbols

L Landlord has full power to set the variable level in his own maximization problem, given that all contractual terms are enforced.
LTA Outcome of both landlord and tenant maximization, agreed upon and costlessly enforced.
T Tenants discretionary variable, set in his own maximization problem.
E Exogenous variable.
LR Outcome of landlord maximization, taking into account tenants reaction in other inputs.

Source: Hans P. Binswanger and Mark R. Rosenzweig (1981), Contractual Arrangements, Employment and Wages: A Critical Review (New York: The Agricultural Development Council and Patancheru, India: International Crops Research Institute for the Semi Arid Tropics).

Figure 9.8. The Routes to Sharecropping



Source: Hans P. Binswanger and Mark R. Rosenzweig (1981), Contractual Arrangements, Employment and Wages: A Critical Review (New York: The Agricultural Development Council and Patancheru, India: International Crops Research Institute for the Semi Arid Tropics).

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operation and a more efficient method of sharing risk than a fixed rent contract. This leads to the conclusion that "sharecropping represents . . . an instrument that leads to improved efficiency in the face of market imperfections," (Binswanger and Rosenzweig, p. 28).

This perspective is clearly consistent with historical experience. Both colonial administrators and the commercially oriented indigenous elites have at times used share tenure as an effective device to extract a larger marketable surplus from a peasant agriculture prior to the extensive monetization of economic activity, (Furnivall, 1956). Owners of estates and haciendas have used share tenure arrangements as a more effective method of labor management than use of direct wage labor in the production of commodities such as rice, or cotton which required close personal attention or a high degree of husbandry skill on the part of the cultivator. And in the absence of effective land, credit and product market institutions, peasant farmers have at times found that share tenure arrangements exposed them to less income uncertainty from price and yield fluctuations than fixed rent leasehold arrangements or a debt-encumbered owner-operatorship.

What options do the inferences drawn from the modeling exercises of the "new land tenure economics" imply for improving the welfare of workers and tenants and the efficiency of the farming system? The answer that the new models grind out include the development and reform of more effective land, credit and other factor markets. The models also confirm that in an environment characterized by underdeveloped factor, credit and product markets, a land reform leading to an owner-operator system will lead to

greater efficiency in production than other tenure farms. Thus, the formal analysis brings us back full circle to the more intuitively derived policy implications of the pre-Cheung "old land tenure economics."

But, there are several respects in which the formal models still remain underdeveloped. The efficiency implications of alternative tenure forms in an environment characterized by rapid advances in knowledge and technology have not been fully explored. In an environment characterized by dynamic changes in technology, the efficiency losses due to incentive constraints, asymmetric access to information, and transaction costs can be much larger than in an environment characterized by static technology.

The second issue is related to the dynamic effects of changes in the exogenously given wage rate. The new models clearly suggest that contractual terms move against laborers and tenants as wages in the intersector labor market fall - or conversely that a rise in wages in the non-agricultural sector is a necessary condition for increases in labor earnings of hired workers and tenants.

Land Reform in Latin America

The literature of the "new land tenure economics" has a peculiarly Asian flavor. Land reforms in Asia were carried out with the expectation that reforming labor and tenure relationships through elimination of intermediaries, regulations of rental arrangements and transfer of ownership rights to the tiller would achieve both equity and productivity objectives. Most of the contributors to the "new land tenure economics" literature have drawn on Asian experience.

There is a very different flavor to the literature on land tenure reform that has risen out of the Latin American experience.[15/] Neither the practice or theory of land tenure reform in Latin America has given much

weight to the achievement of productivity objectives through the transfer of land ownership to the tiller. Land transfers have instead been looked on as a device to satisfy the land hunger of the peasants in order to reduce the threat of social and political instability in the countryside. Growth in production was expected to be achieved through the modernization of property rights, investments in physical infrastructure, and the development of market institutions. These reforms were, and continue to be, directed primarily at converting the hacienda or estate sector into a modern large scale farming sector.

The Latin American experience has been, of course, much richer than the stylized description presented here. A typology of land reform in Latin America has been developed by de Janvry (Figure 9.9). A statistical summary of the status of efforts to transfer land to the peasant is presented in Figure 9.10. It seems clear that in a large number of Latin American countries the land reforms have been successful in removing some of the most obvious sources of inefficiency and exploitation associated with the traditional hacienda system. There appear to be relatively few areas, however, where the land reforms have been accompanied by the policies needed to sustain productivity growth in the small scale peasant sector. And there are even fewer areas where the Latin American reforms have succeeded in resolving the problems of equity in the agrarian structure.

Future Directions for Land Reform

The dramatic transformations in land tenure relations instituted in Asia and in Latin America since World War II have largely been completed.[8/] Even as severe critic of Latin American agrarian structure as de Janvry concedes that: "Today, pre-capitalist estates with rent in labor services have, for all practical purposes, disappeared in Latin America. Those with rent in land remain important only in some central

Figure 9.9

Typology of Land Reforms in Latin America

Types and Consequences of Land Reform

Pre-land reform			Post-land reform: Control of the state	Landed elite controls the state		Bourgeoisie controls the state
			Mode of production	Precapitalist agriculture	Capitalist agriculture	
			Land tenure	Precapitalist estates and reform sector	Capitalist estates and reform sector	Commercial farms and reform sector
	Landed elite controls the state	Precapitalist agriculture	Pre-capitalist estates	*Pre-K Redistributive (PKR)* Mexico, 1917-34 Chile, 1962-67 Colombia, 1961-67	*Transition to Junker (TJ)* Colombia, 1968- Ecuador, 1964- Bolivia, 1952- Peru, 1964-69 Venezuela, 1959-	*Transition to Farmer (TF)* Mexico, 1934-40 Chile, 1967-73 Guatemala, 1952-54
		Capitalist agriculture	Capitalist estates	*Transition from Junker*	*Junker Resistributive (JR)* Costa Rica, 1963-	*Shift from Junker to Farmer (JF)* Peru, 1969-75
	Bourgeoisie controls the state	Capitalist agriculture	Commer-cial farms	*Transition from Farmer* Guatemala, 1954-	*Shift from Farmer to Junker* Chile, 1973-	*Farmer Redistributive (FR)* Mexico, 1940- Dominican Republic, 1963-

Source: Alain de Janvry, The Agrarian Question and Reformism in Latin America (Baltimore: The Johns Hopkins University Press, 1981), p. 205.

Figure 9.10. Statistical Information on Land Reforms in Selected Latin American Countries, 1917-76

Country	Land reform: Year (1)	Land reform: Type (2)	Land in reform sector (percent)[a] (3)	Peasantry in reform sector (percent)[a] (4)	Size of reserve (hectares)[b] (5)	Capital and water expropriated? (6)	Form of organization in reform sector (7)
Mexico	1917-34[c]	PKR	6.3	11.3	100-200		Subfamily/family
	1934-40	TF	12.6	25.8	100-200[d]	Yes	Subfamily/family; collective
	1940-76	FR	25.0	18.3	100-200		Subfamily/family
Total	1917-76		42.8	50.0			
Guatemala	1952-54	TF	33.6	33.0	90-200	Partially	Subfamily/family; cooperative
	1954-69	Counterreform	4.8	3.2			
Bolivia	1952-70	TJ	18.2	39.0	24-50,000	No	Subfamily/family
Venezuela	1959-70	TJ	15.7	14.7	No limit[e]	No	Subfamily/family
Colombia	1961-68	PKR	[f]		No limit	No	Subfamily/family
	1968-72	TJ			No limit	No	Subfamily/family
Total	1961-72		9.6	4.2			
Chile	1962-67	PKR	—[g]	—	No limit	No	Subfamily/family
	1967-70[h]	TF	9.0	6.0	80 SBH[i]	Partially	Subfamily/family; cooperative
	1970-73		31.0	14.0			Cooperative; collective
Total	1962-73		40.0	20.0			
	1973-75	Counterreform	9.0	4.0			Subfamily/family
Peru	1963-69	TJ	3.0	7.1	845-12,675	No	Subfamily/family
	1969-76	JF	39.4	24.9	35-1,500	Yes	Cooperative; subfamily/family
Total	1963-76		42.4	32.0			
Ecuador	1964-69	TJ	1.1	3.5	No limit[e]	No	Subfamily/family
Dominican Republic	1963-69	FR	2.0	2.0	No limit	No	Subfamily/family; cooperative

Source: Alain de Janvry, The Agrarian Question and Reformism in Latin America (Baltimore: The Johns Hopkins University Press, 1981), pp. 206-207.

(continued)

The sources for individual studies are:

Sources: (Col. 1) Initial year corresponds to the year the land reform law was passed. Final year corresponds either to the end of the program or to the final year for which data are available (Mexico, Bolivia, Venezuela, Ecuador, the Dominican Republic, and Peru).

(Col. 2) Figure 6.1.

(Cols. 3 and 4) MEXICO: Various *Censo Agrícola-Ganadero y Ejidal* and government files in F. Barra García, "Los Ataques a la Reforma Agraria," *Excelsior*, August 3, 1976, pp. 13 and 14. GUATEMALA: CIDA, *Tenencia de la Tierra y Desarrollo Socio-Económico del Sector Agrícola, Guatemala* (Washington, D.C.: Pan-American Union, 1965), p. 40; and James Wilkie, *Measuring Land Reform* (Los Angeles: UCLA Latin American Center, 1974), p. 5. BOLIVIA: Dwight Heath, Charles Erasmus, and Hans Buechler, eds., *Land Reform and Social Revolution in Bolivia* (New York: Frederick A. Praeger, 1969), p. 35; Angel Jemio Ergueta, "La Reforma Agraria en Bolivia" (Paper presented at the Seminar on Experiences and Evaluations of Land Reform in Latin America, United Nations Economic Commission on Latin America, San José, Costa Rica, March 1973), pp. 68, 69, and 71; and R. J. Clark, *Land Reform in Bolivia: Spring Review*, U.S. Agency for International Development (Washington, D.C., June 1970), p. 34. COLOMBIA: Departamento Administrativo Nacional de Estadística, "Censo Agropecuario, Resumen Nacional, 1960," mimeographed (Bogotá, 1962); and Instituto Colombiano de la Reforma Agraria, "Reforma Agraria Colombiana," mimeographed (Bogotá, 1972). CHILE: Dirección de Estadística y Censos, *IV Censo Nacional Agropecuario*, vol. 1 (Santiago de Chile: Dirección de Estadística y Censos, 1966); J. Petras and R. Laporte, Jr., *Cultivating Revolution: The United States and Agrarian Reform in Latin America* (New York: Random House, 1971), p. 205; and Solon Barraclough and J. A. Fernandez, *Diagnóstico de la Reforma Agraria Chilena* (Mexico City: Siglo XXI, 1974), p. 132. PERU: CIDA, *Tenencia de la Tierra y Desarrollo Socio-Económico del Sector Agrícola, Peru* (Washington, D.C.: Pan-American Union, 1966); J. Strasma, "Agrarian Reform," in *Peruvian Nationalism*, ed. David Chaplin (New Brunswick: Transaction Books, 1976), p. 299; and U.S. Department of Agriculture, *Western Hemisphere Agricultural Situation*, Foreign Agricultural Economic Report no. 136 (Washington, D.C., 1977), p. 22. ECUADOR: CIDA, *Tenencia de la Tierra y Desarrollo Socio-Económico del Sector Agrícola, Ecuador* (Washington, D.C.: Pan-American Union, 1965); and Charles Blankenstein and Clarence Zuvekas, *Agrarian Reform in Ecuador* (Madison: University of Wisconsin Land Tenure Center, 1974), p. 14. DOMINICAN REPUBLIC: James Wilkie, *Measuring Land Reform* (Los Angeles: UCLA Latin American Center, 1974), p. 5. VENEZUELA: Ministerio de Fomento, *III Censo Agropecuario 1961, Resumen General de la República* (Caracas, 1967); and O. D. Soto, *La Empresa y la Reforma Agraria* (Merida: Instituto Ibero Americano de Derecho Agrario y Reforma Agraria, 1973), p. 80.

[a] Percentages figured on the basis of land in farms and population economically active in agriculture (or, where possible, potential beneficiaries) for the following years: Mexico (percentage of land in reform sector), 1917–34 and 1934–40 (1923 base year for census data), and 1940–76 and total (1960 base year for census data); Guatemala, 1950; Bolivia, 1950; Venezuela, 1961; Colombia, 1961; Chile, 1965; Peru, 1961; Ecuador, 1954; and the Dominican Republic, 1960. When more than one period or reform is listed, the percentages are additive. For totals, percentages are cumulative, except for Mexico.

[b] Variability in size of reserve left to landowners affected by expropriation is due to differences between regions, irrigated and nonirrigated land, and crop and pasture land.

[c] Includes activities under a temporary 1915 agrarian law.

[d] In 1940, under Cardenas, the maximum reserve was reduced, but in 1942 that law was rescinded.

[e] In Venezuela, land may be expropriated only if land is inadequately utilized or for violations of the labor code. Thus, there is no specific ceiling on the size of holdings. In the event a landowner is affected by expropriation, he may retain between 150 hectares (irrigated land) and 26,000 hectares (unimproved pasturage). In Ecuador, similar stipulations apply. In the event of expropriation, the landowner may retain between 1,800 and 3,500 hectares, depending on the type of land.

[f] Blanks indicate separate data not provided.

[g] — = less than 1 percent.

[h] Includes expropriation and distributions carried out in 1965–66 under 1962 law.

[i] Standard basic irrigated hectares in central Chile; equivalent measure elsewhere.

American countries and parts of Brazil (p. 221). As a result these transitional reforms . . . can be considered successfully terminated . . . but the publicized goal of expropriation and redistribution toward formation of a reform sector has generally been held to a minimum. Since large scale farms in the commercial sector, with the full backing of state services, tend to be highly efficient . . . the family or cooperative farms created by expropriation of their lands will not be able to deliver an equivalent net surplus to the market . . . without a drastic redesign of agrarian policy toward servicing peasants," (p. 222).

The situation in Asia is quite different. Asian societies had no choice but to look for the small scale family farms as a source of future productivity growth. Even the larger farms in Asia, outside of a very limited plantation sector, tend to be small by international standards. There is very little land left in large enough units to support a redistributive reform. The technical and institutional infrastructure must be developed in a manner that is capable of sustaining productivity growth on small farms.

In most Asian countries the model of agrarian development that is evolving in response to demographic pressures and economic growth seems likely to resemble that system that has emerged in Japan, Taiwan, and Korea since World War II. In Latin America, the pattern that emerged in the U.S. South during the inter-war and early post-war period, in which a plantation system evolved into a modern farming sector and the surplus labor was absorbed by a growing industrial sector, seems most likely to emerge as a result of successful development. Under both of these patterns of development the evolution of a more efficient system of property rights, if pursued, could continue to make a modest contribution to the enhancement of both equity and efficiency in agricultural production.[18/]

9.5 Agricultural Credit Markets

The development of agricultural credit markets and the provision of cheap credit for farmers in the LDC's has dominated support for agriculture and rural development by the U.S. Agency for International Development, the World Bank and the several regional development banks in recent years. This emphasis on credit is based on five perspectives. First is the Schumpeterian view, which identifies innovation as the critical element in economic development and credit as the principal instrument that allows the innovator to bid resources away from other activities. A second perspective is based on a view similar to that of market reform. The farmer obtains credit and sells his output to the same middleman and is thought to be exploited in each transaction. A third perspective, closely related to the second, views public credit institutions as providing part of the supervised education and credit package designed to induce traditional farmers to adopt modern inputs. A fourth perspective views credit as an income transfer mechanism to lessen inequities in income distribution in rural areas. A fifth perspective views subsidized credit as an incentive to farmers to expand production in spite of disincentives resulting from market interventions or exchange rate distortions that discriminate against farmers in product markets.

Prior to the 1970's a large share of the development assistance devoted to agricultural credit programs was directed to Latin America. Since the early 1970's the support of the development of agricultural credit institutions has been directed more heavily toward Asia and Africa. In this section we first review some of the lessons from the experience of the

1950's and 1960's and then proceed to discuss the implications of the large programs of the 1970's.

Credit Programs of the 1950's and 1960's[19/]

In Latin America, funds for credit activities made up a relatively large part of externally financed agricultural programs. "In the nine years 1960 to 1968 the Agency for International Development (AID), the Inter-American Development Bank (IDB), and the World Bank group (IBRD) provided assistance for agricultural credit worth in excess of 915 million dollars in Latin America .... In the case of AID, over half of the total direct assistance to agriculture in Latin America has gone into credit activities. In addition to this direct assistance, AID has helped channel to agricultural credit institutions substantial amounts of 'counterpart funds' and 'local currencies' resulting from Program Loans and Public Law 480 sales in several countries," (Adams, 1971). IBRD stressed livestock loans. IDB tended to support colonization and farm settlement programs. AID emphasized technical assistance to credit institutions, supervised credit to family-size farms and general expansion of loans to agriculture.

During this period organization of rural credit markets in Asia and Africa differed sharply from those in Latin America. Studies of credit markets in Asia and Africa indicated that informal credit systems (private individuals, money lenders, and merchants) provided a large part of the total rural credit, perhaps over 80 percent in many areas. The data for Latin America suggest a much smaller role for informal credit.

In spite of structural differences in credit markets there is an emerging consensus that "the high interest rate problem in informal credit markets was oversold". This perspective is best summarized by Long: "interest rates on agricultural loans in South and Southeast Asia are high, possibly because of some monopoly in credit markets, but primarily because capital is scarce, because farm loans are costly to administer, because the uncertainties of agriculture result in considerable loss through default, and because the demand for credit is seasonal," (Long, 1968a, 287). The evidence from Latin America suggests that by holding interest rates down "governments have kept the private banking system and the credit markets from providing substantial amounts of credit to agriculture," (Adams, 1971, 168).

Credit market development efforts were frequently initiated without analysis of rural saving and investment behavior or theoretical analysis of the role of credit in the agricultural development process. During the mid and late 1960's, however, data and analysis became available that raised serious questions concerning the assumptions on which the credit programs of the 1950's and 1960's had been based (Blitz and Long, 1965; Thisyamandal, Aromdee and Long, 1965; Long, 1968a and 1968b; Bottomley, 1963, 1975; Adams, 1971).

It is also clear that there was a tendency to grossly underestimate elasticity of supply of savings in rural areas. Evidence is accumulating to the effect that savings and capital formation by peasant farmers varies substantially among areas and over time, in response to profitable investment opportunities. In the Philippines, for example, capital formation was more rapid in areas of new settlement (Trinidad, 1964) and on farms engaged in the production of commodities experiencing rapid growth in productivity, (de Guzman, 1964). In the 1950's and 1960's Taiwan was quite successful in

mobilizing voluntary savings by raising interest rates and this experience was repeated in Korea in the late 1960's (Adams, 1978).

The most obvious effect of failure to maintain positive real rates of interest in credit markets is the exaggeration of credit needs and the erosion of the purchasing power of credit portfolios. Others include the concentration of credit in the hands of relatively few users; failure of fragmented financial markets to allocate financial resources efficiently; undermining of the vitality of financial markets; the politicization of financial markets.

The experience of the ACAR program in Brazil is a useful illustration of some of these effects. The ACAR (Associacão de Crédito e Assistencia Rural) was established in 1948 under the joint sponsorship of the state of Minas Gerias and the American International Association.[20/] In 1960 ACAR became an independent solely Brazilian agency. ACAR began as an experimental effort to test the conviction that a program of supervised credit similar to that developed by the U.S. Farm Security Administration would lead to both better living conditions in rural areas and increased agricultural production. The program as it evolved during the first few years included four activities: supervised credit, general farm and home extension education, medical care and health education, and distribution of materials. Approximately 80 percent of the total activity was, in the early years, accounted for by supervised credit and general extension. The ACAR experience is important because it was a source of inspiration for the development of supervised credit programs in many other countries by both bilateral and multilateral development assistance agencies. It also illustrates the source of continuing weaknesses of such programs.

A 1957 evaluation by Mosher concluded that the ACAR program had exerted a substantial impact on the levels of living and the agricultural resources of the families with which it had worked. The program had not, however, had a measurable impact on agricultural production in either Brazil, the state of Minas Gerias, or "even the Municipalities (counties) in which the program has operated," (Mosher, 1957, p. 71). In evaluating the ACAR growth potential, Mosher emphasized the rather thin technical basis on which its production recommendations rested and the prospect that the program would quickly exhaust the contribution of prior research. The difficulty of ACAR in competing for loanable funds was also identified as a potential limitation. Subsequent analysis has supported Mosher's insight.

Later evaluations by Wharton, Elisau Alves, and by José P. Ribeiro and Wharton confirmed the contribution of the ACAR program to the welfare of the individual families who have participated in it. By 1964 ACAR had expanded its services to include approximately 30 percent of the farmers in the state of Minas Gerias. It has been particularly effective in reaching small farmers, and it established an enviable record for effective administration and flexibility in response to the changing needs of the farmers it served. As an example of a combined package of supervised credit and extension, the ACAR program was clearly one of the model programs anywhere in the developing world.

At the same time the performance of the ACAR program as an instrument of agricultural development was disappointing. Part of the difficulty centered around the issue of concessionary credit. The nominal interest rate charged on ACAR loans ranged from 6 to 8 percent. The annual rate of inflation in Brazil fluctuated between 15 and 25 percent in the 1950's and averaged slightly more than 30 percent during the 1960's. At such rates of inflation persons securing ACAR loans were, in effect, receiving very sub-

stantial income transfer through the negative real rates of interest in the formal credit market. The interest rate subsidy helps explain the finding of Alves that non-ACAR farmers had a higher level of technical efficiency than ACAR farmers. The interest rate subsidy reinforced the incentive resulting from exchange rate distortions for ACAR farmers to overinvest in capital assets. Farmers who borrowed from ACAR were presumably following a rational strategy of maximizing net worth rather than net income or productivity. The interest rate subsidy also helps to explain Wharton's earlier finding that farmers in the largely subsistence areas (Corvelo) achieved greater gains in productivity than farmers in the more commercial farming area (Uba). The commercial farmers were in a better position to follow a strategy of maximizing net worth than the subsistence farmers.

The ACAR program illustrates three important problems that have continued to plague credit development programs: (1) the policies that were adopted to reduce the cost of credit to farmers were inconsistent with the development of institutions capable of mobilizing savings in rural areas. (2) The policies designed to give more equitable access to credit have induced lenders to bias their lending activity toward the more affluent among eligible clientele. (3) Research on similar supervised credit programs suggests that the costs of extending and servicing users' loans often run upwards of 20 percent of the value of loans extended. Defaults and inflation add further to the erosion of the financial resources allocated to supervised credit programs.

Agricultural Credit Programs in the 1970's

The emphasis on agricultural credit by the U.S. Agency for International Development is illustrated in Figure 9.11. The AID support for agricultural credit programs since the early 1970's has leveled off or possibly decreased (Figure 9.11 while agricultural credit has become more important in the portfolios of the World Bank (Figures 9.12 and 9.13).

There has recently been a remarkable expansion in the amount of literature on rural financial markets. Much of this new literature has been summarized in several recent conferences and collections (Howell, 1980; Von Pischke, Adams and Donald, 1983; Adams, Graham and Von Pischke, 1983).

There has, until fairly recently, been surprisingly little research directed to evaluating the results of agricultural credit programs. The very comprehensive AID Spring Review of Small Farmer Credit (1973) contained about 60 papers describing credit programs. But there was no paper that systematically assessed the farm level impact of the credit programs. During the last ten years the number of impact studies have increased. A critical review of these studies has been conducted by David and Meyer (1980). They classify the studies into three groups: (a) descriptive, (b) econometric, and (c) programming - based on the methodology used in the studies.

The descriptive studies tend to compare farm inputs, production and productivity before and after borrowing or between borrowers and non-borrowers. A common pattern seemed to emerge from the descriptive studies. "Borrowers had larger farms than non-borrowers..., operating expenses and investment per hectare were higher for borrowers but production differences were less marked. Moreover, net farm income per hectare, when reported, was roughly the same," (p. 207). The results are similar to the ACAR program discussed earlier.

Figure 9.11. A.I.D. Agricultural Credit Projects (millions of dollars)

	1950-1972	1974-1980	1974-1980[a/]
Grants	69.5	90.0	344.4
Loans	636.9	131.0	263.9
Grants and Loans Not Separated		45.8	331.7
Total	706.4	266.8	910.0

a/ Additional projects containing an agricultural credit component for which amounts allocated to agricultural credit are not shown separately in A.I.D. summary statistics.

Source: Donald W. Larson and Robert C. Vogel, "Do Cheap Food and Cheap Credit Help to Feed the Poor in Less Developed Countries," Mershon Center, Ohio State University, December 17, 1981. The data are from A.I.D., History of A.I.D. Programs in Agricultural Credit, Spring Review of Small Farmer Credit, Vol. XVIII, Washington, D.C., June 1973; and A.I.D., Summary Computer Listing of Agricultural Credit Projects, June 1981.

Figure 9.12.

World Bank Agricultural Credit and Total World Bank Commitments for Agriculture, by Per Capita Gross National Product Group, FY1948-73

Per capita GNP of borrowing countries[1]	FY1948-63			FY1954-68			FY1969-73		
	Total amount of agricultural lending (US$ millions)	Agricultural credit (US$ millions)	Agricultural credit as percentage of total	Total amount of agricultural lending (US$ millions)	Agricultural credit (US$ millions)	Agricultural credit as percentage of total	Total amount of agricultural lending (US$ millions)	Agricultural credit (US$ millions)	Agricultural credit as percentage of total
Less than $150	272.3	10.2	3.7	152.3	63.9	42.0	1,045.0	535.5	51.2
$151-$375	85.6	41.9	48.9	165.3	54.8	33.2	831.4	289.6	34.8
$376-$700	82.2	24.2	29.4	251.2	107.7	42.9	532.2	469.9	88.3
Over $700	28.0	13.1	46.8	52.0	52.0	100.0	180.3	127.2	70.5
Total	468.1	89.4	19.1	620.8	278.4	44.8	2,588.9	1,422.2	54.9

[1] *World Bank Atlas*, 1972. The countries with agricultural credit projects under each income category are shown in Annex 7.

Source: World Bank, Agricultural Credit. Sector Policy Paper, May 1975

Figure 9.13.

World Bank Agricultural Credit Operations, by Lending Channel to Ultimate Borrower, FY1948-73

	FY1948-63				FY1964-68				FY1969-73			
	Operations		Amount		Operations		Amount		Operations		Amount	
	Number	Percentage	US$ millions	Percentage	Number	Percentage	US$ millions	Percentage	Number	Percentage	US$ millions	Percentage
Commercial channel	4	20.0	14.7	16.5	6	21.4	101.0	36.3	27	26.5	546.5	38.4
Agricultural banks	9	45.0	53.0	59.3	15	53.6	129.4	46.5	33	32.3	354.9	25.0
Cooperatives	—	—	—	—	—	—	—	—	11	10.8	266.9	18.8
Project authority, ministry or special entity[1]	4	20.0	9.6	10.7	2	7.1	8.9	3.2	14	13.7	136.5	9.6
Development banks	3	15.0	12.1	13.5	5	17.9	39.1	14.0	17	16.7	117.4	8.2
Total	20	100.0	89.4	100.0	28	100.0	278.4	100.0	102	100.0	1,422.2	100.0
Average size of operation			4.5				9.9				13.9	

[1] British Guiana: Credit Corporation; Korea: Dairy Beef Company; Malagasy Republic: Ranch State Farm; Spain: Instituto de Credito a Medio y Largo Plazo; Sudan: Mechanized Farming Corporation; Zaire: The National Ranching Development Authority.

Source: World Bank. Agricultural Credit. Sector Policy Paper, May 1975.

In the econometric studies, three different models were employed: (a) production, (b) input demand and (c) efficiency gap functions. The most definitive studies employed programming models. Several similar results emerge from these studies. Technological change, adoption of new varieties and cropping systems, mechanization and growth of farm income are frequently found to be constrained by the availability of credit. But substantially higher interest rates would only result in limited reduction in borrowings. Small farms were particularly insensitive to variations in interest rates on loans because other loan transaction costs are relatively high for them.

David and Meyer note several methodological problems that contribute to the difficulty of interpreting the impact studies. First, most studies use the farm as the basic unit of analysis. Little attention is given to the interdependence of production and consumption activities typical in most farm-households in low income countries. Secondly, few studies recognized that money is fungible - that borrowed funds enter the households' total cash pool and become indistinguishable from other funds. Third, most studies did not adequately research the attribution problem; that is, separate the effects of loans from other factors simultaneously affecting farm production (David and Meyer, 1980: 230-231).

Credit System Viability

During the last decade there has been a growing interest in evaluating the viability of the specialized farm credit institutions (SFCI) supported by external donors. A common feature of these programs has been the provision of credit to farmers at subsidized rates of interest and access to concessionary rediscount lines from central banks. This has driven a wedge between the object of mobilization of rural savings and the provision of credit on favorable terms to farmers. The result has been that the specialized farm credit

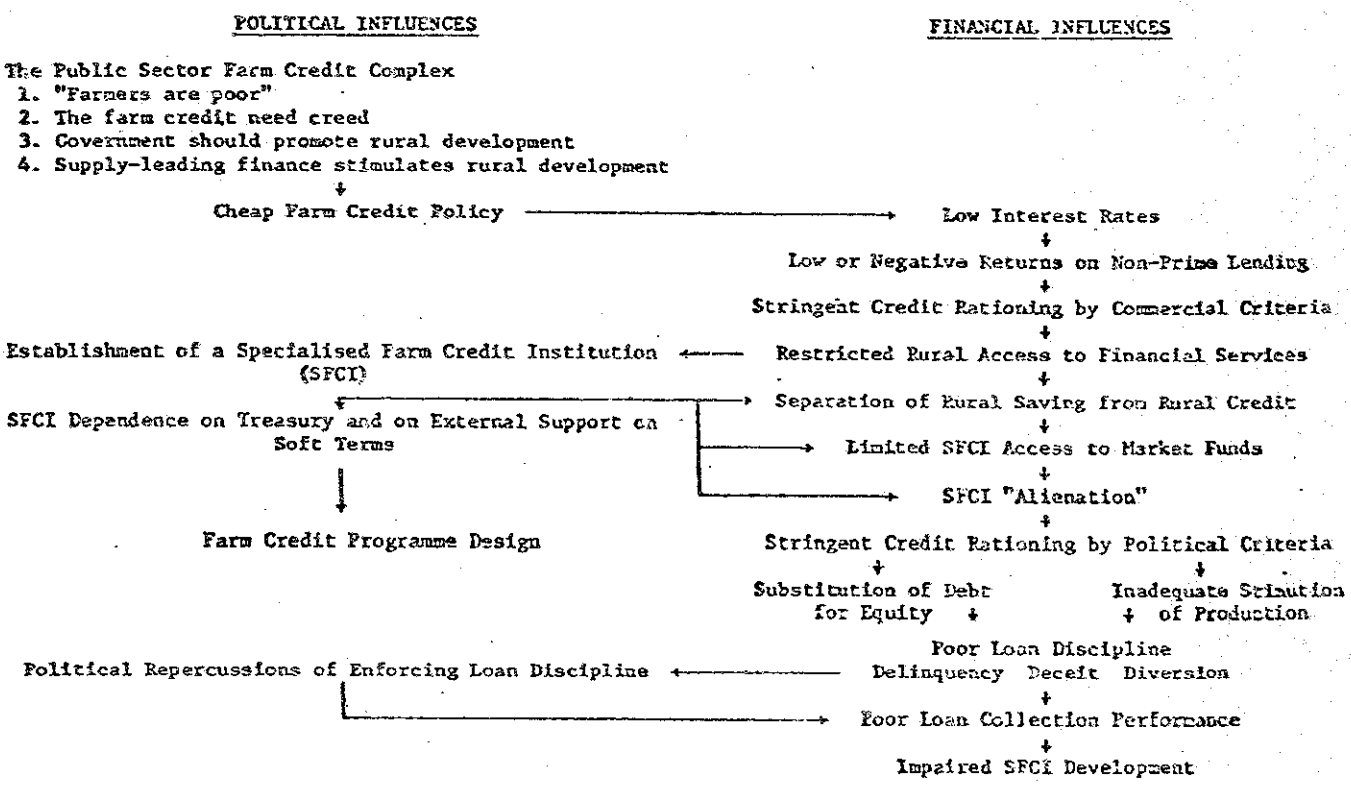
institutions are dependent on the continuation of donor or national government support for their existence (Bourne and Graham, 1983). When such support is withdrawn the capacity of the agency erodes. A "natural history" of the performance pattern of specialized farm credit institutions developed by Von Pischke (1980) is outlined in Figure 9.14.

It is quite remarkable that the lessons learned from the more recent farm level and credit system impact studies tend to confirm the lessons learned from the studies in the 1950's and 1960's of the ACAR program. Among these lessons are the following:

- Credit is fungible. Subsidized production credit can and is used to sustain current consumption levels, invest in consumer durables and invest in land and relatively low productivity capital inputs.
- When credit is made available at below market interest rates (sometimes at negative real rates) it must be rationed by lenders. When credit is rationed, it flows to the larger borrowers. Programs designed to subsidize credit for the poor end up making loans less available to them than if a market rate of interest were charged.
- Subsidized credit projects often contribute to a decline in the viability of agricultural credit institutions. If agricultural credit institutions are to be viable they must solve both the problem of credit mobilization and credit access. Excessive concern with the issue of credit access has made it impossible to solve the problem of mobilizing voluntary financial saving.

Why, if these lessons have been apparent for so long, did both bilateral and multilateral assistance agencies engage in such rapid expansion of support of specialized agricultural credit institutions during the 1980's?

Figure 9.14. A Performance Pattern of Specialized Farm Credit Institutions in Low-Income Countries



Note: Major linkages are shown by arrows and solid lines. Minor linkages and feedback relationships are not indicated because of space limitations.

J.D. Von Pischke. (1980) "The Political Economy of Specialized Farm Credit Institutions," in John Howell, ed., Borrowers and Lenders: Rural Financial Markets and Institutions in Developing Countries. (London: Overseas Development Institute.)

The answer must be found in the economics and politics of development assistance (Adams and Graham, 1981; Kane, 1982). From the donors perspective, it takes less effort and less skill to transfer money at below market rates to national agricultural credit institutions than almost any other form of development assistance. It is technical assistance extensive rather than intensive. There are similar advantages from the perspective of the recipient country. Because money is fungible it provides the recipient country with foreign exchange with very few effective constraints on its use. Furthermore, lending money at below the market rate of interest, particularly when it can be divorced from a simultaneous savings mobilization effort, also requires relatively little skill on the part of LDC institutions. And, the concentration of benefits in the hands of larger borrowers may have more political advantages than disadvantages. The benefits of the subsidy are highly concentrated and the costs are both hidden and diffuse.

9.6 Some Conclusions

In this chapter we have reviewed the literature on the impact of assistance to expand agricultural production through programs and investments in (a) land and water development, (b) agricultural research, (c) agricultural extension, (d) land tenure reform, and (e) agricultural credit markets. There are other areas which we have not attempted to review. These include the development of product market institutions, including cooperative marketing organizations and price support or stabilization programs.

Perhaps the most striking observation that emerge from this section has been the continuous cycling of program priorities and thrusts. Most of the program areas that have been reviewed have experienced one or more such cycles. Extension programs, for example, were emphasized in the 1950's, deemphasized in the 1960's and emerged again as a major area of development assistance in the 1970's. Assistance for agricultural research emphasized the building of national systems in the 1950's and 1960's, the development of the international system in the 1970's and a new emphasis on strengthening national systems in the late 1970's and 1980's.

A second striking feature of the programs that have been reviewed is the failure to lear from failure. Credit programs are a striking example. The failure to achieve effective articulation between the engineering aspects and the management aspects of irrigation projects is another.

In spite of these problems the rates of return to several areas of investment when effectively carried out, are very high. The payoff to agricultural research has typically been very high and the payoff to land and water development, particularly in situations where rapid technical change is also underway, have at times also been high.

The reform of land tenure arrangements and the development of effective rural credit institutions are also important for agricultural development. Both areas are subject to severe program distortions resulting from the bias in the distribution of political resources. Opportunity for effective assistance by external agencies in these areas are highly dependent on indigenous demand for economic and political reform.

There is also a major theme that emerges from our review of assistance to agricultural development, both in this chapter and in the several country studies (Volume II). That is the dynamic interrelationship between technical and institutional change. Technical changes capable of generating large new income streams at relatively low cost have been an essential condition for the success of other agricultural development programs. Similarly, investments in physical and institutional infrastructures have been essential in enabling countries to realize the contributions to economic growth opened up by advances in agricultural technology. In the absence of technical change, incentives for physical and institutional infrastructure investment have been weak. But, inadequate attention on the part of development assistance agencies to the institutional design needed to assure political as well as economic viability of infrastructure investments and institutional reform continues to represent a major source of failure in assistance for agricultural development.

Footnotes

1/ See, for example, the annotated bibliography prepared by Ellingson and Easter (1982).

2/ The World Bank is currently completing a review of its efforts to Bank projects to strengthen agricultural national research and extension. Discussion with some of the participants in the Bank review suggest concerns similar to those based on the USAID-University of Minnesota, "Asia Agricultural Research Review."

3/ For a review of the implications of these studies for research investment in developing countries, see Schuh and Tollini (1978).

4/ The contributions of research to increased agricultural productivity have been studied primarily by two methods. The estimates listed under the "index number" heading in Figure 9.3 were computed directly from the costs and benefits of research on, for example, hybrid corn. Benefits were estimated by using accounting methods to measure the increase in production attributed to hybrid corn. The contribution of research was usually measured as the residual after all other factors that contributed to increased production were accounted for. The calculated returns represent the average rate of return per dollar invested over the period studied, with the benefits of past research assumed to continue indefinitely. Benefits are defined as the benefits retained in the form of higher incomes to producers or passed on to consumers in the form of lower food prices.

The estimates listed under the "regression analysis" heading are computed by a different method, which permits estimation of the incremental return from increased investment rather than the average return from all investment. Further, this method can assign parts of the return to different sources, such as scientific research and extension advice. Because regression methods are used, the significance of the estimated returns from research can be tested statistically. The dependent variable is the change in total productivity, and benefit is defined as the value of the change in productivity. The independent variables include research variables, which reflect the cost of research and the lag between investment and benefit. The objective of the regression procedure is to estimate that component of the change in productivity that can be attributed to research.

5/ Albert H. Moseman (1970, pp. 66, 67) argued that the "extension bias" was partially based on the successful transfer of hybrid corn technology from the U.S. to Western Europe under the Marshall Plan. This transfer was successful because climate in Western Europe is reasonably close to the corn producing areas in the U.S., and there was indigenous human capital in the form of agricultural scientists and technicians in Europe to conduct adoptive research. For a review of the literature of the 1950's and 1960's on agricultural technology transfer, see Hayami and Ruttan (1971, pp. 169-237).

6/ In spite of the deemphasis of extension the U.S. Agency for International Development was in the mid-1970's, continuing to allocate close to $100 million per year in support of agricultural extension activities (Stavis, 1979: 12).

7/ The "training and visit system" has been described in Benor and Harrison (1977). See also the reviews by Stavis (1979) and Lowdermilk (1981).

8/ The evidence on these concerns appears mixed. George Axinn, commenting on experience in Harayana (India), notes:

> "On the positive side: discipline seems to be holding up. The agricultural development officers are visiting eight groups of farmers fortnightly on a regular schedule--with 80 to 100 farmers per group... The Circle Officers visit their eight ADO's regularly. And the subject matter specialists do conduct regular training--every other Friday for each group of ADO's, getting some training from research workers and others in between... Leadership and top management--at least in Harayanal State of India--seems to be vigorous, disciplined, skillful, and getting on with the tasks well (quoted in Lowdermilk, 1981: Annex II). Later, however, Axinn points to a noticeable lack of a reward system for performance within the T & V system and speculates that this may lead to a decline in the momentum of the program (Lowdermilk, 1981: Annex III), by the same critics as a major source of bias in the system.9/

9/ Benor suggests selection by the extension worker in consultation with local officials. This may be the best way of choosing contact farmers who are most in line with the T & V system's criteria for socio-economic status, credibility, influence, and role in the community. However, Anne Van den Ban of the Agricultural University, Netherlands, expresses this concern: "I am afraid that too often the contact farmers are those farmers who are interested to cooperate with the extension service. This means that these are farmers with a better education and more resources than the average farmer. In such a situation it is not sure that the other farmers will follow their example," (quoted in Lowdermilk, 1981: Annex III).

10/ Much of the history of U.S. support for land reform in East Asia can be written around the remarkable career of Wolf Ladejinsky (Walinsky, 1977). For reviews of the land reform efforts and accomplishments of the 1950's and 1960's see Feder (1965), Raup (1967), Ruttan (1969), Warriner (1969), U.S. Agency for International Development (1970), Dorner (1971), Barraclough and Collante (1973) and de Janvery (1981).

11/ According to Feder (1965), "the best visible result of the Alliance (for Progress) seems to be the enactment of a large number of land reform laws, which have become effective instruments not for carrying out large scale reforms but for stalling them," (p. 652). Kusum Nair (1962) argued that "though since 1947, India has enacted perhaps more land reform legislation than any other country in the world, it has

11/ (continued)

not succeeded in changing in any essentials the power pattern, the deep economic disparities, nor the traditional hierarchical nature of intergroup relationships which given the economic life of village society" (p. 196). Ruttan (1969) noted that "a careful review of land reform efforts in Southeast Asia ... would not reveal a single example of a successful land reform program when evaluated in terms of contributions to growth of productivity or production," (p. 593). Montgomery (1972) in a review of land reform experience concluded that "the outcome of land reform programs is strongly affected by administrative arrangements for their implementation. In a study of 25 countries, arrangements for devaluing administrative functions to local non-career officials produced significantly better results for peasant welfare than arrangements using professional administrators, whether in a centralized or decentralized administrative system, (p. 62).

12/ The "new land tenure" literature has been reviewed by Binswanger and Rosenzweig (1981) and by Jaynes (in press).

13/ Among the important contributions to this reevaluation are Bardhan and Srinivasan (1971), Stiglitz (1974), Newberg (1975), Reid (1976), Newberg and Stiglitz (1979), Rosenzweig (1978), Bardhan (1980, and Bell and Zusman (1976 and 1980).

14/ ". . . intervention in the land market alone cannot be effective if the existing links between land and credit contracts are ignored and a viable alternative to landlords as the major source of credit for small tenants and other peasants is not found," (Bardhan, p. 82). Similar observations had been made by earlier students of land tenure. See for example, Krishna (1961, p. 233); Warriner (1969, p. 391).

15/ See for example the literature reviewed in Feder (1965), Dovring (1970), Dorner (1971), Eckstein, Donald, Horton and Carroll (1978), and de Janvry (1981). A remarkable feature of the Latin American literature is that there has been an almost complete failure to confront the arguments of the "new land tenure economics."

16/ According to de Janvery (1981), "The most successful implementation of this strategy has occurred in Mexico, where political stability and democratic representation have been maintained since the reform of Cardenas inspite of growing rural poverty and highly unequal patterns of development," (p. 219). ". . . the contrasting experience of Bolivia and Mexico - the only two Latin American countries that have undergone a long and uninterrupted process of land reform - do tend to confirm the hypothesis that potential productivity gains are greatest under reforms that create a transition to the farmer road," (p. 217).

17/ No attempt is made here to review the issues of land tenure reform in Africa. There is not yet a large body of either theoretical or empirical literature dealing with the reform of tenure institutions in Africa on which to draw. Nor have we attempted to review the literature on socialist land reform. For useful reviews of efforts to implement group farming systems in Latin America and Asia, see Dorner (1977) and Wong (1979).

18/ The elements of a more efficient system of property rights include, as a very minimum, the completion of cadastral surveys and the maintenance of an accurate up-to-date cadastre.

19/ This section draws very heavily on the major review of agricultural credit programs conducted by the U.S. Agency for International Development in 1972 and 1973 (AID, 1973), on the review of the materials prepared for the US/AID agricultural credit review by Donald (1976); and on the discussion of agricultural credit programs by Yujiro Hayami and Vernon W. Ruttan in Agricultural Development: An International Perspective (Hayami and Ruttan, 1981).

20/ Information on ACAR was drawn from Mosher (1957); Wharton (1960); Alves (1968); and Ribeiro and Wharton (1969).

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CHAPTER 10

IMPROVING THE QUALITY OF LIFE IN RURAL AREAS*

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CHAPTER 10

IMPROVING THE QUALITY OF LIFE IN RURAL AREAS

Programs designed to improve the quality of life in rural areas have represented a continuing concern of national governments and development assistance agencies. In the developing world programs to raise living standards were initiated prior to World War II by private voluntary agencies, by the health and labor agencies of the League of Nations and by national and colonial governments (Holdcraft, 1978; Mosher, 1976; Rimmer, 1981).

Since World War II external assistance for programs to improve the quality of life in rural areas have gone through two cycles. Programs organized under the rubric of "community development" were a major focus of development assistance during the 1950's. During the 1960's attention shifted toward programs designed to support expansion of agriculture production. Programs of "integrated rural development" and activities directed to meeting "basic human needs" have represented a major focus of development assistance in the 1970's.

In this chapter we trace the rise and decline of these two program thrusts. We attempt to identify both the accomplishments and the limitations of community development movement of the 1950's and the rural development and basic needs orientation of the 1970's. And we attempt to draw some lessons from this experience for the programming of development assistance.[1/] Since we have discussed development assistance in support of programs to expand agricultural production in Chapter 9 this chapter will focus primarily on

rural development program activities that have given major emphasis to improvements in the quality of life in rural areas. This distinction is, however, not always easy to make in practice. It will not be possible, therefore, to avoid discussing, from a rural development perspective, some of the program activities that were viewed from a narrower agricultural production perspective in Chapter 9.

10.1 The Rise and Decline of Community Development

In the first development decade after World War II, community development became a major focus of development assistance. From its inception community development included both economic and political development objectives. It held forth the promise of both building grass roots democratic institutions and contributing to the material well being of rural people, - "without revolutionary changes in the existing political and economic order," (Holdcraft, 1978: 14).

Community development was viewed as a process which (a) involves people on a community basis in the solution of their common problems, (b) employs democratic process in the joint solutions of community problems and (c) activates and/or facilitates the transfer of technology to the people of a community for more effective solutions of their common problems. The process by which community goals were to be realized was itself important! The community development process was "rooted in the concept of the worth of the individual as a responsible, participating member of society ... It was designed to encourage self-help efforts to raise standards of living and to create stable, self reliant communities with an assured sense of social and political responsibility," (Holdcraft, 1978: 10).

A Ford Foundation funded project initiated in 1948 in the Etawah District in Uttar Pradesh, India, served as a model and inspiration for many other community development projects and programs, (Mayer, et al, 1958). The Etawah project employed multi-purpose village level workers to initiate self-help approaches to increasing agricultural production and strengthen rural infrastructure. In 1952 the Indian government adopted the Etawah model as the basis for a major national rural development effort. When the

program was extended on a national scale, however, the government did not have the technical or bureaucratic capacity "to adopt the painstaking approach to developing a participative administrative structure able to respond to bottom-up initiates which had been the key to the Etawah project's success," (Korten, 1980: 3).

The community development movement expanded rapidly during the decade of the 1950's. By 1960 over 60 nations in Asia, Africa, and Latin America had launched national or regional community development programs. In the United States assistance agency a Community Development Division was established in 1954. The agency program involved (a) sending teams of community development experts to assist interested governments in planning national community development programs, (b) providing long-term technical and capital assistance, (c) publishing community development research and training materials and (d) holding a series of international community development conferences (Holdcraft, 1978: 16).

By the early 1960's community development was being de-emphasized by both development assistance agencies and national governments. The decline in support was due to disillusionment on the part of political leaders in the developing countries and the officials of assistance agencies with the effectiveness of community development in meeting either their economic or political development objectives. Community development programs were criticized for failing to improve the economic and social well-being of rural people. The criticism was also made that failure to reform the community power structure led to local elites capturing a disproportionate share of both the economic and political gains generated by the programs (Korten, 1980: 3). A related criticism, seldom stated explicitly, was that

when programs were successful they set in motion political forces that were not easily controlled by the "center" authorities.[2/]

10.2 New Directions: Integrated Rural Development and Basic Needs

After more than a decade of relative neglect rural development again emerged near the top of the development policy agenda in the early 1970's. In 1973 the President of the World Bank pledged his organization to direct its resources toward improving the productivity and welfare of the rural poor in the poorest countries (McNamara, 1973; World Bank, 1975; Williams, 1981). In the same year the U.S. Congress instructed the U.S. aid agency to direct its efforts toward "meeting the basic needs of the poorest people in the developing countries" (U.S. House of Representatives, 1973: 15). There was, however, considerable lack of agreement regarding the meaning of rural development and its relevance to meeting the basic needs of the rural poor.

In the United States, and in a number of other developed countries, the renewed emphasis on rural develoment in the 1970's was in part a reflection of the populist reactions of the late 1960's to bureaucratic and technocratic approaches to the delivery of social services. By the early 1970's these domestic concerns were spilling over into criticisms of the technocratic and bureaucratic approaches to agricultural and rural development in development assistance programs (Montgomery, 1979). The receptivity to this new thrust in development assistance in the poor countries was influenced by the perception that the gains from rapid growth in agricultural production that were beginning to emerge in the late 1960's and early 1970's were contributing to the concentration of resources and income in rural areas. There was also a perception that growth of income in rural areas did not assure that rural people would have equitable access

to the social services and amenities in the absence of the design and development of more effective rural institutions (Owens and Shaw, 1972; Ruttan, 1975; Mikesell, 1982: 41-49).

The "basic human needs" (BHN) orientation represented a major difference between the rural development programs of the 1970's and the community development programs of the 1950's. The community development programs of the 1950's placed major emphasis on energizing rural communities for self-help. The rural development programs of the 1970's placed greater emphasis on the achievement of greater equity in the distribution of the gains from economic growth between urban and rural areas and between economic and social classes within rural areas. The proponents of the basic human needs approach have sought to introduce explicit proximate objectives for more general commitments to improvement that lend themselves to program design and measurement of program performance (Crosswell, 1978). This has tended to result in a shift in program focus from the mobilization of community resources to the delivery of program inputs and services in rural development programs.

A remarkable aspect of the new rural development program thrust, and of the 1970's literature on rural development, is that there appeared to be little awareness of the history of the community development programs of the 1950's or little inclination to consider the lessons that might be drawn from the early experience for the design of the new rural development programs. It was not until the late 1970's that the design of the new rural development programs began to be informed by the lessons from the earlier experience.

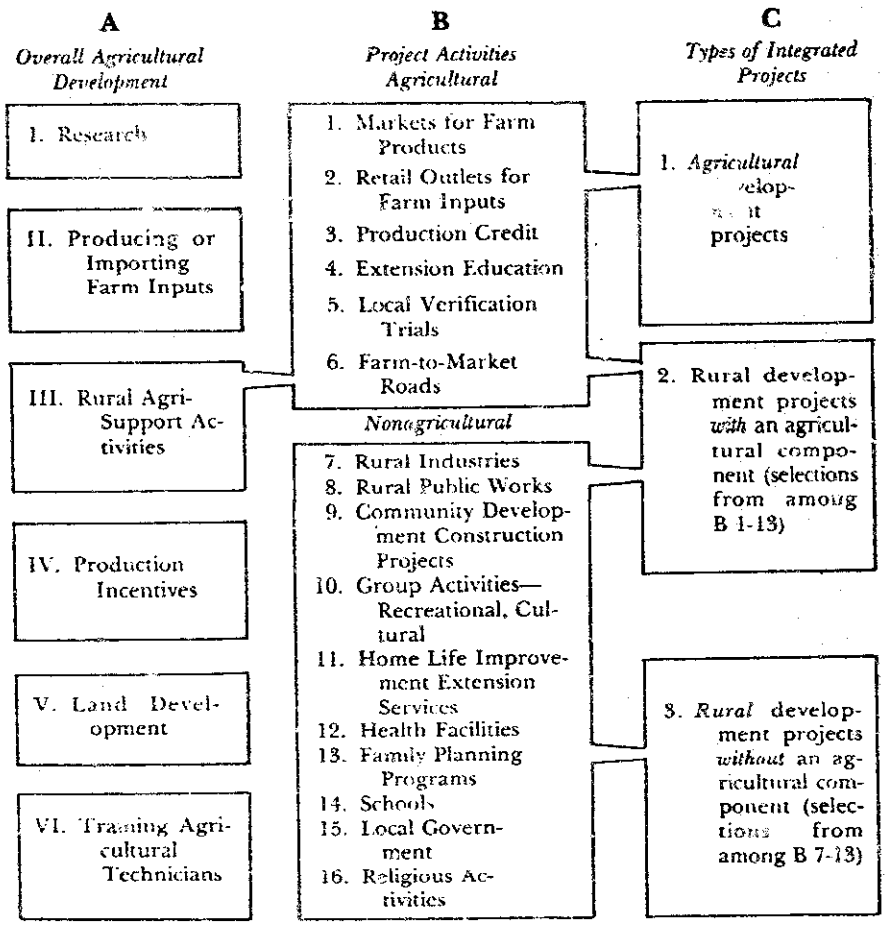
By the early 1980's the new "basic needs" and "integrated" approaches to rural development were coming under severe questionning. Eicher and Baker

noted that in Africa "the pendulum shifted from IRD to strategies which emphasize food production by small commercial farmers. The decline of IRD does not reflect a retreat on equity goals as much as growing recognition that pilot IRD programs rarely were implemented on a broader scale, that governments cannot afford to finance a wide range of social services during the early stages of development and that IRD (like CD in the 1950's) was not solving the most fundamental rural problem--achieving a reliable food surplus" (1982: 62).

10.3 Integrated Rural Development Programs

Complementarity among the several sectoral components of development in rural areas represented a dominant theme in the "new" rural development strategy of the 1970's, (Mosher, 1976; Lele, 1979; UNDP, 1979; Moris, 1981). Among the characteristics of rural communities which were interpreted as conducive to an integrated approach were (a) low levels of economic specialization, (b) interlinking of economic and non-economic interests and (c) the importance of communal obligations and responsibilities. Close links were identified among the directly productive and quality of life components. It was this comprehensive or integrated approach that would distinguish the new programs from the traditional programs designed to increase agricultural production, improve rural education, build farm to market roads, and supply health services or private family planning. But there was little agreement on the criteria that distinguished integrated rural development from other rural development programs. Cummings (1982: 5) observed "that rural development has assumed a Mother Hubbard character - it covers all but touches nothing." Moris (1981: 27) noted that the enormous variance in the content of rural development "(makes) 'rural development' an umbrella label for a wide variety of enterprises." A number of observers have found that the classification developed by Mosher (1976) is a useful basis for developing a typology of rural development projects (Figure 10.1).

Figure 10.1. Elements in Various Integrated Programs of Agricultural or Rural Development



Source: Arthur T. Mosher (1976), Thinking About Rural Development (New York: The Agricultural Development Council), p. 54.

A number of widely cited examples of successful integrated rural development projects served as an inspiration for the rural development movement of the 1970's. The village development program pioneered by the Bangladesh (formerly Pakistan) Academy for Rural Development at Comilla was one of the models that received widespread attention (Raper, 1970; Haq, 1973; Khan, 1974; Stevens, 1974).[3/]

The Academy was established in 1959 as a training center for public officials responsible for rural development programs. The program evolved out of an effort by the Academy staff to understand rural development processes in Comilla District, where the Academy is located, and to utilize development activities in the Comilla villages as a laboratory for the training activity. The program involved three elements: (a) development of a two-tiered, village and thana, cooperative system; (b) inducing cooperation among public agencies in labor intensive resource development efforts--particularly irrigation, drainage and roads; and (c) development of the capacity of local government to coordinate and direct the efforts of departments responsible for civil administration and development (agriculture, water, health, education and others).

The program was clearly successful in terms of the diffusion of more productive agricultural technology, in mobilizing local resources for village improvement and in the development of cooperative institutions. The cooperatives proved capable of generating modest savings and in partially replacing traditional moneylenders as a source of credit. They also became effective channels of technical information about rice production practices, health practices, and farm and cooperative management between the villagers and the technicians located at the Thana center. Many of the cooperatives also

proved capable of managing capital investments such as tube wells; handling the distribution of inputs such as fertilizer, insecticides and seeds; and of organizing services such as tractor plowing. Roads, irrigation, and drainage were improved. In areas where such changes occurred the value of farm output increased; the incomes of owner and tenant cultivators grew; and land values rose in response to the greater productivity and higher incomes. And the experience gained in the Comilla Thana did have an impact on rural administration and development in a number of other Thanas in East Pakistan.

After independence the Government of Bangladesh announced that the Comilla project would be utilized as the model for a national rural development program. But the program that was actually implemented could be described more accurately as a cooperative development program than a rural development program. Reflecting on the Comilla experience, Ruttan posed the question of why is it so easy to identify a number of relatively successful small-scale or pilot rural development projects, but so difficult to find examples of successful rural development programs, or programs in which pilot projects have made the intended transition into general practice (1975: 10).

In his extensive literature review Moris characterized the "autonomous development project" as a major source of failure (1981: 11). If the purpose is to encourage "integrated development," Caiden and Wildavsky observed that "the general effects (of pilot projects) is that of an enclave, an oasis of certainty in an environment of uncertainty," (1974: 61).

Moris (1981: 11) points out that the extreme example is the "turnkey project," where an outside contractor carries out all activities up to the point when the project becomes operational. This may dramatically speed the initial project establishment, but it often leads to a crisis when the new unit must be locally supported. In many cases, development projects "consist of amalgam of external and local resources with the donor agreeing to support project activities for a specified period."

Moris (1981: 48-49) cites the organizational elaborations of technical assistance projects as a cause of their ineffectiveness. "The donor agency wants assurance that there will be local experts to assume control by the termination date (while) the host country needs staff to watch the experts." An inherent, though purportedly politically necessary, redundancy is created, whereby factor intensities exhibited in technical assistance projects far outweigh those the country could supply if the program was extended on a national scale. With dual structure, each set of actors blame others when goals are not realized. A complicity sometimes exists between host countries' organization and aid agencies not to reveal true extent of outside intervention.

In a review of "autonomous" projects in Africa, Lele (1975: 127-141) finds similar problems. She notes that "project authorities in these rural development programs have carried out functions of several departments (or ministries) and local institutions involving a wide range of activities ... (and that) (a) they actually or potentially substitute a range of activities that are already the responsibility of the normal government structure, and (b) they look to the fulfillment of a broad range of socio-political objectives." In two countries (Ethiopia and Malawi), the "inadequacy of existing institutions to administer complex, multi-sectoral programs (such

as integrated rural development) and the absence of well-articulated national commitments to bring about substantial political and administrative improvements led expatriate planners to view the establishment of autonomous project authorities as a logical way of making a noticeable impact and, thus, of exercising a demonstration effect on policy makers, administrators, and, of course, on the rural people."

Lele (1975: 140) notes three problems with respect to parallel administrative structures and eventual integration:

(a) The hiring and training of national staff;

(b) Establishing rapport with the indigenous institutions to improve effectiveness of administration; and

(c) The task of integration with regular government administration without jeopardizing the performance of the project.

"Without the resolution of these problems, the gap between the initial promise of the integrated programs and their long-term performance can be substantial, despite the considerable initial capital and trained manpower input ... Realizing the full potential of donor-aided programs must mean not only short-term production increases but also the development of effective rural administration and concurrent training of indigenous manpower ... Far greater national involvement in planning and implementation is necessary than was possible in autonomous projects reviewed ..."

Overall, donor-aided projects are seen as posing a set of contradictions which make major progress in poverty-focused, participatory rural development difficult to achieve (see Figure 10.2). This holds regardless of whether the donors are public or private: "It is frequently suggested that what is needed is more private initiative in attacking the problems which government bureaucracies cannot manage. Though this view is an attractive one, there is little evidence to suggest that, when undertaken on anything

Figure 10.2. Contradictions in Foreign Assistance Programming for Rural Development.

Poverty-focused rural development involves projects which are:	Donors remain impelled to prefer projects which are:
Small	Large
Administrative and personnel-intensive	Capital- and import-intensive
Difficult to monitor and inspect	Easy to monitor and inspect
Slow to implement	Quick to implement
Not suitable for complex techniques of project appraisal	Suitable for social and cost-benefit analysis

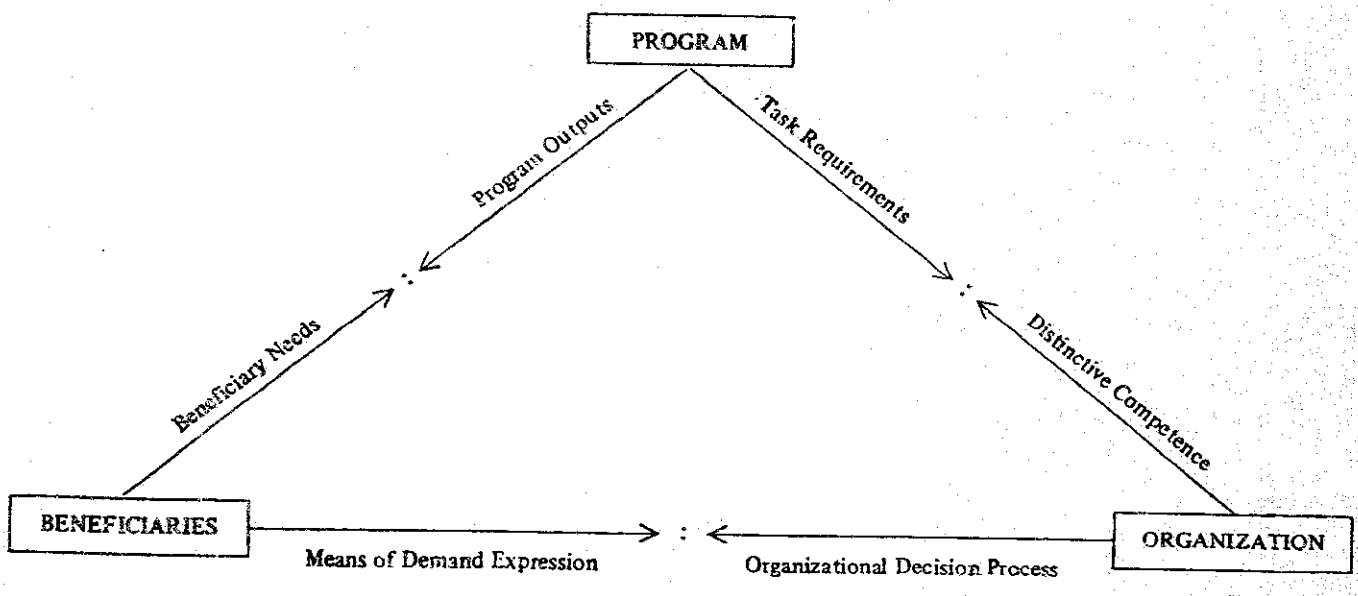
Source: Korten, David C. (1980), "Community Organization and Rural Development: A Learning Process Approach," The Public Administration Review 5; p. 484.

approaching the scale required, private voluntary efforts are consistently more effective than those of government," (Korten, 1980: 483). And it holds irrespective of whether (the) achievements (of donor-financed projects) are judged by inputs such as numbers of local and expatriate staff recruited, research trials carried out, amounts of fertilizer, and other inputs distributed, vehicles purchased, buildings and roads constructed or maintained, or amount of data collected or analyzed by evaluation units, or by the end results of such as increases in (crop) yields, numbers of staff trained, or administrative and financial procedures instituted," (Lele, 1981: 552).

What can be learned from the integrated rural development experience of the 1970's? Korten (1980: 496) has drawn on five successful Asian rural development projects in developing a model of effective social intervention. The case studies were remarkably diverse and "apparently, the determinants of (their) success cannot be found in an easily replicable program variables - whether private or public (initiative), multi-purpose or single-purpose, broadly or narrowly defined target group. Each project was successful because it had worked out a program model responsive to the beneficiary needs at a particular time and place and each had built on a strong organization capable of making the program work. Put another way, they had achieved a high degree of fit between program design, beneficiary needs, and the capacities of the assisting organization," (see Figure 10.3).

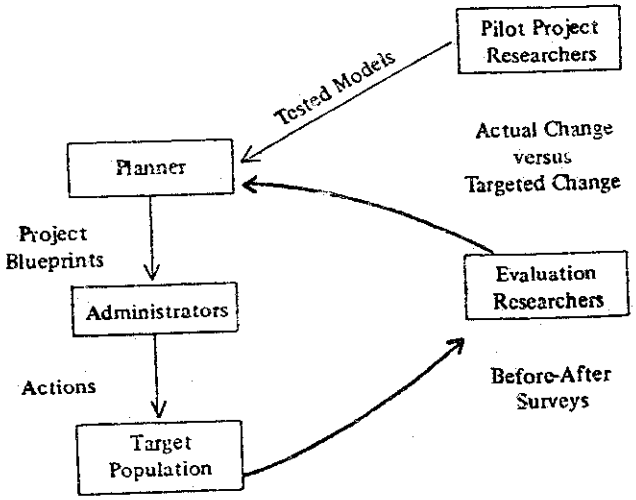
Korten contrasts what he terms a learning process approach with the blueprint approach - the latter being the "textbook approach to how development planning is supposed to work," (Figure 10.4). In the blueprint approach, researchers are expected to provide data from pilot projects and other studies that allows planners to choose the most cost-effective project design for achieving a given development outcome. The project plan is

Figure 10.3. Schematic Representation of Fit Requirements



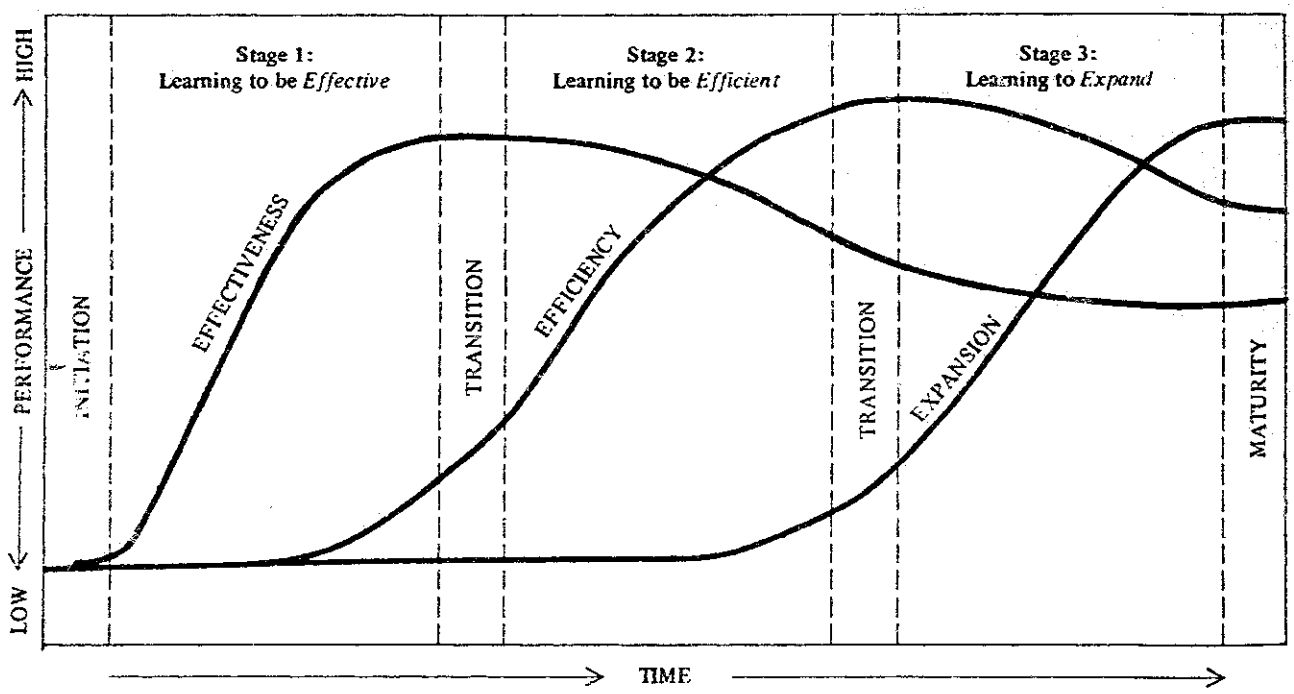
Source: Korten, David C. (1980), "Community Organization and Rural Development: A Learning Process Approach," The Public Administration Review 5, p. 495.

Figure 10.4. The Blueprint Approach to Development Programming.



Source: Korten, David C. (1980), "Community Organization and Rural Development: A Learning Approach," The Public Administration Review 5, p. 496.

Figure 10.5. Program Learning Curves.



Note: It should be expected that some effectiveness will be sacrificed in the interest of efficiency and expansion. With expansion efficiency will likely suffer due to trade-offs with the requirements of expansion.

Source: Moris, Jon R. (1981), Managing Rural Development (Bloomington, Indiana: International Development Institute), p. 500.

reduced then to a "blueprint" for implementation. At the end of the project period, a researcher is expected to measure actual changes in the target population and report actual versus planned changes to the planners so that they can revise the blueprints.

Korten's learning process approach provides an important perspective in which to frame stages of project development (see Figure 10.5 , but is limited in providing practical tools for the gathering and employment of critical information in the process.

As Moris (1981: 42) points out, the end product of the initial learning cycle postulated by Korten (1980) is to discover an effective institutional model and with it the ability to specify appropriate goals. Evaluation hinges on criteria, criteria which can only be specified after appropriate goals are identified. Furthermore, evaluation should be undertaken in relation to the other projects or programs with similar constraints "generally within LDCs the meaningful figures are those which compare performance within common situational constraints, rather than those which measure progress against official or potential performance targets" (Moris, 1981: 42).

Finally, Barnett (1981: 312) argues that "the real need is to develop an approach to evaluation which brings into the foreground (a) the kinds of rational response to various groups of people to particular project and (b) the ways in which the organization and relations of production act to block the aspirations of some people, and thus produce rational responses, such as restriction of production, which appear irrational when appraised from the viewpoint of management. As the project develops and changes over time, so these responses, relations, and perceptions will alter and develop in relation to each other, in many cases fettering the actual level of productivity achieved and also restricting groups and individuals in the pursuit of their objectives."

Barnett's concerns carry over especially to survey and questionnaire techniques common to evaluation (Franklin and Thrasher, 1976; Weiss, Waterson, and Wilson, 1977). Besides the typical concerns about cost-effectiveness of various survey and questionnaire techniques in relationships to overall project resources, problems concerning which groups are targeted for survey and the biases inherent in persuading them to reveal information may make such efforts much less valuable than expected. As Moris (1981: 43) confides after participating in 15 major surveys in the field, "I have usually found that an intensive debriefing of the field interview teams provided better insights than the main survey (data) itself."

Perhaps the best advice is to utilize various information processing techniques throughout the project and to rely on no single one (see Figure 10.6). In the review of project evaluations to follow, the various technique utilized and concerns voiced will be emphasized.

Figure 10.6.

Data Requirements in Rural Development

Type of Use:	Specific Purpose:	Source/Linked Technology:
I. Planning		
appraisal	1) Area-based planning	Multiple sources, technology in infancy
	2) Crop/industry planning	Based on district reports & experience
	3) Village planning	Project planning methods, needs analysis
	4) Project selection	Highly developed project appraisal methods
	5) Program design	Based on personal experience, plus institutional model
	6) Implementation planning	Time budgeting methods, manpower planning
	7) Budgetary planning	Standard administrative procedures
	8) Work planning	Informal techniques/MBO, annual review
	9) Contingency/crisis planning	Lacking
	10) Impact appraisal	Evolving technology, depends largely on donor requirements
II. Monitoring		
management-information systems	11) Budgetary reporting	Standardized administrative procedures
	12) Activity reporting	Standardized reporting cycle
	13) Performance trends	Crude comparisons from reports
	14) External threat/crisis	Informal, manager's experience
	15) Change in conditions/assumptions to warrant replanning	Lacking
	16) Impact monitoring	Based on reported statistics, "guesstimates" sometimes linked to field surveys
	17) Bottleneck identification	Lacking
	18) Benefit/cost situation	From internal reports if required
III. Learning		
evaluation	19) What went wrong?	Donor's assessment, in-house review
	20) Is image faulty?	Lacking
	21) Design improvements	Lacking
	22) How well did others do?	Informal comparisons, before/after surveys
	23) Full experiment	Survey methodology, scientific design, baseline & termination surveys
	24) Impact assessment	Mixed methodologies: reports, interviews, and sometimes field surveys

Source: Moris, Jon R. (1981), Managing Rural Development (Bloomington, Indiana: International Development Institute), p. 44.

10.4 Meeting Basic Needs in Rural Communities

The U.S. Congress directed the US/AID to redirect its efforts toward "meeting the basic needs of the poorest people in the developing countries" (U.S. House of Representatives, 1973:15). An attempt was subsequently made to give program content to the concept by the International Labor Office at its 1976 World Employment Conference (ILO, 1976), the World Bank (Streeten, 1977), and by the U.S. Agency for International Development (1978).

One consequence of articulation of a basic needs approach was to attempt to give specific empirical content of the basic needs approach. "Growing interest in activating the concept of basic needs within a definite time frame presents at least four operational questions: (1) how to measure the present level of physical well-being; (2) how to identify the goal--the point at which 'the worst aspects of global poverty' have been overcome and a basic needs 'floor' attained; (3) how best to measure progress toward meeting basic needs and to determine what rates of progress are feasible; and (4) how to identify the individual inputs (and their best combinations) that are most likely to achieve the desired results at the lowest economic, social and political costs" (Grant, 1978). These efforts stressed the limitations of per capita income as an indication of well being and stressed the very substantial variations in physical quality of life indicators--life expectancy, infant mortality, birth rates, and literacy--achieved in countries with quite similar per capita income levels (Grant, 1978, Tables 1, 2, 5, 6, 7).

The basic needs approach to development programming gave rise to two bodies of academic literature. One body of literature has attempted to explain the macro-economic implications for economic growth of attempts to meet specific basic needs objectives. An example is an attempt by Boutros-Ghali

and Taylor (1980) to assess the resource allocation and economic growth implications of a "basic needs" strategy for Egypt. They found that a basic needs strategy would be less import-intensive than the policies presently being followed. A sharp shift toward the service and government sectors that supply basic needs would be required. The cost of meeting basic needs in rural areas would be less capital and import-intensive than in urban areas. Nevertheless prices of capital goods and agricultural products would rise. Achievement of basic needs without substantial sacrifice of economic growth objectives would require that foreign donors and workers' remittances would supply over half of Egypt's foreign exchange requirements.

A second body of literature has attempted to identify basic needs "packages" that lend themselves to the integration of delivery services. In their book on Redesigning Rural Development (1982), Bruce F. Johnston and William F. Clark suggest that there are three broad program areas characterized by a high degree of complementarity in program design and management (also Johnston, 1977 and Johnston and Meyer, 1977).[4/]

(a) Production oriented programs: These are the programs discussed in Chapter 9 of this study. Johnston and Clark conclude, as we have seen in our review, that "broadly based efforts to achieve production gains are superior to efforts that concentrate on a few large, highly organized, and relatively capital intensive efforts" (p. 3). They regard production oriented programs as fundamental to any viable effort to expand rural employment. And they identify both complementarities and tradeoffs within production oriented programs. They are particularly concerned about the negative effects that "bimodal" production strategies - strategies that channel input credit and technical assistance to the larger farmers and neglect the smaller farmers can have on

the achievement of both production and equity objectives (pp. 112-115).

(b) Consumption oriented programs: Johnston and Clark find a high degree of complementarity among interventions designed to improve health, nutritional status, and family planning (p. 3). They find that while integrated approaches place greater emphasis on institutional infrastructure and managerial competence than more piecemeal alternatives, the complementarities sufficiently great to support an argument for an integrated approach to the delivery of these services at the local level.

(c) Organization programs: Johnston and Clark also consider a third group of programs that "enhance a society's ability to organize people for policy redesign and implementation" (p. 3). They regard "programs to organize the rural poor and programs to organize . . . the civil servants and field staff who must link national programs to local action" (p. 3). Especially important, they regard the development of effective participatory institutions at the local level as essential for both the effective mobilization of rural resources for development and the equitable and efficient delivery of bureaucratic and technical service to local communities. Communities must be in a position to provide reasonable rewards to bureaucracies for effective performance. Where community, economic and political resources are strongly skewed the delivery of bureaucratic and technical services will also be skewed.

How effective have efforts been to deliver integrated packages of services to rural communities? Since the merger of the "integrated rural development" and "basic needs" perspectives is relatively recent, empirical attempts to measure the effectiveness of such programs must rely primarily

on programs that were developed before the merger of these two streams of thought was fully articulated. We do have available, however, several appraisals by the USAID evaluation program to assess such efforts. We review, in this section, the efforts to assess what can be learned from a project designed to improve rural roads, rural water supplies and rural health.

Rural Roads

An important set of development projects in which redirecting activities away from primarily providing services in favor of mobilizing local resources has occurred in rural road building and upgrading. The U.S. Agency for International Development (1982a) recently completed a three-year study to ascertain the effectiveness and impact of rural road activities in projects under their sponsorship in Asia, Africa, and Latin America. Project effectiveness was judged by two standards:

(1) actual length of road constructed, its cost, and time required compared to projections, and

(2) degree of sustainability of project activities in terms of maintenance and continued rural road construction after AID disperses all project funds.

Project impact was measured "by the degree to which the project attains broader project purposes with goals..." as well as any other intended or unintended effects (i.e., social, political, economic, environmental) (p. iv.).

Although most of the rural road projects studied by AID evaluation teams were found still to be operational, maintenance was generally neglected as a result of both donor and host country policies. Often overly optimistic estimates of benefits, costs, and completion time led to cost over-runs. Many critical impacts related to land tenure, agricultural production and pricing policies, environmental quality, and the transport industry were overlooked. It was found, in particular, that the "engineers who ran highway departments . . . were more attached to roadbuilding . . . than to maintenance" (p. v.). Furthermore, "where road selection was centralized, there was a tendency to specify uneconomically high design

standards and to overemphasize primary roads at the expense of rural roads" (p. 7). Tendler (1979: 42-43) found that placing the road selection decision at more local levels produced a higher ratio of unpaved roads to paved roads, and led to design standards more appropriate for the low traffic volumes found on rural roads.

Of the evaluations, which covered AID projects in Sierra Leone, Columbia, Liberia, Jamaica, the Philippines, Thailand, Honduras, and Kenya, only one clearcut case of success based on project sustainability - whether concerning rural road construction or maintenance - was found: the Accelerated Rural Development Program in Thailand. In four other countries, Kenya, the Philippines, Jamaica, and Columbia, it was judged that at least some success had occurred in creating local, provincial, and natural capacity to carry on projects.

The Accelerated Rural Development program of the Thai Government was begun in the early 1960's for the purpose of fostering internal security through economic development. Typically, an ARD project involves upgrading seasonal cost tracks into all-weather dirt roads to link villages and towns to the national road network. ARD projects also involve developing potable water and minor irrigation works. The three complementary efforts contribute to the development of the basic physical infrastructure needed for the development of rural communities.

Administration was decentralized. The local institutional development necessary for project sustainability was encouraged. Donor grants provided equipment and training directly to provincial organizations. The national ARD office contributed to the planning, designing, constructing, and maintaining rural roads and village water facilities. Provincial

organizations were also supported, under the leadership of their provincial governors, in the development of staff to coordinate the planning and implementation of rural development programs within the provinces. Road Project guidelines provided for continuing maintenance of rural roads by the local ARD organizations until traffic levels exceed the engineering capacity of their organizations. At that time arrangements were made for maintenance responsibility to be taken over by the national highway department (U.S. Agency for International Development, 1980).

Rural Water Supply

In community water supply projects, even more so than rural road projects, the systems evaluated as most successful are those which were built by mobilizing local resources and maintained and supported by local associations of users. A wide variety of technologies, from hand dug wells with locally manufactured hand pumps in Tanzania to diesel pumps and gravity systems in Kenya, Thailand, Tunisia, Peru, and Panama were found to be reliable in the evaluation study conducted by the U.S. Agency for *International Development* (1982b: 16). These evaluations focused on the relationships between reliability and beneficial impacts of water systems. Equity of access, distribution of benefits, and interrelationships between water supply quality and health were major concerns.

Evidence provided by USAID evaluations (1982b: 24, 25, 26, 33, 37, 38) demonstrated that a system tends to be successful when communities value the system. No system where users paid the full costs of operation and maintenance were evaluated as unreliable. Furthermore, participation by the majority of a community tends to insure equitable access for systems with only communal facilities. Thus, the following conditions are found to be associated with project success:

(1) "Tariff structures and payment schedules result from discussions and are acceptable to the community"

(2) "A local users group is formulated to set management policies and determine local priorities" and

(3) "The water supply organization is able to support and maintain the equipment used."

In addition, projects are most likely to succeed when:

(4) "The technology chosen represents an incremental improvement over the existing level and can offer the prospect of further step-by-step progress"

(5) "Technologies used for projects should not exceed the logistic and technical support capability of the institution"

(6) "Diversity of equipment, which makes for problems in procurement and supply of parts, is limited"

(7) "Internal and external funding is assured and programs are planned within the budget limits" and

(8) "The agency can attract and hold qualified personnel."

It was also noted that in the event institutional support is inadequate, project success could be achieved if private sector sources of equipment, supplies, and expertise to service communities were available. Furthermore, evaluation teams concluded that providing a method for ensuring community contribution and involvement in the maintenance of the system is important to project success.

Finally, it was found that none of the systems built with the sole purpose of improving the quality of water available to a community were reliable. Although water quality is recognized as an important factor in health and hygiene, water projects were found to be inadequate vehicles for the implementation of health and hygiene programs.

Health Care

Evaluating health care activities in developing countries presents a much more difficult conceptual and methodological task than evaluating rural utility projects. The recent AID study by Dunlap (1982) is indicative of the lack of consensus concerning (1) what types of primary health care delivery systems are most effective and (2) which evaluation techniques are most appropriate for measuring their effectiveness. Dunlap argues the need for current health care evaluations to be consistent with socio-economic development goals as defined by "basic human needs" strategy of development. In particular, Dunlap is critical of linear construct or input-output (result) evaluation schemes because they "misspecify the nature of the evaluation problem in health."

Health status results from a complex inter-weaving of various inputs, not just from the delivery of health services, but also sanitation, agricultural production, family income, nutrition, and other factors. Dunlap observes that today "many of the inputs that can improve the health of a population are provided by categorical delivery systems . . . (but) health planners are attempting to reshape the concept of primary health care by welding the present desperate delivery systems with outreach and education services into a unified and more productive strategy for health improvement."

Such advocates of more integrated approaches to the delivery of health services include Johnston and Meyer (1977). In particular, a "composite-package" approach to the delivery of nutrition, health, and family-planning services is recommended. The integration of these services is recommended, in particular, because they are mutually reinforcing, with positive effects

from one innovation reducing client resistance to other innovations (14-15). Integration has also been shown to be cost effective in a study of a Narangwal, India, health project involving 26 villages (Taylor, Singh, et al, 1975). Johnston and Meyer (1977: 17) also believe that the political and financial support required for a program having a widespread impact on a country's rural population will be greater if the program is aimed at multiple objectives related to nutrition, health, and planning.

Whether such integrated programs will find widespread support "depends on their effectiveness and how well it is measured." Dunlap (1982: 8-28) argues that the evaluation process must be built into the project at the design phase because in health care delivery systems the interactions are very dynamic. In particular, it is recommended (27) that:

(a) "In their design phase, management information systems in health projects should be made as compatible as possible with short- and intermediate-run evaluation needs."

(b) "Multipurpose, population-based survey instruments should be designed and implemented in selected primary health care delivery projects to monitor the general welfare impact of basic human needs investments as measured from various perspectives on target populations."

(c) "Measurement and evaluation activity should be undertaken periodically; several repeated observations should be taken on each measure over a sufficiently long period that the dynamic nature of the changes can be ascertained."

Dunlap also argues (28) that the primary health care operation research agenda under USAID consideration should "focus its attention on cost-effectiveness analyses of alternative technologies for low cost, primary-health care delivery systems." Rather than relying on current measures of success like vital-events changes, he recommends that both consumption and investment benefits of health care, measured by utilization, willingness to pay, and revealed preferences be the standards by which health care project success is assessed.

Finally, in the area of health care evaluation, much more work must be undertaken to turn recommendations into action. Yet some hopeful signs have emerged. Dunlop (28) points to the redesign of the Sine Saloum Project in Senegal based on an evaluation as a case in point.

Cost Effectiveness

A brief note on the cost-effectiveness measures used in the evaluation of programs to deliver services to rural communities. Benefit/cost analysis looks at the allocation of capital in relationship to projected costs and benefits. Costs are weighed against the benefits, assuming both can be monetarized.

In some situations, however, although the purpose of a government expenditure is specific and will be understood, the benefits and costs are hard to compare directly. This happens often when it is difficult to measure the benefits in dollar terms, such as in benefits to national defense and to health expenditures.

In other situations, the total expenditure for a given purpose is fixed and alternative projects are evaluated to see which is most effective in achieving the purpose. The benefits need not be converted into dollar units, just compared in whatever terms are most appropriate.

These situations are truncated versions of cost-benefit analysis and are known as cost-effectiveness analysis. In summary, cost-effectiveness analysis is applicable when (a) costs of alternative projects are similar and hence only benefits need be compared, which relieves the analyst of the need to convert benefits to dollars, or (b) when benefits are similar and hence only costs need to be compared (Stokey and Zeckhauser, 1979: 134-159).

10.6 Some Conclusions

Perhaps the most striking impression that emerges from this review of the literature on rural development is the cycling of both intellectual perspective and program content. The intellectual perspective--perhaps enthusiasm would be a more apt term--has been more extreme than program content. The practitioners who inhabit the development assistance bureaucracies and the national planning and development agencies exhibit remarkable creativity in transforming the enthusiasm for "new directions" into incremental changes in program direction. But even within the development assistance and national development bureaucracies, there has been a continuing tension between the proponents of physical infrastructure development and institutional infrastructure development; between the designers of programs to supply commodities and services to rural communities and those who emphasize the design of the institutional innovations that enable rural communities to mobilize their own resources of development. The concerns of the advocates of alternative approaches--"seeds and fertilizer" versus "health and sanitation"--within the development agencies rise and decline in response to the impact of external rhetoric and political pressure.

A clear inference from the literature on rural development is that efficient delivery of bureaucratic services to rural communities is very dependent on effective organization at the community level. Rural communities, operating through either the formal structure of local government or the informal or voluntary institutions, must be able to interact effectively with the central institutions charged with responsibility for the delivery of services to local communities. They must be able to interact effectively in the establishment of priorities. They must be able to provide feedback to the central agencies

on agency performance. And they must be able to mobilize sufficient political resources to provide incentives for effective bureaucratic performance.

Effective rural development also requires that local communities have available to them the instruments of local government, including adequate fiscal authority, to enable them to mobilize local resources in support of local development. There are few national governments in the developing world that have either the fiscal or administrative capacity to make available either the fiscal or bureaucratic resources needed to sustain development in rural communities. But there are many countries which have not yet developed the institutions that permit communities to mobilize their own resources in support of the development of local physical and human resources.

The success of many of the rural development pilot projects has been due to the relative intensity of the human resources devoted to organization, management, and technical assistance. When an attempt was made to generalize the pilot project as the model for a national or regional rural development program the intensity of human resource input could not be maintained. Furthermore, access to the higher decision making levels of government and the administrative freedom to tailor programs precisely to local natural and human resource endowments and capacities and to priority development problems that is often available to directors of pilot projects is frequently sacrificed to administrative convenience when the projects are generalized in the form of provincial or national programs. Highly centralized administration of national programs makes it difficult to carry out the experiments with program content and delivery methods that are essential if rural development programs are to meet the diverse needs of rural areas.

Another factor which conditions the success of rural development efforts is that by and large the opportunities for village development depend to a substantial degree on the availability of more efficient technologies and more efficient institutions. These resources become available to rural communities through intersector factor and product markets and through the development of bureaucratic resources at the national and regional level. The potential gains that can be achieved in the absence of expanding commodity markets and more efficient factor markets are limited. The ability of rural communities to respond to such opportunities when they do become available depends on technical and institutional innovations which also become available from sources outside the community. Even the capacity to organize the political resources necessary to achieve access to or enforce efficiency in the delivery of bureaucratic resources typically depends on reforms leading to reasonable equity in the distribution of economic and political resources and to the availability of social and legal instruments which permit communities to effectively organize their economic and political resources toward common objectives.

Excessive reliance on the project approach has become an obstacle to the development of viable rural development programs. The project approach does have an important role to play in the development of physical infrastructure. The construction of major irrigation works, the components of a national or regional highway network, the facilities to generate and transmit electric power are clearly amenable to a project logic which includes precise definition of goals, a careful identification of resource requirements and project benefits, and a specific time frame for project activities and termination. But building an institutional infrastructure capable of delivering project service and maintaining project viability, even in the case of physical infrastructure projects, is only marginally amenable to a project logic. And the pro-

ject approach has repeatedly been identified as a source of failure in efforts to develop viable programs for the development and maintenance of local physical infrastructure and the institutional infrastructure for delivery of community services.

This attempt to interpret recent development experience leads to a series of five generalizations with respect to program ideology and design which are essential to the viability of any large scale rural development effort:

First, rural development program activities must be organized around activities and services that have relatively well-defined technologies or methodologies and objectives. It is important to rural communities that such activities and services be simultaneously available, but not necessarily administratively integrated.

Second, rural development program activities must be organized to utilize the relatively low quality (and inexperienced) human resource endowments that are available in rural areas. They must be extensive rather than intensive in their use of high-cost human capital, at both the planning and implementation stages.

Third, effective implementation of rural development programs is, to a substantial degree, dependent on the development of the institutional capacity to mobilize the limited political and economic resources available to the disadvantaged in rural communities. In societies in which rural administration is organized with a strong control orientation, the political and economic conditions necessary for rural development will rarely be met.

Fourth, the problem of welfare in the rural areas of most developing countries remains more a problem of the level of output per person than of distribution. The search for new sources of income growth must continue to be sought in both technical and institutional change.

Finally, the structural characteristics of most rural communities, and of the societies of which they are a part, will continue to prevent them from obtaining access to many of the development opportunities which are potentially available. Rural development programs will rarely be able to mobilize the political and economic resources necessary for massive structural reform. We can expect that the development of rural areas will continue to be characterized by unequal rates of development between rural and urban areas, among rural areas, and among classes within rural areas.

What Lessons can be Drawn from these Observations?

In our judgement the case for integration in the delivery of inputs and services to local communities has not yet been effectively made - even in the case of the closely related production oriented, consumption oriented and organization programs emphasized by Johnston and Clark. What has been demonstrated in our judgement is the importance of representative local institutions - at the community, municipality and/or district level - that have (a) the political resources necessary to integrate the bureaucratic and technical services that can be made available to them and (b) access to instruments of local government that permit the mobilization of local resources to both take advantage of the bureaucratic and technical services available to them from higher levels of government and complement these services with locally initiated activities and resources. It seems apparent that local political development is a necessary condition for community or rural development.

The weakness of local representative institutions, and the ineffective articulation between local and regional or national institutions, that is observed in a large number of developing countries represents a major opportunity for development assistance. The initial understanding of community and rural development processes that stressed the importance of developing institutions capable of mobilizing local resources for development and articulating local and regional or national development efforts was valid. Pressure for quick results have directed attention in development assistance agencies from these early insights. Modest support for a research and training program of small grants that supplement local development efforts could pay large dividends, particularly in countries where national capacity for program support and management is limited by political and economic resource capacity.

Footnotes

1/ No attempt is made to present a comprehensive review of the community development, integrated rural development, or basic needs literature. Holdcraft (1978: 61, 62) identifies 18 community development bibliographies. The 1981 review of rural development literature by Moris contains over 1,300 references. The Cornell University Rural Development Committee lists over 70 research monographs and papers. Thirty titles are cited in the Michigan State Rural Development Papers and Workshop Paper Series; the AID Evaluation series included over 65 titles at the end of 1972.

2/ The weaknesses of community development have been detailed more explicitly by Korten (1980, p. 3) as follows:

> (1) Existing power structures were accepted as a given and no attempt was made to change them. Village level workers aligned themselves with the traditional village elites who captured such benefits as the programs offered. Recognizing this, the poor majority did not respond. The conflicts of interest inherent in stratified village social structures were not recognized in program designs.
>
> (2) Responsibility for implementation of community development was placed in administratively separate ministries or agencies which paralleled the established line agencies of government. Attempts were made at local levels to bring these parallel agencies under the control of the community development agency in the interests of improved coordination, but this resulted in bureaucratic conflict that was often a key element in the movement's demise.
>
> (3) Greater emphasis tended to be placed on the expansion of social services than on increasing rural incomes, and many of the social services offered seemed of doubtful value. This was not so much a function of the community development concept—the Etawah pilot project had stressed promoting agricultural production—as an outcome of bureaucratic territoriality.
>
> (4) Implementation was done through conventional bureaucratic structures in which programs and targets were formulated centrally with little regard to the willingness or capability of the people to respond; often little real participation was involved. Demands that field workers report on the implementation of dozens of centrally mandated activities seriously cut into the time available for actual work with the community. When working with the community, the field worker easily fell into the pattern of actually directing local level programs. Again, these patterns were in sharp contrast to the Etawah pilot project which had stressed the development of organizational processes that placed a premium on being responsive to community identified needs.

(5) Little was done to build independent member controlled local organizations able to solve local problems and make demands on the broader system. Furthermore, the village itself tended to be treated as a self-contained development unit with little attention given to the need to link self-governing villages into larger, more economically viable regional units.

3/ Another rural development program that attracted a great deal of attention is the Korean New Community Movement (see Section 13.4).

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CHAPTER 11

SOME LESSONS FROM DEVELOPMENT ASSISTANCE*

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In this chapter we attempt to draw from our review of macroeconomic and sector assistance experience and from the several country studies, some of the general lessons from the last 30 years of development assistance. In attempting to draw lessons from this experience we are cognizant that it will be possible to find exceptions to almost every one of the lessons. The lessons are, therefore, more appropriately viewed as working hypotheses in designing country development assistance policies than as rigid guides to be imposed on assistance agency operations.

11.1 Lessons from Macroeconomic Assistance Policy

In this section we draw primarily on Chapters 2 - 4 and on the sections dealing with macroeconomic policy in the several country studies.

Influence of donors on domestic economic policy. The process of negotiating a development assistance package between a donor or a consortium of donors and the host country involves both an explicit and implicit discussion of host country development policy. It is also influenced by donor country political and economic objectives. The issue of how much impact the policy dialogue associated with development assistance negotiations actually has on host country development policy is extremely difficult to determine. The impact may be quite large during a period when the host country is experiencing a period of economic or political stress as in Bangladesh immediately after independence, or during a period when both the donor and host governments share common political and economic objectives.

Our studies contain a number of illustrations of both effective and ineffective donor impact on host country development policy. Policy dialogue between assistance agencies and the government of Turkey during the late 1960's was very influential in bringing about policy reforms that avoided an extreme crisis (14, 16-20).* French technical assistance personnel played an important role in guiding both macroeconomic and sector economic policy in the Ivory Coast along relatively efficient lines (15, 36). At times inept or excessive donor pressure for reform have been counter-productive. India's 1966 devaluation (2, 7-8; 12, 38-39) and Ghana's 1971 devaluation (2, 7; 15, 61-63) are examples. In the case of Korea the major impact of donor-host policy dialogue came as the level of donor assistance began to decline (13, 16-19).

* References are to chapters and pages in this report. (14, 16-20) refers to Chapter 14, pages 16-20).

A number of factors appear to play an important role in the effectiveness of donor agencies' effort to exercise constructive leverage on recipient country macroeconomic policy. One is that both the donor and recipient country bring substantial professional capacity and experience to the policy dialogue. A second is that the donor agencies be in a position to provide substantial program aid during the period of transition to the new policy regime.

It is possible that during the 1980's discussion of donor influence and leverage can be carried out in a more constructive environment than in the past. Both donor and host country political leadership and constituencies seem to be more sensitive than in the past that policy dialogue and influence is inherent in the donor-recipient relationship. It is also possible that, as a result of past experience, bilateral donors may also have achieved a more sophisticated understanding of the economic costs of using the limited leverage of development assistance to pursue donor ideological or political objectives on the recipient country.

The influence of domestic economic policy on the effectiveness of donor economic assistance (see Chapter 2). The effectiveness of economic assistance has been strongly conditioned by the economic policy environment of the host country. It is now generally conceded for example that economic assistance to Korea and Taiwan was much less effective in generating income growth during the 1950's and early 1960's when these countries were pursuing import substitution policies than after they made the transition to export oriented industrial policies. (For Korea, see 13, 7-11). The contrasting role of domestic economic policy on the effective use of development assistance is illustrated in a particularly striking way in the case of Ghana and the Ivory Coast (Chapter 15). Following independence, Ghana chose a policy of socialism and state control. The Ivory Coast adopted a more

modest role for the state - viewing its role as influencing and guiding rather than replacing private sector decision making.

It would be a mistake to view the contrast between Ghana and the Ivory Coast as simply too much or too little planning. Rather, it was a contrast between a misguided attempt to coordinate and control the supply and demand of private goods in Ghana in contrast to a program of investment to supply the physical infrastructure and services that would enhance the productivity of the private sector in the Ivory Coast. In addition, Ghana's failure to correct its increasingly overvalued exchange rate distorted its domestic infrastructure investments and led to excessively high capital output ratios in both infrastructure, agricultural and industrial development projects (15, 35-37).

The conclusion that the effectiveness of macroeconomic or program assistance in generating economic growth is severely weakened in the absence of "correct" economic policy on the part of the recipient country poses severe policy problems for the donor community. A variety of assistance activities can be effective in an environment characterized by a favorable policy regime and substantial administrative capacity. The absence of these conditions severely limits the range of effective assistance activities. Since these deficiencies are often more severe in the poorest countries there may be strong reasons for development assistance even if it is less than fully effective. In such situations assistance should focus on selected sector development activities that will establish the foundation for growth at a time when it becomes politically and economically feasible for the recipient country to adopt more growth oriented development policies. This issue is discussed in greater detail later in this chapter.

The contribution of development assistance to planning and policy reform. Improvements in development policy analysis at the macroeconomic and sector levels and of project planning and implementation has been an important objective of both multilateral and bilateral development assistance

agencies. The World Bank has given major attention to the development of cost-benefit analysis as an instrument of project planning. It has also directed substantial resources to the training of development agency personnel in the theory and method of cost-benefit analysis (Chapter 5). The Bank has also sponsored the development and implementation of large multi-sector general equilibrium models for uses in macro and sector policy analysis and planning (Goreux and Manne, 1973). The USAID has sponsored the development of sector modeling and policy analysis capacity in a number of countries (Rice and Glaeser, 1972; Langham and Retzlaff, 1982).

Since there have been few attempts to measure the value of such activity, our judgements in this area remain somewhat impressionistic. We have observed, however, that project reviews in this area have tended to focus more on process rather than on product. In some countries large scale multi-sector or sector modeling efforts have absorbed a substantial share of the professional manpower that had the skill to perform quantitative policy analysis. Some of these modeling efforts have, because of their large appetites for data, contributed to the strengthening of national statistical systems. It is also our impression that the results of smaller scale econometric modeling of particular sectors, often directed to answering specific policy questions, have made more efficient use of professional capacity and have been used more effectively in policy analysis than the larger scale modeling efforts.[1/] In the future attention should be given to a more definitive analysis of the impact of assistance in developing policy analysis and planning capacity.

The influence of assistance on national economic growth (see Chapter 3). The macroeconomic impact of development assistance represents a continuing theoretical and empirical puzzle. It seems clear that there are relatively few instances where the flow of development assistance has been large enough to significantly influence aggregate growth rates. This conclusion holds even if rates of

return to the resources transferred in the form of development assistance are several multiples of the rates of return that the same investments would earn in the country providing the assistance. It is possible that the literature we have reviewed has underestimated the impact of development assistance on growth. But the evidence to support a conclusion that development assistance has accounted for major intercountry growth differences is not available (3, 8-11).

Generalizations regarding the effects of economic assistance on national economic growth are complicated, however, by the complex economic and political objectives of both the donor and the host country (15, 6-7; 13, 16-18; 14, 15-20). Where donor country political objectives have dominated, economic development objectives as in the case of U.S. assistance to Korea in the early 1950's and recent U.S. assistance to Egypt, expectations regarding impact on economic growth should be relatively modest. It seems apparent that this conflict in the objectives of development assistance represents a major source of the difficulty in attempting to draw generalizations regarding the impact of development assistance on growth rates.

A second reason that it has been so difficult to develop empirical evidence on the impact of development assistance on national growth is that except for short periods, the flow of concessional development assistance has generally been small compared to the sum of national resources and commercial resource flows available to sustain development (12, 7-19). We are able to identify cases where aid flows have contributed importantly to initiating or sustaining the momentum of growth at critical periods. India between 1956 and 1967 and Korea in the first decade after World War II are examples. But there are also failure cases such as Ghana in the 1960's and Tanzania in the 1970's.

There is evidence from specific country cases and from the sector studies that development assistance has been most effective in generating growth when it has been focused in those investments that enhance productivity growth. Investment in education has been one such investment (13, 41-42; Chapter 7). Investment in agricultural research has been another (12, 69-72; 9, 9-22). The development of the professional capacity for investment planning and for economic policy is another (13, 49).

11.2 Lessons From Assistance for Sector Development

In this section we attempt to draw some of the lessons for sectoral development assistance from Chapters 5 through 10. We also draw on the discussion of sectoral and subsector assistance in the several country studies (Chapters 12-15).

Planning and evaluating assistance to physical infrastructure development (Chapter 6). During the 1950's and 1960's large scale investment in transport facilities (roads, railroads, ports and airports) and multi-purpose (power, flood control, irrigation) resource development projects occupied a very prominent place in both bilateral and multilateral development assistance portfolios. In many countries such projects became a burden on the development process. We have presented examples of such projects in the Ghana, Turkey, and India case studies (15, 38-42; 14, 22-23). A number of factors contributed to the low returns realized from such projects. Project cost overruns were often substantial. The time required to complete the projects was often much longer than projected in the planning studies. The technology and scale of such projects were often incompatible with the level of technological development in the rest of the economy. Failure to consider the implications of exchange rate distortions led to investments that were excessively capital intensive or entirely inappropriate. Returns to infrastructure investment were delayed and reduced by policy regimes that were not able to take full advantage of growth opportunities.

Disappointment with the flow of benefits led to severe criticism of large infrastructure projects. In the Seyhan project in Turkey, for example, the production impact of the land and water development programs of the 1950's and 1960's did not exert a major impact on production until the 1970's (14, 35-36). In Korea the payoff to transportation investments made during the

1950's was relatively low until the period of rapid growth in the late 1960's and 1970's (13, 33-34). In India, returns on large infrastructure and industrial projects were dampened by failure to invest in appropriate technical education (12, 21). The impact of irrigation investment has often been delayed because of failure to develop on-farm water delivery systems and institutions to manage water delivery systems. In the case of Engli Steel Mill in Turkey, the feasibility study used anticipated domestic prices rather than international prices in the project evaluation. The resulting price of tin plate was so high that the tin plate cost of a can of tomatoes in Turkey exceeded the retail price of a comparable can of tomatoes in Germany (14, 22-23).

Over the last several decades both technical and economic aspects of project planning and evaluation have become more sophisticated. The World Bank has made major contributions to the methodology and practice of cost benefit estimation. Planning and implementation capacity in the aid recipient countries has improved. The worst errors of the 1950's and 1960's are no longer being made. And a broader and more balanced portfolio of projects embracing technical and professional training, research, and development, and others is, in many countries, overcoming the lack of the complementary inputs that have dampened the returns to infrastructure project investment.

It now appears possible to again take a more positive view of lending for infrastructure investment. Furthermore, it appears likely that in a number of countries the enhanced capacity for infrastructure planning and development means that the assistance agencies will be able to devote less attention to the detail of project planning and implementation. This should free their staffs to give greater attention to the considerations of macro and sector policy that will influence the economic viability of infrastructure project investment.

Investment in education as a source of economic growth (Chapter 7). Both the development theorists and the development assistance agencies were slow to recognize the importance of investment in education, and in other forms of human capital, for economic growth. In the earlier literature the dominant view was that education and health programs should be considered primarily as enhancing consumption rather than as productive investments. It was generally held that such programs should be subordinated to the goal of expanding production until the country had achieved a substantial increase in the level of per capita income.

As evidence indicating high rates of return to education began to accumulate perspectives began to change. The U.S. development assistance agency made major investments in university development in the 1960's. The World Bank made its first educational loan in 1963. By 1980 it had financed over 200 educational development projects. Initial emphasis was placed primarily on scientific and technical education because of its obvious complementarity with infrastructure, industrial and agricultural development projects. Continuing research has, however, indicated that the highest rates of return are often at primary level and decline as the educational level increases. Evidence from a large number of studies suggests that returns at all levels of education are substantially higher than the rate of return levels used to justify investment in many other project areas by development assistance agencies (7, 18-22).

There remain a great many unanswered questions that have not been resolved. Some of these questions relate to the relevance and efficiency of formal primary and secondary education in developing countries. There is, as yet, little evidence that the development assistance agencies have been effective in attempts to reform primary and secondary

education. This stands in sharp contrast to the contributions that both private and official assistance has made to the modernization and reform of higher education in a number of countries.

Assistance to health and family planning. There has also been growing recognition among development assistance agencies of the potential for high rates of return in other areas of human capital investment. We have not attempted to review the history or effectiveness to development assistance in the area of health services. We have reviewed assistance to family planning (Chapter 8).

While it is premature to draw many lessons from this experience, it does appear that assistance for family planning, primarily during the 1970's, has had a major impact on the development of national capacity for population planning in a number of developing countries. It has also begun to have a significant impact on the development of family planning programs, particularly in a number of Asian countries. But it is only in the last few years that assistance for family planning is beginning to have a significant impact on fertility rates.

Our review of development assistance to Turkey suggests that attempts to integrate health and family planning programs with literacy programs resulted in increased effectiveness of both programs (14, 54).

Assistance for the development of financial institutions. We did not devote a major chapter to the development of financial institutions. However, our chapters on development assistance to India (12, 44-49) and the chapter on assistance to agricultural production (9, 51-65) are useful in interpreting the results of assistance for the development of financial institutions.

In India, as in a number of other countries, both the USAID and the World Bank contributed to the establishment of several public and private

development financial institutions. These institutions have become important sources of development finance. They have, however, not developed into effective institutions for mobilizing private domestic savings. Most of their resources continues to come from external assistance or from government sources. A comparative study (12, 48) indicates that the Indian experience is characteristic of development banks in other countries. The lending policies pursued by such institutions, particularly lending at below market rates of interest, have been a barrier to effective mobilization of private savings.

Efforts to assist in the development of agricultural credit institutions parallels the experience of industrial development credit institutions (9, 52-65). Such institutions have been effective in making credit supplied by donor agencies and national governments available to farmers. They have made important contributions to the support of commodity production campaigns. Studies of the experience of such programs also indicates that their development as effective credit institutions has been limited by an almost universal tendency to make credit available at below market rates of interest. The effects of such policies have been widely documented: (a) subsidized credit is frequently diverted from production to consumption uses and from agricultural to the non-agricultural investments; (b) when credit is available at below market rates of interest it must be rationed. When it is rationed it tends to flow to the larger borrowers. (c) The wedge between market and institutional interest rates has made it difficult for rural credit institutions to become effective in mobilizing rural savings for development.

In view of the substantial body of evidence on the deficiencies of subsidized credit programs that extend back over several decades, the donor community must bear a heavy responsibility for contributing to the design and support of credit policies that have imposed such a heavy burden on the viability of developing country financial institutions.

Returns to Agricultural Research (9, 9-22). Agricultural research has consistently achieved among the highest rates of return available to either national governments of development assistance agencies. These high social rates of return reflect substantial underinvestment in agricultural research. Underinvestment by both the private and public sector reflects the large spill-over effects which diffuse the gains from the public and private suppliers of technology to producers and from producers to consumers.

Sustained growth in agricultural production capacity requires a careful articulation of public and private sector support for technology research and development. The development of public sector institutions capable of training agricultural scientists and technicians is essential. Countries that have been successful in sustaining rapid technical change in agriculture have found it necessary to develop sufficient public sector capacity in agricultural research to enable them to develop and adapt agricultural technology suited to their own resource and institutional environments. India's relatively sophisticated agricultural research system has been an important factor enabling India to confound much of expert opinion and achieve close to self-sufficiency in food grain production in the late 1970's and early 1980's. Assistance by the U.S. aid agencies and by private foundations played an important role in strengthening India's capacity in agricultural education and research (12, 69-72).

Those countries that have attempted to rely primarily on borrowed technology have rarely developed the capacity to adapt and mange the borrowed technology in a manner capable of sustaining agricultural development. The private sector has generally been more effective in the development and adoption of mechanical and chemical technology than of biological technology

for crop and animal production. In contrast, the private sector has in most countries, been relatively efficient in embodying new knowledge in technical inputs (machines, fertilizer, pesticide, seeds) and in marketing agricultural supplies than the public sector or parastatal organizations.

Assistance to State Enterprise in Agriculture. Development assistance to state managed agricultural production and marketing agencies has rarely represented an efficient use of the funds available for development assistance. The decision by Ghana to emphasize large scale state farms rather than to strengthen support for small scale agriculture was particularly ineffective (Chapter 15). State and cooperative enterprises tend to be intensive in their use of technical and managerial capacity. But even in countries like India, which is reasonably well endowed with such capacity relative to other countries, experiments with production cooperatives have been written off as a failure and cooperative marketing and distribution systems have generally not lived up to expectations.

Integrated Rural Development Programs (Chapter 10). The implementation of community and integrated rural development programs has been a continuing challenge and frustration to development assistance agencies. The development of rural communities represented an important program thrust of both private and official development assistance in the 1950's. The integrated rural development thrust of the 1970's represented a renewed commitment to these same objectives. Yet the gap between the hopes for such programs and program accomplishments has remained large.

Our review of the literature leads us to the conclusion that one of the major sources of disillusionment on the part of donors with the results of assistance to community development is due to a lack of consistency between the dynamics of community development processes and the imperatives

of donor assistance (see Figure 10.2). Successful rural development programs tend to be (a) small in geographic scope and slow to implement; (b) intensive in demands on professional and administrative capacity; (c) difficult to assess within the framework of conventional cost-benefit analysis; and (d) difficult to monitor and inspect. Donors on the other hand are under pressure to undertake large projects with measurable short-run accomplishments. They are more comfortable in dealing with projects that (a) are capital and import intensive; (b) that are amenable to cost-benefit or cost-effective project analysis; and (c) that are easy to monitor and evaluate.

A second source of disillusionment has been the difficulty of achieving consistency between the local self help and resource mobilization philosophy of rural development programs and the objectives of donors to achieve measurable improvements in basic human needs indicators. This has led to a program drift toward delivery of services to local communities and a neglect of the economic and political reforms necessary to achieve effective mobilization of community resources. This in turn tends to lead to a decline in program performance when donor resources are phased out. Improvements in the level of services were often not complemented by growth in the community resources necessary to sustain the services. There is now relatively good documentation, much of it from USAID program evaluation studies, that success in local resource mobilization is an exceedingly important factor in accounting for continued program viability following the phasing out of donor support.

The fact that development assistance agencies have found it difficult to achieve success in programs designed to enhance the quality of life in rural areas does not lead us to a conclusion that there is an inherent

conflict between growth and equity objectives in rural development. Indeed, the literature suggests, and we concur, that these objectives are potentially highly complementary. The constraint on the effectiveness of development programs has been due to the complex interaction between political and economic development at the local level that is required to generate effective demand and to sustain that demand.

Food Aid as Development Assistance. We have not, in this report, given major attention to issues of food aid. The issue of food aid has, however, been discussed in several of the country studies (13, 24, 29, 44-45; 12, 72-78).

Food aid has declined both as a share of agricultural commodity trade and as a share of development assistance. And, U.S. food aid has declined from almost 90 percent of DAC food aid to little more than half between 1965 and 1980. Yet, because of the diverse motives that sustain its use (surplus disposal and humanitarian assistance) and its ambiguous impact on recipient countries (a net transfer of resources and a disincentive to agricultural development) it has remained a source of controversy both in the countries that supply and receive food aid.[2/] The large fluctuations in U.S. food assistance have reflected the diverse objectives of food aid donors. In the late 1960's and early 1970's, U.S. food aid averaged about 13 million tons of agricultural commodities per year. U.S. food assistance declined sharply during the period of food scarcity and high prices in the early 1970's. In 1973, only 7 million tons were shipped and in 1974 the total was only 3 million tons.

Food aid has been widely criticized and defended (Isenman and Singer, 1977; Nelson, et al, 1981). But, there is very little disagreement that as an income transfer in kind it tends to be less valuable to the recipient country than a financial transfer. How much less valuable depends on its fungibility.

And this in turn depends on the institutional arrangements under which it is handled on the recipient country. There is also general agreement that in the past the disincentive effects of food aid have been greater and the development assistance impact has been smaller than it might have been if food aid programs were designed more carefully to achieve development objectives. The continued availability of food aid does raise the question of whether in the future policies and programs can be designed to use it more effectively for development assistance. Despite the deficiencies of food aid as an instrument of development the political pressures within the United States and several other developed countries seem to assure that it will remain an important part of both bilateral and multilateral assistance in the foreseeable future.[3/]

There have been a number of innovative suggestions for the use of food aid in programs of price stabilization to offset the effects of crop shortfalls (Johnson, 1977). The suggestion has also been put forward to the use of food aid to support human capital formation through nutrition, health and schooling programs (Schuh, 1981). As of yet, however, few assistance bureaucracies in the developed countries or agencies responsible for managing food aid in the developing countries have displayed great imagination in the design and implementation of such programs.[4/] There have been moderately successful programs in Tunisia, India, Sri Lanka and some other countries. These programs have been more effective in meeting equity than other development objectives. It will be difficult to assess the potential effectiveness of the suggestions that are being made to make food assistance a new effective instrument of development until some experience is gained in the implementation of such programs.

In our judgement, the contribution of food aid programs will be greatest under two circumstances. One is when food assistance can respond promptly

to food needs resulting from natural disaster or political disruption. The second is when a developing country's own programs in the field of health and education identify an effective use of support in the form of food; a third is under conditions in which food aid is a fully fungible resource.

11.3 Some Development Assistance Policy Questions and Issues

In the previous sections of this chapter we identified a number of rather clear-cut "lessons" from development assistance. In this section we raise the question - what development assistance activities are feasible in an unstable economic and political environment?

This issue is important because in a number of the poorest countries both the political and economic resources available to national governments are so limited that they are directed primarily to the short-run objectives of regime maintenance rather than either political or economic development. The answers we are able to give to this question is even less definitive than those suggested in the earlier sections of this chapter.

In this section we also raise some questions about the effectiveness of donor assistance approaches to support for institutional development. Finally, we indicate our concern about some of the major limitations of the literature on development assistance impact.

Assistance in an Unstable Environment. One of the most difficult problems of development assistance policy is how to provide effective assistance in an unfavorable economic and political environment. Should the development assistance community simply conclude that where the environment for development assistance is as adverse as in Ghana - or Chad or Haiti - that assistance should be discontinued until a political and administrative environment emerges that is more conducive for efficient use of development assistance?

Our review of the experience in the five case studies and of the literature from a number of other countries (Brokensha, Warren and Werner, 1980), leads us to a view that there are a number of areas where it is possible for development assistance to be reasonably "policy proof" - where it can make an effective contribution in spite of the limited effectiveness or

even perversity of the policies pursued by national governments. These activities fall under the broad headings - investment in human capital and community infrastructure.

One point that comes across strongly is the high rates of return to investments in human capital, particularly education and health, under a wide range of circumstances. It is quite clear that education represents a high priority investment. There are few development success stories, either in agricultural or industrial development, in societies in which a large share of the population is not both numerate and literate. There is also evidence, though perhaps less strong, that the loss of productivity due to poor health, can be very large even in poor societies. One of the major costs of poor health are the high birth rate requirements to offset high death rates under conditions of high infant mortality.

A second area of investment that is essential for both rural and urban development is the development of communal institutional and physical infrastructure. A network of farm to market roads is essential if even the least developed area is to move beyond local self-sufficiency in commodity production. Adequate water supply and water disposal is essential to the achievement of even minimal improvements in health. The development of institutions of local government that enable communities to mobilize their own resources for development and that can induce efficient delivery of bureaucratic services are essential.

Programs to achieve the minimum levels of investment in human capital and community infrastructure to sustain development do not need to draw heavily on external resources. Institutional innovations that provide incentives for local units of government to mobilize indigenous labor and material resources should be encouraged. With support for institutional development or reform most of the resources needed to support such activities

can be mobilized at the local or regional level. Such programs are usually regarded as desirable even by national governments which do not have the bureaucratic capacity or which are too corrupt to effectively implement larger scale agricultural or industrial development projects. In many cases such programs may be more effectively carried out through either expatriate or indigenous private voluntary organizations than directly administered by bilateral or multilateral assistance agencies.

In addition to the immediate benefits there are also substantial longer term benefits from strengthening the capacity of provincial and local institutions to manage and sustain investments in human capital and community infrastructures. Development of local institutional capacity can also contribute to the development of political, bureaucratic, and technical skills that are necessary for more efficient and responsive national political regimes. When a more effective national regime does emerge the local institutional infrastructure needed to sustain rapid development is in place - as in Korea after the fall of the Rhee government. Finally, considerable experimentation is often necessary in order to evolve viable institutions capable of sustaining the necessary investment in human capital and community infrastructure. A period of trial and error is often necessary in order to develop systems that are sustainable in terms of community economic resources and that are compatible with local cultural endowments.

Reform of donor assistance policies. The issue of the relative effectiveness of project and program aid has been a continuing issue both among aid donors and aid recipients. This review suggests that program aid can be an effective way to support countries that are making adequate attempts to change their policies, particularly in those countries that have substantial capacity to manage their own development efforts. Project

aid is most appropriate for physical infrastructure development. But neither traditional program aid or project aid approaches are fully effective in those least developed countries which have little capacity for program management. Nor have they been effective in providing support for long-term institutional development. The development of institutional capacity in areas such as health, education, agriculture and community development have long gestation periods. They are intensive in their demands on the development of professional capacity. They require sustained support that extends over a generation or more. New methods of combining the flexibility of program support with effective technical assistance and sustained financial support must be sought.

The difficulty of providing effective sustained support for institutional development within the traditional development assistance project mechanism can be illustrated in the case of agricultural research. In a number of countries assistance for the development of national agricultural research systems has contributed to the rapid development of professional capacity and facilities. But the period of rapid development has too often been followed by the erosion or collapse of research system capacity when external project support has declined. Similar examples could be drawn from other areas.

There is now a substantial body of literature that suggests that the project approach has, under a variety of circumstances, contributed to a cycle of development and erosion of institutional capacity.[5/] The reason is that external project assistance often provides an alternative to the development of internal political support. National program directors have frequently found that the generation of external support requires less intensive entrepreneurial effort than the cultivation of domestic political support. Development assistance agencies have given too little attention

to the issues of how to provide development assistance in a manner that will strengthen rather than weaken the domestic political support for the program in which donors place high priority in their assistance efforts.

Evidence on development assistance impact. The final lesson that we draw from our review of the development assistance impact literature is the lack of solid empirical evidence on the impact of development assistance.

The evidence is most clear in those areas where both development theory and experience would lead us to expect the lowest rates of return - in the areas of physical resource transfers and capital investment. The evidence is weakest in those areas where development theory and personal experience lead us to expect the highest rates of return. These are areas such as technical assistance, human resource investment and institutional infrastructure development.

We are not, for example, able to document the impact of the very large numbers of professionals and scientists that have been trained in the developing countries on the development of their own countries. Yet we are aware, when we visit the countries that have made substantial progress, that many leaders in the private sector, in higher education and in government service have received support for their training through development assistance.

We are forced to conclude that the impact of development assistance represents a major gap in our knowledge.

Footnotes

1/ We have in mind analysis of the type pursued in Tolley, Thomas and Wong (1982).

2/ In the U.S. these ambiguities were inherent in the original legislature mandate for food aid. In the Agricultural Trade and Development Act of 1954 (PL 480) the original Act consisted of three titles: Title I, local currency sales; Title II, government to government emergency food aid; and Title III, domestic food distribution, foreign food distribution and barter. When the Congress extended the Act in 1966, it directed the President to place greater emphasis on using food did to encourage food production in the developing countries. In 1975, Congress mandated that a larger share of food aid should be used for development and in 1977 the Act was amended to place greater emphasis on meeting the food needs of the poorest people in developing countries.

3/ The primary sources of multilateral food aid is the International Emergency Food Reserve (IEFR) organized by the FAO World Food Programs.

4/ Sri Lanka has been an important exception to this generalization (David I. Steinberg, et al, 1982).

5/ Some of this literature is summarized in Ardilla, Trigo and Pineiro (1981) and in Ruttan (1982).

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THE DEVELOPMENT IMPACT OF ECONOMIC ASSISTANCE TO LDCs

VOLUME II

prepared

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* This chapter was prepared by Vasant Sukhatme.

CHAPTER 12

ASSISTANCE TO INDIA

Introduction and Overview

India became an independent nation in August 1947. Even before attaining independence, the Indian intellectual and political leadership had become convinced of the necessity for economic planning as a means for solving the major economic problems of the country. In 1950, the Government of India established a Planning Commission. The main objective of economic planning in India was to attain a rapid rate of growth of income in order to achieve social justice. The other objectives of planned economic development, stated in the First Plan document and reaffirmed subsequently and frequently, included national self-reliance, the reduction of inequalities in income and wealth, and the reduction of unemployment. India's First Five Year Plan began in 1951, and since then a series of plans have strongly influenced the overall pattern of growth in India.

At the time when India's First Plan began, the population of India was about 360 million. India's per capita income and literacy and education levels were among the lowest in the world. Its schools and educational facilities, roads and rail transport facilities, electric power and irrigation capacity, credit and finance institutions, and other elements of infrastructure were at a low level of development. Its total foodgrain production was estimated to be about 56 million tons, and crop yields in India were among the lowest levels observed in any country of the world. In 1951, India's consumption of chemical fertilizers

was about 70,000 tons, that is, less than 1 kilogram per hectare of gross sown area. The domestic production of fertilizers was about 18,000 tons, and the production of other modern agricultural inputs, especially pesticides and tractors, was nonexistent and indeed was not to begin for nearly another decade.

Over the past thirty years, much progress has been made toward solving some of India's critical economic problems. Between 1951 and 1977, the Indian economy recorded an average growth rate of 3.65 percent per year. During the first five years of planned growth, net national product at constant prices grew at 3.7 percent per year. This slowed to a rate of growth of 3.1 percent per year during the Second Plan period and slowed further to a rate of 2.5 percent per year during the period 1961 to 1966 (Chaudhuri, 1979: 52). It is important to note that the unprecedented droughts of 1965-1966 and 1966-1967 reduced the overall rate of growth of the economy. The excellent agricultural harvest of 1967-1968 spurred overall economic activity, and between 1967 and 1971 the economy grew at an average rate of over 4.5 percent per year. A fall in agricultural production in the early 1970s again slowed economic growth. But between 1974 and 1977, the economy again grew at a rate above the long-run rate of growth of 3.65 percent (Raj Krishna, 1980: 78).

The relatively low rate of long-run growth has meant a very slow increase in per capita income since population has continued to increase. Between 1951 and 1961, the population of India grew at nearly 2 percent per year, and this rate in fact accelerated to 2.25 percent per year between 1961 and 1971 (Bhagwati and Srinivasan, 1975: 7). While the Indian economy grew at more than twice the rate recorded in British

India between 1900 and Indian independence, the rate of growth since planning began has been not only less than the targeted growth rates but also lower than growth rates achieved in most other countries. As Raj Krishna has pointed out, "in as many as 90 nations out of 121 the rate of growth of the gross national product per capita exceeded that of India for the period 1960 through 1977" (Krishna, 1980: 78).

India remains today a desperately poor country. Krishna has characterized India as "a case of stunted, sub-optimal growth, burdened as it is with the world's largest single mass of poverty and unemployment" (Krishna, 1980: 78). While much of the resources and knowledge needed to eradicate poverty exist, the failure to increase overall industrial and economic growth is "man-made" and "managerial" (Krishna, 1980: 85).

This summary indictment of Indian economic performance does not ignore, or even minimize, the tremendous changes that have occurred in the Indian industrial economy and in the agricultural sector over the past few decades. A wide range of industrial capital goods is now produced in India. For example, it has been noted that between 1955 and 1978 Indian imports fell to a level of between 2 and 21 percent of total supply in 21 industrial sectors and exceeded 25 percent of the total supply in only 6 industrial sectors (Krishna, 1980: 78). This change in the industrial structure has been the outcome of basically import substituting, inward-oriented policies that India has pursued over the past. But it does not mean that the full implications of the import substituting policies were understood by the policy planners in India or, for that matter, by the aid givers abroad.

In the massive agricultural economy of India there have been phenomenal changes. It is not often realized that foodgrain production in India has shown a sustained upward trend. Between the beginning of planning in India and 1977, foodgrain production doubled. The rate of growth of total foodgrain production achieved during that period was 2.8 percent per year, which ranks favorably with the growth rates achieved in the developed world (Sanderson and Roy, 1979: 2). However, since population also rose, the average yearly increase in per capita production was only 0.6 percent. The history of agricultural production in India seems to be characterized by certain periods of rapid growth and other periods of relative stagnation. Simultaneously, there have been periods of optimism and of despair at the foodgrains production performance and future prospects in India.

When India looks ahead on the basis of agricultural production trends from the recent past, the outlook for agriculture is promising. The amount of land that can be brought under irrigation in the next two decades can be increased to almost two-thirds of India's present cropped land surface. The yields that have been realized under various national demonstration programs are many times the actual average yields, especially for rice, corn, and millet. India has now a well-run agricultural research and extension system with a high-caliber staff. And, as Raj Krishna points out, "for India, the gloomy prediction of a growing gap between food demand and food supply, a prediction that some international agencies publicize regularly, seems in fact to have no basis" (Krishna, 1980: 83).

In this transformation of the Indian economy, foreign assistance has played an important role, but India itself provided the great bulk

of its own development requirements. Foreign aid to India was insignificant during the First Plan period:

> The 'era' of aid began with a distinct jump at the beginning of the Second Plan, grew rapidly to a peak at the end of the Third Plan, held that peak briefly with the drought-induced increase in food aid, and then declined rapidly. Thus, large-scale foreign aid as development assistance was concentrated largely within the ten years of the Second and Third Five Year Plans. (Mellor, 1976: 218)

After this somewhat lengthy introduction and overview of the Indian economic scene, the primary objective of this essay may be stated. The objective is to review the assessments that have been made of various aspects of the entire development aid activity in India. We will examine issues related to the magnitude of economic assistance to India; the terms and conditions of economic aid; the types of aid, that is, whether project aid or non-project aid or aid in the form of agricultural commodities; and the role that foreign assistance in general has played in the overall economic development policies of India. The history of aid to India will be examined. We will review the assessments of the impact of aid on rural development strategies that India has pursued, beginning with the Community Development program of the early 1950s and the Intensive Agriculture District Program of the 1960s. Food aid constituted a major part of the development assistance to India and the impact of such aid has been a much studied and controversial topic, and we will review those studies. The impact of development assistance on the growth and maturation of the Indian agricultural research establishment, now generally recognized as among the major national agricultural research systems in the world in terms of resources employed and level of scientific endeavor, will also be reviewed. The primary purpose of this exercise is to understand the nature of the aid program, pay close

attention to those facets of the aid program that have been characterized as successes, and draw some general conclusions.

For the most part, the works and references cited in this review are American or British or, at least, published outside India. The literature that has been surveyed was mainly restricted to articles published since 1970 and cited in the American Economic Association's Index of Economic Issues and the Journal of Economic Literature. Some well-known works published prior to 1970, notably the writings of I. M. D. Little (1965), Edward Mason (1964), Raymond Mikesell (1968), and P. T. Bauer (1961) were also surveyed. But no exhaustive search was made for articles on economic aid in the professional Indian literature published in India. It may, however, be noted that, not entirely unexpectedly, the most perceptive observers and commentators on the economics of aid have been several internationally-known Indian economists. The works by these Indian economists have been published outside India under the auspices of the Organisation for Economic Cooperation and Development (OECD) and the National Bureau of Economic Research (NBER), the latter under an AID financed project. It is also noteworthy that just as the U.S. aid program in India dropped off sharply in the late 1960s to early 1970s, the economic assessments of aid to India in the professional literature also dropped off after a certain time lag.

12.1 History of Aid to India

The U.S. government, under its Point Four program, provided its first technical assistance to India in 1950, even before formal economic planning began in India. In 1951, the U.S. provided an emergency wheat loan of about $190 million (repayable in dollars) to help alleviate food shortages caused by widespread crop failures in 1950. But the beginning of a broad-based program of U.S. economic and technical assistance to India can be dated to the Indo-U.S. Technical Co-operation Agreement of January 1952 (Hendrix and Giri, 1970: 142). Under this agreement and supplemental agreements extending to 1970, the U.S. provided economic and technical assistance to more than 150 projects in agriculture, industry, transportation, education, health, and other fields.

The early observers of aid and the early participants in the aid effort in India usually cited various reasons for aid to India. Among these was the sheer size of India, its great poverty and low levels of living of the vast majority of its population, its high mortality rates, and its low education levels. Through much of this literature there exists a recognition of the political aspects of the aid program in India. For example, Edward Mason, writing in 1964, says that " the principal purpose of foreign aid in my view is to promote the security of the United States and, insofar as our security is dependent on theirs, foreign aid is an essential part of a mutual security policy" (Mason, 1964: 33). Again, as recently as 1975, Valentine Belfiglio, in his survey of U.S. grants and credits to India, says the following: "American officials had looked in awe at the absorption of backward and undernourished China by communist forces in 1949. To strengthen and keep in power the friendly Indian

government, in 1951 the U.S. gave increased economic assistance to that impoverished nation. American aid was also given to obtain the goodwill of the Indian people and for humanitarian reasons." (Belfiglio, 1975: 418). These political overtones have also been noted by various other authors, including I. M. D. Little (1965), and, as we shall see momentarily, clouded the assessments of the 1966 devaluation of the Indian rupee.

From a relatively modest beginning at the start of India's First Plan, India received more aid from more countries than any other developing country. Foreign aid to India during her First Plan was small, small relative to absolute amounts of aid during subsequent plan periods, and small in terms of its contribution to gross investment in India relative to subsequent plans.

During the First Plan the amount of foreign aid from all donors utilized by India was Rs 1.94 billions, which was a little less than 6 percent of the total investment in India during that period (U.S. Embassy in India, n.d.: 19). However, from data provided by Mellor, who defines net foreign resource transfers to India as the excess of imports over exports, the arithmetic mean of net foreign resource transfers as a percentage of gross investment in India during the five years of the First Plan period was 9.98 percent, with the variables denominated in dollars (Mellor, 1976: 219).

The above paragraph illustrates one difficulty encountered in this survey of the role of foreign aid in Indian economic development. In studying the amount of aid authorized and/or utilized by India, various authors provide data on the magnitude of aid either in dollars or in rupees. Bhagwati and Desai (1970) and Bhagwati and Srinivasan (1975) provide data on foreign aid in rupees and cite as their source the

Government of India's Economic Survey publications. Streeten and Hill (1968) also provide data in rupees but they cite as their source the Indian central bank, the Reserve Bank of India. But they also provide some data in dollars citing the World Bank as the source of the data. Harberger (1970) provides data in dollars using AID publications. Narain and Rao (1963), in an often-cited study on foreign aid and India's economic development, prepared for UNESCO, provide data in rupees but do not cite any sources for their data. However, they are careful to point out that "it is difficult to give a completely unambiguous and meaningful total of aid that has been received from diverse sources and in diverse forms" (Narain and Rao, 1963: 1). The principal reason for this is that the use of official rates of exchange between the Indian rupee and the currencies of the various donor countries may be inappropriate.

In the First Plan aid authorizations were made by 7 countries and by the World Bank. The 7 countries were (in order of size of authorization) the U.S., U.S.S.R., Canada, Australia, New Zealand, Norway, and Britain. Insignificant amounts of U.S.S.R. and U.K. aid were utilized and the U.S. share in total aid utilized by India was nearly 70 percent. (U.S. Embassy in India, n.d.: 19). During the Second Plan period, aid authorizations were provided by 13 countries and this had increased to 19 countries during the Third Plan. With the increased number of countries contributing to India's economic development, the share of the U.S. in the total aid utilized by India fell to 54 percent during the Second Plan, but rose to nearly 60 percent during the Third Plan. The share of the Soviet Union, which was insignificant during the First Plan period, had increased to just over 5 percent in the Second Plan and to over 8 percent during the Third Plan.

At least one outcome of India's receiving aid from several countries was the adoption of a wide range of techniques and methods in various industrial sectors such as metals and machinery production. For example, in steel making, the U.K., West Germany, and the Soviet Union each financed steel plants in the public sector (Bhagwati and Desai, 1970: 210). Unlike the industrial sector, however, there was some specialization in aid to India for the development of the agricultural sector. While the U.S. and, to some extent, Canada, provided both technical assistance and loans and grants to specific programs in agriculture, as well as financing imports of fertilizers and foodgrains, development assistance from Australia, New Zealand, Denmark, Switzerland, the Netherlands, and Hungary was largely in the field of animal husbandry, including dairy development. Development assistance from the Scandinavian countries (Sweden, Norway, and Finland) was largely confined to the fishery and forestry sectors. West Germany made significant contributions to the area development program, Japan to the agricultural extension service, and the U.S.S.R. to a large mechanized farm and to the seed industry. India also received sizable assistance from non-official sources such as the Ford and Rockefeller Foundation. The bulk of Ford Foundation assistance went for the extension program of IADP, while the Rockefeller Foundation assistance was directed to the strengthening of agricultura research facilities in India (Govt. of India, National Commission on Agriculture, 1976: 667-68).

Table 12.1 from Mellor provides data on the magnitude of net foreign resource transfers to India from the first year of the First Plan to the early 1970s (Mellor, 1976: 219) and presents data on foreign resource transfers as a percentage of India's net national product, gross investment,

Table 12.1 The relative importance of foreign resource transfer, India, 1951-52 to 1973-74

Year	Net foreign resource transfer* Total (million U.S. $)	Net foreign resource transfer* Per capita (U.S. $)	Net foreign resource transfer as percent of National income †	Gross investment	Central government expenditures	Imports
1951-52	335	0.92	1.6	16.1	23.7	18.2
1952-53	193	0.52	0.9	18.0	16.6	13.7
1953-54	87	0.23	0.4	5.6	5.8	7.2
1954-55	132	0.34	0.7	5.9	7.2	9.6
1955-56	123	0.32	0.6	4.3	6.0	9.0
1956-57	590	1.48	2.4	14.9	26.0	31.3
1957-58	841	2.08	3.5	23.8	27.2	38.7
1958-59	692	1.68	2.6	18.9	22.3	36.6
1959-60	675	1.59	2.5	18.1	18.0	33.4
1960-61	1,007	2.33	3.6	22.9	26.6	42.7
1961-62	903	2.04	3.1	20.5	21.1	39.4
1962-63	937	2.07	3.0	17.0	17.7	39.4
1963-64	903	1.96	2.5	13.9	13.5	35.1
1964-65	1,119	2.37	2.7	14.9	15.4	39.5
1965-66	1,267	2.63	2.9	14.7	15.4	42.8
1966-67	1,229	2.49	3.9	20.8	20.8	44.4
1967-68	1,079	2.14	2.9	16.5	18.0	40.3
1968-69	735	1.43	1.9	10.8	12.3	28.9
1969-70	225	0.43	0.5	3.1	3.4	10.7
1970-71	132	0.25	0.3	1.7	1.9	6.1
1971-72	325	0.59	0.7	n.a.	3.5	13.5
1972-73	- 120	-0.21	‡	‡	‡	‡
1973-74	534	0.92	0.9	n.a.	5.7	15.0

*Defined as imports less exports. †At factor cost. ‡No net foreign resource transfer.

Sources: Columns 1 and 6: 1951-52, 1955-56, and 1960-61 to 1973-74, Appendix, Tables 11 and 12; all other years based on import and export figures in Reserve Bank of India, Report on Currency and Finance, various issues. Column 2: Based on population figures published in Economic Survey (New Delhi: Government of India, Ministry of Finance), various issues. Column 3: Based on data in Estimates of National Product (Government of India, Central Statistical Organisation), various issues; and Reserve Bank of India, Bulletin, various issues. Column 4: Based on data in Reserve Bank of India, Bulletin, various issues. (Gross investment for 1951-52 to 1959-60 was estimated by assuming that the average ratio of net investment to gross investment was the same in that period as in 1960-61 to 1970-71. Column 5: Based on data in Economic Survey, various issues; and Report on Currency and Finance, various issues.

Source: John Mellor. (1976). The New Economics of Growth. Page 219. Cornell University Press, Ithaca, New York.

central government expenditures, and imports. The data show that foreign aid increased sharply at the beginning of the Second Plan in 1956-1957. Foreign aid as development assistance was most heavily concentrated in the ten years of the Second and Third Plans, that is between 1956-1957 and 1965-1966. The large foreign resource transfers in 1966-1967 to 1968-1969 were principally PL 480 grain shipments to India necessitated by the disastrous crop failures in India in 1965-1966 and 1966-1967.

Table 12.2 from Bhagwati and Srinivasan also provides detail on the utilization of external assistance by India as a percentage of national income. While these data are not comparable to those of Mellor, they nevertheless underline the "era" of aid as the Second and Third Plan periods, 1956-1957 to 1965-1966.

Much of the literature on economic assistance to India is marked by a concern for suitably deflated measures of aid, for example, aid per capita. Most academic commentators seem to agree that while India received substantial amounts of aid in aggregate terms, India was a "grossly under-aided country if one takes suitably deflated measures as aid per capita" (Bhagwati and Desai, 1970: 180). Several commentators have pointed out that on the basis of foreign assistance per capita India ranked virtually at the bottom of the list of aid recipients. In terms of aid relative to existing levels of national income per capita, India fared a little better compared to aid per capita. The reason for this is that India's per capita income ranks near the bottom of the world distribution of income. Comparing India with the other major country of the Asian sub-continent, it has been pointed out that aid received by India per head was much lower than that received by Pakistan in the early 1960s (Streeten and Hill, 1968: 332).

Table 12.2 Utilization of External Assistance by India, as Percentage of Net National Product at Factor Cost, 1951-52 to 1969-70

	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
1. Loans	0.81	0.34	0.02	0.02	0.08	0.25	1.06	1.78	1.27	1.39
2. Grants	0.04	0.12	0.16	0.10	0.28	0.35	0.30	0.19	0.26	0.22
3. Assistance under P.L. 480/665, etc.	---	---	---	---	0.05	0.45	1.01	0.74	0.75	1.39
4. Total aid	0.86	0.47	0.19	0.11	0.40	1.05	2.37	2.71	2.28	3.01

	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
1. Loans	1.60	2.02	2.21	2.38	2.37	0.41	0.47	0.39	0.37
2. Grants	0.15	0.10	0.09	0.10	0.16	0.06	0.03	0.03	0.01
3. Assistance under P.L. 480/665, etc.	0.61	0.81	1.05	1.07	1.14	0.21	0.20	0.09	0.09
4. Total aid	2.37	2.93	3.35	3.55	3.67	0.69	0.71	0.52	0.48

Note: The 1960-61 to 1969-70 estimates are for the revised NNP series. The 1966-67 to 1969-70 aid estimates are at the post-devaluation exchange rate.

Source: Economic Survey, annual issues 1966-73, Government of India, Ministry of Finance, Department of Economic Affairs, New Delhi.

Source: J. Bhagwati and T. N. Srinivasan. (1975). Foreign Trade Regimes and Economic Development: India. Columbia University Press, New York. Page 11.

Whereas some authors used the figures on the low levels of aid per capita for India to argue that India should have gotten even more aid, other commentators have argued that the growth of aid to India during her first three five-year plans was exaggerated since data on gross inflow of aid concealed the reduction in the share of grants in the total aid flow as also the deterioration in the terms and other conditions of aid.

Implicit in the use of these "deflated" measures of aid is the view that if aid, suitably deflated, is low its economic impact would be expected to be low. Alone among contributors in this area, Harberger makes an explicit attempt in arguing that even if aid dollars were attributed "a rate of social yield more than twice that which is applied in the evaluation of our own federal programs and projects," the contribution of aid to the national income of the aid receiving countries would be expected to be relatively small (Harberger, 1970: 635). Harberger's main point is that the success of the U.S. aid program in Western Europe under the Marshall Plan could not be easily duplicated in the less developed countries because of the entirely different economic and other circumstances of the less developed countries.

12.1-1 U.S. and U.S.S.R. Aid to India

United States aid to India went to nearly all sectors of the Indian economy. This statement can only be appreciated by examining the following features of American aid to India. In what follows, a brief description of the sectors and projects aided is given and is intended to convey the magnitude of the contribution of American aid.

In the mid-1960s, about one-quarter of the nitrogen used by Indian farmers was imported with U.S. assistance. In the early 1960s, the U.S.

financed one of India's largest fertilizer plants, at Trombay, near Bombay. The U.S. aided some of India's largest irrigation projects, such as those at Hirakud (in Orissa state), Kosi (in Bihar state), Nagarjunasagar (in Andhra Pradesh state), and Chambal (in Madhya Pradesh state). Most of the assistance to these projects was in the form of heavy construction equipment, and a major part of the rupee expenditures for these projects was met by PL 480 loans and grants. In the area of power projects, India received more assistance from the U.S. than from any other country. These included some of India's largest thermal power units, including Bandel (in West Bengal state), Barauni and Chandrapura (in Bihar state), Satpura (in Madhya Pradesh state), and Talcher (in Orissa state).

In the field of transport, initially U.S. aid was in the form of steam, diesel, and electric locomotives and railway wagons and coaches. The U.S. also aided the diesel locomotive factory at Varanasi (in Uttar Pradesh state); diesel components were initially imported but are now being manufactured in India. The U.S. also provided some centralized traffic control equipment for the Indian railways. The U.S. aided improvements in India's national highway system, including bridges over two major rivers. In motor vehicle production, the U.S. provided aid to India's existing automobile and truck assembly plants for the import of vehicle components. In aviation, the U.S. provided funds to India's international airline for the purchase of airplanes, and provided improved navigational aids to facilitate faster and safer domestic flights. The U.S. also aided other industrial projects, including a coal mine ropeway, a rayon-tire cord factory, an aluminum plant, paper mills, and others.

Apart from commodity assistance and assistance for industrialization, the U.S. also provided considerable funds for nearly every area of education,

including a major contribution to the establishment of agricultural universities. The U.S. provided funds for the purchase of laboratory and scientific equipment for several engineering colleges. One of India's premier engineering schools, the Indian Institute of Technology at Kanpur (in Uttar Pradesh state) was solely assisted by the U.S. A consortium of several leading American universities (M.I.T., Cal Tech, Illinois Institute of Technology, Carnegie-Mellon, Michigan, and California) provided faculty for the Kanpur institute. The Teacher's College of Columbia University was involved in the establishment of the National Institute of Education in New Delhi. Under U.S. auspices, summer institutes were created under which each summer college and secondary school teachers of science and mathematics were exposed to new methods of science teaching. In the field of medical education, scientific and laboratory equipment was provided to the All India Institute of Medical Sciences, located in New Delhi, which is now India's leading research and teaching medical college. This involvement in many areas of Indian education did, as Bhagwati and Desai have noted, lead to charges by Indian radical thinkers that a politically sensitive area such as education was being penetrated by ideologically oriented foreign powers (Bhagwati and Desai, 1970: 209). They also noted that an attempt to start an Indo-U.S. Education Foundation in 1966 drew strong criticism from Indian intellectuals and the project was eventually abandoned.

The key message from a description of the U.S. aid effort in India in the preceding few paragraphs is that American aid was extensive and touched upon many different sectors of the growing Indian economy. Further, and perhaps more importantly, the bulk of U.S. aid went to the Indian

public sector. At least one commentator on this feature of American aid to the Indian public sector has noted that "such aid has increased the resources of the public sector relative to the private sector and has enabled the government to pursue policies which have tended to restrict the activities of private investment and have tended to discourage a larger inflow of foreign private capital" (Tansky, 1967: 113). The U.S. did, of course, provide loans to the Indian private sector under the provisions of the Cooley amendments to the use of PL 480 counterpart funds. Tansky, however, adds that because much of U.S. aid was for the development of infrastructure, the infrastructure development could create conditions conducive to private sector capital formation. It has also been noted that aid emphasis on infrastructure development, at least during the first three plan periods extending up to the mid-1960s, strengthened the public sector and increased its share of total productive capacity, but also strengthened the private sector (Narain and Rao, 1963: 67).

In contrast, Soviet aid went predominantly for projects in the heavy industrial sector, including steel, power, coal, petroleum, and pharmaceuticals. Soviet and Eastern-bloc aid had been negligible in the First Plan period, but grew rapidly in the Second and Third Plans. In the Third Plan, Soviet aid utilized by India was about 9 percent of the total aid utilized by India (U.S. Embassy in India, n.d.: 5-12).

Most of the Soviet-aided projects were in the public sector. These projects "are generally identifiable as Soviet projects and appeal to India's fervent aspirations for industrialization" (Tansky, 1967: 110). The only state-owned oil refineries in India in the mid-1960s were financed by the Soviet Union and Rumania. It is not entirely obvious that Soviet aid to India resulted in the expansion of the Indian public sector beyond what

domestic policy would anyway have wanted it to be (Bhagwati and Desai, 1970: 184-85). Nonetheless, it is noteworthy that sizable Soviet aid went "for such traditional preserves of private interests as petroleum and pharmaceuticals" (Tansky, 1967: 170).

Most of the Soviet credits extended to India required repayment over a 12-year period beginning one year after delivery of all (source-tied) machinery and equipment for any project. The rate of interest charged was 2.5 percent per year. In contrast, the rate of interest charged on U.S. AID loans between 1961 and 1966 was 0.75 to 1.0 percent per year for the first ten years and 2.5 percent thereafter. Table 12.3 presents estimates of the average maturities and interest rates for the major aid-giving countries for India's Third Plan (1961-1966). With the exception of IDA, U.S. aid carried the softest terms. However, Soviet loans carried repayments in kind which "definitely eased the burden of repayments insofar as such provisions have led to net additions to Indian exports" (Bhagwati and Desai, 1970: 184). But it is important to note in comparing aid from different countries, especially Soviet-bloc aid versus Western aid, that Soviet-bloc aid "made for greater manoeuvrability on the part of India by allowing for a competitive edge through offers of aid-finance and know-how for projects which the West could not, or would not, help to implement" (Bhagwati and Desai, 1970: 184).

Outside the Soviet bloc, since 1961, India has had her aid channeled through the Aid-India Consortium which comprises the aid donors to India, including the World Bank and IDA. The World Bank took on the role of a convening agent for the Consortium annual meetings to discuss aid requirements, but gradually took on the task of comprehensively evaluating India's economic performance.

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Table 12.3 Average maturity and interest rates on fresh loans authorized during the third plan by major donors.

Donor	Grace period for repayment	Total maturity including grace period	Interest rate
	Number of yrs.	Number of yrs.	% per annum
1. United States	8.7	35.5	1.86
2. United Kingdom	6.9	25.0	4.43
3. West Germany	4.8	17.3	4.82
4. Japan	5.0	15.2	5.84
5. U.S.S.R.	1.0	12.0	2.50
6. I.B.R.D.	4.4	21.2	5.64
7. I.D.A.	10.0	50.0	0.75
Total: all countries/ institutions	5.8	25.8	3.20

Notes: 1. The estimates include credits meant for use in the Third Plan, though actual agreements were signed in the Second Plan period.

2. The averages have been compiled by weighing the loans by size. Source: J. N. Bhagwati and P. Desai. (1970) Planning for Industrialization: India. Oxford University Press for the Organisation for Economic Co-operation and Development. Page 184.

12.1-2 Aid Tying

In the entire foreign aid program in India (and probably elsewhere) there have been few other topics that have generated as much comment (indeed, recrimination) as the whole issue of tied aid, including project-tying, source-tying, and reverse-tying. Project aid is aid to cover part or all of the foreign exchange cost of an identifiable project. Non-project or general purpose aid refers to aid to finance purchases of spare parts and raw materials, and generally to support the balance of payments. Non-project aid may be tied to purchases from a specific country source.

Reverse-tying occurs when repayments of a loan from a specific source are made in the form of commodity exports to that country. Aid from multilateral agencies is free from source-tying due to the agencies' policies regarding global tendering.

It has been estimated that, excluding U.S. commodity assistance, about 66 percent of the total aid utilized by India during her Second Plan was source-tied and 34 percent was untied, and during the Third Plan about 83 percent of the total aid utilized was source-tied and 17 percent was untied (Bhagwati and Desai, 1970: 201).

The issue of aid-tying has generally been approached in terms of the costs of aid-tying to the recipient countries. Bhagwati and Desai note that the government of India did not make any careful estimates of the costs of aid-tying, but they cite evidence from other studies concluding that such costs were substantial (Bhagwati and Desai, 1970: 204). P. Chaudhuri cites a study by N. Chandra who found that "the costs of tied-aid for non-project uses is of the order of 19 percent, indicating that the actual amount of foreign resources transferred through such aid is about one-fifth less than its nominal amount" (Chaudhuri, 1979: 103). While these discussions on the costs of aid-tying are generally designed to demonstrate that the true extent of resource transfers from aid are considerably less than the nominal amounts of such aid transfers, the implications of aid-tying have been much less studied.

The most effective form of procurement tying occurs when aid is used to finance the import content of new projects. It is this aspect of tying that can lead to serious economic distortions in that the pattern of imports of aid recipients becomes heavily biased toward capital goods for new projects. This is apparently what happened in India: "India has in

the past suffered from excessive projectization, in that the aid given for capital goods for projects could have been more rapidly and beneficially spent on increasing imports of components, raw materials, spare parts, and minor capital goods not required for specific new projects" (Little and Clifford, 1965: 161-62).

Echoing the same theme, Mellor has argued that aid donors neglected agriculture because they preferred projects with a large foreign exchange component. There were many such projects in industry and infrastructure but few in agriculture. Because of "basic sympathy" with the Indians' own planned approach to industrialization, actions by aid donors on loans and grants tied to specific projects reinforced the growth strategy of India's development efforts (Mellor, 1976: 225). With hindsight, Mellor argued that the capital intensive growth strategy was bound to produce low rates of return on investment in the short run. The massive investments in the rural infrastructure of irrigation, power, and communications would not have yielded high returns until the complementary investments in education and research had been undertaken.

12.1-3 Aid Authorization and Aid Utilization

Several observers have noted the rather long lags between the authorization of aid and its utilization by India during the first one-and-one-half decades of Indian planning (Streeten and Hill, 1968: 331; Narain and Rao, 1963: 37; Bhagwati and Desai, 1970: 187-89). Bhagwati and Desai estimate that during the Third Plan period the rate of utilization of aid was in the range 26 to 53 percent. This lag has obvious implications for the efficiency of the aid program. The principal reason given for the slow utilization of aid was the fact that most of the aid was project-tied

and source-tied, and the much-vaunted administrative service in India was not adequately prepared for the task of detailed project preparation, programming, and scheduling. However, the trend, at least in the period 1961 through 1967, in the rate of utilization was upward and presumably is attributable to improvements in project planning and the realization that the slow utilization of aid has a social cost. Delays in utilization were also due to the shortages of complementary factors and inputs.

Little and Clifford point out that only in 1963-1964 India began to receive large amounts of non-project assistance. However, at the beginning of 1965-1966 India was suffering one of her worst balance of payments crises and there was, at the same time, considerable excess capacity in some industrial sectors due to lack of imported raw materials and complements. They draw the inference that aid and planning were still too much devoted to the creation of output capacity and not enough to promoting current output or to the rapid completion of the schemes already started. The end result of this was a low productivity of capital. They also argue that the central and state government administrative machinery was too overstrained to deal with the heavy burden of public control and ownership which was assumed by the government (Little and Clifford, 1965: 228-31).

In spite of all this, they still argue that India could (at least in the mid-1960s) have absorbed more aid by improved sectoral and project planning and by using more aid for imports of raw materials such as fertilizer. While arguing that insufficiency of general purpose aid means that the economy operates below capacity, they argue that insufficiency of aid resulted in more stringent import and investment controls. In other words, something of a vicious circle exists. Administrative controls imply a

reduced efficiency of the economy which implies that usage of aid is low. If general purpose aid were increased, some controls could be relaxed, especially on imports of current inputs, which would mean that more aid would be absorbed and output would grow.

12.2 Macroeconomic Perspective on Development Assistance to India

The early literature on the impact of foreign resource transfers from the developed industrialized countries to the developing countries of Asia, Africa, and South America assumed that each dollar of these transfers would add one dollar to the imports of the developing countries (Papanek, 1972). Since these additional imports would be capital good imports, the inflow of foreign resources would be expected to increase investment in the developing countries by the exact same amount. Further, since stable incremental capital output ratios were also assumed, the increased investment would be expected to yield a certain stream of income. This naive view of the process of economic growth, at least from the perspective of today, somewhat naturally led to rather optimistic and exaggerated expectations about the productivity of aid. The experiences of the Marshall Plan in Europe shortly after the end of World War II and the rapid economic growth that had been attained there tended to reinforce and sustain the expectations of the early aid proponents.

But over time as the economics profession began to better understand the nature of the economic development process, studies on the impact of aid on the developing countries also grew in sophistication. The role of education, social factors, the political framework, and traditional institutions was acknowledged and even included in some of these studies. But "assumptions about the contribution of foreign resources were not changed: they were exactly additive to domestic savings and to domestically financed imports" (Papanek, 1972: 934).

A "revisionist" phase apparently began in the early 1970s when some writers argued that foreign resources contributed little, if anything, to economic growth and domestic savings. Indeed, Griffin and Enos (1970)

went so far as to argue, on the basis of cross section evidence from Latin America, that over the period 1957 to 1964 the rate of growth of GNP was inversely related to the ratio of foreign aid to GNP. While many other writers did not go so far as that, many of them did reach a common view that foreign aid and other foreign inflows reduce domestic savings (Weiskopf, 1972).

Weiskopf used a simple macroeconomic model of the legendary two-gap variety. Such a model was said to be necessary for an evaluation of the role of foreign capital because foreign capital contributes both to the potential availability of savings (easing the savings constraint on capital formation and growth) and to the potential availability of imports (easing the trade constraint). From a total sample of 44 countries. Weiskopf classifies them into those where there was a binding savings constraint or where there was a binding trade constraint or a "hybrid situation in which both the savings and trade constraints are active at the cost of excess production capacity" (Weiskopf, 1972: 30). For 17 countries that were identified to be savings constrained, Weiskopf estimated savings functions relating GDP, total exports, and net foreign capital inflow to aggregate saving.

One of the 17 countries for which results are reported is India. The results for India are:

$$S = -4968.0 + 0.191Y - 0.270F + 0.812E$$
$$\quad (-15.12) \quad (60.91) \quad (-5.91) \quad (4.35)$$

Time period = 1950-1965; $R^2 = 0.999$; where S is aggregate savings, Y is GDP, F is net foreign capital inflow, and E is total exports (Weiskopf, p. 36) (t-ratios are in parentheses). The striking aspect of these results is the strong negative and significant coefficient for the foreign aid

variable. Indeed, for every single country of the 17 countries for which results are reported, the coefficient of the foreign aid variable is negative. With dummy variables to distinguish each of the countries, a pooled regression was also estimated. According to the pooled regression, "the impact of F on S is highly significant, and approximately 23 percent of net foreign capital inflow substitutes for domestic savings" (Weiskopf, 1972: 37).

Disputing the above findings, Papanek (1972) argued that much of the apparent association between savings and foreign capital inflows was in fact explainable in purely statistical terms, and certain exogenous factors (such as changes in the terms of trade, political upheavals, weather variables, and even cultural and religious considerations) could lead to both a positive association between foreign resources and savings and growth as well as a negative association between these variables. Unlike Weiskopf's time-series approach, Papanek (1973) used a cross-section approach to study the impact of foreign resources on growth. Papanek also distinguishes between the various forms of foreign capital inflows and between primary exports and other exports.

Papanek examines a large number of developing countries in Asia, Africa, and Latin America and seeks to explain GDP growth rates in terms of explanatory variables such as domestic savings, and various forms of foreign resource inflows such as aid, foreign private investment, and "other" foreign inflows. Recognizing the limitations of such a cross-country approach, Papanek offers his findings as "suggestive." What the evidence presented suggests is that savings and foreign inflows "explain" about one-third of GDP growth in the entire sample. The coefficient for the aid

explanatory variable is found to be nearly twice that of the other independent variables. Some interesting regional differences in the estimated equations are also observed. For example, "savings and foreign inflows, and especially aid, have the most unequivocal impact on growth in Asia and the Mediterranean countries. . . . Coefficients are distinctly lower for the Americas and barely significant" (Papanek, 1973: 123). Papanek also attempts to estimate aggregate savings functions of the form relating aggregate savings to income per capita, population, foreign resource inflows, primary exports, and other exports. Here the coefficient for aid turns out to be negative and highly significant but Papanek argues that that might be more likely due to exogenous factors affecting both aid and savings rather than signifying a causal relationship between the two variables.

One other example of a cross-country approach in evaluating the impact of development assistance is the work by two leading "practitioners" of aid, Hollis Chenery and Nicholas Carter. They present "a summary evaluation of the interrelations between internal and external policies and the role of foreign assistance in the development experience" of a group of 37 developing countries (Chenery and Carter, 1973: 459). India is among the countries studied and while much detail on the Indian experience is lost in the aggregation of sample countries, the cross-country approach has provided much useful information about the developing countries.

Chenery and Carter base their evaluation on the projections of growth and aid made by Chenery and Strout (1966) for the period 1962-1970 for establishing aid requirements, and estimates of the actual values of the parameters in their model for 1960-1970. The Chenery - Strout projections were derived from a simplified two-gap model which exaggerates the likelihood

of disequilibrium between internal and external constraints to growth. Out of their total sample of 37 countries actual GDP growth in 25 countries between 1960 and 1970 was within ± 1.2 percentage points of the planned rate of growth in these countries. The authors attempt to indicate the relative importance of "internal" and "external" factors in the 5 countries that had rapid growth (Taiwan, Korea, Iran, Thailand, and Kenya) and in the 6 countries of retarded growth (India, Colombia, Ghana, Tunisia, Sri Lanka, and Chile). India's actual GDP growth for 1960-1970 was 3.5 percent per year, which was not only below planned 1962-1970 growth rate of 5.3 percent per year but also below the actual achieved growth during 1957-1962 of 4.3 percent per year.

Chenery and Carter discover that successful development had led to increased supplies of external capital, usually on harder terms. But unsuccessful development usually led to a reduction in the aid supplied to those countries. They find that in the fast-growing countries there was substantial saving and investment even though marginal savings rates were not generally higher than predicted. But in countries of retarded growth, there was less of a shortfall in savings and investment rates than in growth of GNP.

The authors observe that Taiwan had a very large increase in both exports and savings, permitting both an acceleration of growth and a reduction in capital inflow. In Korea, the substantial inflow of foreign capital made possible a fuller mobilization of the economy's resources. In the cases of retarded growth, they conclude that internal factors provide the primary explanation of slow growth. For example, Tunisia is said to have misallocated a large share of investment to less immediately productive uses over much of the 1960s. Chile followed a policy of "excessive import

substitution" and the savings rate stayed low as a result of failure to control inflation. Sri Lanka and Ghana were judged to have inadequately adjusted to the slow growth of their major export products. In India and Colombia, the "reduction in external assistance played a major role in retarding growth" (Chenery and Carter, 1973: 464). The foreign trade bottleneck in India, as also in Colombia, was made worse by trade policies that discriminated against exports of manufactured goods.

The "shortfall" of aid to India in 1962-1970 was roughly $6 billion. Exports were roughly $0.5 billion short of the Chenery-Strout projections. Using simulation experiments on the Chenery-Strout model, the authors conclude that the addition of the lost exports would have added only 0.5 percent per year to the 3.5 percent per year actual growth achieved by India during the decade. But the projected amount of aid (that is, the makeup of the $6 billion shortfall) would, in their view, have raised the growth rate to 6.8 percent per year.

From these basically theoretical modeling exercises of the relations between development assistance and macroeconomic variables we now turn to examining the impact of development assistance on variables such as income and savings and investment rates in India.

The impact of development assistance depends on the share of foreign aid in the total investment in the receiving country, but quantifying the contribution of aid to the productive capacity of a country is a difficult task. Among other things, aid can be used to transfer capital or technical skills, but the productivity of these transfers cannot be treated analogously to the relatively simple, but still complex, question about the yield of capital. As Little and Clifford have argued, foreign aid may have the effect of bringing into use productive resources already existing in the receiving

country and hence might have a much greater effect than the yield of capital would suggest (Little and Clifford, 1965: 103). However, an overall assessment of the impact of aid must only be attempted in conjunction with an assessment of the economic policies of the receiving country.

India's attempt at formal planned development began in 1951. The First Plan was largely a collection of individual projects put together, as various authors have emphasized, around a Harrod-Domar growth model (Bhagwati and Srinivasan, 1975: 4). The thrust of the plan was to build infrastructure and the plan focused on fiscal policy to raise domestic savings to the levels required to match the projected investment that was considered necessary for the planned (that is, targeted) economic growth.

The Second Plan (1956 to 1961) was a continuation of the development effort begun in the First Plan but embodied a shift in priorities toward industrialization, especially heavy industry. The Second Plan was developed by Professor P. C. Mahalanobis of the Indian Statistical Institute on the basis of a structural model which saw the key source of growth the capital goods sector and the means of growth a large increase in investment, especially by the public sector. The Second Plan envisaged and accomplished a large increase in investment, especially in public sector heavy industrial projects. Very significant amounts of foreign aid flowed into India during the plan period to finance infrastructure development and the creation of basic industrial capacity. Despite this, the first two years of the Second Plan were also characterized by large scale deficit financing which, in the Indian context, is defined as the excess of government expenditures over receipts from taxes, borrowing within the country and abroad, and drawing down of official reserves, and so is creation of money. The

implications of this have, unfortunately, not received much attention in the Indian literature. However, it should be noted that, among others, P. T. Bauer, a vocal and sometimes strident critic of Indian planning and foreign aid, argued that the large scale deficit financing in the mid-1950s contributed to inflation and the foreign exchange crisis (Bauer, 1961: 33-38). The inflation was, of course, moderated by the large import surplus occasioned by foreign aid.

However, the important point to note about this era is that the Second Plan saw the beginning and subsequent strengthening of industrial licensing and controls over nearly all sectors of the Indian economy. The precarious foreign exchange position towards the middle of the Second Plan period led to strict licensing of imports of both capital goods and consumer goods. The exclusion of private enterprise from large areas of industrial activity (which was an outcome of government industrial policy) and effective exchange controls were principal deterrants to the inflow of private foreign capital. In the area of agriculture, the inter-state movement of foodgrains became subjected to restrictions and controls. These administrative controls have undergone considerable refinements and adjustments, including periods of relative liberalization, but continue to pervade nearly all spheres of economic activity to this date. As Mellor has argued, the Second Plan "was, by its very nature, centralist" since the emphasis on a few large-scale capital goods industries "lent itself to administration from a highly centralized bureaucracy" (Mellor, 1976: 4).

The Third Plan (1961 to 1966) reaffirmed the basic imbalanced approach to planned industrial development. But with the historic droughts of 1966 and 1967 and the resulting industrial recession, along with the decline

in foreign aid in the aftermath of the 1965 war with Pakistan, the planning process was in disarray for several years. This was evidenced by a hiatus in the five-year plans between 1966 and 1969 at which time a series of one-year annual plans was put as a makeshift strategy before the elements of a new strategy of growth were put together in the Fourth Plan (1969 to 1974) and subsequent plans.

12.2-1 Impact of Aid on Income, Savings, and Investment

Since the beginning of the First Plan the Indian economy has recorded an average growth rate of between 3.5 and 4 percent per year. While there have been year-to-year fluctuations in the rate of growth, the rate has not risen or fallen on any sustained basis. During the first five years of planned growth net national product at constant prices grew at 3.7 percent per year. This slowed to a rate of growth of 3.1 percent per year during the Second Plan period, and slowed further to a rate of 2.5 percent per year during the period 1961 to 1966 (Chaudhuri, 1979: 52). It is important to note that the unprecedented droughts of 1965-1966 and 1966-1967 reduced the overall rate of growth of the economy. The excellent agricultural harvest of 1967-1968 spurred overall economic activity and between 1967 and 1971 the economy grew at an average rate of over 4.5 percent per year. A fall in agricultural production in the early 1970s again slowed economic growth. But between 1974 and 1977 the economy again grew at a rate above the long-run rate of 3.65 percent per year (Raj Krishna, 1980: 78). In 1979-1980 a severe drought and external events such as the rise in petroleum prices led to a fall in national income, but since then the economy has again grown smartly.

The relatively low rate of long-run growth has meant a very slow increase in per capita income since population has continued to increase.

Between 1951 and 1961, the population of India grew at nearly 2 percent per year and this rate in fact accelerated to 2.25 percent between 1961 and 1971 (Bhagwati and Srinivasan, 1975: 7). Preliminary data from the 1981 Census indicate that between 1971 and 1981 the rate of growth of population was slightly above 2 percent per year.

Indian performance on savings and investment has been much better than on aggregate or per capita income growth. Gross domestic savings as a percentage of gross domestic product at market prices has shown a steady trend upward over the past 3 decades, rising from 13.7 percent in 1960-1961 to 16.8 percent in 1971-1971 to 22.2 percent in 1981-1981. As Raj Krishna has commented, "rates on this order (of saving) are typically achieved only by nations with a per capita income of $400 to $500 in 1964 U.S. prices" (Krishna, 1980: 82). An evaluation of the behavior of different categories of savings such as government savings, private household savings, and savings by the private corporate sector is not available. But whatever data are available suggest that the contribution of the public sector to domestic saving has not been noteworthy (Bhagwati and Srinivasan, 1975: 9; and Mellor, 1976: 142).

Like the savings rate, the rate of gross fixed capital formation as a percent of GDP has shown a rising trend over the past three decades of planned economic development. Gross fixed capital formation as a percentage of GDP was 14.4 percent in 1960-1961, 15.7 percent in 1970-1971, 17.9 percent in 1975-1976, and 18.8 percent in 1980-1981. Gross fixed capital formation by the public sector was 46.7 percent of the total in 1980-1981, but was only 23.0 percent of the total in 1950-1951. However, as Raj Krishna has pointed out, "the ratio of added investment to increases in output has risen steadily from 3.6 in the First Plan to 6.2 in the first three years

of the Fifth Plan" (Krishna, 1980: 82). Investment in the public sector has had a very low rate of return. Between 1970 and 1975, the private corporate sector had a profit rate of about 11 percent of net assets, but central government companies had a profit rate of only 4.4 percent and state-government companies had an even lower profit rate. One of the reasons why these rates of return on public sector investment have been low is that the prices for the products of these companies have been kept artificially low "as a matter of policy," but "the main reason for low rates of return on public investment seems to be inefficiency. Instead of generating large surpluses the public sector has become a drag on resources. People have to be taxed at higher rates year after year to finance the mounting losses and new public investment in public enterprises" (Krishna, 1980: 83).

Even though government tax revenue as a percent of GNP is high in India, the government has not apparently been able to mobilize sufficient resources to finance its investment, especially after foreign aid declined in the late 1960s. In 1969, all major commercial banks in India were nationalized. And now the financial system "is compelled by a set of laws and guidelines to lend a high proportion of its funds to the government" (Krishna, 1980: 82).

12.2-2 Development Assistance and the Foreign Trade Regime

The key reference in reviewing studies on the foreign trade regime is the study by Bhagwati and Srinivasan (1975), covering the period 1950-1970, which is a careful examination of India's foreign trade regime in its interaction with domestic policies. The authors analyze insightfully the import and export policies under the foreign trade regime that operated

in the period 1956-1966. They examine the interventions by the government in the foreign trade sector and the methods by which scarce foreign exchange was allocated in an effort to study the static efficiency effects of the foreign trade policies. They also study the growth effects of the foreign trade regime by examining the question whether the foreign trade regime had any impact on the savings effort. The overall conclusion reached is that the basic strategy of industrialization followed by India was detrimental to the growth of the economy "by adversely influencing export performance, by wasteful inter-industrial and inter-firm allocation of resources, by permitting and encouraging expansion of excess capacity and by blunting competition and hence the incentives for cost-consciousness and quality-improvement" (Bhagwati and Srinivasan, 1975: 245).

The ratio of exports to national income in India was low throughout the 1950s and 1960s and her share in total world trade fell during that period. Mellor attributes this relatively weak performance to "the choice of development strategy, the nature and conditions of foreign aid, and the initial composition of exports" (Mellor, 1976: 192). All through this period Indian exports remained heavily biased toward "traditional" items such as tea, jute manufactures, and cotton textiles. These commodities were believed to have poor growth prospects (the so-called export pessimism syndrome) which reinforced the government's import displacement policies in spite of the rising capital intensity of such efforts. According to Bhagwati and Srinivasan, relying on the earlier study by Bhagwati and Desai (1970), the stagnation of export earnings through the 1950s is "to be largely attributed to domestic policies which frequently led to falling shares in Indian traditional exports and an inadequate expansion of new exports (in the absence of any export promotion on that front)"

(Bhagwati and Srinivasan, pp. 54-55, parentheses in the original). The accompanying Table 12.4 on "traditional" and "non-traditional" exports provides data from 1951 to 1974.

The first severe foreign exchange crisis in India occurred soon after the Second Plan (1956-1961) began. While significant amounts of aid flowed into India, exports continued to stagnate, and the resulting foreign exchange crises led to the imposition of a quantitative-restrictions regime in India. The government made some tentative attempts at export promotion but nothing much was accomplished. The large inflows of aid constituted a painless substitute for foreign exchange earned via exports, and enabled India to maintain a high rate of investment, higher than what would have been possible if aid flows were smaller.

From the early 1960s the government began a policy of export subsudies and licensing preferences. As a result of these policies and due to the expansion of trade with the socialist countries, total export performance in the Third Plan was considerably better than in the Second Plan. However, while the export subsidies reduced the average degree of over-valuation of the Indian rupee, the subsidy policy was "selective, chaotic, and cost-unconscious." The incredible complexity of the export subsidy policies, involving exemptions and refunds from sales, customs, and excise taxes, direct tax concessions, and import entitlement schemes under which eligible exporters received import licenses carrying high import premia, has been carefully analyzed by Bhagwati and Srinivasan (especially pp. 59-75). The key characteristic of the whole policy milieu was intervention by the government in a selective manner with little economic rationale. The inefficient and indiscriminate export policy was accompanied by an equally indiscriminate import policy involving protection to domestic industries. The policy of export subsidies and increased use of import duties implied

Table 12.4 Indian Exports

Year	Total exports Million U.S. $ (current)	Traditional exports Million U.S. $ (current)	Nontraditional exports Million U.S. $ (current)
1951-52	1,503	1,332	172
1955-56	1,242	1,081	159
1960-61	1,349	1,120	232
1961-62	1,387	1,153	235
1962-63	1,440	1,221	217
1963-64	1,666	1,350	316
1964-65	1,715	1,446	269
1965-66	1,692	1,368	325
1966-67	1,542	1,217	322
1967-68	1,598	1,214	384
1968-69	1,810	1,242	569
1969-70	1,884	1,219	668
1970-71	2,047	1,330	716
1971-72	2,091	1,430	663
1972-73	2,431	1,466	971
1973-74	3,021	1,812	1,208
1974-75	4,174		
1975-76	4,672		
1976-77	5,753		
1977-78	6,315		
1978-79	6,978		
1979-80	7,997		
1980-81	8,503		

Definitions: Traditional exports: food, beverages and tobacco, crude materials, mineral fuels, animal and vegetable oils and fats, and cotton textures and jute manufactures. Nontraditional exports: chemicals, manufactured goods other than cotton textiles and jute manufactures, machinery and transport equipment, miscellaneous manufactured goods, and others.

Sources: 1. John Mellor. (1976). The New Economics of Growth. Page 194. Cornell University Press, Ithaca, New York. For data for 1951-52 to 1973-74. 2. Government of India. Monthly Statistics of Foreign Trade. Various issues for data after 1974-75.

The data from 1974-75 are not comparable to data prior to that year. Breakdown between traditional and nontraditional exports after 1973-74 are not available.

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a gradual de facto devaluation, which culminated in the June 1966 devaluation of the Indian rupee.

The June 1966 devaluation marked the beginning of a new phase in which export subsidies were eliminated and import duties were reduced. The "gross" devaluation, that is, the pure parity change was 57.5 percent in the official rate on the dollar. Simultaneously with the parity change, the import entitlement method of export subsidy was eliminated along with some of the cash subsidies on selected engineering goods and the government tax credits. Countervailing export duties were imposed on "traditional" exports aimed at neutralizing the effect of devaluation on these exports but based on the assumption that India had monopoly power in trade in these products. And, when the countervailing export duties and removal of import entitlements, tax credits, and cash subsidies are all taken into account, the devaluation actually amounted to only 21.6 percent for exports. Similarly, the "net" devaluation for imports was 42.3 percent (Bhagwati and Srinivasan, 1975: 97).

The Aid India Consortium had virtually made a major devaluation a precondition for the resumption of aid, which had been temporarily suspended after the 1965 India-Pakistan war. The years 1965-1966 and 1966-1967 were years of very bad crop failures. Consumer prices rose sharply and there was an industrial recession. In the public mind the devaluation was due to the political pressures by the aid donors. Many observers also attributed the inflation of those years to the devaluation. Bhagwati and Srinivasan, however, argue that the inflation was mainly due to the severe crop failures of 1965-1966 and 1966-1967.

The devaluation of the India rupee could not have come at a worse time. The crop failures of 1965-1966 and 1966-1967 contributed to the

inflation following the devaluation and also to the industrial recession in India. Overall Indian exports remained stagnant for nearly one-and-one-half years after the devaluation. Bhagwati and Srinivasan argue, after a careful examination of the time lags involved and the entire policy changes that accompanied the devaluation, that even though some uneconomic exports did fall, non-traditional engineering and iron and steel exports increased after the devaluation. The crucial lesson that they draw from the entire episode is that the timing of devaluation and liberalization is of fundamental importance to its success and should come after a good harvest.

The political fallout from the devaluation was tremendous. It was seen as being imposed from outside, by the Aid India Consortium. It became a lively issue in partisan politics. It was seen as an attempt by aid donors to influence Indian policy. But because of extremely bad political timing (foreign pressure came at a time when the new government of Mrs. Gandhi was less than six months old and was not yet firmly established), the entire episode was seen as a disaster for the aid relationship between India and Western aid donors. Bhagwati and Srinivasan contrast this aid relationship with that which prevailed between India and the Soviet Union. The Soviet Union's method of evaluating its aid activity in India was restricted to evaluating its aid-financed projects and did not extend to evaluating the whole range of Indian economic policies. This "helped to avoid the kind of adverse reaction the Western donors provoked" during the devaluation-liberalization episode and indeed this episode even affected the responsiveness of Indian officials to the Smithsonian Agreement parity changes of 1971 (Bhagwati and Srinivasan, 1975: 152, 155, footnote 6).

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The drop-off in foreign aid in the early 1970s and the commodity and oil price increases in the early 1970s made exporting "a question of national economic survival" (Dhar, 1978: 1034). Efforts at export promotion, begun again in 1974, did result in 10 percent increases in exports in 1975-1976 and again in 1976-1977. This rate of increase has been maintained since then. In 1980-1981, exports of Indian engineering products amounted to over $1 billion and had become the largest single export item accounting for over 13 percent of total exports. Raj Krishna has argued that this sharp export growth in the late 1970s was one measure of success of the import substitution policies that India followed because these policies "made many of the goods produced by India cheaper in the long run than their imported counterparts." As evidence, he cites Indian steel prices in December 1978 as being approximately one-half of European steel export prices, as a result of which prices of Indian engineering products were low relative to other countries (Krishna, 1980: 78).

Indian imports exhibited a growth and composition pattern determined by the development strategy that she pursued. Table 12.5 from Mellor (1976) provides details on imports. The data, of course, reflect the outcome of an explicit long term policy to establish an adequate indigenous capacity in the basic industrial sectors, particularly metals and machinery, heavy chemicals, and transport and communications equipment. Along with strict industrial licensing, import licensing operated in India. The foreign trade balance was consistently negative since external resources filled the gap between exports and imports.

The import substituting policies that India has pursued have led to a highly diversified industrial structure. A wide range of capital goods is now produced in India. For example, it has been noted that between 1955

Table 12.5 Indian Imports

Year	Total imports Million U.S. $ (current)	Traditional imports Million U.S. $ (current)	Nontraditional imports Million U.S. $ (current)
1951-52	1,838	1,526	312
1955-56	1,365	1,082	280
1960-61	2,356	1,976	382
1961-62	2,290	1,864	427
1952-53	2,377	1,956	423
1963-64	2,559	2,104	464
1964-65	2,834	2,445	390
1965-66	2,959	2,557	403
1966-67	2,771	2,403	368
1967-68	2,677	2,303	372
1968-69	2,545	2,118	427
1969-70	2,109	1,681	429
1970-71	2,179	1,732	445
1971-72	2,416	1,874	542
1972-73	2,311	1,779	532
1973-74	3,555	3,517	1,038
1974-75	5,666		
1975-76	6,084		
1976-77	5,676		
1977-78	7,031		
1978-79	8,270		
1979-80	11,171		
1980-81	15,838		

Definitions: Traditional imports: cereal and cereal preparations, raw cotton other than linters, chemicals, manufactured goods, machinery and transport equipment, miscellaneous manufactured goods, and residual imports. Nontraditional imports: food other than cereal and cereal preparations, beverages and tobacco, crude materials other than raw cotton, mineral fuels, lubricants, animal and vegetable oils and fats.

Sources: 1. John Mellor. (1976). The New Economics of Growth. Page 196. Cornell University Press, Ithaca, New York. For data for 1951-52 to 1973-74. 2. Government of India. Monthly Statistics of Foreign Trade. Various issues for data after 1974-75.

The data from 1974-75 are not comparable to data prior to that year. Breakdown between traditional and nontraditional exports after 1973-74 are not available.

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and 1978 imports fell to a level of between 2 and 21 percent of total supply in 21 industrial sectors and exceeded 25 percent of the total supply in only 6 industrial sectors (Krishna, 1980: 78). This, however, does not mean that the full implications of the import substituting policies were understood by the policy planners in India or, for that matter, by the aid givers abroad. The government recognized, to some extent, that the development of the capital goods industries was not likely to provide substantial direct employment of labor. This was sought to be softened by the development of the cottage and small industries sector. That this policy has not been successful is implicit in the statement by Krishna that "the volume of unemployment (in India) keeps growing, contrary to (an important) objective of Indian policy" (Krishna, 1980: 81, parentheses added). That this policy was not likely to be successful had been noted many years ago by several critics of Indian planning, most notably by Milton Friedman. P. T. Bauer (1961) quotes an unpublished memorandum prepared by Friedman in 1955 for the International Cooperation Administration of the U.S. saying that Indian economic policy of large investment in heavy industry on the one hand and in cottage industry on the other "threatens an inefficient use of capital at the one extreme by combining it with too little labor, and an inefficient use of labor at the other extreme by combining it with too little capital" (Bauer, 1961: 59).

It should be noted that given the export pessimism of the planners in the early stages of planned economic growth in India, given the targeted rate of growth of output and the implied (by the capital output ratios) requirements of investment, the emphasis on import substituting industrialization was a logical corollary (Dhar, 1978: 1031). This objective of selective industrialization implied a tight regime of import restrictions.

However, the government relied less on import tariffs than on a direct allocative procedure. Such a procedure was complex and the economic consequences of the allocation methods included considerable administrative expense, delays, lack of coordination among different agencies doing the allocations, and automatic protection to domestic industries. Further, the strategy of import substitution involved implicit discrimination against exports. Indeed, it was an inward-looking strategy (Bhagwati and Srinivasan, esp. pp. 35-52). To be sure, there were periods of liberalization of the trade regime in India, but as various authors have noted, these lasted only for brief periods and were tentative at best. The import policy regime in India still relies heavily on quantitative restrictions.

12.3 AID and the Development of Financial Institutions

One other measure of the impact of foreign rescurce transfers from the industrialized world to the developing countries is in terms of the creation of viable financial institutions in the aid-receiving countries. Such institutions, often called development finance companies or development banks, are an essential step in creating conditions conducive to the growth of capital markets in the developing countries and serve in mobilizing capital for development purposes. International lending agencies have played an important role in the growth of such financial institutions. Unfortunately, however, this role has not received much attention in the literature. There are available only a few studies on this topic and none of these is specifically devoted to any one particular country.

The only study which specifically examines industrial finance companies in India is the 1964 report of the Columbia University School of Law on public international development financing in India. This report arose from a research project at Columbia University financed by the Ford Foundation. The director of the research project was Wolfgang Friedmann of Columbia University Law School, and the principal contributors to the project report included Dr. R. K. Hazari of Bombay University. The other studies that were received for this section included the one by Adler and Mikesell (1966) and by Kane (1975).

The Industrial Finance Corporation, set up in 1948, was the first of a number of institutions set up to provide long and medium-term finance to private industry in India. The other institutions which have since been established are the Industrial Credit and Investment Corporation of India, the National Industrial Development Corporation, the National Small Industries Corporation, the State Financial Corporation, and the State

Industrial Development Corporations. In 1964, the Industrial Finance Corporation was reorganized and named the Industrial Development Bank of India. It now amounts to a central bank for India's network of term finance institutions.

The Industrial Finance Corporation, now known as the Industrial Development Bank of India, is the oldest and largest long-term industrial financing institution in India. Under its charter it has financed public limited companies and cooperative societies registered in India. It provided loans for the purchase of new machinery, replacement of old machinery, construction of factory buildings, and the purchase of land for factory sites, but does not provide finance for purchase of raw materials or for working capital. Most of its loans have gone to sugar, paper, cotton textiles, chemicals, and metal products manufacturers. Adler and Mikesell (1966) have argued that the policies of the external agencies prohibiting the use of money by sub-borrowers for working capital has adversely affected the long-term growth of the development banks in the developing countries (Adler and Mikesell, 1966: 59).

Until 1955, when the Industrial Credit and Investment Corporation of India was set up, the Industrial Finance Corporation was the only institutional lender of long-term industrial finance. The IFC approached the World Bank for funds several times to enable it to make foreign currency loans but was rebuffed (Columbia University, 1964: 225). Adler and Mikesell point out that this was due to the doctrinaire approach of the World Bank group in providing financial and technical assistance to <u>private</u> development banks, and the Indian IFC was a public sector development bank. Unlike the World Bank group, the U.S. Development Loan Fund-Agency for International Development was much less doctrinaire with respect to its

policies and made dollar and local currency loans to private, public, and mixed ownership industrial development banks. The DLF made its first loan (of $10 million) to the Indian IFC in 1960. This loan was repayable in rupees. In the first fifteen years of its existence, the Industrial Finance Corporation disbursed Rs 878 millions and out of this amount only Rs 22 millions (or 2.5 percent) came from foreign sources (Columbia University, 1964: 224-25).

India's first private sector development bank, the ICICI, was set up in 1955. Its origin is traced to the "U.S. aid mission which wanted to place PL 480 counterpart funds with a private agency but could not make much progress with the scheme, perhaps due to the lukewarm attitude of the Government of India. The idea (for the private development bank) crystallized only when IBRD came into the picture" (Columbia University, 1964: 230). The objective of the ICICI was to assist industrial enterprises in the private sector in India and to foster the growth of a private capital market in the country. The ICICI provides financial assistance to private companies for the purchase of capital assets through the underwriting of securities issued by these companies, makes rupee loans, and makes foreign currency sub-loans out of World Bank and other foreign exchange credits for financing imports of capital equipment and technical services.

The work by Kane (1975) is an important contribution in assessing the overall effectiveness of development banking in the process of economic development. Kane studies 31 development banks all of which had received loans and/or equity capital from the World Bank group. These 31 banks include 12 in East and South East Africa, 8 in Africa, 2 in Latin America,

3 in the Middle East, and one in Europe. Kane's sample is a fairly diversified group with respect to the age of the banks, their size, and their ownership. Three of the banks are publicly owned, 15 are private, and 13 are of mixed public-private ownership. Among the 31 is the Industrial Credit and Investment Corporation of India.

Kane uses a demand-for-funds/supply-of-funds approach in evaluating the performance of development banks. From a particular development bank's point of view, the demand for funds is defined as the value of all projects submitted to the bank by private sector entrepreneurs per period of time which are evaluated by the bank as economically viable and loan-worthy and which the bank stands ready to finance, assuming it has the necessary funds. The supply of funds is said to consist of all funds which the development bank has available for lending, including funds in lines of credit extended to the banks, funds temporarily invested in short-term assets, and funds from current amortization payments.

Kane examines the demand for funds, defined above, and also the supply of funds in his sample of developing country development banks for the 1950s and 1960s. He concludes that the supply of funds was more than adequate, and effective demand for bank funds was the real limit on the level of lending by the sample development banks. In an earlier study, Adler and Mikesell had pointed out that the major limitation on the number and volume of sub-loans made to private enterprises in developing countries arose from the demand side rather than from the supply of loanable funds (Adler and Mikesell, 1966: 55).

In evaluating the role of development banks in the process of economic development, an understanding of the sources of capital supply to the banks is essential. A knowledge of where such capital originates and

what processes are necessary for replenishing capital is important in explaining the relative shortage or availability of funds. A relatively small percentage of development bank financial resources (only 17 percent) originates in the private domestic sector via debt and equity actually raised in the market, by far the major share of such resources is contributed by foreign lending agencies, 47 percent (Kane, 1975: 94-98). For India, Kane finds that the ICICI obtained only 15 percent of its resources from private domestic sources. The low share of private domestic sources in the supply of funds reflects low levels of income and hence of aggregate saving in the developing countries. However, available private domestic capital can often find more attractive alternative investment opportunities than investing in debt or equity instruments of the development banks.

The foreign funds which the development banks have obtained include lines of credit extended to the development banks for financing equipment imports from the capital exporting countries. Such lines of credit have been extended by the U.S. Exim Bank. Many of the development banks have received economic assistance funding through AID or its predecessor agencies, including counterpart funds. For some countries, counterpart funds were particularly important, as in Turkey and in India.

The key element in assessing the role of development banks in promoting private enterprise and economic development is considering the emergence of capital markets in the developing countries. The long-run success of the development banks in becoming viable financial institutions is tied to the development of capital markets in developing countries. Development banks finance their customers through both debt and equity securities. When development banks underwrite the public issue of securities by private industrial concerns, they create activity in the capital market. However,

if the underwriter takes up a large fraction of any new security issue, that is a sign of weakness in the capital market. And, if the underwriter takes up a small fraction of a new security issue, that is a reflection of the fact that other investors and funds are available and these other investors have confidence in the issuing corporation.

For much of the 1950s and 1960s, the private capital market evolved very slowly in India. Kane points out that between 1957 and 1969 the total amount of capital raised in the Indian capital market grew at an average annual rate of 2.2 percent. This performance "raises questions about the ability of a capital market to develop adequately especially with respect to private investment in the context of a highly planned economy. . . . The All India Share Price Index declined from 1962 = 100 to 77.7 in 1967. Military conflict, economic recession, and excessive or misdirected planning legislation all had their effect on investor confidence in private industry" (Kane, 1974: 177).

Development banks have also used sales of securities from their own portfolios to stimulate development of capital markets. This, according to Kane, was particularly important in Turkey and also in India.

The key conclusion that may be drawn from the above review is in India, development banks were an important institutional innovation whose major objective is to foster growth of private capital markets and thereby mobilize private capital for economic development. Assistance from the U.S. did play an important role in the development of these finance institutions because funds from such agencies and from the public sector was able to act as "seed money in mobilizing private sector resources for industrial development" (Kane, 1974: 185).

12.4 Agriculture and Rural Development

At the time of India's independence Indian agriculture was in a sorry state. Total foodgrain production had been stagnant, use of modern inputs was at a low level, rural life, including education and health in the rural areas, provided little reason for hope for the vast majority of the population. But in a relatively short period of 30 odd years a great deal has been accomplished. The agricultural economy in some regions of the country has been completely transformed. Agriculture continues to dominate the economic scene of the country accounting for over 40 percent of the gross domestic product in 1979/80. Within agriculture, crop production dominates and within crop foodgrains (cereals and pulses) account for 70 percent of total crop production. In 1979/80 foodgrains were planted on 77 percent of the gross cropped area and accounted for 79 percent of the irrigated area. Rice is India's major foodgrain, accounting (in 1980/81) for over 40 percent of the total foodgrains produced. The second most important grain is wheat which (in 1980/81) accounted for about 28 percent of total foodgrain production.

Between the beginning of planning in India and the late 1970's foodgrain production more than doubled. The rate of growth of total foodgrain production achieved between 1951 and 1977 was 2.8 percent per year, which ranks favorably with the growth rates achieved in the developed world (Sanderson and Roy, 1979: 2). But since population also rose the average

yearly increase in per capital grain production was only 0.6 percent. The history of agricultural production in India seems to be characterized by certain periods of rapid growth and other periods of relative stagnation. Similarly, there have been periods of optimism and of despair at the food-grain production performance and future prospects in India.

Agriculture in India is in the hands of the private sector in the sense that the day-to-day decisions by tens of millions of farm families directly impact agricultural production. The government has, of course, devoted substantial resources to agriculture as have international donor agencies. The ultimate impact of such resources has been to alter the institutional and technological environment, as well as the economic, within which Indian farmers operate. However, it needs to be emphasized that neither government of India nor aid givers' agricultural development strategy, at least in the early years of India's economic development, was characterized by a systematic, long term view of the necessary and sufficient conditions to effect agricultural modernization. This is partly attributable to the inadequate understanding, from the perspective of today, of the economic modernization process. Even so, U.S., other bilateral, and multilateral assistance to India's agriculture sector made fundamental contributions to the growth of that sector.

John Mellor has argued that aid donors to India (and, presumably, elsewhere in the developing world) neglected agriculture because they preferred projects with a large foreign exchange component. There were many such projects in industry and infrastructure but few in agriculture. Because of "basic sympathy" with the Indian's own planned approach to

industrialization, actions by aid donors on loans and grants tied to specific projects reinforced the growth strategy of India's development efforts (Mellor, 1976: 225). In hindsight, Mellor argues that the capital intensive growth strategy pursued by India was bound to produce low rates of return on investment in the short run. The massive investments in the rural infrastructure of irrigation, power, and communication would not, and indeed, could not, have yielded high returns until the complementary investments in education and research had been undertaken.

Among economic policy makers and also within the development economics profession in the 1950's and, perhaps, the first half of the 1960's, the complementarity between physical capital and human capital inputs was not clearly and widely appreciated. There was a presumption that investments in physical infrastructure were not only necessary but sufficient to generate and sustain economic growth. In agriculture, the payoff to investments in water, roads, and other infrastructure, and even the payoff to farm decision makers of getting price signals "right" was bound to be low until farmers had access to new science-based seed varieties that could make the most effective use of the fertilizers and the water. The locational specificity of bio-chemical (and, also mechanical) technology in agriculture, determined principally by climate and enviornmental conditions, had not been understood by many economists and policy makers. The recognition of this locational specificity of technology implied that little success would be achieved in borrowing technology from abroad or even from other areas in a country lying in different geo-climatic zones.

These are important lessons to be drawn from the present survey of assessments of the impact of development assistance to India's agriculture.

Indian agriculture performance, policies, and prospects have been extensively and intensively studied by many scholars. For our purposes only a small sample of these studies have been reviewed. Indian agriculture is massive and complex and development assistance from a long list of donors has been large on an absolute basis.

Just as in the industrial sector, the agricultural sector in India received aid from a wide variety of sources. However, unlike industry, in agriculture there was greater specialization in the aid effort. While the U.S. and, to some extent, Canada provided assistance to a large number of agricultural programs and projects while also financing food and fertilizer imports, development assistance from other countries was concentrated in narrow areas within agriculture. Development assistance from Australia, New Zealand, Denmark, Switzerland, the Netherlands, and Hungary was largely in the field of animal husbandry, including dairy development and processing of animal products. Development assistance from Norway, Sweden, and Finland was largely confined to forestry and fisheries. West Germany made significant contribution to area development programs, Japan to agricultural extension, and the Soviet Union to mechanized farms. India also received sizeable assistance from non-official sources such as the Ford and Rockefeller Foundations (Government of Agriculture, National Commission on Agriculture, 1976: 666-67).

The government of India has, of course, devoted substantial resources to agriculture. In absolute terms, investment funds allocated to agriculture increased over fourteen-fold from the First to the Fifth Plan (Sanderson and Roy, 1979: 13). The allocation of government resources has fluctuated

between the various plan periods but the share allocated to agriculture and rural development never fell significantly below 25 percent. The accompanying table (Table 12.6 from Sanderson and Roy provides details on public sector expenditures on agriculture in India by five year plan periods. Several observers have noted that since the public sector outlays on agriculture as a percentage of total plan outlays fell to 23 percent in the Second Plan from 37 percent in the First Plan, this was one measure of the neglect of agriculture in the Second Plan relative to the First Plan. However, if it is borne in mind that some of the plan outlays on agriculture in the First Plan were for completion of irrigation projects begun even before the First Plan, then the 37 percent figure for the First Plan is an aberration and a correction for that aberration reveals that Second Plan outlays as a percent of total plan outlays were not much below that for the First Plan.

Table 12.7 summarizes the targets for agricultural production that were set for each of the plan periods and the achievements. During the 1950's foodgrain production grew largely as a result of increases in acreage, both in the total area under grains and the rate of double cropping. During the 1960's and 1970's the expansion in acreage was an insignificant source of increased output, the growth in output was achieved by yield increases. Since 1960 irrigated land has grown in relative and absolute importance. Between 1950 and 1975 the total net irrigated area increased by 65 percent, from 20.9 million hectares to 34.5 million hectares. Over two-fifths of that expansion is attributable to major public (canal) irrigation systems (Sanderson and Roy, 1979: 113). Also, fertilizer consumption has increased

Table 12.6 Public Sector Outlays on Agriculture (Billion rupees)

Type of Outlay	First Plan, 1950-51 to 1955-56		Second Plan, 1956-57 to 1960-61		Third Plan, 1961-62 to 1965-66		Fourth Plan, 1969-70 to 1973-74		Fifth Plan, 1974-75 to 1977-78[c]		Sixth Plan, 1978-79 to 1982-83	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total
Agriculture[d]	2.17	10.8	2.76	6.0	7.25	8.4	19.66	12.4	45.91	11.7	97.00	14.0
Major irrigation[e]	4.32[f]	21.5	4.20	9.1	6.65	7.7	13.54	8.6	34.34	8.7	79.25	11.4
Fertilizer and pesticides	0.09	0.4	0.37	0.8	2.25	2.6	4.93	3.1	15.55	3.9	16.88	2.4
Rural electrification[g]	0.08	0.4	0.75	1.6	1.53	1.8	7.23	4.6	8.00[h]	2.0	14.50	2.1
Community development[i]	0.82	4.1	2.53	5.5	3.64	4.2	3.55	2.2	5.03	1.3	6.25	0.9
Total agricultural outlays	7.48	37.2	10.61	23.1	21.32	24.9	48.91	31.0	108.83	27.7	213.88	30.8
Total plan outlays	20.13	100.0	46.00	100.0	85.76	100.0	157.79	100.0	393.22	100.0	693.80	100.0

Sources: Government of India, Planning Commission, Selected Plan Statistics (New Delhi, 1959); GOI, Planning Commission, Review of the First Five Year Plan (Delhi: Manager of Publications, 1957); GOI, Planning Commission, Second Five Year Plan, 6 vols. (Delhi: Government of India Press, 1957); GOI, Planning Commission, Third Five Year Plan (Delhi: Manager of Publications, 1961); GOI, Planning Commission, The Fourth Plan: Mid-Term Appraisal (New Delhi, 1971); GOI, Ministry of Agriculture and Irrigation, Directorate of Economics and Statistics, Indian Agriculture in Brief, 13th ed. (Delhi: Controller of Publications, 1974), and 16th ed. (Delhi: Controller of Publications, 1978) [hereinafter, Indian Agriculture in Brief]: GOI, Planning Commission, Draft Five Year Plan, 1978-83 (Delhi: Controller of Publications, 1978).

a. First through Fifth Plans, expenditures; Sixth Plan, planned outlays.
b. See footnote 5 to this chapter.
c. The Fifth Plan was terminated one year early; figures are for four years.
d. Includes minor irrigation.
e. Includes flood control.
f. Includes power.
g. Excludes institutional finance.
h. Estimated.
i. Includes cooperation.

Source: Sanderson, Fred and Shyamal Roy. (1979). Food Trends and Prospects in India. The Brookings Institution, Washington, D.C. Page 14.

Table 12.7 Targets and Achievements of Agricultural Production, 1950 to 1982

Item	First Plan, 1950-51 to 1955-56	Second Plan, 1956-57 to 1960-61	Third Plan, 1961-62 to 1965-66	Fourth Plan, 1969-70 to 1973-74	Fifth Plan, 1974-75 to 1977-78[a]	Sixth Plan, 1978-79 to 1982-83
Food grain production (millions of metric tons)						
Base year (trend)[b]	57.2	65.6	75.1	96.1	107.1	119.5
Target	62.6	81.8	101.6	129.0	125.0	140.5-144.5
Achievement						
Actual	66.9	82.0	72.3	104.7	125.6	n.a.
Trend[b]	65.6	75.1	86.1	107.1	119.5	n.a.
Additional irrigation (millions of gross hectares)						
Total						
Target	6.85	8.54	9.66	11.97	10.80	17.00
Achievement	5.13	5.74	7.31	9.78	8.10	n.a.
Major and medium						
Target	3.50	4.90	4.50	4.77	5.80	8.00
Achievement	1.30	2.10	2.10	2.55	4.30	n.a.
Minor						
Target	3.35	3.64	5.16	7.20	5.00	9.00
Achievement	3.83	3.64	5.21	7.23	3.80	n.a.
Fertilizer Consumption (millions of metric tons of NPK)[c]						
Target	n.a.	0.66[d]	1.43[d]	5.50	4.80	7.85
Achievement	0.14	0.28[d]	0.71[d]	2.84	4.19	n.a.
Nitrogen consumption (millions of metric tons)						
Target	0.12	0.51	1.02	3.20	3.40	5.25
Achievement	0.11	0.21	0.58	1.83	2.89	n.a.

Sources: First through Fourth Plan figures and Fifth Plan targets, Indian Agriculture in Brief, pp. 204-05, 211-13; Fifth Plan achievements and Sixth Plan targets, Government of India, Planning Commission, Draft of Five Year Plan, 1978-73, pp. 25, 129-30, 135, 137.

n.a. Not available. a. Fifth Plan targets are for 1978-79; achievements for the four years (1974-75 to 1977-78) the Fifth Plan was in effect. b. Trend production substituted for actual foodgrain production to eliminate the effects of weather fluctuations and other temporary factors. Trends are exponential. c. NPK is total fertilizer consumption, by weight of principal nutrients (nitrogen, phosphorus, potassium). d. Does not include potassium.

Source: Sanderson, Fred and Shyamal Roy. (1979). Food Trends and Prospects in India. The Brookings Institution, Washington, D.C.

dramatically, especially since 1960. Between 1960 and 1975 fertilizer consumption, measured in terms of kilograms per hectare for all cereals, grew at an average annual rate of over 16 percent (Sanderson and Roy, 1979: 132).

The allocation of funds to agriculture has been determined by the agricultural and rural development strategy that India has pursued. During the First Plan and even before there was substantial investment in irrigation to increase the productive capacity of the land, but the principal emphasis was on altering people's motivations and attitudes towards change. The view implicitly guiding rural development policy was that the Indian farmer was a tradition-bound economically unresponsive individual who lacked the motivation and ability to efficiently utilize the resources at his disposal. The initial approach to community development was aimed at changing the attitudes of the rural people toward the use of production-increasing technology (Mellor, 1976: 26). The farmer was also seen as being exploited by landowners, money lenders, and traders, and this was sought to be eliminated by attempts at land reform, the creation of government-sponsored co-operative credit schemes, and the development of a co-operative marketing structure (Mellor, 1976: 30-8).

Of the efforts at agrarian reform, the abolition of the 'zamindari' system was the most successful (USAID/India, 1982: 4). The land reforms of the First Plan increased the proportion of land in owner-operated systems from 40 percent to 75 percent and lowered the proportion of land worked under "undesirable" forms of tenancy from 50 to 12 percent (USAID/India, 1982: 4). Further attempts at agrarian reform were only partially successful as were attempts to reduce exploitation of peasants by money lenders.

However, by the end of the First Plan there were 200,000 agricultural co-operatives, 80 percent of which were credit societies and total membership numbered 13 million (Mellor,1976: 34-5).

The first great and by far the most ambitious effort to tackle the tremendous task of raising the income, productivity and quality of life of the rural population was the Community Development Program. It was begun in October 1952. The program was a multi-purpose, broad front attack on every aspect of village life, including agriculture, physical infrastructure such as roads and wells, education, health, cottage industry, the co-operative movement, the role and status of women, the emancipation of the "untouchable" class, and land reform. The U.S. government and the Ford Foundation provided more than $100 million for the Community Development Program between 1951-52 and 1960-61 (Brown, 1971: 5).

In the Community Development Program the country was divided into "Development Blocks", each consisting of roughly 100 villages with a total population of around 100,000. Two new cadres of Community Development workers were created - the Block Development Officers and the Village Level Workers. Government capital was used to finance and train the new staff and also finance the provision of direct production inputs for agriculture, including seeds, pesticides, machinery, credit, and marketing and storage facilities. Foreign technicians were involved in the training of the new staff. In a relatively short period of time over 100 training centers for Village Level Workers were set up. However, in most cases these training centers were located some distance away from the existing agricultural colleges and research stations and only about 15 percent of the training time was devoted to technical agriculture (Brown, 1971: 5).

Several observers of the Community Development Program came to the conclusion fairly early on in the program that a rapid increase in agricultural production would not be achieved in a program that relied on the use of available agricultural technology. Dorris Brown cites a report by a U.S. agricultural technical study committee for the U.S. Technical Co-operation Mission in 1953 which questionned the effectiveness of then known yield-increasing technology and which felt that economic incentives (such as crop prices) were inadequate to motivate the average Indian farmer to produce more. The study committee recommended that the Indian government re-allocate some of the Community Development funds away from demonstration-based extension activity towards agricultural research to discover new agricultural technology.

The implications of the report were rejected by the Government of India and by other supporters of the Community Development Program who felt that adequate and effective agricultural technology was available but was not being used by farmers.[1/] In 1955, however, a Joint Indo-American Team on Agricultural Research and Education re-emphasized the need for improved agricultural education and research and proposed the establishment of agricultural universities in India similar to the U.S. federal-state land grant universities. This proposal was accepted by the government of India and initiated in five states in India during the Second Plan.

By the late 1950's, India's food situation was precarious and food-grain imports were necessary to supplement domestic supplies. India's foreign exchange position was also weak and scarce foreign exchange was being allocated to industrial imports. The tight foodgrain situation coupled with some misgivings about the effectiveness of the Community Develop-

ment approach in raising food output led the government to appoint the Nalagarh Committee to study the situation. The Committee issued its report in October 1958. It reiterated the view that the agricultural research program was inadequate. At about the same time the government, through the Ford Foundation, invited an agricultural production team from the U.S. to work with Indian agricultural experts in developing a plan for agriculture. In 1959 the committee issued its well-known Report on India's Food Crisis and Steps to Meet It. This report was accepted by the government which then invited a second group of agricultural experts to suggest a specific "action program." The specific 10-point action program came to be known as the Intensive Agriculture District Program and was formally adopted by the government in 1960.

Before we turn to the IADP it is necessary to review some assessments of the Community Development program. It was a massive effort, but in terms of resources, outlays on the program were only about one-fifth of the outlays for major irrigation works. The Indian government's 1976 National Commission on Agriculture provides an assessment of the Community Development Program of the 1950's. It argues that towards the middle of the Second Plan there was a realization among the policy makers that the (scarce) resources committed to the program were "being spread too thinly over a wide area and no appreciable increases in production were being achieved," (Government of India, National Commission on Agriculture, 1976: 35). The National Commission goes on to add "under the Community Development Program there was considerable emphasis on demonstration as the key element in agricultural extension. This particular program has generally been described as a failure. The reasons usually cited for this include inadequate organization and the inability to adopt a package approach to crop production," (Government of India, National Commission on Agriculture, 1976: 45).

While the output and productivity gains coming out of the Community Development Program were small, the program did go a long way to improve and uplift the village environment. As Gary Hunter points out in his careful study of the administration of agricultural development in India, the Community Development Program established certain administrative structures which exist even today, and the program created an awareness among the rural population that the government, through the personage of the Village Level Worker, was a source of advice and assistance (Hunter, 1970: 26).

Another observer has pointed out that the program activities under Community Development were "useful in bringing about a greater cohesiveness in the village or community structure," but since scarce financial resources were used to deal with many aspects of village life, and only limited attention was given to the improvement of agricultural productivity, this short-sighted view tended to postpone the implementation of sound long-range policies devoted to developing sources of "dependable technological or substantive inputs" for agriculture (Moseman, 1971: 71).

In a 1970 review of U.S. agricultural assistance strategy in India, Schutjer has noted that while considerable technical assistance and equipment for the Community Development Program was provided by the U.S., the U.S. also directed considerable effort to increased and more effective use of fertilizers in India (Schutjer, 1970: 3-4). The U.S. also provided technical assistance for the establishment of soil testing laboratories, for conducting crop response trials, and for the establishment of the Fertilizer Association of India. Much of the effort on fertilizers was bound to be unsuccessful so long as new crop varieties more responsive to chemical inputs did not

exist. While that is evident today, it was not so in the early years of development assistance to India.

Difficulties on the foodgrain situation in the late 1950's led to greater attention to production performance and the IADP. Schutjer has noted that the "concepts underlying the IADP represent a composite of the views of Indian Government officials, AID personnel, and the members of the visiting (Ford Foundation) team," (p. 6, footnote 13, parentheses added).

The primary objectives of IADP were to demonstrate how rapid increases in production could be achieved in certain areas by intensive concentrated efforts in those areas. From over 300 of India's districts, 15 districts, one in each state, were selected for the experiment. The criteria for the selection of the districts were: assured rainfall and irrigation facilities; well organized and operating village institutions set in place by the earlier Community Development Program; least vulnerability to natural hazards; and a high potential for increasing food production in a relatively short period of time. The aim was to concentrate scarce resources (for example, fertilizers, pesticides, credit, technical, water, and farm management assistance, etc.) in the more responsive, more likely to succeed, districts. (The above and the next few paragraphs draw heavily on Dorris Brown.)

The IADP was assisted by the Ford Foundation, USAID, and the Japanese Government. The Government of India and the state governments provided more than $30 million for the first five years of the program (Brown 1971: 14). Evenson and Kislev, however, on the basis of state budget data conclude that until 1975 a total of about $100 million had been spent. They add "It (the program)

cost roughly one half as much as the research activities in India devoted to improved crop production for the entire country during the 1960's," (Evenson and Kislev, 1975: 106).

Several assessments of IADP have been made--by the Government of India, and by research workers in India, the U.S., and elsewhere. The assessments by the Government of India have mainly to do with physical and administrative targets reached such as number of cooperative societies formed, amount of credit disbursed, and quantity of fertilizer used. Most of the assessments by Indian research workers have tended to examine output and yield changes in IADP districts compared to other districts. For our purpose we will briefly examine assessments by Lipton (1968) and by Brown before turning to the one by Evenson and Kislev.

Michael Lipton's assessment of IADP is qualitative and somewhat polemical. It predates Dorris Brown and Evenson and Kislev, who don't refer to Lipton even though Lipton's contribution appeared in an important volume entitled The Crisis of Indian Planning. Lipton questions the rationale behind IADP, and asserts that the program is (was) in-egalitarian because it reduced risk only for farmers already enjoying assured water supply. He labels the selection of IADP areas as unsatisfactory because insufficient attention had been given to determine where the expected rate of return on the package of practices was the highest.

D. Brown's study covered the period of the first five years of IADP. In a preface to his study, S. R. Sen calls Brown's study an "independent evaluation of the IADP." Curiously, Sen adds that Brown was actively involved in the implementation of the program as a consultant for seven years. While

this close association with IADP may not have affected Brown's objectivity in evaluating the program, the methodology employed by Brown was subsequently adopted by many Indian research workers in the field. The Government of India in its own evaluation of IADP also used the same methodological approach.

Brown computed compound annual rates of growth of area, output, and yield of all crops for the ten year period 1956-57 to 1965-66 in each district in the country. Then, he divided the rates of growth in the districts during 1961-62 to 1965-66 by the growth rates achieved during the previous five years and termed those "indices of change." His methodological approach is stated as follows: "If IADP has had a major impact on foodgrain crop output and productivity, then the ten-year growth rates and indices of change calculated for IADP districts should be significantly higher than zero and significantly different and above the same items calculated for bordering districts and other districts in the same state," (Brown, 1971: 29).

This calculation showed that only 3 of the 15 IADP districts reported significantly higher rates of change of output and yield for foodgrains during the IADP years when compared with the previous five years. Only two IADP districts reported significantly higher changes in foodgrain output than did bordering areas. The farmers in IADP districts did somewhat better with increased output of cash crops. However, there was no significant difference between the IADP districts and other districts in the increased use of inputs. These results led Brown to conclude that "during the Third Plan, growth in output and yield per acre of foodgrain crops in IADP districts as a group was not significantly different from that in the previous five years in the same district," (Brown, 1971: 92).

Nevertheless, Brown attributed important conclusions to the IADP experiment. It helped demonstrate that most Indian farmers operate with economic rationality. The IADP experience guided the development of and the diffusion of the then-new "Green Revolution" technology. Data from IADP crop field tests and other special studies helped government policy makers evaluate alternative price policies and influenced policies regarding the efficient use of water in crop production and the development of irrigation resources.

The evaluation by Evenson and Kislev (1975) is by far the most analytical evaluation of IADP. They argue that the methodology employed by Brown was inappropriate and, using an altogether different procedure, conclude that "the program induced a very significant increase in the use of modern factors of production and hence of agricultural production," (Evenson and Kislev, 1975: 107).

Evenson and Kislev argue that the rate of measured total factor productivity growth is determined by the application by producers (that is, farmers) of new economically relevant technology and by the reduction in technical choice errors. The new technology can originate from three sources: (1) from agricultural research specifically directed to producing technology suited to the economic and environmental conditions in the district; (2) from agricultural research directed to producing technology suited to economic and environmental conditions different from those of the district, but superior to existing technology in that district; and (3) from discovery activity by farmers themselves when they modify and adapt new technology to farm-specific conditions. The improvements leading to reduction in economic and technical choice errors can arise from two sources: (1) farmers may utilize available resources in a more cost-minimizing manner, and (2) there may be improvements in factor supply efficiency, including supply of credit.

In their view the test of the contribution of the IADP program has to be made in terms of associating increased total factor productivity with IADP activities, holding constant the contribution of agricultural research and other technology discovery activity and environmental factors, and controlling for the initial level of economic slack. The evaluation by D. Brown and by the Government of India did not take into account the level of economic slack existing at the beginning of the program in 1961 in the IADP and non-IADP areas. The selection of the IADP districts in terms of the criteria of relatively well-endowed water resources and well-functioning village institutions probably implied that the selected districts had less economic slack than the other districts.

Evenson and Kislev set up an econometric estimating equation where the dependent variable is district total factor productivity. The explanatory variables include expenditures on agricultural research in the state in which the district is located; expenditures on agricultural research outside the state but within the same geo-climate region; the rate of change of total factor productivity in the district in the five years prior to IADP, which is used as a proxy measure for the level of economic slack existing at the start of the program. They also include an "interaction" term to take into account the fact that there frequently is technological borrowing both within and across different geo-climatic regions.

The econometric estimation is made with data for 140 districts for the period 1960-71, including 7 IADP districts. Qualitatively, the state and regional research variables were found to be significant contributors to the statistical explanation of both productivity change and foodgrain yields.

The IADP effect was picked up by the coefficient of the dummy variable for the IADP districts which had been introduced in the estimating equations, and was positive. Also, the coefficient of the pre-IADP productivity index was significantly negative which implied that the higher the early period productivity gains, the lower the economic slack at the beginning of the IADP program, and therefore, the lower the potential for total factor productivity gains in future periods. They also examine the interaction between the IADP dummy variable and the agricultural research variables, and conclude that the IADP program complemented the research inducements to increased yields, but substituted for research in terms of the contribution to total factor productivity.

In summary, Evenson and Kislev conclude that the IADP program induced significant increases in the use of modern inputs, especially fertilizer. But when these increased inputs are "netted out" in the total factor productivity computations, the contribution of the IADP program becomes modest. And, because districts with relatively low economic slack were chosen, there was a relatively small impact. The key element was that there was no new technology discovery under IADP although there was borrowing of technology across districts. In terms of economic payoff to IADP, Evenson and Kislev argue that "the IADP program probably had a payoff of approximately the same order of magnitude as other development efforts, with the glaring exception of investment in research," (p. 119).

The crucial lesson that can be drawn from the IADP experience is that while the use of modern inputs (especially fertilizer) expanded, the payoff in terms of increased output was small. The reason for that was that since

no new biological sources of permanent income were being produced (the Indian agricultural research system was in its infancy), the marginal productivity of modern inputs was bound to be small. The increased use of fertilizer and other modern inputs was not to yield large increases in output until new seed varieties capable of more effectively utilizing new chemical nutrients became available. The new biological technology could not be brought in from abroad because of the location specificity of such technology. The ability to borrow such technology and effectively adapt it for use in India was constrained by a relatively undeveloped agricultural science capacity in India. Further, within a country also there are significant differences in soils, weather, and environmental conditions and these limit the possibilities for borrowing plant material across different geo-climate zones within a country.

Simultaneously with the IADP program to which AID, Ford Foundation, and other agencies made significant contributions, there was underway in India an important institution-building program which was to lay the foundation for a science-based agriculture in India. This institution building to serve agriculture received substantial assistance from the U.S. AID and from the Ford and Rockefeller Foundations. The physical facilities for agricultural research and the scientific capacity to produce a steady stream of scientific knowledge and methods applicable to Indian conditions are an important prerequisite for sustaining agriculture in India.

As John Mellor and others have pointed out, although India had a long history of agricultural research, there was little cooperation, coordination, or even sense of purpose within the agricultural research system.[2/] In a

"very striking effort spanning more than a decade," the Rockefeller Foundation, the Ford Foundation, the U.S. government, and other agencies provided scientists and technicians, financed the foreign training of Indian scientific personnel, and provided the basis for a growing and rigorous research establishment. Mellor characterizes the early American effort to introduce a system of agricultural universities patterned after American land grant universities as a "heavy-handed approach to technical aid" which, fortunately, succeeded only when it was properly adapted to Indian conditions by Indian administrators (Mellor, 1976: 225-29).

The Indian agricultural research system in its present organizational form is of recent vintage which only underscores its rapid progress. M. S. Randhawa, in his highly readable history of the Indian Council of Agricultural Research, published on the occasion of the fiftieth anniversary of the ICAR, notes and mentions individuals who played a key role in the effectiveness of aid assistance efforts in India (Randhawa, 1979). He singles out the contributions of Dr. Frank W. Parker ("a real friend of India with a passionate concern for its people and their agriculture"), who was the chief agricultural advisor in the U.S. Technical Co-operation Mission in India between 1953 and 1959, in influencing the Rockefeller Foundation's involvement in agricultural development schemes in India. Moseman (1971) also points out that Parker's work in India was instrumental in changing decisions on kinds and quantities of fertilizers needed in India and created a base for improving fertilizer resources in India (Moseman, 1971: 73).

In recent years most observers of the Indian agricultural research system characterize it as one of high caliber relative to that of most other

developing countries and even compared to that of some developed countries. For instance, Ruttan says that the system in India "is clearly one of the half-dozen most significant national agricultural research systems in the world in terms of resources employed and level of scientific activity," (Ruttan, 1982: 95). The Indian Council of Agricultural Research is the national apex agency which coordinates and guides agricultural research and education in the country. There are 32 central research institutes and 7 soil conservation research and training centers under its jurisdiction. There are now 21 agricultural universities, 73 agricultural colleges (including those at the agricultural university campuses) and 21 veterinary colleges. Six U.S. universities under USAID-financed contracts in the 1960's assisted in developing the teaching, research and extension programs in Indian agricultural universities. The first agricultural university started functioning in Uttar Pradesh state in 1960.

In a very general sense, scientific personnel and capital and current expenditures are the inputs which go into the agricultural research system. The output that comes out of this system is the new knowledge that is created. This new knowledge, whether it is embodied in new but conventionally defined production inputs or whether it serves to alter existing input combinations, must be treated as a production input which affects the productivity of agriculture. The new knowledge is an intangible and cannot be measured directly. While a proxy measure of the new knowledge has been used by many authors, the key point is that the new knowledge is capable of sustaining a higher rate of agricultural growth. Randhawa argues that the "outstanding achievement (of the agricultural research establishment) is attainment of self-sufficiency in food by the country," (Randhawa, 1979: iii; parenchesis

added). Most of the increase in the production of cereals has occurred after 1965 and is, of course, due principally to the introduction of the high-yielding varieties of wheat, rice, and maize and their adaption to local Indian environmental conditions. Indian agricultural scientists "were not the mere recipients of this (plant) material but they improved it significantly, (Randhawa, 1979: preface, vi).

The investments in agricultural research in India have yielded very high returns in terms of agricultural productivity. As Ruttan has shown above in Chapter 10, the results of a large number of studies of the contribution of agricultural research to productivity growth from both high and low income countries indicate high rates of return to investment in agricultural research. The studies on India also indicate high rates of return to investment in agricultural research (Evenson and Kislev, 1975; Evenson and Jha, 1974; Karam Singh, 1974; and Kahlon, et al, 1977). The results of these studies are cited in Chapter 10.

Evenson and Kislev, Randhawa, and others have also argued that one measure of the maturity of institutions to sustain agricultural development is the quality and quantity of the scientific output of the scientists in the research system. A proxy measure of scientific output is the number of books, monographs, and journal articles being produced by the scientists. Randhawa provides a list of all such publications since 1929. Until 1940 only 12 books or monographs had been published; between 1941 and 1950, 4 published; between 1951 and 1960, 38 publications; between 1961 and 1970, 76 publications; and between 1971 and 1978, 59 publications. Randhawa also points out that the publications program for journals has also expanded rapidly. The ICAR now publishes monthly well known journals such as the Indian Journal of

Agricultural Sciences, the Indian Journal of Animal Sciences, Indian Farming, Indian Horticulture, and a Hindi language magazine called Kheti. Evenson and Kislev show that between 1948 and 1968 the number of publications by research workers in India (some of whom may have been non-Indian) grew rapidly. There was a shift over time away from commercial crops such as sugarcane and cotton toward foodgrains.

The present position of agricultural research in India provides the foundation for a relatively promising outlook for Indian agriculture. Foreign assistance played a crucial role in the development of the research system which must be one of the greatest successes of aid effort by the U.S.

Food Aid Impact Studies

U.S. bilateral and multilateral aid to India for purposes of agricultural and industrial development was large in absolute amounts and largely uncontroversial. However, food aid to India was, to say the least, the subject of a great amount of inquiry and debate. U.S. aid to India in the form of agricultural commodities supplied under PL 480 constituted an important proportion of total bilateral and multilateral aid to India.

Except during 1951-52 India did not import any significant amounts of food during her First Plan period. Foodgrain prices were stable during that period. But from the beginning of the Second Plan (1956-57 to 1960-61) India's food imports began to increase. The lagging agricultural production and a growing foreign exchange crisis compelled the Government of India to enter into an agreement with the U.S. for the import of foodgrains. Since that first agreement several other agreements and supplementaries were signed between the two countries. The agricultural commodities that were shipped to India were wheat,

rice, maize, milo, cotton, dairy products, tobacco, and soybean oil. Wheat shipments dominated the program. Between the first Title I agreement in 1956 and 1978 a total of $4.6 billion worth of agricultural commodities were programmed for India (U.S. Embassy in India, 1979: 42-3).

The nature and magnitude of these shipments, especially in the mid-1960's, and their impact on the development of the agricultural sector, and on overall economic development of India has been the subject of numerous studies. The primary focus of studies on the impact of this aid has been on the disincentive effects of food aid: do increased imports of foodgrains result in a misdirection of investment by reducing the incentive to invest to raise domestic production. The other focus of these studies addresses the question: does control over the uses of local currency proceeds of PL 480 sales provide a means of influencing development policies of recipients by the U.S.?

As Isenman and Singer point out, in the discussion of the above issues the direct purposes of food aid have often been overlooked (Isenman and Singer, 1977: 206). Food aid provides food for the hungry, especially target groups like children. It provides financing for specific government development projects, both in the rural and other sectors. Food aid can be used to build up food stocks which can then be used to moderate price increases. Food aid can be used to permit recipient countries to expand employment as in "food-for-work" programs.

Empirical studies of the effects of PL 480 programs have been made for several countries, including individual country studies of India, Egypt, Colombia, and Turkey. For India the best known studies are those by Rath and Patwardhan (1967), a Ph.D. thesis by Seevers at Michigan State (1968), and a study by Srivastava, Heady, Rogers, and Mayer (1975). The last one above is the most

recent monograph-length study on "the effects of food aid programs on development, producer and consumer welfare, agricultural progress, and fiscal structures in recipient countries" with special reference to India. There have also been numerous journal articles dealing with the impact of PL 480 on India, the most recent of which is the one by Isenman and Singer (1977).

The first to express some concern about the possible negative effects of agricultural commodity aid on the recipient countries was T. W. Schultz (1960). Others disagreed with him by either denying that there was any production responsiveness to changes in price or that, even if there was such responsiveness, it would be small (Rogers, et al, 1972).

Mann (1967) developed an econometric model to measure the price and production effects of PL 480 imports on the Indian economy. His model consisted of a supply equation, a demand equation, an income-generation equation, a commercial import equation, a withdrawal-from-stocks equation, and a market clearing identity. He estimated that an increase in per capita imports of cereals under PL 480 of one pound resulted in a 0.54 percent drop in wholesale cereal prices in the same year and a decline in output in the second year of about 0.5 pounds of cereals per capita. Output tended to rise in later years so that the depressing impact on output was reduced to about 0.3 pounds per capita in the long run. Mann measured only the direct impact of PL 480 imports; the indirect impact via the effect of readily available food on planners' attitude to agriculture was not estimated.

Shortly after Mann's study, Streeten and Hill examined the PL 480 issue (1968). They did not attempt to estimate an econometric model but relied on a "commonsense" approach. They argued that the growing size of U.S. food shipments was entirely contrary to U.S. aid philosophy since it undermined Indian

self-reliance and "India's determination to tackle its agricultural problem seriously" (Streeten and Hill, 1968: 342). Though weather played a role in the weak performance of agriculture, at least in 1967 India had not hit upon a combination of policies to ensure a high and sustained rate of growth in agriculture. They also argue that during India's Third Plan funds arising from PL 480 aid financed over 10 percent of public developmental outlays. Since the Indian government was aware of the dangers in excessive deficit financing and high taxes, the government had an interest in large PL 480 grain imports and sales to raise funds to finance its plans (Streeten and Hill, 1968: 343).

On the question whether U.S. commodity aid may have had a direct impact on agricultural production via its effect on farmer incentives, Streeten and Hill argued that the evidence linking PL 480 imports and lower levels of cereal production is "strong but circumstantial." Writing in 1968, they came to the conclusion that sizeable food aid to India would continue, but that food aid should be used to stockpile cereals.

The second major econometric study of the impact of PL 480 on agricultural prices in India is the one by Srivastava, et al (1975). This study covered essentially the same ground as the Mann study referred to above and the study by Rogers, Srivastava, and Heady (1972). Srivastava, et al, built a multi-equation econometric model similar to that of Mann, except that they include an additional equation to separate cereal purchases on the open market from those in the government-run concessional market at subsidized prices. Their conclusions are stated as follows: "Each kilogram of PL 480 cereals is estimated to have depressed production of cereals by 0.027841 kg., so for each 450,480 metric tons of imports, production was depressed by 12,600 tons over a 14-year period, with the major impact coming as a result of the first and

second round of price changes. Comparing our estimates of multipliers with Mann's, the cumulative impact of distribution through a differentiated market is about one-tenth the impact with a non-differentiated market" (Srivastava, et al, 1975: 50). The policy implication of this is that the negative impact of PL 480 imports on domestic prices and supply can be significantly reduced if the commodities are distributed in the recipient economy in a way that creates new demand rather than substituting for existing demand. The government-run "fair price shops" provided for increased consumption amounting to 93 percent of the amount imported. Since imports were distributed through the government shops at prices lower than open market prices, Srivastava, et al, argues that consumer welfare was increased due to the increased consumption. Further, the distribution of PL 480 grain "has depressed domestic prices in the open market by only 0.02 percent" (Srivastava, et al, 1975: 51).

One further interesting finding of the authors may be noted because it is important to appreciate the inter-regional variability in the availability of food. Beginning in the late 1950's and continuing since then, the country was divided into food zones and movement of grain across zones was restricted. The idea behind this institutional arrangement was to enable the government to "procure" excess foodgrains from surplus zones and distribute them in the deficit zones through the fair price shops. But since government procurements fell far short of the distribution requirements, PL 480 cereals were used to change the distribution of cereals between the states. Srivastava, et al, finds that "the release of PL 480 food aid through the fair price shops has improved the interregional distribution of cereals in India" (Srivastava, et al, 1975: 54).

Isenman and Singer (1977) eschew an econometric model formulation in favor of a commonsense view on the impact of food aid. Between 1957 and 1971

large quantities of food aid (mainly in the form of wheat) were provided to India. Isenman and Singer find that in only 3 years of the food aid period, 1960/61 to 1962/63, did the relative price of food fall below that in the reference or benchmark years of 1955/56 to 1957/58. In analyzing the impact of these changes in prices on yields, they conclude "there is surprisingly little evidence of any systematic detrimental effect on yields" of the reduction in the relative price of foodgrains (Isenam and Singer, 1977: 234).

Quite apart from these impacts on prices and yields, food aid played an important role in providing resources to the government. Isenman and Singer argue that food aid provided resources equal to 10 percent or more of gross investment in the Indian economy in the first half of the 1960's. Earlier, Streeten and Hill had argued that "during the Third Plan funds arising from PL 480 aid financed over 10 percent of public developmental outlay. PL 480 aid accounted for 56 percent of the external assistance to public outlay. Because of the dangers of too much deficit financing and of the unpopularity of higher taxes, the Indian government has had an interest in making PL 480 imports and sales as large as possible to raise funds to finance its plans" (Streeten and Hill, 1968: 343).[3/] At a time when the government's investment effort was increasing rapidly and non-agricultural output was increasing, the availability of food aid was a restraining force on wage growth and offset the risk that the investment program would worsen the food situation in the inevitable years of low rainfall (Isenman and Singer, 1977: 235-36).

The gist of the above arguments is that the basic developmental strategy of the Indian government in the Second and Third Plans, with its emphasis on import-substituting industrialization, particularly heavy industry, was supported by the food aid which India received. Such food aid enabled the government

"to maintain large subsidized food distribution programs while, in the eyes of many analysts, not adequately addressing some basic questions of foodgrain production and distribution" (Isenam and Singer, 1977: 213). On the other hand, if food aid were not available, the basic developmental strategy of the government would likely not have changed.

12.5 Some Conclusions

At the time of independence India was a desperately poor country, one of the poorest in the world. After more than 30 years, India remains a poor country and is, as Krishna has characterized it, "a case of stunted, sub-optimal growth, burdened as it is with the world's largest single mass of poverty and unemployment" (Krishna, 1980: 78). The existence of this poverty even after large amounts of aid had been received by India apparently led at least one observer to conclude that "much of the aid received by underdeveloped countries, notably India, ... has not served materially to improve the income-earning capacity of those countries ..." (Bauer, 1971: 108). That is an incredible statement, irrespective of whether it is due to a complete misreading of the Indian experience or due to an incomplete appreciation of the economic development process. However, that statement was made in 1971 and it is highly unlikely that a statement like that would be made now, more than one decade later.

While India remains a poor country, in many respects India is a highly developed country with substantial physical infrastructure and production capacity in "basic" industries and strong educational, research, and financial institutions. A wide range of capital goods is now being produced in India. Educational and research institutions and personnel in the fields of agricultural science, medicine, and general engineering are of high quality. Foreign aid has played a key role in the development of the infrastructure and the institutions necessary for economic growth.

The conclusion that emerges from analyzing the Indian case is a reconfirmation that economic development is a complex and continuous process. The creation of physical infrastructure is neither a necessary nor a sufficient

condition for economic advancement. The complementarity between physical capital and institutions and human capital cannot be ignored. Further, these physical conditions cannot generate rapid growth if the macroeconomic policy environment is such that private initiatives for capital formation and risk taking are dulled by pervasive controls on private capital formation. An overall assessment of the impact of aid can only be made in conjunction with an assessment of the macroeconomic policies of the aid receiving country. Industrial licensing and controls took hold during India's Second Plan and were effective deterrents to the inflow of private foreign capital. The inward-looking industrialization strategy of India was detrimental to the overall growth of the economy and resulted in a less than optimal impact of the inflow of foreign resources into India. Government policy also thwarted the emergence of a strong private capital market in India. The growth of private capital markets and the mobilization of private capital are important for development and aid agencies have an important role to play in the development of these term finance institutions.

Our review of economic assistance for agriculture and rural development suggests strongly that massive investments in the rural infrastructure of irrigation, power, roads, and communications was fairly easily accomplished. But these investments could not have yielded high returns until the complementary investments in education and research had been undertaken. Biochemical and, to a lesser extent, mechanical technology in agriculture is highly location specific and aid resources for the transfer of technology and fertilizers was bound to be ineffective. The increased use of fertilizers and other modern inputs was not to yield large increases in output until new seed varieties capable of more effectively utilizing new chemical nutrients became available. Similarly, massive investments directed to changing

peoples' attitudes and motivations were ineffective so long as inadequate attention was paid to the development of new sources of income and economic incentives provided for the users of these new inputs. Poor people in poor countries have the same motivation to improve their (and their children's) economic well-being as people elsewhere and they will be quick to adopt new techniques if the private returns to them of doing so are high enough.

Aid resources for agricultural research and education was spectacularly successful because it was properly adapted to Indian conditions by Indian administrators. Here again the success which seems apparent now was not so apparent a decade or so ago. Institutions to serve agriculture are necessarily fragile and a continuing commitment to these institutions is necessary.

In summary, the resources and the knowledge necessary to eradicate poverty now exist and future economic performance will depend more on Indian internal and external economic policies than on anything else.

Footnotes

1/ Apparently, this episode was the beginning of a lively debate in the agricultural economics and economic development fields on whether poor farmers in poor countries are rational, profit maximizing, and efficient entrepreneurs who use the resources at their disposal in the most efficient manner. These farmers remain poor because they do not have access to new income producing investment opportunities, and not because they are unresponsive to economic incentives. T. W. Schultz has been the most eloquent proponent of the poor-but-efficient hypothesis. A vast literature was spawned in India and elsewhere on the supply response of traditional farmers. Most economists now share at least this aspect of the Schultz view.

2/ The Imperial Agricultural Research Institute had been founded at Pusa, a village in the northern part of the state of Bihar, in 1905. Lord Curzon, then Viceroy of India, had just witnessed the terrible famine of 1899-1900, and was convinced that urgent attention had to be given to agriculture. He pursuaded his American friend, a Henry Phipps from Chicago, to donate L30,000 for the establishment of a research institute at Pusa. The physical facilities at Pusa were destroyed in an earthquake in 1934 after which the institute moved to New Delhi. After independence, the Imperial Institute became the Indian Institute.

3/ Isenman and Singer cite a study by Shenoy (1974) who provides data showing that PL 480 aid financed 10 percent of total gross investment during the Third Plan period when computed at the official exchange rate, but 15 percent when computed at the Hong Kong "free market" exchange rate.

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CHAPTER 13

ASSISTANCE TO KOREA*

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CHAPTER 13

ASSISTANCE TO KOREA

Of the case studies undertaken in this survey, South Korea represents the most successful in terms of her overall development, and simultaneously illustrates the extreme difficulty involved in attempting (especially during the aid process itself) to assess the influence of aid donors on the macroeconomic policies of the aid recipient.

Because of the uniqueness of the Korean experience and the lessons that are involved for the assessment of aid generally, this case study focuses heavily on the aid experience during the years 1953 to 1965. These were the years during which aid was an extremely important factor in the South Korean economy and the years during which the South Korean economy was transformed from a dependent, relatively slowly-growing economy with numerous distortions into the most rapidly growing economy in the entire world. Section 13.1 provides a brief outline of the economy's structure and growth during the years under review, and also brings the reader quickly up to date as to later developments. Section 13.2 covers the aid relationship during that period, and the lessons that may be learned about the macroeconomic role of aid in the development process. Section 13.3 covers the relationship between trade and aid in the Korean economy during the years under review. Section 13.4 finally, covers assistance to agricultural and rural development.

13.1 Economic Growth in South Korea

Korea was a Japanese colony until 1945 when it was liberated by the Allied military forces. The upheaval associated with the end of colonial status was economically difficult. The rate of inflation prior to the Japanese withdrawal was in excess of 100 percent a month. Most businesses were Japanese-owned. Normal trading ties were disrupted. In the Korean case, these difficulties were reinforced by partition of the Korean peninsula. South Korea was the predominantly agricultural part of the country. It had relied heavily on the north for supplies of electric power and many manufactured goods.

Reconstruction efforts dominated the 1945-1950 period. These included a distribution of land which left a relatively egalitarian distribution within the rural sector. Major resources were devoted to developing the Korean educational system. During the Japanese period all education had been in the Japanese language. Few Koreans had been educated beyond high school level. These two reforms represented an important basis for later growth. The American military government and ECA were instrumental in accomplishing both the land and the educational reforms.

By 1948-49 the South Korean economy was beginning to revive, due in large part to the relatively sizable flows of aid under the military government (until 1948) and by the U.S. Economic Cooperation Administration (ECA) after the founding of the Korean Republic in 1948.

By 1949, there was a major debate within the American administration and Congress over the future of South Korea and of American assistance to that country. Although assistance was continued, it was at a substantially lower level than had been recommended by ECA. While the debate was still unresolved in the late spring of 1950, North Korean forces invaded South

Korea and the Korean war began. Under United Nations auspices, the United States and other military forces joined the South Koreans in fighting the North Koreans. Although there was massive assistance to South Korea during the war years (until 1953), most of it was devoted to military equipment and to supplies, including food, essential to the war effort.

At the end of the Korean War in August 1953, the Korean economy was even more devastated than it had been in 1945. Most of the progress that had been made between 1945 and 1950 had been undone. In addition, the infrastructure of the economy--roads, ports, schools--had been severely damaged.

The Korean War also left some other legacies which proved damaging to the Korean economy in the following years. Among these were a high rate of inflation. Inflationary pressure was associated with both (a) the strains that had been put upon domestically available goods when the demand for them swelled under pressures of war and (b) the purchasing power of the foreign military forces while supplies dwindled because of the war. Associated with a high rate of inflation (which was in excess of 50 percent in 1953 to 1957) was an elaborate system of exchange control and multiple exchange rates.

During the Korean war, the American government had naturally wished to enable their forces serving in South Korea to buy goods and services locally. To do so, it was necessary to purchase Korean currency from the Korean government. Negotiations over the exchange rate at which these purchases would be made in the context of rapid inflation, combined with the Korean exchange control system which was necessarily partly undermined by the emergence of a black market, resulted very quickly in a multiple exchange rate system. Because the Korean government wanted to maximize

the foreign exchange it would receive in return for local currency provided for American and other U.N. troops, it was naturally reluctant to devalue the currency. That reluctance, coupled with a high rate of inflation, led to a severely overvalued exchange rate, which in turn necessitated quantitative controls over most foreign exchange transactions.

The reconstruction period in South Korea after 1953 started with an extreme macroeconomic imbalance. The imbalance was partly offset during the 1950s by sizable inflows of American aid (see Section 13.2). Three structural features were particularly important for the dramatic difference in the Korean economy during the 1950s and the 1960s.

The Korean economy, like that of most developing countries, was predominantly agricultural in the 1950s. Mason, Kim, et al., estimate that 44 percent of GNP originated in agriculture in 1953-55, with only 13.6 percent in industry.[1/] Even for the 1960-62 period, agriculture accounted for 39.9 percent of GNP and industry (including construction and utilities) only 18.2 percent of GNP. Hence, while there was some change in the relative importance of primary and secondary industry, structural transformation was relatively slow during the 1950s.

Second, private consumption accounted for 80 percent of GNP in the 1953-55 period, while investment accounted for only 11.2 percent of GNP. The average domestic savings rate is estimated to have been only 2.9 percent of GNP. Foreign savings (primarily aid--see Section 13.2 accounted for 8.3 percent of GNP. This was almost three-quarters of investable resources. Indeed, in 1956, net domestic saving was negative (See Krueger 1979 ,

Table 52). Moreover, the situation was relatively unchanged by 1960: foreign saving accounted for 78 percent of total saving, and gross investment represented about 10 percent of GNP.

Thirdly, due to the importance of foreign aid as a source of investible resources, imports accounted for 10-12 percent of GNP throughout the 1950's, while exports represented between 1.8 and 3.5 percent of GNP, and their share was not growing.

This relatively stagnant structure and dependence on aid for financing imports was reflected in a variety of ways. First, despite the opportunities for rapid growth that a postwar reconstruction period always presents, Korean economic growth during the 1953-60 period was relatively slow (Table 13.1). Secondly, foreign exchange difficulties, which arose from the continued reluctance of the authorities to devalue the currency in the face of rapid inflation and the desire of the government to increase its aid receipts, led to the continuation of the complex system of multiple exchange rates and stringent import licensing. The inefficiencies associated with the foreign exchange shortage itself, the multiple exchange rate system, and the inevitable corruption that surrounded its administration were certainly responsible for the diversion of resources from the export sector and the consequent failure of resources from the export sector and the consequent failure of export earnings to grow significantly. In turn, the pull of resources into import-competing sectors resulting from the sizable margin of domestic over foreign prices was accompanied by pronounced inefficiencies. These phenomena were, of course, a large part of the explanation of the relatively slow growth referred to above and documented in Table 13.1.

Starting in the late 1950's, a series of policy reforms was undertaken. A first step was a general tightening of macroeconomic policies - monetary

Table 13.1 Annual Rates of Growth of Real GNP Components 1954 to 1960

	Primary	Industry	Services	Exports	GNP
1954	6.7	20.0	2.5	-36.0	5.5
1955	2.7	17.1	5.7	-27.9	5.4
1956	-5.8	13.3	4.0	42.1	0.4
1957	9.4	11.8	5.8	1.5	7.7
1958	6.1	8.1	3.5	-20.3	5.2
1959	- .9	11.3	7.5	11.3	3.9
1960	- .5	6.7	2.8	54.1	1.9

Source: Mason, Kim, et al (1980), The Economic and Social Modernization of the Republic of Korea (Cambridge: Harvard University Press): Table 12.

and fiscal - in 1958 in response to a reduction in aid levels. This resulted in a pronounced slowdown in the rate of inflation - from an average rate of 36 percent for the 1953-57 period to 3.8 percent for the years 1958 to 1960 (Mason and Kim, 1980, Table 19).

The second step came after the revolution and the installation of a military government in May, 1960. There was a massive devaluation and a unification of the exchange rate system. The purchasing-power-parity effective exchange rate for Korean exports, which was 223.8 in 1955, rose to 319.6 in 1960. This represented a massive 42 percent increase in real receipts per dollar of commodities exported. And it probably represented a much greater increase per dollar of value added in export production. The exchange rate reform was accompanied by the installation of additional export incentives, including export subsidies, access to subsidized credit, and rights to import goods without payment of duty.

Despite the fact that the new government was not initially able to contain the rate of inflation, it maintained the export incentives through changes in the subsidy rates between formal devaluations. Throughout the 1960's and into the early 1970's, exporters could be assured that, regardless of the rate of domestic inflation, the real return on their exports would be protected.

The export drive which began in the 1960's was central to the entire set of policy reforms. After his election in 1960, President Park was almost single-mindedly committed to economic growth. The initial success of the export-oriented drive led him, and the entire government, to associate the achievements with the success of the export drive.

Before turning to measures of the degree of success, some other policy measures should be noted. In 1964, budgetary reforms were undertaken, which

substantially reduced the government's budget deficit. The deficit, which amounted to about 5.2 percent of GNP in 1962 was down to 0.6 percent of GNP by 1965. This, and the credit reforms discussed below, resulted in a markedly lower rate of inflation than had earlier been experienced. The average rate of price increase was around 10 percent annually in the late 1960's in contrast with a rate of about 20 percent in the 1960-64 period.[2/]

Combined with budgetary reform were interest rate reforms. Prior to 1964 interest rates charged on loans were subject to ceilings set by the government. Naturally, there was excess demand for credit at these subsidized interest rates (although there was also a very active curb market at much higher rates of interest), and the government was a key factor in influencing banks in their allocation of credit. The government's ability to steer credit had been an important instrument in encouraging exports.

Although conditions after 1964 cannot be described as being a fully free market, the rate of interest paid to domestic savers was increased substantially, and the lending rate of the banks rose markedly. This, combined with the substantial reduction in the rate of inflation, significantly raised the cost of credit to borrowers, and greatly reduced the subsidy element in loans from the banking system.[3/]

These, then, were the major reforms. In a survey such as this, it is necessary to pass over many more minor actions that were undertaken almost continuously which permitted the efficiency of the economy to grow rapidly. There was a liberalization of the import system. Customs and other procedures surrounding export and import regulations and entitlements were streamlined. The government itself was a major actor in the transformation as it sought to keep the capacity of ports, communications, and transport

equal to the rapid increase in volume. Perhaps most significantly, government activity in the economic sphere was almost single mindedly devoted to facilitating the export drive which was seen as the hallmark of Korea's dynamic economy.

Some indicators of the transformation are given in Table 13.2. As can be seen, the first few years of the export drive were only in hindsight "successful". Real GNP growth during the early 1960's was not significantly different than it had been in the late 1950's. The only real change that was apparent was in the rate of export growth. To be sure, the government was somewhat unlucky in the weather. Both 1960 and 1962 were poor crop years, which adversely affected the overall rate of economic growth. By 1964, however, success was beginning to be apparent. The only question in most observers' minds was how long such a rapid rate of economic growth could be sustained. It was sustained over a period of more than 15 years, resulting in a complete transformation of the structure and performance of the Korean economy.

From one of the poorest countries in the late 1950's, as measured by per capita income, Korea became one of the richest. The share of agriculture in GNP fell from 37 to 16 percent (despite the fact that agricultural output grew at the very satisfactory rate of 4.4 percent annually in the 1960's) over the 1960 to 1980 period. The share of industry rose from 20 to 41 percent (with that of manufacturing rising from 14 to 28 percent). Even more striking was that the ratio of gross domestic investment in GNP rose from 11 percent in 1960 to 31 percent in 1980, while exports rose from 3 to 37 percent of GNP.

Table 13.2 Indicators of Korean Growth During the 1960's (average annual rate of growth)

Year	Primary Sector	Industry	Services	Exports	GNP
1960	- 0.5	6.7	2.8	54.1	1.9
1961	11.8	4.6	- 1.1	22.7	4.8
1962	- 5.0	14.0	8.9	30.0	3.1
1963	7.9	11.4	7.4	53.9	8.8
1964	15.3	12.6	3.0	36.7	8.6
1965	- 1.6	20.4	9.9	47.0	6.1
1966	10.5	18.7	12.6	44.5	12.4
1967	- 4.4	21.4	13.8	32.7	7.8
1968	2.3	29.5	15.4	45.8	12.6
1969	12.0	25.5	14.6	36.9	15.0
1970	- 0.4	15.5	8.9	33.8	7.9

Source: Mason, Kim, et al (1980), The Economic and Social Modernization of the Republic of Korea (Cambridge: Harvard University Press): Table 12.

By any standard the Korean story is one of success - to a degree that had previously been regarded as unattainable. Korea has few natural resources. Its economy was affected by theoil price increase and commodity price boom of 1973-4 to a greater extent than most other countries. The government nonetheless managed to pass on the price increases, encourage domestic conservation, respond with new export activities (such as construction in the Middle East), and sustain the momentum of economic growth. The rate of growth of real GDP in South Korea is estimated to have been 8.6 percent in the 1960's and 9.5 percent in the 1970's. Although the economy is currently facing some severe difficulties (largely as a consequence of the failure to maintain the real exchange rate and the real interest rate during the late 1960's, combined with a premature decision to develop heavy industry), the lessons for aid originate in the remarkable change in Korean economic policies and economic performance between the 1950's and the 1960's, and the role played by U.S. aid in the process. That is the subject of Section 13.2.

13.2 The Role of Aid in Korean Economic Growth

Tables 13.3, 13.4, and 13.5 provide an overview of the role played by foreign assistance and U.S. assistance in Korea.[4/] Foreign assistance was most important in the 1950's, and diminished in importance thereafter. During the 1950's assisted imports accounted for 69 percent of total imports, and about 77 percent of all savings (with foreign savings in total accounting for 88 percent of all savings). The period of Korean growth was one of a gradual reduction of the importance of aid (which made the returns from increasing domestic savings less than they would have otherwise been).

Once the Korean potential for rapid growth had been amply demonstrated, Korea was able to obtain foreign resources on the private international capital market, and thus to enhance her growth rate by foreign borrowing. Even in the 1965-74 period, foreign borrowing accounted for 42 percent of gross fixed capital formation, although capital formation as a percent of GNP had risen from 10.5 percent in the 1953-62 period to 22.7 percent of GNP over the 1965-74 period. Thus, once the transformation to rapid growth was well under way, South Korea could rely on the external capital market for additional resources so that profitable investment opportunities could be exploited beyond those financable with domestic savings.

There are two important questions on which the South Korean experience sheds some light. The first is whether, in the light of manifestly ill-advised domestic policies, foreign donors can contribute in any manner conducive to economic development. The second is the role of foreign donors in the dialogue. Since foreign donors cannot have a role unless they are in fact contributing aid, the second question must be discussed first here.

Table 13.3 Ratios of Aid Imports and Net Foreign Saving to GNP, Total Imports, and Fixed Capital Formation.

(%)

	1953-62	*1963-64*	*1965-74*
Ratios to GNP of:			
Total imports	11.7	15.1	26.7
Fixed capital formation	10.5	12.7	22.7
Foreign savings	9.1	9.6	9.5
Aid imports	8.1	6.5	4.4
Ratios to Total Imports of:			
Foreign savings	78	64	36
Aid imports	69	41	17
Ratios to Fixed Capital Formation of:			
Foreign savings	88	75	42
Aid imports	77	51	20

Source: Derived from Tables 43 and 44.

Source: Mason, Kim, et al (1980), The Economic and Social Modernization of the Republic of Korea (Cambridge: Harvard University Press): 185.

Table 13.4 Aid-Financed Imports Relative to Total Imports ($ U.S. and % of total imports)

		Aid-Financed Imports							
		Total				*U.S. Share*			
		Grant[a]		*Loan*[c]		*Grant*[b]		*Loan*	
	Total Imports	*Amt.*	*%*	*Amt.*	*%*	*Amt.*	*%*	*Amt.*	*%*
1953	345	201	58			171	50		
1954	243	149	61			132	54		
1955	341	233	68			215	63		
1956	386	320	83			304	79		
1957	442	374	85			369	83		
1958	378	311	82			314	83		
1959	304	211	69			220	72		
1960	343	232	68			245	71		
1961	316	197	62			199	63		
1962	422	219	52			232	55		
1963	560	233	42			216	39		
1964	404	143	35	25	6	149	37	25	6
1965	463	136	29	2	0	131	28	2	0
1966	716	148	21	50	7	103	14	47	7
1967	996	152	15	80	8	97	10	38	4
1968	1,463	168	12	90	6	106	7	70	5
1969	1,824	155	9	169	9	107	6	71	4
1970	1,984	187	9	101	5	82	4	51	3
1971	2,394	126	5	193	8	51	2	34	1
1972	2,522	66	3	342	14	5	0	194	8
1973	4,240	23	1	224	5	2	0	123	3
1974	6,851	30	0	186	3	1	0	20	0
1975	7,274	37		348	5				

Notes: [a]Total grant aid includes Japanese grant funds from 1965 on.
[b]U.S. grant aid includes technical assistance costs in addition to commodity imports.
[c]Loan aid includes loans from international organizations and public bilateral loans.

Source: Mason, Kim, et al (1980), The Economic and Social Modernization of the Republic of Korea (Cambridge: Harvard University Press): 206.

Table 13.5 Relationships of Foreign Savings, Foreign Aid, Imports, and Fixed Capital Formation to GNP.

	Percent of GNP				*Percent of Fixed Capital Formation*	
	Fixed Capital Formation	*Imports*	*Foreign Saving*[a]	*Aid Imports*[b]	*Foreign Saving*	*Aid Imports*
1953	7.2	9.7	7.7	5.7	107	79
1954	9.1	7.3	6.2	4.4	68	48
1955	10.1	9.8	8.2	6.7	82	66
1956	10.3	13.1	11.7	10.9	113	106
1957	10.6	12.0	10.5	10.2	99	96
1958	10.1	10.7	8.7	8.8	86	87
1959	10.9	10.1	7.5	7.0	69	64
1960	10.8	12.6	9.3	8.6	86	80
1961	11.6	14.8	9.5	9.0	82	78
1962	13.9	16.9	11.7	9.5	84	68
Average 1953-1962	10.5	11.7	9.1	8.1	88	77
1963	13.9	16.3	11.4	6.8	82	49
1964	11.6	13.8	7.8	6.2	67	53
1965	14.8	15.9	7.4	5.3	50	36
Average 1963-1965	13.4	15.3	8.9	6.1	66	46

Source: Mason, Kim, et al (1980), The Economic and Social Modernization of the Republic of Korea (Cambridge: Harvard University Press): 207.

For purposes of what can be learned about the ability of foreign donors to influence domestic policy in the aid process, the South Korean example is an extremely interesting one. During the 1950's, when the United States was a major donor of aid, there was a continuous dialogue between the American and the Korean authorities over appropriate levels of aid and the policy choices that the South Korean government was making. The American negotiators fully recognized, and repeatedly pointed out, the difficulties associated with the excess-demand, multiple-exchange rate, inner-oriented policies that the Korean government was following. There is little doubt that, in certain respects, the negotiators gained concessions from the Korean government (with respect, for example, to devaluing the Won and making some efforts to raise tax revenue or lower expenditures).

However, the overall strategy of the Rhee government was to maximize the gap between domestic resources and expenditures that aid would fill (Cole and Lyman, 1971). Because the United States was politically committed to the maintenance of the South Korean government, the bargaining power inherent in the American position was relatively weak.

Thus, an observer, as of 1958 or 1959, might have concluded with some justification that American aid policies were erroneous because the Korean government was following inappropriate economic policies. This interpretation seems to have some further support in that the policy reforms that were undertaken in 1960 seem to have originated largely in a consensus among the Korean intelligentsia that changes were necessary if the country was to have any reasonable future. But the discussion within Korea was certainly

furthered and to some extent stimulated by the fact that the United States had, as a policy decision, announced that aid levels could not be expected to increase and would, indeed, gradually decline. Given Korea's dependence on raw material imports, that prospect threw into sharp relief the proposition that only sustained growth of export earnings would permit rising levels of imports, which were obviously a necessary condition for further growth of the economy.

Nonetheless, those facts alone do not prove that the aid donors, and especially the United States, had no influence on the policy changes that permitted South Korea's success. Indeed, there are several considerations that point in the other direction. First and foremost, there is the undebatable conclusion that aid had, in the immediate recovery period (to 1956), been absolutely essential to the maintenance of the Korean economy. Given conditions in 1953, the South Korean economy could not, without assistance, have recovered sufficiently to undertake the necessary policy reforms - or, for that matter, to have achieved very much even if those reforms had been undertaken.

Secondly, there is a major important, but unanswerable, question as to the degree to which the American policy dialogue in the 1950's influenced the thinking of Korean policy makers. There is substantial evidence that economists at the American aid mission were involved in the discussions leading to the stabilization program of 1958-59 which, as seen above, was a predecessor of the major reforms of 1960-64. Moreover, U.S. assistance had financed the training of many Koreans in the United States. Their influence in the discussion is unknown.

Indeed, it is extremely difficult in any situation to document or measure the ways in which ideas are transmitted. It was certainly the case

that it was internal Korean political discussion in support of policy changes that was the immediate impulse for change. But it does not follow that earlier discussions had had no effect. The importance of the policy dialogue is further supported by the fact that in the early 1960's American economists associated with aid were intimately involved in later stages of the dialogue and policy reform. Certainly, the budget and credit reforms of 1964 were worked out with the collaboration of American economists financed by USAID (Mason, Kim, et al, (1980): 330). Later tariff liberalization was accompanied by the same sort of collaboration between Korean policy makers and consultants provided by USAID.

It thus seems impossible to reach a firm conclusion on the degree to which donor influence contributed to the policy reforms. It seems unarguable that there was some influence, and that forces favoring reforms were strengthened by U.S. aid. Whether the reforms would in any event have been undertaken in the absence of American pressures is more problematic. The safest conclusions are: (1) that American aid in the 1950's did not reduce the probability that policy reforms would be undertaken; (2) given the political interest of the United States in South Korea, it is remarkable that the American authorities took as strong a position as they did with regard to Korea's economic policies; (3) there was surely some donor influence on the intellectual atmosphere that prevailed when a political consensus was finally reached; (4) a contemporary observer could not, from the vantage point of 1958 or 1959, have perceived any influence of American aid on Korean policies; and (5) the fact that American aid officials already had experience in, and understood some aspects of, the Korean economy placed them in a uniquely favorable position to assist in the continuation and

furtherance of the policy reforms. While it would be purely speculative to attempt to analyze what might have been the fate of the reforms in the absence of significant external support, the donor presence was certainly a positive factor in influencing their success. Without prior experience in the Korean economy, it is doubtful whether that influence could have been as constructively employed.

Given, then, that there does appear to be a basis for believing that donor influence was of some significance in affecting the reforms when they were finally undertaken, there remains the question of the value of assistance during the 1950's. As already indicated, the period 1953-55 can surely be regarded as one during which assistance had a very high marginal product. It is almost unimaginable that political and economic stability could have been maintained in the absence of concessional assistance in those years when Korea was regarded as completely uncreditworthy in the private capital markets.

The real question, therefore, centers upon the product of aid during the 1956-60 period. Undoubtedly, some of it had a very low return. Aid financing of imports led to distortions of various kinds. However, there was considerable investment in infrastructure of various kinds (see Mason, Kim, et al (1980) for details and Section 13.4) which was undoubtedly of value in paving the way for the success of the export-oriented drive. This was certainly true of the educational reforms and assistance to education undertaken under U.S. auspices in the 1940's and 1950's. All observers of Korea's phenomenal performance point to the availability of a literate labor force as having been an important prerequisite for the degree to which Korea could capitalize on the policy reforms. Likewise, in the early 1960's, the rate at which the Korean economy could grow was

constrained by the availability of essential infrastructure - power, railroad and port capacity, and the like. While some of the infrastructural investments of the 1950's may initially have been less than optimally employed, the infrastructure certainly permitted a more rapid acceleration of growth than would otherwise have been possible in the early 1960's.

If there is a conclusion that might be drawn from this, it may be to suggest that infrastructural projects which enhance the potentially productive resources available to society are probably a wiser form of aid when governments are undertaking ill-advised economic policies than is program support. But even this conclusion must be qualified. The policy dialogue in Korea in the 1950's centered around the level of program lending to support the import program, and not around individual projects. Whether the same intangible influence on the climate of opinion could have been realized under project-only lending is certainly an open question. Possibly, in the absence of further evidence, the safest policy prescription for a donor confronted with a potential recipient whose domestic economic policies are suspect is to have a relatively higher proportion of project aid than for recipients whose domestic policies are deemed conducive to growth.

13.3 Trade and Aid in Korea

Korea's successful experience during the 1960's and 1970's is so intricately linked to the trade sector that much of the relationship between trade and aid has been discussed already. Certainly, the major factors retarding Korean growth in the 1950's were the excess demand associated with overall budgetary and monetary policy and the exchange control regime which provided the wrong signals for resource allocation within the domestic economy.

For the 1955-63 and the 1963-75 periods, the fraction of output growth attributable to export expansion, import substitution and domestic demand expansion has been calculated by Mason, Kim, et al (1980), Table 29). According to their estimates import substitution accounted for about 26 percent of manufacturing output expansion in the earlier period, and 7 percent in the later period. By contrast, export expansion accounted for about 9 percent of (slower) growth in the former period and 39 percent in the latter. These results are confirmed by every other indicator of Korea's economic performance: within tradables, and especially within the manufacturing sector, resources were allocated in radically different directions in the import-substitution years than they were under the export promotion strategy.

In the former period, foreign assistance really substituted for foreign exchange earnings - especially when it was in the form of program aid. As such, it could not contribute as significantly to development prospects as would have been the case had more appropriate policies been in place. In the latter period, foreign assistance (to an ever decreasing degree) and

subsequently foreign borrowing permitted the Koreans to take advantage of highly profitable projects sooner than would otherwise have been the case. While it therefore permitted a higher rate of investment than would otherwise have been possible, given the domestic savings rate, it did so in a highly productive manner.

Some of the Korean investments financed through aid in the 1950's - especially in the import substitution sectors such as cement - had very low rates of return. The lesson for aid that derives from this is that one cannot divorce sectoral assistance programs, even if they are administered under project lending, from overall macroeconomic policy considerations. As is discussed in Chapter 8 of this survey, it is vitally important that the assessment of individual projects be undertaken only in the context of appropriate estimates of the international prices (as contrasted with the domestic prices) of outputs of various alternative projects.

Another important lesson concerns the relationship of trade, concessional aid, and private capital flows. In the early stages of development, countries are unable to borrow commercially, both because this general capacity to generate foreign exchange earnings is limited and because the highly productive investments - in education, roads and ports, have long gestation periods and cannot readily be financed by user charges. In that stage, concessional assistance may be the only way to permit the groundwork for later development. Later, however, once growth is centered upon the tradeable sectors of the economy, a country's ability to borrow commercially increases and concessional aid no longer can contribute as much to the development process.

13.4 Agriculture and Rural Development

U.S. assistance to agriculture and rural development in Korea has taken several forms. Initially, it was directed to the needs of reconstruction. It provided food at a time when domestic production could not meet the population's needs. The U.S. helped carry out land reform. It provided capital and expertise to rebuild damaged infrastructure. It also provided financial support to import essential agricultural inputs such as fertilizer. As the Korean economy improved, U.S. assistance shifted from reconstruction to development. U.S. assistance helped to finance the development of a domestic fertilizer industry. It provided money to reclaim and improve land, to train people, to expand research and extension and marketing and credit activities and to promote public health. This section on agriculture and rural development in Korea will discuss land reform, land development, rural incomes, transportation, current inputs, utilities, research and extension, marketing and credit, health and education.

During the period when Korea was a Japanese colony (1910 to 1945) Japan invested heavily in Korea in an attempt to create in Korea a source of food and manufactured goods for the Japanese homeland. The Japanese invested in irrigation, and in research to breed higher-yielding cold resistant rice varieties, and they also introduced chemical fertilizers (Steinberg, 1980: 14). They also developed an agricultural extension service that was viewed as part of the coercive administrative machinery by the Korean farmers. By the late 1930's rice yields in Korea averaged above 2 metric tons (rough rice) per hectare - a level that has yet to be achieved in many areas in Southeast Asia. A combination of administrative and market policies were employed by the colonial government to

sustain the export of rice to Japan. Thus, while Korean rice production grew rapidly, per capita consumption of polished rice in Korea declined from 111.5 kg to 80.2 kg (Steinberg, 1980: 14).

By the end of the Korean War, agricultural production had been badly disrupted. Much of the infrastructure was inoperable. A heavy influx of refugees from the North had put enormous pressure on an already strained food situation. The division of Korea meant a loss for South Korea of heavy industry, major coal deposits, and almost all power capacity (Cole, Lyman, 1971: 18).

The Rhee government (1947-1960) had as objectives the rebuilding of infrastructure and industrial capacity, maintaining a strong military and improving private consumption levels within the limits of domestic production and available foreign assistance (Cole, Lyman, 1971: 164). The Rhee government sought to maximize aid. Agricultural production was deliberately understated (Cole, Lyman, 1971: 79). The program for development favored the urban sector over the rural sector. Large shipments of P.L. 480 grains allowed the government to set prices below world market levels, and below production costs, without worrying about a drop in the level of production.

When the Park government came to power in 1961 it felt impelled to adopt a more positive approach to agricultural development. Low interest agricultural credit was expanded and the government offered to take over high interest loans taken on by farmers in bad years to relieve them of excessive debt (Cole, Lyman, 1971: 39). In the election of 1971, however, Park barely beat his opponent, largely because his rural support had eroded. The Park government responded by taking an even more active role in support of agricultural and rural development.

The New Community Movement (Sae-maul Undong - which hereafter will be denoted as NCM) was an attempt in the early 70's to improve rural conditions through self help and government grants and encouragement. Its beginning coincides with an excess of cement production in 1971 which led to the donation of 300 bags of cement to each village in the country for community projects (Steinberg, 1980: 17). Roads, bridges, and community meeting places were built. Thatch roofs were replaced with cement tiles and hedges around houses were replaced with cement walls (Park, 1982: 40). Village roads were improved and conditions were generally upgraded. Moral suasion was used in villages to assure complete participation and villages were encouraged to compete with one another for approval. Along with NCM came a change in government pricing policy which will be discussed in the section on rural incomes.

LAND REFORM

Between 1945 and 1952 the Government of Korea undertook, with major technical and economic assistance from the U.S., a major land reform program. As a result of this reform, the number of families that owned all the land they farmed rose dramatically. In 1945, 48.4% of farmers either owned or partially owned the land they farmed. After the reform this number rose to above 90% (Ban, Moon, Perkins, 1980: 285-6). Land reform was facilitated by the fact that there was a lack of class unity among the landlords. Land which had been Japanese reverted to Korean ownership after World War II. Many of the large Korean landlords had been closely associated with the Japanese colonial regime and consequently were in no position to oppose redistribution.

There is considerable debate over the short-term effects of land redistribution and reform but there seems to be a concensus that long-term effects have been positive. Perhaps the most positive effect has been political. Redistribution of land has been successful in diffusing what is often a major source of friction in rural areas - landlord/tenant tension. While there are some farmers who are better off than others and some who benefit more from government policies or improved techniques, rural income in Korea is distributed fairly equitably. Rural incomes are correlated with farm sizes but the farm size has remained relatively small. In the future this may change. Young Koreans have been migrating to the cities, leaving old men and women to run the farms. Steinberg anticipates that land ownership will become concentrated and that the land cultivated under rental arrangements will rise (Steinberg, Morrow, Palmer, Dong-il, 1980: D-5).

Land Development

U.S. AID also played a major role in land and water resource development in South Korea. In the early 60's the Korean government promoted a land development program which aimed at adding 15% more agricultural land to the country by reclamation of hillsides and tideland areas and by making irrigation and other improvements on existing farmlands (Cole and Lyman, 1971: 91).

> "The increasing demand for fruits and other crops at this time, in addition to PL 480 support for the land reclamation program, provided strong incentives for accelerating the expansion of cultivated upland. From 1960 to 1968 the total cultivated land area increased at a compound rate of 1.68 percent per year. Since 1968 the area of both cultivated upland and paddy have been declining at rates of 0.98 percent and 0.37 percent per year from 1968 to 1973 respectively. This indicates that additional cultivated land brought about by reclamation was not enough to compensate for that converted for urban development, industrial sites and highway construction (Ban, Moon, Perkins, 1980: 51-53). (See Table 28, Ban, Moon, Perkins, 1980: 81).

The land reclamation project was a labor intensive project, supported by over 100,000 metric tons of U.S. agricultural products per year. It employed hundreds of thousands rural workers. The newly developed land was divided among those who had developed it or among those whose land holdings were below a certain level (Cole and Lyman, 1971: 91). P.L. 480 surplus food served as payment in kind to rural workers engaged in land reclamation and other agricultural projects. "Of 350,179 tons of wheat flour provided under PL 480-Title II in 1964 through 1966, for example, over 110,000 tons went to upland development and tideland reclamation." In addition to PL 480 support, local farmers were required to contribute labor and tool inputs equivalent to 30 to 60 percent of the total reclamation investment (Ban, Moon, Perkins, 1980: 80).

PL 480 assistance for new land development ended in 1967. It is not entirely clear why this program lasted only about five years. AID was critical of the Korean government's failure to develop an adequate land use and development policy and recommended that future assistance be limited to advisory services (Ban, Moon, Perkins, 1980: 83). It was difficult to decide who should get the improved land. It was unclear whether the food-for-work programs actually had any long-term benefits to the workers. The programs often provide short-term employment and food for the laborers but often the long-term benefits accrue to land owners. There was also some indication that some of the improved land was not particularly productive.

AID has also been heavily involved in irrigation development in Korea. Table 13.6 below shows the expansion of irrigation in Korea over the years. Although much of the investment was funded by AID, project design and implementation were largely Korean (Steinberg, Morrow, Palmer, Dong-il, 1980:

Table 13.6. The Expansion of Irrigation of Paddy Fields (1,000 hectares)

		Irrigated		*Non-Irrigated*	
	Total Paddy Acreage	*Benefited by Irrigation Association*	*Completely Irrigated Area*	*Partially Irrigated*	*Rain Field*
1952	1,226.3	183.7	351.3	278.8	412.6
1956	1,093.2	197.8	340.8	279.4	275.2
1960	1,202.9	236.4	392.7	285.5	288.3
1965	1,198.9	281.2	421.1	298.7	197.9
1970	1,183.5	304.1	543.7	223.2	112.6
1974	1,268.9	309.1	583.5	288.6	87.8
1975	1,276.6				

Source: Ban, Moon, Perkins (1980), Rural Development (Cambridge, Harvard University Press): 95.

i-iii). The main lesson seems to be that the project was successful because it was designed by Koreans to meet their specific needs (Steinberg, Morrow, Palmer, Dong-il, 1980: 12-14; Chapter 10).

RURAL INCOMES

The past World War II land reform is regarded as perhaps the most important factor accounting for the relatively equitable distribution of income in Korea. Korean land reform involved much more expropriation than compensation. Compensation was often made in the form of bonds which soon became almost worthless (Ban, Moon, Perkins, 1980: 287). By 1957 an estimated 1.5 million farmers had acquired some 2.5 million acres of land on which they had formerly been tenants or farm workers - all but the largest and well connected land owners were pauperized (Aqua, 1974: 17).

But most Korean farmers, other than former landlords, were better off in the 1950's than they were in the 1930's (Ban, Moon, Perkins, 1980: 301).

Throughout the Rhee period, the government used grain price manipulation to provide cheap food for the cities (Table 13.7). PL 480 imports were large (Table 13.8). According to Steinberg, in no year did the government purchase price equal the cost of production and in six of the 13 years the purchase price was less than 50% of the price of imported rice (Steinberg, Morrow, Palmer, Dong-il, 1980: F-2). After Park took over the government, grain procurement prices were set with the objective of covering production costs - but they were still usually below the price of imported rice (Steinberg, Morrow, Palmer, Dong-il, 1980: F-2). See Table 13.7 for a comparison of purchase prices and market prices versus cost for the production of rice 1948-1975.

In the early 1970's the Korean government changed its pricing policy. It was no longer getting free P.L. 480 grain from the U.S. and grain imports became a potential drain on foreign exchange. The 1971 election demonstrated to Park that his rural constituency was eroding and something had to be done. In 1969, the Korean government instituted a two price rice and barley pricing system where they would pay relatively high prices to the farmers but would also subsidize urban grain prices. As farmers' incomes rose and the urban grain prices were kept down, the costs of these subsidies were carried as an overdraft on the central bank which increased the money supply and thus fueled inflation (Steinberg, Morrow, Palmer, Dong-il, 1980: F-3).

The change in grain price policy, along with general improvements in rural conditions and urban demand for food and rural labor, created favorable conditions for rural laborers in the 70's. According to the government

Table 13.7. Government Purchase Prices and Market Prices versus Cost of Production for Rice, 1948-1975
(wŏn per 80 kg)

Year	*Purchase Price (A)*	*Cost of Production (B)*	*Market[a] Price (C)*	*A/B (%)*	*A/C (%)*
1948	2.47	3.72	7.10	66.3	34.8
1949	2.67	6.71	13.21	39.9	20.2
1950	16.40	15.88	52.30	103.6	31.4
1951	65.37	n.a.	157.50	-	41.5
1952	200.62	329.09	447.50	61.0	44.8
1953	200.62	330.94	350.00	60.6	57.3
1954	308.33	330.94	581.00	93.2	53.1
1955	390.56	838.44	962.00	46.6	40.1
1956	1,059.00	1,134.00	1,591.00	93.4	66.6
1957	1,059.00	1,384.00	1,311.00	76.5	80.8
1958	1,059.00	1,297.00	1,157.00	81.6	91.5
1959	1,059.00	1,300.00	1,368.00	81.4	77.4
1960	1,059.00	1,313.00	1,687.00	80.7	62.8
1961	1,550.00	1,377.00	1,768.00	112.6	87.7
1962	1,650.00	1,422.00	2,801.00	116.3	58.9
1963	2,060.00	1,373.00	3,470.00	149.7	59.4
1964	2,967.00	1,936.00	3,324.00	153.3	89.3
1965	3,150.00	2,672.00	3,419.00	117.9	92.1
1966	3,306.00	2,495.00	3,750.00	132.5	88.2
1967	3,590.00	2,735.00	4,289.00	131.2	83.7
1968	4,200.00	3,403.00	5,140.00	123.4	81.7
1969	5,150.00	3,565.00	5,784.00	144.5	89.0
1970	7,000.00	4,642.00	7,153.00	150.8	97.9
1971	8,750.00	4,682.00	9,844.00	186.9	88.9
1972	9,888.00	6,115.00	9,728.00	161.7	101.6
1973	11,377.00	6,578.00	12,175.00	173.0	93.4
1974	15,760.00	7,959.00	17,821.00	198.0	88.4
1975	19,500.00				

Note: [a]November-January average prices.

Source: Ban, Moon, Perkins (1980), Rural Development (Cambridge: Harvard University Press): 240.

Table 13.8. The PL 480 Role in Agricultural Imports
($ U.S. millions)

Year	*Total Grain Imports*	*Total PL 480 Aid*	*PL 480 Grain Imports*	*Total Cotton Imports*	*PL 480 Cotton Imports*	*Other PL 480 Imports*
1955	6.4	–	–	20.1	–	–
1956	31.2	33.0	20.0	25.0	8.2	4.8
1957	84.3	45.5	33.0	26.9	1.8	10.7
1958	51.1	47.9	46.9	31.7	0.5	0.5
1959	17.5	11.4	4.3	30.8	7.0	0.1
1960	20.6	19.9	19.2	28.6	0.8	0
1961	n.a.	44.9	22.6	n.a.	21.5	0.8
1962	40.1	67.3	34.4	34.2	31.3	1.6
1963	107.2	96.8	62.6	38.2	31.8	2.5
1964	60.8	61.0	28.0	37.3	30.5	2.5
1965	54.4	59.5	29.7	40.8	29.7	0.1
1966	61.3	38.0	11.2	42.8	26.7	0
1967	76.6	44.4	7.9	49.3	34.0	2.4
1968	129.3	55.9	27.3	49.1	24.7	4.0
1969	250.3	74.8	31.6	52.0	39.0	4.2
1970	244.8	61.7	33.0	62.7	27.4	1.3
1971	304.0	33.7	18.0	84.2	15.7	0
1972	282.7	–	–	85.5	–	–
1973	444.1	–	–	112.4	–	–

Source: Ban, Moon and Perkins (1980), Rural Development (Cambridge: Harvard University Press): 30.

in 1976, the annual income of rural households surpassed that of urban households (Kihl, 1979: 135). According to South Korea's Ministry of Agriculture and Forestry, farm income per household has grown 2.5 times between 1965 and 1971. Aqua, after adjusting for inflation, claims that in fact the real gain between 1960 and 1971 has been about 45.5% (Aqua, 1974: 28). In 1971 rural households were paying higher prices for food purchases (about 6% more) than urban households although they paid somewhat less for housing and clothing (Aqua, 1974: 28). Steinberg found in his project report on irrigation that all rural residents believed that their standard of living would be higher in the cities (Steinberg, Morrow, Palmer, Dong-il, 1980: D-4), and that few farmers would like to see their children become farmers (Steinberg, Morrow, Palmer, Dong-il, 1980: E-5).

"The booming prosperity and industrialization of the urban areas and the rapid growth of the Korean economy created unusually favorable conditions for the growth in both agriculture and fishing," (Brandt, Cheong, 1982: 46). Improved transportation has increased access to markets and enhanced land values for some farmers. The demand for labor in the urban industrial areas due to the improved manufacturing sector has caused many to leave rural areas in search of better opportunities. Today there is an actual shortage of agricultural labor in South Korea (Brandt, Cheong, 1982: 38-39).

Agriculture has declined significantly as a percent of national income and as a source of employment. According to the U.N., South Korea has exhibited one of the largest urban-rural growth differentials in terms of migration in the years between 1950 and 1970. In 1915, 3.1% of Koreans lived in urban areas of 20,000 or more. By 1940, 16.0% of Koreans lived in urban areas of 20,000 or more. In 1955, 24.5% lived in urban areas

of 50,000 or more and by 1975 48.4% lived in urban areas of 50,000 or more (Kihl, 1979: 153).

Transportation

U.S. AID took an early interest in transportation in Korea. During the period from 1954-63, the U.S. provided 18.9% of the funds invested in highway construction with the bulk of aid going to paving and a lesser share going to bridge building (Ban, Moon, Perkins, 1980: 148). Cole and Lyman estimate that transportation received the largest share of aid by sector between 1958 and 1966. In this period a total of 26.1% of aid went to transportation (Cole, Lyman, 1971: 193).

At first repairing war-damaged roads was important. By the 1960's it was important to unite the country for commercial reasons. The rapid growth of good roads led to a substantial redistribution of passenger and freight traffic away from railroads. By 1969, construction of expressways to link major cities began. By 1977, 44% of national inter-city roads were paved (Ban, Moon, Perkins, 1980: 148).

The NCM was the main impetus for improving roads within and around villages in the early 1970's. Bad roads were seen as a critical restricting factor for introducing labor-saving machinery and equipment because power tillers with attached trailers were difficult to move on narrow village roads. Thus, farmers were unable to purchase labor-saving devices (Park, 1982: 34, 39).

Road construction has been advantageous to Korean farmers for several reasons. In areas where transportation is good and access to the city is easy, the price of land has gone up more rapidly than in more isolated areas (Park, 1982: 62). During the 1960's there was a substantial

response, in terms of the production of marketable surpluses, to construction and improvement of rural roads (Ban, Moon, Perkins, 1980: 154). The improvement of rural roads and their linkage into the national "highway" system had the effect of reducing marketing costs and raising "farm gate" prices. By producing crops like winter vegetables and fruits farmers were able to circumvent the effect of the government's grain price controls.

Current Inputs

Throughout the 1950's and into the 1960's, U.S. assistance was the major source of funding for the import of current inputs used in farming - such as pesticides, fertilizers, and new seed varieties. The use of these inputs was not a new practice in Korea. Chemical fertilizers and new plant varieties were encouraged by the Japanese in the 1930's. The division of the country in 1945 left all the fertilizer plants north of the 38th parallel and also disrupted imports (Ban, Moon, Perkins, 1980: 100).

AID's early contribution into the 1960's was in financing the imports of the necessary inputs. From 1953 to 1959, aid financed two-thirds of the nitrogen fertilizer used in Korea. An even greater proportion of the phosphorus and potassium inputs were provided through foreign assistance (Ban, Moon, Perkins, 1980: 104). Chemical fertilizers remained the single largest category of non-project support from 1960 to 1965. The annual support level for chemical fertilizers during this time averaged $33.6 million.

During the 1970's AID loans helped to finance the growth of a domestic fertilizer industry. "The AID risk guarantee program helped to encourage private investment in fertilizer plants" (Libbin, 1970: 20). Throughout the 1960's, domestic fertilizer production increased so that by 1970 Korea

achieved a self-supporting level of fertilizer production and actually became a net exporter as shown in Table 13.9. Import assistance for fertilizer was gradually phased out as Korea developed its own capacity.

The role of inputs to agriculture was critical. According to Krueger, "Total agricultural output grew at an annual compounded rate of 2.09% from 1945 to 1953, with an annual rate of increase of inputs of 1.50%. Input increases therefore accounted for about 72% of output increases," (Krueger, 1979: 17). For the period from 1946 to 1973, the average rate of annual expansion was 0.53% for land, 0.34% for labor used, 1.37% for fixed capital, and 8.59% for current inputs (Ban, Moon, Perkins, 1980: 53).

> "For the whole period 1945-75, total input grew at an annual rate of 1.94% and total productivity at 1.44%. Therefore, according to this method of estimation, about 57% of total production growth is attributable to the increase of output and the remaining 42% to improvement in productivity," (Ban, Moon, Perkins, 1980: 57, 60).

The absence of assistance for imports of inputs for agriculture would have severely dampened the rate of increase in agricultural production. The average annual support level for chemical fertilizers was $43.2 million for 1956 to 1960 (Krueger, 1979: 112). Without such aid, given the heavy demands on non-aid sources of foreign exchange, the supplies of technical inputs available to farmers would have been much smaller than the amount needed. If the amount of nitrogen had been cut from 80 to 40 kilograms per hectare, for example, grain output would have been lower by well over half a million tons (10 percent or more of total grain output) (Ban, Moon, Perkins, 1980: 101).

Several problems with the distribution of these aid-financed fertilizer imports should be noted. First, the Korean government priced the fertilizer below its market value. This made distribution through the free market

Table 13.9. Imports and Exports of Chemical Fertilizer, 1951-1975.

	Imports (1,000 metric tons)						*Exports*
	AID Financed			*Korea Foreign Exchange*			*(1,000 metric tons*
	N	*P*	*K*	*N*	*P*	*K*	*of all nutrients)*
1951	43.9	19.3	0	5.4	0	0	0
1952	91.1	0	7.0	33.2	0.1	0	0
1953	89.9	18.6	2.7	0.6	0.4	0	0
1954	96.4	50.2	1.9	18.7	0	0	0
1955	127.7	28.2	8.8	18.7	0	0	0
1956	157.3	53.8	8.1	50.9	4.2	0.4	0
1957	143.9	68.5	6.5	36.6	11.6	0	0
1958	171.7	66.8	5.0	75.5	15.1	0.7	0
1959	102.4	55.5	6.0	76.5	11.6	2.0	0
1960	199.7	55.2	7.3	n.a.	n.a.	n.a.	0
1961	138.7	74.4	16.8	41.4	6.4	0	0
1962	1.5	15.8	0	11.4	24.1	0	0
1963	.4	113.0	29.1	161.3	5.1	0	0
1964	0.4	131.5	32.7	84.9	7.2	2.8	0
1965	27.7	161.8	82.1	145.8	3.9	3.7	0
1966	18.8	164.2	136.5	156.2	5.2	5.6	0
1967	5.6	179.1	110.9	127.2	6.1	6.4	9.2
1968	1.9	70.5	68.4	111.1	3.0	10.1	11.5
1969	0.8	46.5	21.6	35.1	2.2	58.1	45.7
1970	0	0	0	2.4	2.4	1.9	55.8
1971	0	0	0	16.2	12.2	63.2	82.4
1972	0	0	0	11.3	10.1	95.4	88.0
1973	0	0	0	9.8	13.2	106.3	27.2
1974	0	0	0	2.8	26.1	122.3	0
1975	0	0	0	9.9	35.0	196.0	0.5

Korean Traders Association, *Statistical Yearbook of Foreign Trade* (1969 through 1975 editions). All phosphate fertilizers imported were converted to nutrient (P) at a rate of 20%. Compound fertilizer, both exports and imports, was assumed to be 22-22-11.

Source: Ban, Sung Hwan, Pal Yong Moon, Dwight H. Perkins (1980), Rural Development, Studies in the Modernization of the Republic of Korea: 1945-1975 (Cambridge, Mass.: Harvard University Press).

impossible and the government resorted to a program of rationing. The government's distribution program was chaotic and often failed to deliver the fertilizer at the proper time or to the proper place. For this reason, farmers were often forced to resort to dealing in the black markets where prices reached levels of two to three times those of the government.

Second, farmers were frequently reluctant to use the available fertilizer resources for phosphorus and potash at any price. The positive relationship between the use of these nutrients and crop yields was not as immediately evident to the farmers as with the use of nitrogen. The reaction of the farmers points to the need to conduct appropriate extension programs in conjunction with an increase of foreign-funded agricultural inputs.

The introduction of new higher yielding strains of seeds for cereals and vegetables increased potential agricultural output substantially. A cooperative research program between the Korean Office of Rural Development and the International Rice Research Institute resulted in the development and the transfer of the "Tong-il" (IR-667) and "Yushin" rice seed varieties to Korea in the early 1970's. The first demonstration plots for the Tong-il seed were established during the 1970-71 rice crop year. The new rice varieties came into widespread use during the rest of the decade after it was shown that crop yields could be increased 30 to 40 percent using the improved seed.

UTILITIES

The Japanese in Korea had developed North Korea as the major manufacturing region while South Korea's role was food production. The division of Korea in 1947 meant a loss for South Korea of heavy industry, major coal deposits, and almost all developed power capacity (Cole, Lyman, 1971: 18).

Whatever power capacity South Korea had was damaged by the war. Between 1958 and 1966, the "power" sector was the third largest category of AID grant project assistance, comprising 11.5% of the total amount given in grants to Korea (Cole, Lyman, 1971: 193). Early impetus was to provide power for urban industrial areas. In rural areas the provinces with the largest urban areas had the earliest and highest rates of rural electrification. In 1964, 12% of rural households had electricity; in 1974 61% had electricity (Ban, Moon, Perkins, 1980: 144). The large use of electricity in rural areas rose from negligible levels in the late 1940's to 25.2 million kwh in 1962 to 56.6 million kwh in 1973 (Ban, Moon, Perkins, 1980: 99).

Rural electrification was a major objective of the NCM. The goal of government policy was that by 1977, 90% of rural households would have acces to electricity (Hasan, 1976: 108). Part of the push for rural electrification programs came from the hope of establishing small workshops in the countryside to provide profitable work for farmers in the slack season. These workshops would produce handicraft goods for export and by 1976, the government hoped to be earning $480 million in foreign exchange from these exports (Wideman, 1974: 300). However, experience with industrial decentralization policies in Korea have been less successful than in some other countries - Taiwan for example.

Research and Extension

Korea has had a long history of agricultural research. Its earliest official demonstration station was established in 1906 and experimental improvements in rice were conducted throughout the Japanese colonial period,

(Steinberg, Jackson, Kim, Hae-kyun, 1982: 4). After World War II until the 60's, the system was neglected partly because it was associated by farmers and planners with the coercive policies employed under Japanese colonialism. In 1962 the agricultural research system was reorganized and the Office of Rural Development (ORD) was established with the backing and financial support of AID. The Office of Rural Development is one of three main divisions of the Ministry of Agriculture and Fisheries. Its purpose is to conduct agricultural research and to provide training and extension to farmers (Steinberg, Jackson, Kim, Hae-kyun, 1982: G-2). The AID contribution was primarily for funding to expand and improve research facilities, to create a larger research network, and to provide increased training both to farmers and to extension workers.

Marketing and Credit

The National Agricultural Cooperative Federation (NACF) is another example of AID support to a government organization. The NACF is part of the Ministry of Agriculture and Fisheries whose responsibility is to provide agricultural credit, seeds, fertilizer, pesticides and herbicides, and agricultural machinery. It is also the government arm for the purchase of crops at standard, centrally set prices and quantities (Steinberg, Jackson, Kim, Hae-kyun, 1982: G-2). The main criticism of the NACF has been its inability or unwillingness to coordinate its efforts with the ORD (Ban, Moon, Perkins, 1980: 278-9). The organizations have very strong hierarchical components, are competitive with one another, and are driven by a need for immediate results. On a non-governmental level, U.S. AID helped to reorganize and finance 18,000 cooperatives which are the main source of credit to the country's farmers (Libbin, 1970: 20).

Health

The Japanese had taken measures in Korea during the colonial period to improve public health. Their measures included compulsory innoculation, enforcement of quarantines at major seaports and the establishment of public hospitals in each province and major urban areas (Repetto, Kwon, Kim, Kim, Sloboda, Donaldson, 1981: 198). The colonial government also tried to improve health conditions by drilling community wells and developing running water systems (Repetto, Kwon, Kim, Kim, Sloboda, Donaldson, 1981: 198).

Between 1958 and 1966, 10.5% of AID grant project assistance was spent on health and sanitation (Cole, Lyman, 1971: 193). At first urban sanitation was top priority. According to Hasan, only 7% of all villages had a sanitary water supply system in 1972 (Hasan, 1976: 163). The early 70's saw attempts being made to improve health by protecting well water from contamination (Ban, Moon, Perkins, 1980: 314). NCM objective was that all villages would have a sanitary water supply by 1981 (Hasan, 1976: 163).

Family planning and public health occupied a low priority in the Korean government's priorities. Rhee was opposed to family planning (Steinberg, 1980: 32-33). In the late 1950's considerable support was being offered by members of the assistance community for family planning. In 1958 U.S. AID supported a community development program which encouraged field workers to discuss family planning with rural villagers (Reppeto, Kwon, Kim, Kim, Sloboda, Donaldson, 1981: 225-226). In 1961, the government announced its first family planning program (Repetto, Kwon, Kim, Kim, Sloboda, Donaldson, 1981: 202). The influence of AID, Planned Parenthood, Population Council and UN Fund for Population Activities (UNFPA) was important during the early stages of the national family planning policy formation because

they were able to supply funding and technical expertise. Their influence is currently declining but they have remained the key providers of contraceptive supplies. They still support research and advanced training in population and family planning (Repetto, Kwon, Kim, Kim, Sloboda, Donaldson, 1981: 257).

Education

AID has been a strong supporter of education in Korea. Between 1952 and 1966, AID provided $100 million to build 23,000 classrooms (Steinberg, 1982: 29). By the 1960's virtually all children in appropriate age groups were in primary schools and increasing numbers were going to middle school (Ban, Moon, Perkins, 1980: 311). Almost 90% of the farm population was literate by 1974. For most village children, there were grade schools within walking distance. But in order to send a child to middle school, high school, or college a family has to incur the cost of boarding the child in the town or city (Wideman, 1974: 275). Through the 1960's this was difficult because rural incomes were low. The increase in rural middle school education appears to have coincided with the rise in incomes in the 1970's (Ban, Moon, Perkins, 1980: 311).

Koreans traditionally place a high value on education and learning (Brandt, Cheong, 1982: 52). Although AID helped to build schools and was interested in promoting education, the non-Korean influence on other aspects of the education system was very limited (Steinberg, 1982: 28). Many Koreans were sent overseas for advanced degrees or training. In all nearly 3,000 people were sent abroad to the U.S. for training under the AID program (Cole, Lyman, 1971: 279). Early planning was done mostly by foreigners but after that planning was done mainly by Koreans (Cole,

Lyman, 1971: 204). This training has been important. The chances for success of a number of projects (irrigation for example) have been increased because Korean expertise could design appropriate systems.

13.5 Some Conclusions

When the U.S. accepted the surrender of Japan in 1945, South Korea became the responsibility of the U.S. It was therefore, the responsibility of the U.S. to help South Korea rebuild after 35 years as Japan's colony. With the departure of the Japanese, the U.S. was left with a considerable amount of unowned land and property to dispose of. Thus, the first thing the U.S. set out to do was to return Japanese-held land to Koreans and to bring about land reforms. The redistribution of land and the limit placed on the number of hectares owned has in fact made rural income levels much more equitable over the years.

A major goal of the U.S. in the early 50's was to maintain South Korea as a "democracy". War broke out between the two sections of Korea in 1950 which led to massive U.S. aid in the form of military hardware, salaries, food and U.S. troops (Ban, Moon, Perkins, 1980: 22). The Korean military force increased to 700,000, was the fourth largest military, and was heavily supported by U.S. aid (Ban, Moon, Perkins, 1980: 35). Between 1946 and 1975 the U.S. provided $13 billion in military and economic assistance to Korea, over half of which was military assistance (Steinberg, 1982: 26).

U.S. military assistance from the U.S. has been very important to Korea. It has provided large sums of money directly to the government and has allowed the Korean government to divert money to other areas. The war in Vietnam was also very helpful to Korea, although one couldn't really classify the gains as aid. "From 1964 increasing U.S. involvement in Vietnam increasingly brought windfall profits to South Korea. American use of South Korean mercenary troops and construction workers, as well as the purchase of commodities for the war boosted Korean foreign exchange earnings remarkably beginning in 1965," (Wideman, 1974: 273). The Vietnam War provided jobs

for Koreans and paid them in foreign exchange. The Korean army had rural roots since it was mainly conscript (Cole and Lyman, 1971: 37). This use of rural labor took some of the pressure off land during the 1960's and possibly diffused what might have been a conflict with the government over its grain pricing policies.

In addition to military assistance, AID began to give large grants to South Korea to rebuild its infrastructure which had been heavily damaged during the war. AID also helped to develop previously undeveloped sectors like the power industries. The three major areas of U.S. support between 1958 and 1966 were transportation, manufacturing, and power and these three sectors made up over 50% of AID grant project given by sector. Through 1968, 75% of approved foreign investment projects were either manufacturing and mining, transportation or electricity projects (Cole and Lyman, 1971: 196). None of these areas involved purely rural problems but all of the above had very beneficial effects on the rural areas of the country in later years. The time of maximum aid (until 1965) was the time of least growth especially in the rural sector but this was the time when many improvements were made which ultimately benefitted rural areas.

Large amounts of P.L. 480 grain shipments were given to Korea as grants until the late 1960's. This was initially given to prevent starvation during and after the Korean War when agricultural production was interrupted. It was also, however, given to benefit U.S. farmers who had a large surplus of grain and needed to dispose of it. This grain was given as a grant until the late 1960's. The late 1960's marked the end of food grants to South Korea, but the Korean government continued to import grain using foreign exchange to pay for it. 1972 was a bad year in Korea for farmers. That coupled with bad harvests worldwide, the 1973 sale of wheat to Russia, and the increase in the price of energy and fertilizer made the cost of grain

imports to Korea higher than ever before (Wideman, 1974: 282). It was around that time that the Korean government realized that it would have to provide more support for the rural sector.

Free P.L. 480 grain allowed the Korean government to pursue a policy of urbanization without the uncertainty of bad harvests as a constraint. It also allowed the government free reign on grain price manipulation. It could pay farmers at below production cost prices and still have enough grain to feed its citizens. As the P.L. 480 program declined in importance Korean government anticipated that commercial grain imports would represent a serious foreign exchange drain. This led, under the Park government, to stronger programs of agricultural and rural development. The hardening of terms and decreased rural support in the 1971 election acted as spurs to the South Korean government to pay more attention to agricultural production and to improve levels of living in rural areas.

AID spent a good deal of its money on infrastructure in Korea. After a lag in the 60's, the benefits of this investment were seen by Korean farmers. The pull of cities and industry has made rural labor scarcer and thus more costly (Steinberg, 1982: 18). In 1960, 28% of the total population lived in cities; in 1982, 55% lived in cities. Now there is an actual shortage of agricultural labor in South Korea (Brandt and Cheong, 1982: 38-39). Improved roads have allowed many farmers who live near cities to grow fruit and vegetables as cash crops which they market in the cities (Aqua, 1974: 33). Industrialization has led to a demand for labor both male and female which has provided alternative occupations for people who otherwise would have been farmers. Development of electricity, which was assisted by AID, has led to improved lifestyles in rural areas as evidenced by the appearance of radios, T.V.'s, rice cookers, electric fans, and refrigerators.

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One must keep in mind that the bulk of aid given to Korea was given when anti-Communist inspired military assistance was something that the American people could understand. Infrastructure made sense too because the Marshall Plan had successfully helped to rebuild Europe. Education was important because it taught democracy and in general it was felt an educated populace was better. Many classrooms were built by AID and many Koreans were brought to the U.S. for post-high school training. Korea pursued a development policy which in many ways fit early aid hopes. While it basically ignored human considerations like welfare and human rights, it built an internal structure which in the long run benefitted its citizens. When the "basic needs" element to aid became the mode, Korea was at a point in its development where it could afford to pay more attention to the "needs" of its citizens. In the rural areas, the NCM (New Community Movement) was the Korean counterpart to rural "basic needs" strategy. The central government in Seoul would decide what needed to be done and the villagers would do it. These projects included such things as building better village roads, communal meeting halls, tiling roofs which had been rice thatch, increased electric use in villages, modern houses, and improved health conditions - all the "basic needs". Thus, rural development in Korea has fit in nicely with the swings in U.S. foreign aid considerations.

Korea is considered one of the major success stories of the developing world. This success is partly a result of unique aspects. It is homogenous and it is a Sinitic society. China, Japan and Taiwan are also successes and are also Sinitic societies which leads one to think that perhaps there is something about the society itself which is important for success. Policy implementation is felt to be a key factor in Korea's success. According to Steinberg, its policy formulation was probably no better and no worse

than any other developing country's, but its ability to formulate a policy and have it followed was important (Steinberg, 1982: 43). Orders were given from the central office and they were carried out exactly as directed at the local level.

Korea's history is also somewhat unique. Land reform was carried out by U.S. military occupation after World War II with relative ease. When the Japanese surrendered to the U.S., 40% of Korea's land was Japanese-owned. This left a large amount of land unowned which had to be distributed. Landowners had often been co-opted by the Japanese and thus were in no position to resist the reforms. Land reform has been important to income distribution in Korea but it was carried out under unique circumstances. The Vietnam War was also a boon to Korea. It brought in foreign exchange through purchase of goods but it also employed Korean soldiers and workers at a time when a military force of 700,000 could have been a problem. The Korean War was heavily subsidized by the U.S. as was the rebuilding process afterwards. Finally until the 1970's, aid to Korea was mainly in the form of grants. This meant that the Korean government was virtually debt free in the beginning of the 1970's.

It has been difficult to separate the impact of AID programs in terms of rural and urban development. It has also been very difficult to figure out exactly what AID did in Korea on a project-by-project basis. General information is available. AID financed infrastructure early on. Specific details about various projects are much harder to find. Thus the lessons which seem to come from rural development in Korea are general ones which encompass the whole economy. They are as follows:

1. Early emphasis on urbanization and industrialization caused a demand for agricultural produce which in turn stimulated agriculture. More emphasis was placed on the urban sector and manufacturing. Agricultural laborers left the countryside to work in cities where incomes were higher. This led to a scarcity of labor which is partly responsible for improved rural incomes. Urban demand for food also stimulated agricultural production.

2. Free P.L. 480 grain shipments are not always detrimental in the long run. In the short run, most people agree that the free shipments of grain from the U.S. allowed the Korean government to pursue a policy which neglected agricultural production and rural welfare. If farmers came up short in a harvest, the Korean government knew it could get free grain from the U.S. In the late 1960's the terms of trade hardened and the Korean government realized that it would have to spend foreign exchange on grain if harvests were poor. From that time on, the Korean government pursued a policy which put emphasis on agriculture. Basically P.L. 480 shipments bought time during which the government was able to concentrate (successfully in Korea's case) on its urban export-oriented manufacturing sector. Terms of trade for grain acted as a catalist for either ignoring agriculture or aiding it.

3. "Basic needs" came as a result of successful economic policies. The Korean economy developed with little consideration for the basic needs of the people. Rural people's needs were largely ignored before the 1970's when the NCM (Saemaul Movement) began. Although education, medical facilities, housing, etc. were of more interest in the urban areas, these were not high priority any place. In rural areas, increased income has meant improved living conditions and the increased income is a result of improved employment opportunities.

4. Training abroad seems to have been important. According to Cole and Lyman, approximately 3,000 Koreans have been trained abroad, many in the U.S. (Cole, Lyman, 1971: 279). We have not seen a systematic analysis of the impact of overseas training in Korea, but certainly Cole and Lyman and Steinberg feel this was one of the greater impacts that the U.S. has had in Korea. Early planning was done mostly by foreigners. By the second round of planning, however, trained Koreans were very involved (Cole, Lyman, 1971: 204). In his project impact study of Korean irrigation, Steinberg concludes that the general success of the project is the result of policy formulation and implementation by Koreans themselves (Steinberg, Morrow, Palmer, Dong-il, 1980: i). In this project the U.S. mostly provided the funding. Training abroad gave Koreans the skills needed to make decisions and adapt policies for Korea. The Park government gave these foreign-trained people key policy positions in the government and expected them to encourage long-term development.

Footnotes

1/ All data cited in this and the subsequent two paragraphs are from Mason, Kim, et al, 1980, Chapter 4 except as otherwise noted. This chapter also draws heavily on Krueger (1979).

2/ It is perhaps noteworthy that, even during the very rapid growth years from 1960 to 1978, South Korea never achieved full control over domestic inflation. During most of that period, however, the rate of inflation was fairly stable, not accelerating, and significantly below the rates of earlier years. South Korea's inflation rate rose in the 1970's as did rates in the rest of the world. Overall, however, one would judge the South Korean inflation experience in the 1970's to be no worse than that of many other countries.

3/ Unfortunately, the nominal interest rate was not permitted to rise as much as the domestic inflation rate in the 1970's. By the late 1970's the negative real interest rate was once again an identifiable source of major distortion within the system.

4/ A thorough analysis of the role of aid in Korea's growth over the period 1945-75 was undertaken jointly by the Korean Development Institute and the Harvard Institute for International Development. For a detailed analysis of the role of aid in Korea's development, see Mason, Kim, et al, (1980).

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CHAPTER 14

ASSISTANCE TO TURKEY*

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CHAPTER 14

ASSISTANCE TO TURKEY*

An examination of the history of aid to Turkey is instructive for a variety of reasons. Turkey has one of the longest histories as a U.S. aid recipient of any country in the world. As a member of NATO and immediately on the Russian border, there are important American strategic and political interests in the country, along with the strong interest in economic development concerns.

There is also an interesting contrast with Korea, another country whose history with foreign assistance is surveyed in this volume: from the perspective of the early 1960's, most observers would have concluded that assistance to Turkey had been highly successful (because of her relatively high rate of economic growth) whereas that to Korea had been somewhat less so. Viewed from the perspective of the 1980's, however, the Korean economy, despite its current problems, has had enormous success in achieving developmental targets and in eliminating any need for concessional finance. By contrast, Turkey continues to be an aid recipient, and her economic progress over the past two decades has been far less impressive than that of South Korea.

To understand some dimensions of the aid experience in Turkey, it is necessary first to provide a brief sketch of Turkish economic growth. That is done in Section 14.1. In section 14.2 a history of assistance, and its interaction with that growth, is provided. In Section 14.3 the trade-and-aid interrelationship is examined in somewhat more detail. Section 14.4 is devoted to a review of assistance to Turkey for agricultural and rural development. The conclusions that flow from our review of development assistance to Turkey are summarized in Section 14.5.

14.1 Turkish Growth Performance

There have been three strikingly similar cycles of growth in Turkey over the period 1950-1982 (Table 14.1) .[1/] An understanding of those cycles is perhaps the simplest means of providing a sketch of Turkey's growth experience, and is simultaneously necessary for analyzing the aid experience.

It is simplest to start, therefore, by providing the "stylized facts" of the cycles, and only after that to consider the progress that was made during, and the special characteristics of, each cycle. Each cycle starts with a period during which growth is fairly rapid, generally as a consequence of some external stimulus. These covered the post-war reconstruction and the commodity price boom of the early 1950's; the advent of program aid in the early 1960's; and the large expansion in output following upon the success of the 1970 devaluation. Inflationary pressures arise, the exchange rate becomes increasingly unrealistic, the government responds with a variety of ad hoc measures to "patch up" the situation, and the economy becomes increasingly distorted. Meanwhile, little is done to curb the sources of inflationary pressure. The limited actions that are taken, such as imposing price controls on state economic enterprises and financing their deficits through central bank credits, have often actually intensified inflationary pressures.

As distortions mount, either through a rising rate of inflation or through increasingly scarce foreign exchange, the rate of economic growth declines.

Table 14.1. Growth and Sectoral Composition of GNP in Turkey: 1950-1980
(TL million in 1968 prices)

	Agriculture	As % GNP	Industry	As % GNP	Services	As % GNP	Import Taxes
1950	15,867	41.2	5,054	13.1	15,761	40.9	1,915
1951	18,998	43.7	5,192	11.9	16,955	39.0	2,390
1952	20,856	42.9	5,763	11.8	18,844	38.7	3,275
1953	22,668	41.9	6,872	12.7	21,331	39.4	3,339
1954	19,607	37.5	7,514	14.3	22,427	42.7	3,106
1955	21,483	37.9	8,382	14.8	24,097	42.5	2,950
1956	22,553	38.6	9,192	15.7	24,619	42.1	2,399
1957	23,985	38.1	10,260	16.3	26,874	42.7	2,298
1958	26,182	39.8	10,858	16.5	27,190	41.3	2,078
1959	26,258	38.3	11,250	16.4	28,826	42.1	3,039
1960	26,836	37.9	11,254	15.9	30,276	42.7	3,025
1961	25,549	35.3	12,472	17.3	31,393	43.4	3,206
1962	26,740	34.8	13,017	17.0	33,312	43.4	3,961
1963	29,344	34.8	14,597	17.3	36,208	43.0	4,142
1964	29,224	33.3	16,225	18.5	38,231	43.6	4,102
1965	28,101	31.0	17,761	19.6	40,155	44.4	4,061
1966	31,128	30.8	20,469	20.2	44,389	43.9	4,643
1967	31,205	29.6	22,196	21.0	46,874	44.4	4,883
1968	31,699	28.2	24,677	21.9	50,862	45.2	4,952
1969	32,110	27.1	27,654	23.3	54,070	45.6	4,333
1970	32,870	26.2	28,032	22.3	58,692	46.8	4,355
1971	37,209	26.9	30,557	22.1	62,994	45.6	4,421
1972	37,072	25.0	33,661	22.7	68,365	46.0	4,965
1973	33,443	21.4	37,711	24.1	74,251	47.5	5,023
1974	36,887	21.9	40,628	24.2	80,499	47.9	5,223
1975	40,889	22.5	44,268	24.4	86,953	47.9	5,651
1976	44,025	22.5	48,387	24.7	94,582	48.3	6,213
1977	43,506	21.4	51,766	25.5	99,871	49.1	6,434
1978	44,745	21.4	53,546	25.6	103,659	49.6	5,364
1979	45,989	22.1	51,050	24.5	103,998	49.9	4,450
1980	46,766	22.7	49,549	24.0	103,968	50.5	3,613
Average Annual % Increase:							
1950-60	5.4	-	8.3	-	6.7	-	-
1960-70	2.0	-	9.6	-	6.8	-	-
1970-80	3.6	-	5.9	-	5.9	-	-
1950-80	3.7	-	7.9	-	6.5	-	-

Table 14.1 (continued)

	GDP (purchasers' prices)	Net factor income from abroad	GNP (purchasers' prices)	Index (1950=100)	Population (million: mid-year)	GNP per head (TL)
1950	38,598	- 92	38,506	100	20.9	1,842
1951	43,536	- 89	43,446	112.8	21.3	2,040
1952	48,738	-117	48,621	126.3	21.9	2,220
1953	54,210	-120	54,090	140.4	22.6	2,393
1954	52,655	-174	52,480	136.3	23.2	2,262
1955	56,912	-270	56,642	147.1	23.9	2,369
1956	58,763	-335	58,428	151.7	24.4	2,394
1957	63,417	-422	62,995	163.6	25.3	2,490
1958	66,308	-463	65,844	171.0	26.0	2,532
1959	69,373	-852	68,521	177.9	26.7	2,566
1960	71,391	-522	70,869	184.0	27.5	2,577
1961	72,619	-334	72,286	187.7	28.2	2,563
1962	77,030	-276	76,754	199.3	28.9	2,656
1963	84,291	-103	84,188	218.6	29.7	2,835
1964	87,782	-163	87,619	227.6	30.4	2,882
1965	90,078	+290	90,368	234.7	31.2	2,896
1966	100,629	+576	101,204	262.8	31.9	3,172
1967	105,158	+302	105,460	273.9	32.7	3,225
1968	112,190	+303	112,493	292.1	33.6	3,348
1969	118,168	+426	118,594	308.0	34.4	3,447
1970	123,949	+1,477	125,425	325.7	35.3	3,553
1971	135,181	+3,004	138,185	358.4	36.2	3,817
1972	144,063	+4,414	148,476	385.6	37.1	4,002
1973	150,428	+6,029	156,458	406.3	38.1	4,106
1974	163,237	+4,776	168,013	436.3	39.0	4,308
1975	177,761	+3,623	181,383	471.1	40.1	4,526
1976	193,207	+2,544	195,751	508.4	40.9	4,784
1977	201,577	+1,781	203,358	528.1	41.8	4,869
1978	207,314	+1,869	209,183	543.2	42.6	4,906
1979	205,487	+2,857	208,343	541.1	43.5	4,786
1980	203,896	+2,165	206,061	535.1	44.4	4,637
Average Annual % Increase:						
1950-60	6.3	-	6.3	-	2.8	3.4
1960-70	5.7	-	5.9	-	2.5	3.3
1970-80	5.1	-	5.1	-	2.3	2.7
1950-80	5.7	-	5.8	-	2.5	3.1

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Table 14.1 (continued)

Notes: [a] Includes construction, wholesale and retail trade transportation, storage, communications, banking, insurance, and related financial activities, business, social, personal, and governmental services, minus imputed bank service charges.

[b] Preliminary figures (SIS)

Sources: Turkish State Institute of Statistics (SIS), National Income and Expenditures of Turkey, 1948-1972 (Ankara, SIS, 1973), pp. 36-37, 143; SIS, Türkiye Mille Geliri, 1962-1977 (Ankara, SIS, n.d.), Table 5; SIS, Statistical Yearbook 1981 (Ankara, SIS, 1981), Tables 20, 398, pp. 29, 400.

And this in turn induces a new reform program. The period surrounding the reform program has typically been a period of slow growth. In the two earlier cycles, the reforms were successful in stabilizing the economy and reducing the degree of distortion. It is still too early to pass judgement on the success of the 1980-81 reforms.

With this overly-simplified pattern in mind, the economic history of each of the three subperiods can be briefly recounted. The first such period, which began during the worldwide boom of the early 1950's, ended with a devaluation-reform program in 1958. Turkey's economy had been dislocated during the Second World War. The post-war period was one of recovery spurred by relatively high commodity prices for Turkey's exports and by Point Four and Marshall Plan aid. The short-run expansion in real output was impressive, with rates of growth of real GNP estimated to have been almost 10 percent annually from 1950 to 1953. Turkey even became the world's largest exporter of wheat in the 1951-53 period (see Section 14.4) for an analysis of the role of aid in the expansion of grain production in the Anatolean plateau).

By 1953, however, difficulties were arising as the increase in resources permitted by high commodity prices, rising real volumes of exports, and foreign assistance, were not sustained. Inflationary pressures within the domestic economy mounted. Export earnings fell due to a worsening of the terms of trade, to a poor harvest, and to the decline in the real value of the Turkish Lira.

The Turkish government's response was to levy surcharges on imports, to require import licensing, and to permit resort to suppliers' credits and bilateral arrangements to finance needed imports. By 1958, however, the

situation was desperate. Additional credits became virtually unavailable as a result of many arrears in indebtedness. There was insufficient foreign exchange available to permit the petroleum imports needed to harvest the crops and transport them to port. A devaluation-stabilization program was finally entered into with the IMF and donor countries (see Section 14.2 for more details), and major domestic economic reforms were undertaken.

By 1960, the response to the reforms was being felt, and the ground was laid for the next cycle, which lasted over the decade of the 1960's. During the 1960's growth was rapid - averaging just under 7 percent annually in real terms. From the vantage point of the late 1960's Turks could justly point with pride to their cumulative growth rate since 1953 as being one of the highest in the world. The retardation of the late 1950's appeared to have been a temporary aberration.

The 1960's witnessed the start of major governmental investment programs and intervention in the economy in support of development objectives. In particular, major emphasis was placed upon the development of a "modern" industrial sector. Measures were taken to encourage the growth of domestic industry (see Section 14.3). This had several effects: (1) it placed heavy demands on imports for both investment goods and for intermediate goods to permit existing import substitution activities to continue producing; (2) it intensified inflationary pressures within the domestic economy; (3) it placed incentives on production of import substitutes at the expense of expansion of capacity to produce goods for export.

Unlike the 1950's cycle, the cumulative effects of these strains were more gradual in developing. The government acted to avoid the extreme dislocations of the 1950's. However, by the late 1960's delays in obtaining

foreign exchange and import licenses were again mounting. The black market exchange rate was again soaring well above the official rate and dislocation was emerging in many economic activities. While the rate of economic growth slowed down somewhat, action was taken before difficulties were severe. In August 1970 a devaluation-cum-stabilization program was again announced.

The response to that program was immediate and pronounced: partly because Turkish workers in Europe had been channeling their funds through informal channels (or holding their savings in deutschmarks or other hard currencies), and partly for other reasons, export earnings and other foreign exchange receipts rose sharply. Turkey's international reserves, which had stood at $-221 million in 1969, rose to a peak of $484 million in 1973. Meanwhile, imports had risen markedly from $948 million in 1970 to $2086 million in 1973. Again, the economy also responded markedly, as real GNP rose 10.2% in 1971, 7.4% in 1972, and 5.4% in 1973 (Table 14.2).

However, this third cycle, which culminated in the reform program begun in January 1980, also contained the seeds of its own self destruction. The initial contributing factor was the success of the devaluation-stabilization program itself. The sharp increase in workers' remittances and other foreign exchange could not be sufficiently contained by the Central Bank of Turkey. As a consequence, inflationary pressures were released within the economy. The rate of inflation, which had fallen to an average of less than 8 percent in the 1960's, rose to over 25 percent by 1973.

Although Turkey produces very little oil and was thus adversely affected by the oil price rise of 1973-74, the Government's initial response was to borrow from abroad and to run down foreign exchange reserves. This strategy was moderately successful in 1974 and 1975. Real GNP rose 7.4 percent in

Table 14.2. Trends in Trade, Development Assistance, and Balance of Payments in Turkey: 1950-1980

	CURRENT ACCOUNT					
	Visibles		Invisibles		NATO Infrastructure and offshore receipts	Balance
	Imports (CIF)	Exports (FOB)	Emigrants' Remittances	Other net[a]		
1950	- 286	263	-	- 27	-	- 50
1951	- 402	314	-	- 6	-	- 94
1952	- 556	363	-	- 5	-	- 198
1953	- 533	396	-	- 27	-	- 164
1954	- 478	335	-	- 34	-	- 177
1955	- 498	313	-	- 35	43	- 177
1956	- 407	305	-	- 40	67	- 75
1957	- 97	345	-	- 47	40	- 59
1958	- 315	247	-	- 48	52	- 64
1959	- 470	354	-	- 64	35	- 145
1960	- 468	321	-	- 44	52	- 139
1961	- 510	347	-	- 55	48	- 170
1962	- 622	381	-	- 41	40	- 242
1963	- 688	368	-	- 29	49	- 300
1964	- 537	411	9	- 51	59	- 109
1965	- 572	464	70	- 60	20	- 78
1966	- 718	490	115	- 70	19	- 164
1967	- 685	523	93	- 59	14	- 114
1968	- 764	496	107	- 80	10	- 231
1969	- 801	523	141	-106	8	- 221
1970	- 948	588	273	- 92	8	- 171
1971	-1171	677	471	-105	6	- 122
1972	-1563	885	740	-100	30	- 8
1973	-2086	1317	1183	70	-	484
1974	-3777	1532	1462	63	-	- 720
1975	-4738	1401	1312	146	-	-1879
1976	-5129	1960	982	-114	-	-2301
1977	-5797	1753	982	-364	-	-3426
1978	-4599	2288	983	-191	-	-1511
1979	-5069	2261	1694	-589	-	-1703
1980	-7909	2910	2071	-733	-	-3661

Table 14.2 (continued)

	CAPITAL ACCOUNT					
	Private		Official			
	Direct Investment	Other Capital Movements[b]	Project and Programme Aid[c]	PLO 480 Imports	Amortisation of debt	Net Capital Inflow
1950	2	-	103	-	- 15	90
1951	7	21	113	-	- 18	123
1952	10	85	72	-	- 22	145
1953	8	105	62	-	- 20	155
1954	8	126	65	-	- 73	126
1955	3	127	81	-	-105	106
1956	2	143	103	14	- 89	173
1957	17	87	75	32	- 83	128
1958	13	45	105	42	- 69	136
1959	7	28	169	27	- 60	171
1960	24	30	118	22	- 65	129
1961	34	15	151	65	- 84	181
1962	36	26	163	71	- 97	199
1963	21	15	247	88	-101	270
1964	25	17	190	31	-114	149
1965	22	5	274	29	-170	160
1966	30	11	238	17	-124	172
1967	17	12	246	-	-106	169
1968	13	22	274	-	- 94	215
1969	24	20	279	41	-115	249
1970	58	34	337	83	-197	315
1971	45	27	343	55	-125	345
1972	43	39	304	16	-127	275
1973	79	50	381	-	- 77	433
1974	33	113	269	-	-156	259
1975	55	348	322	-	-147	578
1976	27	236	391	-	-119	535
1977	67	1162	503	-	-214	1518
1978	47	733	855	-	-451	1184
1979	86	-246	1887	-	-945	782
1980	36	37	3808	-	-1556	2325

Table 14.2 (continued)

	OVERALL BALANCE				
	Net IMF Position and SDR's	Net Short-term Capital	Errors and Omissions	Change in Reserves (- = Increase)	Balance
1950	-	2	- 12	- 30	40
1951	-	3	- 11	- 21	29
1952	5	11	- 62	99	- 53
1953	20	10	48	- 69	- 9
1954	- 6	57	- 66	66	- 51
1955	- 9	61	- 52	71	- 71
1956	-	- 15	- 45	- 38	98
1957	7	- 11	- 58	- 7	69
1958	17	- 7	- 15	- 67	72
1959	- 3	- 10	- 44	31	26
1960	- 3	- 18	82	- 51	- 10
1961	10	- 39	97	- 79	11
1962	6	- 15	22	30	- 43
1963	4	-	- 22	48	- 30
1964	3	-	- 80	37	40
1965	-15	-	- 67	-	82
1966	-	-	- 18	10	8
1967	7	7	- 81	12	55
1968	27	18	- 25	- 4	- 16
1969	-11	29	76	-122	28
1970	48	18	- 24	-186	144
1971	- 2	61	60	-346	223
1972	-61	332	28	-566	267
1973	-	-224	35	-728	917
1974	- 8	16	22	431	- 461
1975	301	558	25	417	-1301
1976	149	1520	- 15	112	-1766
1977	14	1554	-220	560	-1908
1978	175	844	-536	-148	- 335
1979	3	194	808	- 84	- 921
1980	502	126	1288	-580	-1336

Table 14.2 (continued)

Notes: [a] Includes tourism, interest payments, profits transfers and other invisible transactions: for 1973-80, includes NATO infrastructure and offshore receipts.

[b] Includes suppliers and commercial credits and direct imports with waivers.

[c] Includes debt relief.

[d] For 1967-77, mainly convertible lira accounts.

Sources: SPO, Yeni Strateji ve Kalkinma Plani, Ucuncu Bes Yil, 1973-1977 (Ankara, SPO, 1973), p. 52; SPO Dorduncu Bes Yillik Kalkinma Plani, 1979-1983 (Ankara, SPO, 1979), p. 71; OECD, OECD Economic Surveys, Turkey 1978 (Paris, OECD, 1978), p. 55; Turkiye is Bankasi, Economic Report 1978 (Ankara, Turkiye is Bankasi, 1978), p. 34; Briefing, 17 March 1980, p. 18; SIS, Statistical Yearbook, 1981 (Ankara, SIS, 1981).

OECD, OECD Economic Surveys, Turkey 1982 (Paris, OECD, 1982), pp. 23, 62.

Singer, Economic Advance, p. 392.

1974 and 8.0 percent in 1975. However, the rate of inflation rose further, accelerating from 14 percent in 1973 to 21 percent in 1975, 26 percent in 1977, and finally reaching 100 percent in 1980. By the end of the cycle in 1979 - and despite several "programs" that had been announced designed to rectify the situation - real GNP was declining. In 1980 real GNP stood only 5.3 percent above its 1976 level--an average rate of increase of less than 2 percent annually - less than the rate of growth of population over the same period.

As this brief description indicates, macroeconomic difficulties have plagued the Turkish economy throughout the period during which foreign assistance has been a factor in the economy. Although satisfactory economic growth rates were achieved for part of that period, those rates proved unsustainable because of macroeconomic difficulties. As will be seen in Section 14.2, much of aid policy toward Turkey, especially in the 1960's and the late 1970's, has been strongly conditioned by the presence of those difficulties.

14.2 Macroperspectives on Assistance

Turkey is one of the oldest recipients of aid and has, throughout most of the period, been a major recipient of American aid. Even during the Marshall Plan period, Turkey was a major recipient. There are few lessons from that period, however, for development assistance and this review therefore starts with the first of the three cycles.

Despite the similarities of the cycles in Turkish economic development, the role of foreign assistance has been somewhat different during each. During the 1950's, the United States was virtually the only donor country (until 1958). Most assistance was intended to be project assistance. It was directed primarily at infrastructure and agricultural development.

During the second cycle, American assistance efforts were generally shifted toward "program", rather than "project" support. In the case of Turkey program assistance was undertaken in conjunction with a consortium of donor agencies. In the third cycle, American assistance was greatly reduced in scope in the early 1970's in response, in part, to the apparent success of the 1970 devaluation. It was resumed again in response to the difficulties encountered by the Turkish economy in the late 1970's.

In the 1950's, assistance centered primarily upon infrastructure. Special emphasis was given to the construction of a road network deemed desirable for NATO-military purposes as well as for economic development. This nationwide network of paved roads has been of major significance for regional and agricultural development.[2/]

Infrastructure investment and other development assistance activities were also undertaken in a number of other sectors.[3/]

For present purposes, however, focus must be on the interaction of American assistance with the Turkish macroeconomic difficulties of the late 1950's. American authorities were well aware of the problems inherent in Turkish macroeconomic policy. An American assistance-sponsored analysis of the Turkish macroeconomic problems was conducted by Chenery, Brandow and Cohn (1953). It is of interest that the Turkish reaction to the study was to refuse permission of the authors to enter the country. However, given the American political interests in Turkey, American policy was torn between a desire to provide political support to the Menderes government and the desire to have Turkish macroeconomic policies corrected.

The consequence was a difficult and tense period in Turkish-American relations. Starting in 1956, the Menderes government several times requested continuation of American project assistance and an American program loan to provide financing for imports.[4/]

The American authorities refused those requests based largely on their recognition that the Turkish government's policies were unsustainable. By the summer of 1958, the Menderes government was willing to accept the restrictions placed upon it under an IMF-led consortium that was clearly strongly influenced by the American position. Whether the change came about because of the increased difficulties experienced by the Turkish economy (there had even been a Turkish mission seeking Russian assistance prior to that time) or whether the American position softened somewhat (the Iraqi revolution took place two months prior to the stabilization plan) is an open

question. But the episode well illustrates the dilemma of assistance in the context of strong political interests in the recipient country.

The 1960's cycle represents yet another type of experience. By that time, the focus of American aid had shifted largely toward "program", rather than "project", assistance. Although Turkey received assistance from several donors the United States was by far the largest source of assistance in the early 1960's. But the United States' relative importance as a donor to Turkey declined sharply in later years as Turkish Associate Membership in the EC led to stronger economic ties with the European countries. The dilemma of U.S. program aid to Turkey centered upon how an individual donor could influence macroeconomic policy. The solution in the Turkish case was the formation of a "consortium", which met with Turkish planners and other officials to discuss budget plans and go over the "import requirements associated with it (White, 1967). This led to a focus on overall development efforts, and particularly on investment plans. The donor agencies were concerned with allocational issues including the distortions caused by the trade regime and the sectoral allocation of resources. Bargaining, however, tended to focus on the degree of emphasis on, and the rate of investment in, import-substitution sectors rather than on the strategy itself. Perhaps this was because, in the context of the 1960's, the long-run consequences of such strategies were less well appreciated than they are today. It is also true, however, that a bargaining process itself implies some degree of "give and take" on both sides, which meant that the fundamental premises of Turkish planning could not be challenged.

Two other lessons from the experience of the 1960's may be mentioned. First, the "program" emphasis focussed on investment plans, foreign exchange

allocations, and, to a certain extent on the related macroeconomic issues. However, since the "foreign exchange shortage" associated with a given plan was what determined, at least in principle, the level of assistance to be extended by the Consortium donors there was some conflict on the part of the Turkish authorities as to the extent to which it was in their self-interest to minimize the gap. Secondly, the consortium model was in itself somewhat unwieldy. Multiple donors with different emphases among themselves probably limited the effectiveness that might otherwise have been achieved in influencing Turkish policy. There was also a problem with delays. The Turkish plans first had to be formulated and then discussed with donors. The difficulty of reaching a consensus among all donors on assistance levels made the process a difficult one for donors and recipient alike.

Despite the above, which may be regarded as "lessons" learned from the 1960's cycle, it seems likely that the "program" approach to development assistance was probably a significant factor in limiting the distortions to which the Turkish economy was subject before remedial actions were taken. There was a continuing dialogue between A.I.D. and the Turkish government officials (in which Krueger was occasionally a sideline observer). There were attempts to persuade the Prime Minister and his cabinet that a change in macroeconomic policies, especially the exchange rate, was desirable long before the decision was taken. It is in principle unknowable whether the devaluation of 1970 would have been delayed even longer in the absence of donor pressure. What is clear, however, is that remedial action was taken in 1970 at a far earlier stage of the cycle than in either the 1950's or the 1970's.

The third cycle is in a way the most interesting. With the exception of the multilateral lending agencies, there was far less involvement of donors in the process than had been the case in the earlier cycles. American assistance resumed when severe balance of payments difficulties and other symptoms of extreme dislocation reemerged. Then, starting in 1978, there were repeated "programs" announced to stem the difficulties. An IMF stabilization program of 1978 of U.S. $450 million, combined with an OECD-consortium debt rescheduling provided about $1.2 billion over a two-year period in balance of payments support. There were, of course, conditions attached to the stabilization program and these were generally underachieved in 1978 and 1979. Despite changes in the exchange rate, the rate of inflation was sufficiently high that the real rate became increasingly overvalued and export earnings faltered.

From hindsight, there were two major mistakes in the 1970's. First, Turkish borrowing, primarily from commercial sources, in the mid-1970's postponed adjustment thereby making it more difficult when it did come. Second, when the imbalances were finally apparent in 1977, their severity was underestimated. The lending to Turkey in 1978 and 1979 did little to rectify the underlying difficulties, while simultaneously insuring that Turkey would have an even bigger debt-servicing burden when a genuine reform of economic policies was undertaken in January 1980.

It seems clear that a major lesson for development assistance is that, when the macroeconomic policy signals are massively out of line lending to support the country in question will only make the cost of adjustment even higher unless sufficient remedial actions are undertaken. There is, however, no widely accepted technique for estimating when the policy changes are

sufficient to remedy the underlying difficulties. At least until knowledge improves, advice on policy reform will continue to contain a large element of judgement.

14.3 Trade and Aid in Turkey

In any country which maintains a fixed exchange rate while experiencing a rate of inflation in excess of the rate in the rest of the world, the first symptom of real difficulty, other than the inflation itself, generally arises in its balance of payments and in mounting debt-service obligations. It is therefore inevitable that countries with expansionary policies and fixed exchange rates will seek support from donor countries and institutions. When the macroeconomic policies are appropriate, such support can be used in highly productive ways in support of economic development. When they are inappropriate, however, they can be largely dissipated in support of policies which must, at any event, be remedied if growth is to resume or continue.

The Turkish experience amply demonstrates this. While many of the individual projects financed by the United States and other donors have had a high rate of return, and more will have if present economic reforms succeed, the United States and other donors were three times caught in a weak bargaining position on economic reform by their political interest in Turkey at times when Turkish macroeconomic policy was unsustainable. In the 1960's, corrective measures were taken relatively early in the cycle. In the 1950's and 1970's, however, donors were induced to provide support (in 1956-58 and again in 1977-79) despite the fact that the underlying programs had not been sufficiently changed to offer promise of great macroeconomic relief.

The fact that trade can substitute for aid means that the dangers of supporting inappropriate macroeconomic policies inherently affect the trade sector of the domestic economy. In the Turkish case the most vivid illustration of this lesson arises from the cycle of the 1960's. Even when broad macroeconomic policy was not highly out of line, the fact of an aid inflow helped to mask the underlying distortion in the trade regime, as between import-substitutes and exports. Krueger (1974) has estimated that while almost all exports were receiving only TL9 per U.S. dollar the implicit cost of many import-competing goods was TL20 or more per dollar.

This situation could not have persisted as long as it did had it not been for aid flows. Although aid officials correctly pointed to the distortions resulting from overvaluation they nonetheless persisted as a major stumbling block to expansion of export earnings. In Turkey's case, this difficulty was compounded by the fact that Turkish workers' remittances also provided a major source of foreign exchange. Nonetheless, a major lesson from the Turkish experience is that aid's effectiveness is greatly diminished unless it is administered in the context of a fairly realistic exchange rate and a liberal trade policy.

The relationship between trade policies and aid does not end at the macroeconomic level. It also affects the effectiveness of assistance at the individual project and sectoral level. Two episodes in Turkey will serve to illustrate the link. The first is the Eregli Steel works and the second is the experience of the Turkish Industrial Development Bank.

In the 1960's, when there was automatic protection to new industrial activities, the U.S. government decided to provide the major part of financing for the Eregli Steel Mill. This was a massive undertaking by Turkish standards of the early 1960's. For present purposes, the

important point is that the feasibility study the project used anticipated domestic price, rather than the international price, to evaluate the project prospects. In the event, the Eregli plant had numerous technical problems but, in addition, resulted in a substantial increase in the Turkish domestic price of steel. The price was so high that the tinplate cost of a liter can of processed tomatoes in Turkey exceeded the retail price of a comparable can in Germany. Thus, during the late 1960's, the development of any food canning activities for exports was unprofitable and hence not undertaken. An inappropriate set of trade policies induced an initially uneconomic steel mill, which in turn prevented the development of more economic food processing industries.

The Turkish Industrial Development Bank was founded in the early 1950's to lend money to private sector industrial activities. It received loans, primarily from the World Bank, which provided it with foreign exchange. Because foreign exchange was scarce its loans were eagerly sought by the Turkish business community.

The Bank has undoubtedly made major contributions to the economic and technical efficiency of Turkish industry through its technical assistance, project appraisal, and other activities. It adopted shadow pricing and cost benefit analysis early in its history (Chapter 5). However, in its first ten years of existence, its project appraisal was based on market prices. Many of the projects which it funded were very profitable at market prices, but uneconomic at international prices. When the Bank began using international prices in its project appraisal it was able to weed out loan applications from some high cost industries. But the policy did not induce loan applications from those activities (especially for export) that would have been profitable at a realistic exchange rate but were unprofitable at the actual exchange rate.

The benefits accruing from assistance to the Turkish Industrial Development Bank were less than they might have been, even when the Bank used appropriate appraisal criteria, had Turkish trade and exchange rate policies been more realistic.

14.4 Assistance for Agricultural Development[5/]

There are several reasons why a review of U.S. assistance to agricultural development in Turkey is particularly relevant. One is that Turkey, along with Korea, was among the earliest recipients of U.S. agricultural development assistance. U.S. assistance for agricultural development in Turkey began during World War II and continued until 1976. A second reason is that in the process of acquiring experience in development assistance in Turkey the U.S. made almost all of the false starts and committed most of the development assistance errors that were possible. In spite of the false starts and errors there have been a number of success stories. U.S. development assistance has made an important contribution to expansion of the agricultural sector's productive capacity and to the economic well-being of rural areas in Turkey.

In this review we give special attention to four areas of development assistance: (a) agricultural inputs (tractors and fertilizer); (b) land and water development; (c) agricultural education, research and extension; and (d) wheat production campaigns. (Other rural development programs designed to improve the quality of life in rural areas are discussed in Section 14.5. We devote primary attention to the U.S. development assistance programs. Reference is made to the activities or other donors only as their programs interact with U.S. development assistance. The FAO has been active in support of development of the forestry sector, in the promo-

tion of fertilizer use, in supporting the development of animal health and production programs and in crop introduction and research. The World Bank has been active in soil and water conservation and irrigation development and in the development of the livestock industry.

Agricultural Inputs: Tractors and Fertilizer

After World War II use of tractors diffused rapidly in Turkey. Fertilizer use expanded steadily from very low levels in the early 1950's to the mid-1960's. The largest increases in fertilizer use came after the introduction of the new higher yielding fertilizer responsive varieties in the mid-1960's. U.S. assistance played a very important role in the rapid post-war introduction of tractors. It played a much smaller direct role in the growth of fertilizer use.

Tractors: During the Marshall Plan period (1948-52) and during the first several years under the Mutual Security Act, support for agricultural development represented a very large share of U.S. agricultural development assistance to Turkey (Wilson, 1971: 2, 3). And a major share of this assistance was in support of agricultural mechanization (Table 14.3). Nearly 40,000 tractors were imported with U.S. assistance during the Marshall Plan Period. After the mid-1950's assistance by the U.S. for mechanization declined but mechanization, as indicated by the growth in tractor numbers has continued (Table 14.3).

A major effect of the mechanization effort was to expand the land under cultivation. New land was opened up to cultivation. Wheat production increased rapidly during the early 1950's. Almost all of the increase in wheat production during this period was a result of expansion in the area cultivated rather than increase in yields.

Table 14.3. Mechanization in Agriculture

	1950	1955	1960	1965	1971	1975	1980
Tractors ('000)	17	40	42	55	116	241	394
Area cultivated with tractors (mn. ha.)	1.2	3.0	3.2	4.1	8.7		
Draught animals ('000 pairs)	2495	2564	2648	2674	2099		
Area cultivated with draught animals (mn. ha.)	13.3	18.0	20.1	19.5	15.8		
Total cultivated area (mn. ha.)	14.5	21.0	23.3	23.6	24.5	24.4	24.9

Sources: Turkish Government, State Institute of Statistics, Summary of Agricultural Statistics. Published annually.

OECD (1974), Agricultural Policy in Turkey.

IBRD/World Bank (February 18, 1982), Turkey Industrialization and Trade Strategy: Methodological and Statistical Annex Vol. 3.

In spite of the mechanization programs' initial impact on production, substantial questions were raised regarding its longer run viability. A 1951 mission from the World Bank criticized the number of tractors being imported. The mission estimated that the number of farms on which tractor cultivation was economically viable was only in the neighborhood of 10,000 (IBRD, 1951). It also seems apparent that land was converted to cotton and grain production that should have remained in pasture. In some areas the productive capacity of the new lands brought under cultivation deteriorated rapidly. There were also serious income distribution effects. Ownership of resources at the village level became more concentrated and large numbers of peasants were pushed into the migration stream (Ankara University Faculty of Political Science, 1953; Robinson, 1952 and 1958; Mann, 1980).

It is hard, in retrospect, to escape the conclusion that a slower pace of mechanization in Turkey would have been desirable. Both the negative effects of conversion of land use and the impacts of income distribution would have been mitigated if tractor cultivation had been introduced more slowly. And there seems little doubt that, in the absence of external assistance, the pace of mechanization would have proceeded more slowly. It also seems apparent that the excessive rate of mechanization and land conversion did not represent a failure of analysis. Our review suggests that very little analysis took place. It reflected instead an intuitive identification, on the part of U.S. assistance personnel and the Government of Turkey (GOT), of mechanization with the modernization of agriculture (Chenery, Brandow and Cohn, 1953; Aresvik, 1975: 76-81; Mann, 1980).

Fertilizer: Efforts to expand the use of fertilizer have represented a major focus of several U.S. assistance projects. The Mission's extensive involvement in fertilizer began with an AID-supported team of six fertilizer experts from the Tennessee Valley Authority. This team spent two months advising the State Planning Organization in the early part of 1966. Out of this association came a detailed fertilizer study, the conclusions of which were incorporated into the Second Five Year Development Plan. Since the completion of the report, the Turkish government worked extensively with AID in seeking to develop a suitable fertilizer project. In the end, however, the Turkish authorities did not seek AID financing for any fertilizer project although the Mission continued to work with the Turkish government on fertilizer-related questions.

An AID fertilizer advisor spent about four years (1967-1971) working with the State Planning Office, the Ministry of Agriculture, Donatim (the Agricultural Supply Organization), the Agricultural Bank, and Turkish industry trying to coordinate the development of a fertilizer industry. The fertilizer advisor wrote several reports, which were well received by the Turkish government, in which he made several recommendations about several possible areas of U.S. foreign assistance to Turkey, including the following: (1) technical assistance in helping Turkey develop a plan of reorganization and the establishment of policies for fertilizer marketing and distribution; (2) technical assistance in developing a sound economic marketing and promotional organization; (3) establishment of in-country training programs to help solve the Turkish fertilizer industry's problems. Even without U.S. assistance, the AID fertilier

advisor suggested that the Turkish government reorganize and consolidate all government fertilizer functions under one organization: production, credit, research, soil testing, marketing and fertilizer production (Hill, 1969).

One major change that took place in Turkish agriculture in the late 1960's as a result of the recommendations of the U.S. AID fertilizer advisor was the acceptance by the Government of the use of nitrogen fertilizer on wheat. The excellent results of phosphate with nitrogen on high yielding wheat varieties encouraged the Government to take a new look at the situation, and to recommend the use of nitrogen on wheat. This practice was begun with the introduction of Mexican wheat in the fall of 1967.

The results from following the U.S. AID fertilizer advisor's recommendations of applying nitrogen on high yielding winter wheat varieties on state farms convinced government research workers of the merit of using nitrogen fertilizers in addition to phosphates. The outcome of these experiences also resulted in the first nitrogen recommendations for winter wheats grown on the Anatolian Plateau in the spring of 1969. The amount of fertilizer used for wheat in Turkey increased dramatically after 1966 with the introduction of the high yielding winter and spring wheat varieties (Table 14.4).

The government has a virtual monopoly on the production, import, and sale of chemical fertilizers, except for raw materials which can be imported under license for domestic manufacture. The Agricultural Supplies Organization (TZDK) is the principal agency involved in the distribution of fertilizers to farmers. Successive governments have given priority to fertilizer imports in

Table 14.4. Consumption of Commercial Fertilizers in Turkey, 1950-72 (tons of nutrients)

Year	Nitrogen	Phosphorus	Potassium	Total
1950-54	5,722	4,708	3,158	13,567
1955-59	12,365	7,234	1,304	20,903
1964	51,000	42,400	4,320	98,320
1969	231,100	200,600	14,300	446,000
1972	354,353	245,999	27,173	627,525
1978	776,000	635,000	21,000	1,432,000

Note: The figures for the 1950-54 period and the 1955-59 period are averages.

Source: FAO (1950-72), Production Yearbook; Government of Turkey, State Institute of Statistics. Statistical Yearbook of Turkey 1973 for 1972 figures; IBRD/World Bank (February 18, 1982), Turkey Industrialization and Trade Strategy: Methodological and Statistical Annex, Vol. 2 for 1978 figures.

the allocation of foreign exchange and fertilizer is the second largest import after fuel. At the same time, fertilizers benefitted from generous government subsidies.

Fertilizer prices have been subsidized in three ways. First, by distributing the commercial product at below cost directly to individual farmers and farmers' cooperatives; second, by providing credit at subsidized rates for the purchase of agricultural inputs including fertilizers; and third, by subsidizing domestic manufacturers. The official price of ammonium nitrate (26% N) was fixed from 1975 to 1979 at TL 1400 per ton despite the fact that the currency was rapidly depreciating. By 1979 subsidies to fertilizers amounted to between 60% and 80% of product cost. In 1980, retail prices of fertilizers were raised and subsidies to fertilizers were reduced to 20-45% of the product cost. Nevertheless, subsidies to fertilizer remain substantial, amounting to about TL 35 billion (U.S. $460 million) in 1980. The government indicated its intention to phase out the remaining subsidies on fertilizers over the next five years, concomitant with the introduction of cost reducing innovations in TZDK's fertilizer handling and distribution network.

Fertilizer consumption has increased very rapidly in part because farmers have purchased it much below cost. At this low price, excess demand conditions have prevailed, and therefore a non-price allocation mechanism has been used to distribute fertilizer to farmers and to specific crops. There has been an uneven distribution of available supplies. A World Bank simulation based on its agricultural sector model for Turkey indicated substantial malallocation of fertilizer use among crops and regions due to pricing policies (World Bank, 1982, Vol. 2, 252).

In retrospect it seems doubtful that subsidies were a necessary inducement to more intensive fertilizer use. Before the introduction of the new wheat varieties there was little economic return to higher levels of fertilizer use on most crops. When the new fertilizer responsive varieties were introduced, the economic incentive for fertilizer use was very large. The primary effect of fertilizer subsidies was to distort use patterns.

Land and Water Development

Both the U.S. AID (and its predecessor agencies) and the World Bank have provided substantial assistance for land and water development in Turkey. The Seyhan Project - a large multi-purpose flood control and irrigation project was a major focus of assistance by both agencies for over 30 years.[6/] The project is of interest because it illustrates the difficult problems that both institutions have faced repeatedly in the development of large multi-purpose projects. Many of these problems have centered around the difficulties of articulating the irrigation phases of the project with the power and flood control phases.

In 1948 the Ministry of Public Works commissioned a design study for the Seyhan Project. In 1950 a request was made for a loan from the World Bank for the construction of the Seyhan Dam. An economic study was also commissioned to support the loan application. In spite of serious reservations by the bank's own survey mission the bank agreed to participate in the financing of the construction of the dam. The loan agreement was signed in 1952. The dam and hydroelectric plant were completed in the early 1960's.

In spite of the fact that the realization of all three objectives of the project was necessary for the project to be economically viable, it was not until 1958, after the dam was completed and the hydroelectric plant came on line, that a design study for the irrigation and drainage phase was commissioned. When the irrigation studies were completed in 1961 it was estimated that the cost of the irrigation phase of the project would cost several times as much as the cost of the hydroelectric and flood control [illegible] and it did not include the even larger cost of on-farm land and [illegible]lopment work that would have to be carried out in order to realize

the irrigation benefits. It was not until the early 1980's that a large portion of the irrigation system was completed. It seems apparent that during much of the period between 1950 and 1980 the project was more of a burden to the Turkish economy than a source of growth.

Based on its experience in the Stage I phase of the Seyhan Project, the Bank decided that special attention needed to be given to an intensive extension effort in order to ensure effective utilization of drainage and irrigation facilities once construction was completed. The extension services provided by existing government agencies were thought to be relatively ineffective. The new "training and visit" program, developed with the assistance of a specialist consultant, Mr. Daniel Benor, differed from the existing program in several respects: it offered more intensive assistance to farmers; activities of the different agencies were coordinated under a single program; it used village level "contact" workers, contact workers were trained at regular sessions and made scheduled visits to farmers; the contact workers were backed up by a hierarchy of specialists; its autonomy enabled it to concentrate on farm training rather than on data collection. The success of the training and visit (T & V) system in the Seyhan Project area led to its adoption in several other Bank assisted projects. It has also served as a model for Bank-sponsored extension programs in a number of other countries (Benor and Harrison, 1977: Chapter 10).

The initial response by the government of Turkey was less enthusiastic than that of the Bank. The T & V system was expensive for the government to operate and maintain. There was considerable animosity by the regular extension agency to special implementation units. Following completion of Bank assistance to the project the personnel connected with the T & V system

were reabsorbed into the regular extension service or left government service. The longer-run demonstration effect may, however, have been rather substantial. In 1981 the Ministry of Agriculture announced that the T & V system would be instituted nationwide over the next five years. This will require a doubling of extension personnel. Assistance agency advisors, including Bank personnel, have expressed concern as to whether such an intensive system will be cost-effective.

Substantial U.S. assistance was also directed toward strengthening the capacity of the Turkish government to ensure more effective utilization of its investment in land and water resource development. This involved the assistance in the establishment of a Department of Land and Water Resource Development (Devlet Su Isleri - DSI) in the Ministry of Public Works modeled on the U.S. Bureau of Reclamation. A second agency - TOPRAKSU - modeled on the U.S. Soil Conservation Service, was established in the Ministry of Agriculture in 1960 and later moved to the Ministry of Village Affairs in 1964. It was organized to assist farmers with problems of soil and water management. Aid funding was provided to train DSI and TOPRAKSU staff and to finance irrigation development and soil conservation investments by farmers.

Both the DSI and TOPRAKSU programs were designed to be national in scope. Major effort was placed on the training of personnel. An internal AID evaluation in the late 1960's indicated that DSI has become a highly professional and technologically proficient agency.

TOPRAKSU resources were, however, concentrated primarily in two major State Project Areas (Seyhan and Gediz). In these two areas a force account approach to land and water development - financed by the government and carried out by TOPRAKSU - was developed. This proved effective in bringing rapid on-farm development within the project areas but it did nothing for

the development of the more than a million hectares of irrigated land outside State Project areas. The force account approach (Seyhan strategy) was strongly supported by the World Bank and the European Investment Bank because it seemed to promise rapid realization of the irrigation potential in the State Project areas. It was criticized by the US/AID because it did nothing for the development of the more than a million hectares of irrigated land outside the State Project areas (US/AID, 1969; Mann, 1972).

Thus, by 1970 it was becoming increasingly clear that after two decades of very substantial investment in facilities and institution building, Turkey still had not developed the capacity to effectively deliver irrigation water to farmers and to assist them in making effective use of the water except in a few state managed projects. There was a major imbalance in DSI and TOPRAKSU capacity. The capacity of DSI for the design and construction of irrigation facilities exceeded the capacity of TOPRAKSU to manage the delivery of water and provide technical assistance for development and use of water at the farm level.[7/]

In 1969 U.S. AID assisted in the development of a new "On-Farm Water Development Project" designed to (a) increase TOPRAKSU's capacity to carry out on-farm water development and (b) support the development of private sector capacity to carry out on-farm development outside of the state-run water project areas.[8/] An initial pilot demonstration of this new approach, carried out in the Izmir region, was regarded as highly successful (Mann, 1972; OECD, 1974: 26). The diffusion of the new "Izmir model" was, however, slowed by (a) shortage of credit to farmers, contractors and equipment suppliers and (b) the limited engineering and agronomic capacity of TOPRAKSU.

The initial, although partial success of the new project has provided Turkey with two models - the Seyhan "intensive" model and the more "extensive"

Izmir model - of water resource development. The following comparisons have been made of the two models (Mann, 1972):

(1) The older Seyhan model resulted in rapid and intensive development in some state managed project areas but its impact was more constrained by budget limitations. Since the Izmir model draws much more heavily on private than public resources, budget limitations are a less serious constraint. There has been delinking of the pace of irrigation development from the size of the TOPRAKSU budget.

(2) Returns to public investment are higher under the Izmir model since most of the costs of land development are borne privately. The cost to the government is only for the technical assistance.

(3) The Izmir model is more labor intensive. Greater use was made of local resources. It provides more employment and greater opportunity for the development of local private sector entrepreneurship.

(4) The Izmir strategy has had more favorable distributional effects. There was a tendency in the Seyhan Project for large farmers to receive a relatively large share of the land development subsidies and technical assistance. In the Izmir approach public resources were spread more broadly.

In view of the frequent discrepancy between initial project projections and longer-term project accomplishments it is probably premature to accept all of the claims regarding the superiority of the Izmir model.[9/] What can be said is that Turkey has accomplished, over a period of 30 years, the institutionalization of substantial capacity to develop, implement, and manage land and water resource development activities. There is also at least a presumption that the availability of two competing models, each with somewhat differed strengths and weaknesses, may become an important factor leading to better bureaucratic performance. Finally, it does appear

that Turkey has, during the last decade, begun to realize some of the returns from its major investments in both the large multi-purpose water resource development projects and its smaller investments in land and water development outside of the major project areas.

Agricultural Education, Research and Extension

A third major area of assistance by the U.S. AID agencies was to strengthen Turkish capacity in agricultural education, extension and research. It was clear, in the early 1950's, that Turkish agricultural education, extension and research institutions were exceptionally weak. Turkey did not establish a Ministry of Agriculture until 1931. An extension service was not established until 1943. Agricultural research was highly fragmented and the research system was typically staffed by technicians rather than scientists.

Extension: Assessments by U.S. technical assistance missions in the early 1950's suggested an opportunity for substantial short-run gains in agricultural production by strengthening agricultural extension. Initial efforts to strengthen agricultural extension focused on the training and technical assistance to strengthen extension capacity at the field level (Horton, 1964). Later efforts were focused on extension planning and administration.

By the mid-1960's, however, it seemed clear that the extension development effort had been much less successful than anticipated. Much of the frustration and lack of accomplishment has been attributed to the inability to resolve the differing conceptions of the role of extension held by the Turkish bureaucracy and the U.S. advisors. In the Turkish view agricultural extension agents were regarded as part of the staff of the country administrator (the Kaymakan) and responsible primarily for regulatory and administrative functions. The objective of U.S. technical assistance was to reform the system to make it primarily responsible for carrying out the educational and technology transfer function of the Ministry of Agriculture. By the mid-1960's

these issues remained unresolved and U.S. assistance effort was redirected toward the strengthening of agricultural services and the direct support of agricultural production.

One response to the limited success achieved in the program to strengthen agricultural extension was the search for a new approach to providing services to farmers. In 1966 the U.S. AID and the GOT initiated an Integrated Agricultural Services Project on a pilot basis in Denizli Province in southwestern Turkey (Wilson, 1971). The objectives of the project were (a) to move agricultural planning to the provincial and county levels and (b) to achieve inter-agency coordination for agricultural development activities at the local level. Three major activities were initiated under the pilot project: (a) the development of a coordinated support system that would integrate the supplies and services necessary to increase agricultural production; (b) to make available increased supplies of fertilizer and credit, better seed and breeding stock, and improve land and water management; (c) local testing and evaluation of new technology. Although many of the individual sub-projects were effective in increasing production, the project was not able to establish the coordination among agencies necessary for an integrated approach to agricultural development. In June 1970 AID terminated support for the Integrated Agricultural Services Project and initiated a new project to deal with the problems that resulted in the limited success of the Denizli Project - lack of policy and planning coordination at the national level.

There are some indications that in the early 1980's, the government of Turkey was beginning to face up to the problem of the

ineffectiveness of its agricultural extension system - weaknesses that had long concerned both the World Bank and the U.S. aid agency. A decision has apparently been made to institute the training and visit (T & V) system, first developed during Phase II of the Seyhan Project as the pattern for all extension work.

Agricultural research: During the 1950's and 1960's the U.S. assistance program was much less actively involved in strengthening the Turkish agricultural research system than in strengthening the Turkish extension service. Research, like extension, tended to be fragmented among the several departments and agencies with agricultural program activities. Although the ineffectiveness of agricultural research was recognized by both the GOT and U.S. AID, the first development assistance project in support of research was not implemented until 1963 (U.S. AID, 1965). This initial project had as its objective the provision of technical assistance for the reorganization of the Turkish agricultural research system. It was complemented by a second project designed to strengthen agricultural planning and economic research (U.S. AID, 1968). Neither project was able to overcome the obstacles of the fragmented approach that continues to characterize Turkish agricultural programs.

A somewhat more successful effort in support of agricultural extension and research was the establishment, with U.S. AID support, of Ataturk University in eastern Turkey. Beginning in 1955 the U.S. AID provided support, through a contract with the University of Nebraska. The University

included an extension training institute and an agricultural experiment station. By the early 1970's the new university appeared to be effectively institutionalized (Wilson, 1971).

Wheat Production Campaigns

In the late 1960's and early 1970's AID shifted its development assistance support away from generalized institution building to direct support for agricultural production. During this period support for agricultural training, research and extension continued. But the support was directed toward the achievement of much more specific production objectives than the programs of the 1950's and 1960's. This shift in emphasis was associated with the demonstration of the dramatic yield increases that were potentially feasible from the introduction and/or development of new high yielding wheat varieties.[10/]

The potential of the new wheat varieties was first demonstrated in Turkey in 1965. The U.S. AID imported seed from two varieties developed in Mexico - Sonora 64, and Lema Rojo. When planted by a farmer near Adana on Turkey's Mediterranean coast, yields in the 4.0 tons per hectare range - roughly double the yields of the best local wheats - were obtained. On the bases of somewhat broader experience in 1966 the Turkish Ministry of Agriculture decided to undertake larger scale dissemination of the new wheat varieties in the 1966/67 season. Economic and technical assistance from U.S. AID was obtained (a) to import 22,000 tons of Mexican seed to be planted in the Mediterranean, Aegean and Marmara regions and (b) to conduct an educational program to acquaint farmers with the production practices needed to obtain high yields from the new seeds. The production campaign

involved higher rates of fertilizer application, better seedbed preparation, and more effective weed control.

The economic results of the Mexican varieties were highly favorable. A study by the Agricultural Planning and Economic Research Department of the Turkish Ministry of Agriculture, showed that net income from land and management per hectare increased in the first year (1967-68) about 150 percent with the introduction of the new technology (see Table 14.5). The Mexican wheat import program probably had one of the most favorable cost-benefit ratios of any U.S. AID program to Turkey (Arsvik: 164).

There were also many indirect benefits from the program. A number of agencies (Agricultural Bank, Government Supply Agency, Soils Products Office, State Farms, and others) learned that by coordinating their efforts in support of the wheat production campaign, they could each demonstrate program success. There were major improvements in the technical capacity and morale in the Turkish Extension Service itself. The staff became more cooperative and willing to change their techniques and procedures and to revamp their education approach. The fact that they had something of value to demonstrate to farmers induced greater interest in field demonstrations.

By the early 1970's what was missing in Turkey for wider success with the Mexican wheats was locally developed replacement varieties that had high yielding potential and adequate disease resistance. As a result, the production potential of the Mexican wheat varieties reached a maximum and then stagnated. A cooperative research program with CIMMYT and the Rockefeller project was working on the development of such "replacement varieties", but better varieties did not become available until 1975-76 (CIMMYT Spring 1976). Nonetheless, the planting of Mexican varieties on 600,000 hectares

Table 14.5. Income and Cost Comparisons of Mexican Wheat and a Native Variety Grown in Denizli Province of Turkey, 1967-68

	Mexican Wheat	Native Wheat
Number of farms	55	44
Hectares per farm	3.2	2.5
Costs per hectare (dollars)		
Family labor	3.54	2.60
Hired labor	7.56	5.27
Seed	18.33	16.90
Water[a]	3.62	0.87
Fertilizer	37.58	12.56
Power and implements	46.79	32.71
Interest (7.0 percent)	8.22	4.96
Total[b]	125.64	75.87
Production and income		
Grain (kilograms)	3,643	1,572
Price per kilogram (in 10 kurus)	8.88	9.89
Total value (dollars)	323.44	155.43
Net income (dollars)[c]	197.80	79.56

[a]Most of the producers did not use irrigation for wheat.

[b]Not including land rental.

[c]From land and management.

Note: Data for Mexican wheat are simple averages for three varieties: Super-X, Lerma Rojo 64, and Penjamo 62. The native variety (073-44) is one of the better native varieties for this area. Dollar values are converted from Turkish lira at nine TL per dollar.

Source: Oddvar Aresvik (1975), The Agricultural Development of Turkey (New York: Praeger): 167.

of land annually during the early and mid-1970's help raise average wheat yields in Turkey from 1 ton to 1.8 tons per hectare between 1966 and 1979.

The widespread adoption of the Mexican wheats in coastal Turkey underscored how rapidly farmers would respond to profitable new ideas. However, while the coastal regions had benefitted from the Mexican wheats, the Anatolian Plateau, with three quarters of Turkey's wheat land, was unaffected because it requires cold-tolerant winter wheats. The introduction in Turkey of the Turkish Government-Rockefeller Foundation-AID-sponsored program for developing high-yielding winter wheat varieties, which has been referred to as the "High-Yielding Winter Wheat Project," coincided with the program for the introduction of Mexican spring-type varieties. However, the winter wheat program was much more modest and was developed more gradually (Johnson, 1971).

In 1970 a program was initiated by the Turkish Ministry of Agriculture, with support from AID, to increase winter wheat yields in selected provinces of the Anatolian Plateau and Thrace. Most wheat scientists believe that the factor which most seriously limits wheat production in the dry areas of Turkey is the management of the soil during the fallow period and the subsequent management of the wheat crop. This was recognized at an early stage, since the traditional summer fallow tillage method produces relatively low unit yields and sharp variations in annual production. By 1974, the Turkish and Rockefeller Foundation scientists of the Wheat Project were able to recommend a set of practices that they felt confident would give farmers yields of at least 2,000 kg per hectare in all years except those of unusually low rainfall.[11/] The extension service put out 10-hectare demonstrations of the recommendations in 10 locations in Ankara Province in 1974/75. These trials yielded 2,530 kg per hectare while adjacent

farmers' fields averaged 1,810 kg per hectare. The demonstrations were expanded to five provinces in 1975/76 and seven more provinces were added in 1976/77.

Charles Mann, a Rockefeller Foundation economist assigned to the wheat project, found that all demonstrator farmers (those who used the recommended set of practices) "realized substantially higher returns than did farmers whose fields served as controls (Mann, 1976: 15). The recommended practice cost only 25 percent more than usual farmer's practices, but output increased so much that the ratio of increased benefits to increased costs averaged over 5 to 1. Mann tentatively concluded that the impressive yield increases appear to be due not to large amounts of costly physical inputs but rather to modest amounts of additional inputs combined with better management.

The success of the wheat programs could not have occurred without a major commitment by the GOT. When the Project was begun, several dozen government wheat scientists were promptly transferred to it. The Government provided offices and experimental land at the Ankara Agricultural Research Institute. The Government also established regulations that permitted foreign scientist trainees to enter and leave Turkey easily. It maintained a favorable price ratio between wheat and agricultural inputs that created incentives for farmers to find ways to expand their wheat production.

The Government of Turkey-Rockefeller Foundation Wheat Project resulted in a major reorganization of wheat research in Turkey. One improvement was the Project's gathering of scientists with different specialties into a multidisciplinary staff. Plant pathologists worked closely with the breeders to select resistant strains. Another change was the creation of a truly national wheat improvement program. The Project provides for 11 research

stations in the major wheat-growing areas of Turkey. There are three principal breeding stations--two in Ankara and Eskisehir for winter wheat and one in Izmir for spring wheat. The eight remaining stations are largely selecting and testing sites. In addition, off-station tests are performed on farmers' fields and off-season breeding nurseries are operated for spring wheat. Basic to the integration of wheat research is an annual meeting at Ankara during which wheat scientists from all of the experimental stations review the year's results and plan the next year's work.

Shortly after the Project was established in 1970, a major effort was made to upgrade the capacity of the scientists engaged in wheat research. Six scientists went to the U.S. to study for advanced degrees and three were enrolled in CIMMYT's nine-month in-service training course in Mexico. Since then, most scientists have been sent to the CIMMYT training program first. At CIMMYT the scientist works in the field alongside its staff members, gaining first-hand experience in one of the world's largest crop improvement programs. After returning to Turkey and working for a time, some are sent abroad again for graduate studies.

By 1976, 22 Turkish nationals from the Wheat Project had completed Master's degrees, mostly at Oregon State University. Twenty-eight Turks had completed the CIMMYT wheat training program. The Project envisions the implementation of its training program in three steps. First, the Project trains and national- and provincial-level wheat specialists. These specialists will then train county extension agents and village technicians for local work; the local agents will in turn carry on the farmer training program. This "filtering down" process of education has only worked slowly.

Plant breeders in the Wheat Project make over 5,000 crosses each year and test the crosses by passing them through several generations of selection

at different stations around the country. The tests in diverse ecological zones provide data on disease resistance and overall adaptability of the line that would take years to equal if testing were restricted to the station at which the original selection was made. In addition, the nationwide testing gives scientists at one station access to the best line from elsewhere.

In February 1982, the Turkish Ministry of Agriculture, with the assistance of the Rockefeller Foundation and CIMMYT, completed a comprehensive review of the 12-year old cereals project and made plans for the future direction of the Project under solely Turkish auspices (Mann and Wright, 1982). The Project was unanimously judged to be highly successful. It represents the first important demonstration of the Green Revolution in rainfed agriculture. Turkish wheat production moved from approximately 10 million tons per year at the start of the Project in 1970, to five consecutive years of over 16 million tons. About 50 percent of Turkey's present wheat area, both irrigated and rainfed, is planted with high-yielding varieties, and Turkey again became a wheat exporter in the mid-1970's (World Bank, February 1982: 244-293; Nyrop (ed.), 1980: 154). In addition to the success on the production side, the project has also provided a model for research organization and management that has now been extended to all of Turkey's agricultural research.

The projects success does not mean that there are not continuing problems that need to be resolved. The project review noted some:

(1) There is an inadequate pipeline of well-trained young scientists. This has been exacerbated by a drop in overseas training opportunities under the AID "new directions" guidelines. The Turkish Government will need to fund more of its own scientific training.

(2) The Project has not developed effective research teams in several important areas: (a) the high potential Cukurova (southwest); the southeast (a huge area which has experienced very little yield change in the past 25 years); and (c) eastern Turkey, which has also been relatively unaffected by the improved technology.

(3) Effective working relationships had been attained at the height of the Project between the extension service and the wheat research group. There had been a team of subject matter specialists who had been assisted by the extension service to work with the research group. They functioned quite effectively in organizing farmer demonstrations and training the extension service. Several years ago a number were either hired away by World Bank Projects or relocated within the extension service. This resulted in a substantial breakdown in communication between research and extension.

(4) The Project has been unable to hold economists in the research team. The Project's recent agronomic experiments have not been analyzed from an economic point of view. On the positive side, there is wide recognition of the need for an economics dimension. Economists could be transferred to the Project from other Government agencies, but hitherto the bureaucratic obstacle of such a move has not been surmounted.

(5) Turkey progressed from a wheat importer to an exporter of substantial quantities of wheat with very little structured planning of national policies to address the problems and opportunities created by becoming a surplus producer. Wheat production in excess of domestic

needs presents several policy options. These include: export bread wheat and flour; export durum wheat, semolina, and pasta; shift some wheat area to other crops (such as forage on the plateau); or decrease the area of wheat production in the coastal zones thus freeing areas for alternative crops. There still is not a close relationship between the research group and the macro-policymakers. One problem, for example, is that the cereal quality price differentials established by the Cereals Purchasing Office were inadequate to encourage production of export quality grain.

14.5 Assistance to Improve the Quality of Life in Rural Turkey

U.S. assistance for rural development has been directed primarily to programs designed to provide direct input for agricultural production, (machinery, fertilizer, water) and to strengthen the institutions whose purpose was to provide direct support for agricultural production (agricultural research and extension). To the extent that these programs have resulted in improvements in rural incomes they have also resulted in the improvement in the quality of life in rural areas. U.S. assistance has also been directed toward improvements in rural education, rural health, family planning and nutrition. The resources directed to these activities have been smaller than for support of agricultural production and less attention has been given to impact evaluation.

Rural education: During the late 1950's and 1960's U.S. assistance has been provided for educational planning, for school design and construction, and for mass literacy programs. During the late 1960's attention shifted more heavily toward the support of technical education and the modernization of university level education.

It was clear in the early 1950's that the low level of rural literacy represented a major obstacle to improvements both in the efficiency of agricultural production and to improvements in the quality of rural life. Two literacy projects - the Literacy Training in the Armed Forces Project (1959-62) and the Adult Education Resources Development Project (1960-65) - were

regarded as reasonably successful. But rural education and literacy projects were apparently not as effective in capturing the interest or support of the Turkish educational bureaucracy as the later programs to reform and develop higher education (Price, July 1970).

Rural health and family planning: Several U.S. AID sponsored studies, beginning with a survey by the Population Council in 1963, indicated that a high percentage of the population, in both urban and rural areas and in all economic classes had favorable attitudes toward family planning methods but lacked appropriate information and technology.

Since the mid-1960's U.S. AID has made several loans to support integrated family planning and rural health programs. Much of this support was directed to the more disadvantaged areas of eastern Turkey. One of the more interesting results of these programs was the demonstration of reinforcement resulting from integrating the health and family planning education with literacy improvement programs (U.S. AID, 1974).

Nutrition: Early efforts toward nutrition improvement focused on home economics, education and extension. Between the mid-1950's and the early 1970's support for food imports was provided through the PL 480 program. School feeding programs were also developed with PL 480 support. There has not, however, been any strong integrated approach to nutrition planning or nutrition programs on the part of either the U.S. AID or the GOT.

14.6 Some Conclusions

During much of its history, American economic assistance to Turkey has been confronted with difficult trade-offs between economic and political objectives. At several critical periods political concerns clearly limited the ability of the assistance program to pursue accurately diagnosed economic reforms. In retrospect the failure to carry out needed monetary, fiscal and trade reforms, particularly in the late 1950's, and the late 1970's, seriously weakened the Turkish economy. As a result the Turkish government is now in a weaker position to pursue either economic or political objectives than if the reforms, that eventually became necessary, could have been carried out in a more appropriate and timely manner.

There is a general presumption, based on the Turkish experience, that a substantial "program" component in the development assistance package can represent a useful instrument for inducing effective dialogue about development policy between donors and recipients. The policy dialogue between donors and the Government of Turkey during the mid and late 1960's was an important factor in assuring that the reforms undertaken toward the end of the 1960's growth cycle were both earlier and more effective than the more belated reactions to the cycles of the 1950's and 1970's.

A closely related lesson is that when macroeconomic policy is resulting in severe economic distortions lending to support the country in question is both costly and unproductive unless effective remedial actions are taken

simultaneously. When macroeconomic policies are inappropriate, assistance resources will be largely dissipated until the remedial policies are accepted and implemented. This conclusion must be tempered by a recognition that there are no widely accepted techniques for determining whether particular policy changes will be adequate. Until knowledge improves, advice on policy reforms will continue to be weighted heavily by judgement.

There are also some rather strong conclusions that have emerged from our review of assistance to agricultural development in Turkey. One is that allocation of development assistance funds for the purchase of material inputs such as tractors and fertilizer rarely amounts to a highly productive use of the resources available for development assistance. At best, such material transfers are an indirect method of overcoming foreign exchange limitations. When appropriate, the economic incentives exist for the use of such inputs they will be rapidly adopted by farmers even in the absence of subsidies.

A second lesson that both the U.S. AID and the World Bank should have learned in Turkey is that building the physical infrastructure for irrigation development is much simpler than building the institutional infrastructure. In retrospect both the World Bank's commitment to physical infrastructure development and the USAID commitment to institutional infrastructure development in support of land and water development appear highly successful. But the economic returns to both efforts would have been greater if attention had been given earlier to the institutional innovations needed to realize the production potential opened up by the physical infrastructure development.

A third lesson is that institution building proceeds most effectively where such efforts are motivated by an opportunity for high economic returns. This is the lesson of the wheat programs. Generalized efforts to reform and develop effective agricultural extension and agricultural research programs were largely ineffective until the new high yielding wheat varieties offered the possibility of very large gains from institutional innovation.

We have also been impressed that the impact of development assistance efforts has often appeared much more impressive a decade or more after completion than in the development completion reports. A major contribution of all development effort is the building of human capital through learning by doing. Many of the younger professionals who have participated in policy development and in project planning and management became, later in their careers, the architects of the reforms that are leading to more effective macroeconomic and sector development policies and to more effective program design and management.

Footnotes

1/ For a fuller account of the economic history of Turkey in the years since the Second World War, see Hale (1981), Hershlag (1968), and Krueger (1974).

2/ There is some reason to believe that the Turkish construction activities now going on in the Middle East may owe their origins to U.S.-supported construction activities of the earlier years. While such a conjecture cannot be documented, it can plausibly be argued that the experience gained in those endeavors was invaluable for the development of Turkish enterpreneurs.

3/ See section 14.4 for an analysis of assistance to the agricultural sector. In the early 1950's, a parallel emphasis to that on roads was for agricultural mechanization. It should be noted that there have been many worthwhile projects in individual sectors which are not covered here. For example, American assistance to the educational sector of the Turkish economy has had a large number of intangible payoffs, but evaluation of those payoffs is outside the scope of this survey. See Sheetz (1982) for a survey of the literature on some of those aspects.

4/ American aid did not cease. Project aid continued but the American government simply refused an additional program loan. From 1948 to 1958, United States economic aid to Turkey totalled $764.6 million dollars, of which $172 million was PL 480 commodity aid (Burke, 1977).

5/ This section draws on a much more complete set of notes and bibliographical references prepared for this project by Sheetz (1982). It has also benefitted from the very complete bibliography by Gorun and Somel (1979).

6/ The review of the development of the Seyhan Project presented in this section is based largely on IBRD (1951), US/AID (1969), and Wilson (1970).

7/ This imbalance has become almost a classic syndrome in large scale irrigation development. It has been much easier to develop the engineering capacity for the design and construction of irrigation systems than to develop the institutional infrastructure needed to effectively deliver and use the water and to maintain the system. See Chapter 10.

8/ During the 1970's the US/AID has given increased attention to on-farm water development and use in a number of countries (Easter, 1982).

9/ The US/AID provided support for the "On-Farm Water Development Project" only from 1969-1975. There was a decline in support by the Turkish government in the late 1970's. This trend has been reversed in the 1980's (World Bank, 1981: 291-293), Vol. 2.

10/ The opportunity to realize the potential gains from yield increases led to a similar refocusing of research and extension efforts in a number of countries (see Wortman and Cummings, 1978: 186-226).

11/ A general outline of the recommendations of the Wheat Project for the Anatolian plateau included the following:

(1) special tillage practices during the fallow season;
(2) planting seed of a high yielding variety treated for disease and insect control;
(3) early planting with a deep furrow drill where there is moist soil for seed germination;
(4) adequate fertilization with nitrogen and phosphorus;
(5) early herbicide application in the spring.

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CHAPTER 15

ASSISTANCE TO GHANA AND IVORY COAST*

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CHAPTER 15

ASSISTANCE TO GHANA AND IVORY COAST

The experience of Ghana and the Ivory Coast with respect to the impact of development assistance could hardly be more varied. At independence in 1957, Ghana had a well established export sector, including cocoa, timber, and minerals, which permitted the accumulation of substantial foreign exchange reserves. Its physical infrastructure and educational establishment were reasonably well developed and its per capita income was the highest in black Africa. Two and one half decades later, the Ghanaian economy was in ruins, with cocoa exports cut in half, a black market exchange rate fifteen times the official rate, an extensive and complex system of trade and exchange controls, and real per capita income substantially below the level 25 years earlier. Foreign aid by this time was almost totally ineffective in stimulating development because of the absence of an appropriate policy environment.

The Ivory Coast, on the other hand, began its history as an independent nation in 1960 far behind Ghana in roads, schools, agricultural production, per capita income, and practically every other indicator of development. By the early 1980s, however, the Ivory Coast had one of the best rural infrastructures in Africa, had made substantial progress in educating and improving the health of its population, had a relatively well developed and diversified agricultural sector, and had experienced

an annual average growth of real per capita income over the period of close to 3 percent. Concessional foreign aid, which was fairly important in the early years after independence, had become much less so by the 1980s as the Ivory Coast was able to finance more of its development out of its own resources and by borrowing from abroad on commercial terms.

The difference between the experiences of these two neighboring countries is the subject of this paper. A major thesis is that the effectiveness of foreign aid has been conditioned in each instance by the economic policy environment in which the aid has been administered. This policy environment has been the result of many factors. Initially it was strongly influenced by the opposing directions taken by the two leaders, Kwame Nkrumah and Felix Houpouet-Boigny. Whereas Ghana chose the path of socialism and state control, the Ivory Coast saw the role of the state more as one of influencing the private sector, and taking the investment lead only where necessary. A second factor affecting economic policy has been the political turmoil that has characterized Ghana in comparison with a relatively high degree of political stability in the Ivory Coast. Finally, there has been an important difference in the degree of openness of the two countries to foreign trade, investment, and financial flows.

A second major theme is that under the right circumstances foreign aid can be very effective in promoting and enhancing the impact of policy reform. This is especially true if given in the form of program assistance in support of broad sectoral or macroeconomic policy changes, but project aid can also be useful in helping to identify issues and in developing the mutual trust and confidence necessary for major reforms. The contrasting experiences of Ghana and the Ivory Coast in this respect are remarkable.

The next section of this paper discusses foreign assistance to Ghana and the Ivory Coast within the historical context of development in these

two countries. This is followed by a macroeconomic assessment of foreign aid and its contribution to growth through the transfer of resources available for increasing investment and improving the balance of payments. The role of foreign aid in facilitating the transfer of specific technical-organizational packages in the form of particular projects is then examined, with special emphasis on agriculture and rural development. Following this, there is an analysis of the economic policy environment in each country and of how foreign aid has been used to help improve that environment. A final section summarizes the principal conclusions of the analysis.

15.1 Aid in a Historical Context

Foreign aid in Ghana and the Ivory Coast must be seen within the historical context of development in these two countries. Much of this development in Ghana occurred during the colonial period, though not all of it was due to the initiatives of the colonial government.[1/] The rapid expansion of cocoa farming prior to World War I, for example, occurred spontaneously without substantial government intervention (Hill 1963). Furthermore, investment was financed largely out of local resources since it was a basic policy of the British government that colonies should be financially self-sufficient. Nevertheless, there was major investment in infrastructure and an important beginning in the provision of education and health services, paid for largely out of export earnings from cocoa. With the depression and decline in world cocoa prices during the 1930s, however, most of this investment came to a halt.

Development in the Ivory Coast during this period was much less important than in Ghana. Cocoa was a relatively minor crop at this time and coffee, which contributed most to exports after World War I, was largely in the hands of European planters many of whom did not survive the depression. Like the British, France also contributed little to its colonial empire during this period. Since Ivory Coast exports were not nearly as well developed as those of Ghana, few resources were available for investment in infrastructure and human services.

The Post-World War II Colonial Period

World War II marked an important turning point for the Ivory Coast. France at last abandoned its policy of financial self-sufficiency in its colonies and created in 1946 an overseas development fund, the Fonds d'Investissement pour le Développement Economique et Social (FIDES). From

1946 to 1959, this fund provided close to 70 billion CFA francs in grants. Of this, about 9 percent went directly into agriculture, 29 percent was for bridges and roads, and 37 percent was used for construction of the port at Abidjan. The FIDES was succeeded in 1959 by the Fonds d'Aide et de Coopération (FAC). FIDES and FAC grants were managed by the Caisse Centrale de Coopération Economique (CCCE), which also provided loans and advances as well as sometimes taking an equity position for its own account. These public capital flows totaled almost 40 billion CFA francs by the end of 1958 (Ivory Coast 1960: 238-40).

This aid was instrumental in improving infrastructure in the Ivory Coast. Of greatest importance was the opening of the Vridi Canal and the construction of a protected, deep water port at Abidjan. Some progress was also made in road construction. By the end of 1958, there were over 10,000 km of all-weather roads, compared with less than 4,000 km in 1947. Only 600 km of these were paved, however, and many villages were not served by feeder roads of any kind (Ivory Coast 1960: 118). Educational and health facilities and personnel, especially of local origin, were also very meager. On the other hand, agricultural research had been undertaken in the Ivory Coast for many years by a number of French research institutes.

Ghana also benefitted from foreign assistance resulting from the Colonial Development and Welfare Act that was passed during the interwar period. Ghana's first Ten-Year Development Plan, published in 1946, called for the expenditure of about one million pounds, one third of which was to be financed through Colonial Development and Welfare grants, another third from the London capital market, and the last third out of domestic surpluses. These were booming years for cocoa, however, and the accumulation of reserves soon led to a series of plan reformulations to increase the

level of investment. Despite this, the government at the time of independence in 1957 held about £ 250 million in foreign exchange reserves (Hymer 1971: 166, 67). Foreign aid at this time thus offered relatively little in comparison with Ghana's own resources. This windfall for the colonial and post-independence governments was possible because of the decision not to transfer the profits from high cocoa prices back to the farmer. Instead, the Cocoa Marketing Board accumulated these as sterling balances held abroad.

Overall, the level of development in Ghana at the end of the colonial period was considerably higher than in the Ivory Coast. At the time of independence, per capita GDP at market prices was $181 in Ghana compared with $157 in the Ivory Coast at official rates of exchange. Ghana, with only three-quarters of the land area of the Ivory Coast, had three times the length of roads, of which nearly 4,000 km were paved. The primary school enrollment ratio in 1960 was 59 percent in Ghana compared with 46 percent in the Ivory Coast (World Bank 1976).

From Independence to 1966

This was a critical period for both Ghana and the Ivory Coast. During these years, the leaders of each country created the particular ideological and policy framework in which development was to take place. Strategies were formulated and the first steps towards implementation were undertaken. These proved so economically disastrous in Ghana that Nkrumah was deposed in 1966, leaving a legacy of debt and distortions from which the country has yet to recover. In the Ivory Coast, on the other hand, 1966 marked the turning point from a period of strong, concentrated economic management to one in which decision-making became much more diffused and decentralized in keeping with the growing complexity of the economy.

Ghana under Nkrumah embarked on a radical structural transformation of the economy, giving priority to import-substituting industrialization and capital-intensive, state-managed agricultural development. There was heavy emphasis on socialist ideology, decreased external dependence, Ghanaianization of the economy, and the public sector as the leader in promoting development. The Ivory Coast, in contrast, concentrated more on small-farm agriculture and exports, created an atmosphere conducive to private foreign investment in industry, and maintained close links to France, the European Economic Community, and neighboring francophone countries. The state was active in influencing and promoting development, but as a partner with rather than a replacement for the private sector (Berg 1971).

From 1960 to 1964, Ghana received $68 million in net foreign aid from OECD countries and multilateral institutions, of which $18.53 million was in the form of grants, primarily from the United States and the United Kingdom. Official bilateral loans, mostly from the same sources, amounted to $29.82 million and loan repayments equaled $1.38 million. Multilateral borrowing totaled $25.6 million, primarily from the World Bank, and repayments amounted to $4.74 million (OECD 1966).

The Ivory Coast received $70.16 million in grants during the same period, of which $34.34 million were from France and the rest from the European Development Fund. Official bilateral loans during this period equaled $82.26 million, two-thirds of which were from France. Total official capital flows during the first five years of independence thus totaled $152.42. (France 1976: 139). This was over twice the amount received by Ghana from these sources.

These aid flows, however, are only partial. In Ghana's case, they do not include the numerous bilateral arrangements made with eastern bloc

countries, some of which contained concessional elements. Nor do they include direct French budget subsidies for agricultural research, mineral exploration, and technical assistance. If all of these were included, the figure for the total foreign aid received by the Ivory Coast from 1960 to 1964 would be considerably greater.

The contribution of this aid was heavily influenced by the course of development in each of the countries. Gross domestic product in the Ivory Coast, for example, increased in real terms at an annual rate of about six to seven percent; in Ghana it increased at only two to three percent. Low rates of inflation and balance of payments surpluses in the Ivory Coast contrasted with rapid price increases and mounting deficits in Ghana.

With exports stagnant, imports rising, and foreign exchange reserves falling, the government of Ghana resorted to short term suppliers' credits and to deficit financing, borrowing heavily from the banking system and social security fund. At the beginning of 1966, consumer prices in Ghana were 75 percent higher than in 1960 and imported goods were in very short supply due to import quotas and exchange controls. As a result, industrial and other enterprises, which were heavily dependent on imports of capital equipment and intermediate goods, were forced to operate substantially below capacity because of their inability to acquire these inputs (Berg 1971: 188). In addition, large sums had been allocated to prestige products with very low rates of return.

Most significant for the future, Ghana by 1966 had acquired an enormous medium- and long-term external debt of about $500 million, wheras its foreign exchange reserves had fallen from $481 million in 1957 to $50 million at the time Nkrumah's government fell. About 80 percent of this debt consisted of costly suppliers' credits. Debt service obligations rose to 20 percent of exports in 1965 and were estimated at 25 percent in the

following year. In addition, the system of import quotas and exchange controls, introduced to try to reduce imports in the face of an overvalued exchange rate, was a bureaucratic nightmare and gave rise to severe distortions in domestic prices.

The development strategy of the Ivory Coast was conceived during the first six years after independence. A key man in this process was Raphael Saller, an Antillean with considerable experience in Africa, who served as the first Minister of Finance, Economic Affairs, and Planning. This was an extremely powerful position and enabled Saller to put his "pragmatic, modern, liberal and disciplined" stamp on the economy with the full approval of the President (Woronoff 1972: 201). The incentive code to encourage private foreign investment, which had been adopted in 1959, was revised in 1962. It provided tax holidays, guaranteed the transfer of capital, and provided for repatriation of profits. Foreign trade and domestic marketing were left in private hands, and government investments in industry generally involved minority participation. Public enterprises were created primarily for infrastructure development, to expand housing and the provision of utilities, and to introduce new crops such as rubber and oil palm into agriculture (Woronoff 1972: 204).

It was perhaps in the area of economic planning that the Ivory Coast was most innovative as an African nation. A series of Commissions de Développement, composed of public and private representatives were created to determine production targets, desireable reforms, and the general orientation of their respective sectors. On the basis of this information, a Comité Interministériel du Développement examined the broad economic situation and established the general framework for development and the overall rate of growth. Frequent contacts between government and the private sector were also maintained through the Conseil Economique et Social and the

Chambers of Commerce, Industry, and Agriculture. Using these guidelines, technical elaboration of the Plan was carried out by the vast Ministry of Finance, Economic Affairs, and Planning, with heavy input from French technical assistants. The plan was then incorporated into annual development budgets detailing how money and manpower would be used in a given year. As part of the planning process, numerous studies were carried out, which provided a solid foundation for the planning process. The government was therefore well placed to direct the country's development efforts (Woronoff 1972: 206-8).

In 1966, the economic super-ministry was divided into separate Ministries for Finance and Economic Affairs and for Planning. Substantial power was retained by Plan, however, since it continued to have primary responsibility for managing the special development budget (Budget Spécial d'Investissement et d'Equipement, or BSIE), funded by earmarked receipts from taxes, duties, loans, and surpluses from the state's operating budget. The priorities laid down by Saller were retained, but there began to be a decentralization of authority that has continued until today.

From 1967 to the Present

By the time the Nkrumah government was replaced and economic decision-making in the Ivory Coast became more decentralized, the basic pattern of economic development in these two countries was pretty much established. These first years of independence thus proved to be critical for a much longer period of time.

Ghana

Ghana since the Nkrumah era has been characterized by succeeding phases of devaluation, import liberalization, austerity, inflation, and political turmoil. The real value of exports (in 1968 prices) fell from 398 million cedis in 1966 to 154 million cedis in 1977. From 1970 to 1977,

this value declined at an annual rate of 10.6 percent. Cocoa and its products comprised 71 percent of the value of those exports from 1974 to 1978, and cocoa production decreased from 538,000 metric tons in 1965 to 265,000 tons in 1979, primarily as a result of a 50 percent decline in the real value of the producer price after 1963.

The NLC government devalued the cedi by 30 percent in 1967 and rescheduled the country's short-term debt. An austerity program and a brief increase in cocoa prices in 1967/68 permitted a liberalization of the exchange control system. Imports rose, but were not taxed adequately, and investment programs designed during the period of high cocoa prices were continued after prices declined, putting pressure on demand. The system collapsed and Busia's civilian government elected in 1969 moved towards a massive devaluation of 80 percent in late 1971. Before the devaluation could have effect, the government was replaced by a military coup of the National Redemption Council (NRC). The NRC proceeded to revalue the cedi so that the final devaluation was only 40 percent. Debts were unilaterally rescheduled, and some short-term debts, purportedly incurred under irregular circumstances, were repudiated (Leith 1974: 5-8). This prompted the donors to begin negotiations on an overall settlement. This was not reached, however, until 1974.

The NRC managed during its early years to curb demand for imports through strict, less corrupt licensing. Imports remained inflexible, however, due to arbitrary licensing procedures. Inflation accelerated and the cedi became increasingly overvalued. It was devalued again in 1978 from 1.15¢/$ to 2.75¢/$ but continued to depreciate on the black market until by mid-1982 the rate was about 35¢/$. By this time, the government's budget was almost totally out of control, with the deficit being financed by borrowing from the central bank, lending to an annualized increase in the money supply of

261 percent and triple digit inflation. In December 1981, the civilian government installed by Jerry Rawlings after his ousting of the NRC in 1979 was once again replaced by the military (Economist Intelligence Unit 1982(1). 10-12).

The major form of foreign assistance that Ghana received following the Nkrumah period was debt relief. A series of early bilateral agreements culminated, in March 1974, in a multilateral arrangement calling for repayment of the debt, after a 10 year grace period, in 36 equal installments, with an interest rate of 2.5 percent. The grant element of this repayment scheme was estimated at the time at $178 million, or 61 percent of the present value of the debt relief. In fact, rising world inflation considerably increased the relative importance of the grant element.

Gross official disbursements to Ghana averaged about $48 million a year during 1967-69, but few new loan commitments were made until 1974 because of the outstanding debt dispute. Public transfers received by Ghana at that time in the form of grants and technical assistance equalled about $30 million a year (Appendix Table A-1). By the end of the 1970s, Ghana was again receiving a substantial amount of foreign assistance, as shown in Table 15.1. Approximately 60 percent of this was bilateral in nature, mostly from West Germany, the United Kingdom, and the United States. Of the $581 million in investment grants and loans received during 1977-80, 18 percent was in the form of grants and 62 percent in the form of development loans with a grant element of at least 25 percent. As a result of debt rescheduling, the debt service averaged only about 3 to 4 percent of the total value of exports.

Table 15.1. Official Foreign Capital Flows for Ghana, 1977-80

($ million)

	1977	1978	1979	1980
Grants				
Investment	23.7	29.4	31.7	20.0
Technical Assistance	29.2	37.5	35.4	44.9
Total	52.9	66.9	67.1	64.9
Loans				
Concessional	47.3	55.7	114.6	140.9
Other	19.0	34.1	34.9	30.5
Total	66.3	89.8	149.5	171.4
Debt Service	13.1	15.4	20.6	22.9
Net Official Flows	106.1	141.3	196.0	213.4

Source: Appendix Table A-1.

Ivory Coast

The Ivory Coast economy after 1966 became increasingly diversified. The share of primary production in total GDP continued to decline during this period from 34 percent in 1966 to 24 percent in 1977. Even within agriculture there was a marked increase in the production and export of a range of crops in addition to coffee and cocoa. These included palm oil and kernels, coprah, rubber, bananas, pineapples, and cotton. Real annual growth of GDP remained high, but declined from 7.3 percent in 1965-70 to 4.9 percent in 1975-78. Prices also accelerated from 4.2 percent per annum in 1965-70 to 17.7 percent in 1975-78, though this may be attributed more to worldwide inflation than to growth in the domestic money supply. Gross Domestic Investment continued to increase at a rapid rate, rising from 20 percent of GDP in 1966 to 29 percent in 1978.

Nevertheless, there were some disturbing trends. The balance of trade, which had been in surplus in every year prior to 1971, moved into deficit during the 1970s. There was also evidence that the Ivory Coast was running out of its most profitable investments in agriculture and import-substituting industry and was having to accept lower rates of return. Greater decentralization in decision-making was creating problems of coordination and government control of foreign borrowing by parascatal enterprises. At about the same time, the government undertook some very costly investments in the southwest region of the country, in the Kossou dam and its area of resettlement, and in some large sugar complexes in the north. This necessitated substantial additional foreign borrowing, much of it at relatively high commercial interest rates. As a result, the disbursed outstanding external debt of the Ivory Coast rose from $256 million in 1970 to $2,667 million in 1978. Preliminary estimates put it at $4,062 million in 1980. The debt service ratio rose from 6.7 percent in 1970

to 14 percent in 1978, with preliminary estimates for 1980 at 23 percent. The capacity of the Ivory Coast to continue borrowing from abroad had reached its limits.

This is especially important because foreign assistance was increasingly in the form of relatively hard loans rather than concessionary grants. During 1960-66, grants comprised 49 percent of project-related official capital flows, and loans had a large concessionary element. From 1967 to 1973, however, grants amounted to only 11 percent of these flows (Appendix Table A-3). In 1977-80, as shown in Table 15.2, out of $907 million in official flows related to investment, only 9 percent was in the form of grants and 31 percent in the form of development loans with a grant element in excess of 25 percent. The increasingly hard terms applied to these flows was a sign of the creditworthiness of the Ivory Coast, as well as of the perception among international donors and lenders of its lack of need for concessionary aid. One result was that the Ivory Coast paid out $131 million in debt service payments during this period, reducing net capital inflows to $776 million. Technical assistance, however, was valued at $304 million, giving an overall net official flow for the four years of $1,080 million.

Table 15.2. Official Foreign Capital Flows for the Ivory Coast, 1977-80
($ million)

	1977	1978	1979	1980
Grants				
Investment	17.4	11.8	24.1	25.1
Technical Assistance	57.3	61.6	83.7	101.4
Total	74.7	73.4	107.8	126.5
Loans				
Concessional	42.4	73.3	67.8	100.0
Other	136.2	117.8	102.3	188.4
Total	178.6	191.1	170.1	288.4
Debt Service	22.2	29.7	34.5	44.8
Net Official Flows	231.1	234.8	243.4	370.1

Source: Appendix Table A-2.

15.2 A Macroeconomic Assessment

From the macroeconomic point of view, foreign aid is seen as filling a resource gap that permits a country to attain higher levels of investment or to import more goods required for development. A rigorous formulation of this view is the "two-gap model" of the demand for foreign aid (Chenery and Strout 1966). In this formulation, the ability of a country to use foreign aid is determined by the following parameters: the capacity to absorb investment, the target rate of growth, the ratio of savings to income, the capital-output ratio, the marginal propensity to import, and the rate of growth of exports. The model assumes that these parameters are fairly constant over extended periods of time and that during any particular period there will be an ex ante gap both between investment and savings and between imports and exports. The role of foreign aid is to fill the larger of these two gaps, permitting the country to grow as rapidly as it can absorb investment funds, or when that is no longer an important constraint, to grow at its desired target rate.

The two-gap model has been critized on many grounds (Fei and Ranis 1968; Burton 1969). There is the question, for example, of what happens to the smaller gap when the larger has been filled since ex post the two must be equal. This does not pose any fundamental problem since, should the

larger gap be filled, the smaller gap can always be made larger by increasing consumption, using capital less efficiently, importing more consumer goods, or decreasing the growth rate of exports (Chenery 1969).

Much more serious is the issue of how the ex ante gaps can be measured when only the ex post gap is actually observed. Since foreign aid is always limited, it is highly unlikely that it will be sufficient in any particular instance to fill the larger ex ante gap. This means that accommodation will have to be made by lowering the target growth rate, increasing the rate of domestic savings, making more efficient use of capital, decreasing the marginal propensity to import, or increasing exports. What we view in the data, therefore, is not so much the demand for foreign aid as it is the result of compromise because the supply of aid is inadequate to satisfy ex ante demand.

A third criticism of the two-gap model is that it ignores the fact that the parameters of the model are variables amenable to policy change. The target rate of growth, for example, is obviously a policy variable. The savings rate and capital-output ratio can be altered by tax and interest rate policy and by encouraging the establishment of financial intermediaries. The marginal propensity to import and the export growth rate are both influenced by trade and exchange rate policies. Foreign aid could be used, therefore, to avoid difficult policy choices such as devaluation. The counter-argument, of course, is that policy change is economically and politically very difficult in any case and that foreign aid, if appropriately employed, can reduce those difficulties and make policy change feasible. Program aid, for example, may be highly useful in moderating the adverse short-run impact of devaluation (Krueger 1978). This question will be discussed later in the section on aid's relation to policy change.

A statistical analysis was conducted to test the stability of the principal parameters of the two-gap model in Ghana and the Ivory Coast using data from the national accounts for 1960 through 1977 (World Bank 1976: 104, 105, 132, 133; World Bank 1980: 86, 87, 112, 113). Estimates were made of the marginal propensity to save, the marginal propensity to import, the growth rate of exports, and the incremental capital-output ratio using the following equations:

$$S/P = a + b\ Y/P \qquad \ldots.(1)$$

$$M/P = c + d\ Y/P \qquad \ldots.(2)$$

$$\lg\ (X/P) = \lg\ A + e\ T \qquad \ldots.(3)$$

$$(Y/P)_t - (Y/P)_{t-1} = f + g\ (L_t - L_{t-1}) + h\ (I/P)_{t-1} \qquad \ldots.(4)$$

where S is gross national savings (excluding net current transfers)

P is the GDP deflator

Y is gross domestic product at market prices

M is import of goods and nonfactor services

X is exports of goods and nonfactor services

T is time (year)

I is the gross domestic investment [2/]

L is the agricultural labor force

t is the year to which the relevant values of the variables refer. Where t does not appear, all variables in the equation refer to the same year.

b is the marginal propensity to save

d is the marginal propensity to import

e is the growth rate of exports

h is the marginal change in the incremental capital-output ratio holding labor constant.

The results of these regressions are given in Table 15.3.

The major econometric problem posed by the regression results is positive serial correlation in several instances, shown by relatively low values of the Dubin-Watson statistic. This implies that some of the estimates are biased, given the small sample of observations. The bias is not particularly disturbing, however, because the conclusions drawn from the analysis are very rough and therefore insensitive to large errors in the estimates.

Most important among these conclusions is the high degree of responsiveness of savings and imports to changes in income in the Ivory Coast compared with Ghana. This is shown by the large and statistically highly significant slope coefficients for equations (1) and (2) in the Ivory Coast compared with the same coefficients for Ghana. The Ghanaian savings coefficient is not significantly different from zero and the imports coefficient is negative, reflecting the major influence of trade restrictions and exchange controls. There was, in fact, a steady reduction of the ratio of imports to income from .35 in 1960 to .08 in 1977.

The growth rate of exports for Ghana, shown in equation (3), is also negative, though not significantly so. For the Ivory Coast, this growth rate is positive and fairly high, but its standard error is also quite large and there is very high positive serial correlation, shown by the low value of the Dubin-Watson statistic. The regression results are thus quite difficult to interpret given the limited number of years for which data are available. This should not obscure the fact, however, that the real value of exports for the Ivory Coast practically

Table 15.3. Regression Results for Key Macroeconomic Parameters

Equation	Constant[a]	Slope Coefficients[a]		R^2[b]	DW[c]
Ghana					
(1)	0.814	0.057		-0.006	1.578
	(1.289)	(0.060)			
(2)	8.501	-0.185		0.112	1.046
	(2.242)	(0.104)			
(3)	1.397	-0.016		-0.035	1.734
	(0.270)	(0.025)			
(4)	1.150	0.011	-0.452	0.947	1.125
	(0.972)	(.001)	(0.309)		
Ivory Coast					
(1)	-0.130	0.190		0.753	1.890
	(0.107)	(0.026)			
(2)	-0.387	0.460		0.975	0.945
	(0.074)	(0.018)			
(3)	0.256	0.051		-0.006	0.128
	(0.121)	(0.054)			
(4)	0.118	(0.001)	(0.043)	0.850	2.427
	(0.101)	(0.000)	(0.115)		

Notes:

[a] Figures in parentheses are standard errors of the coefficients.

[b] Coefficient of determination adjusted for the number of degrees of freedom.

[c] Dubin-Watson statistic.

tripled from 1960 to 1977, generating increasing amounts of foreign exchange with which to finance the rapidly rising level of imports.

With labor held constant, the influence of investment on changes in output, shown by the second slope coefficient in equation (4), appears to have been negative in Ghana. In the Ivory Coast, the results suggest no statistically significant relation. The reasons for this are unclear. They may have to do with the particular lag structure used in the equations, or there may be other statistical anomalies.

In any event, some insight into the relationship between income and investment in Ghana may be gained by looking at Table 15.4, which shows average annual rates of growth of the real value of output and investment over each of the past three decades. During this period, the growth rate of output steadily declined but remained positive. The growth of investment, on the other hand, was quite rapid during the 1950s but became increasingly negative after independence. By the 1970s, gross investment averaged only 8.9 percent of GDP, and net investment may even have been negative. Certainly this was true in the cocoa industry, where replanting had ceased and trees were rapidly going out of production because of their advanced age. The decline in investment was associated more with restrictions on imports of capital goods and replacement parts than with the relatively modest drop in domestic savings that occurred. The binding constraint on development in Ghana from a macroeconomic point of view, then, was foreign exchange rather than resources for investment. This was clearly related to stagnation in the export sector. It was also due to the failure of foreign aid and capital inflows to fill the ex ante foreign exchange gap, which was undoubtedly much larger than the ex post excess of domestic investment over domestic savings.

Table 15.4. Average Annual Growth Rates of Gross Domestic Product and Gross Domestic Investment for Ghana in Constant 1968 Prices (%)

	1950-60	1960-70	1970-77
GDP	4.1	2.1	0.4
GDI	8.9	-3.2	-8.6

Source: World Bank 1980: 86.

The reasons for this difference between the ex ante and ex post foreign exchange gaps were multiple. They had, first of all, to do with the basic constraints that existed on the total amount of foreign aid made available by donors and how that aid was parceled among countries. Second, Ghana's debt problem greatly complicated its access to loans, whether commercial or concessionary. Only after its debt was rescheduled in 1974, was it possible for Ghana once again to have access to the international capital market and to concessionary financing on a large scale. Finally, there remained the critical question for donors as to whether or not foreign aid in Ghana would contribute to filling the gap in such a way that this would lead to increased investment and economic growth.

The situation in the Ivory Coast was, of course, quite different. The real value of exports grew at an average annual rate during the 1960s of 5.5 percent, and this increased to 5.8 percent from 1970 to 1977. The real value of imports grew even more rapidly, at 6.8 and 11.0 percent per annum during each of these respective periods, because of official borrowing and private capital inflows. As a result, the real value of domestic investment increased at 12.7 percent per year during the 1960s and 12.1 percent annually from 1970 to 1977 (World Bank 1980: 113).

This favorable picture, however, may be changing. A sophisticated two-gap macroeconomic model has been estimated for the Ivory Coast by the World Bank (den Tuinder 1978: 160-86). The conclusions resulting from the use of this model to analyze the effects of the 1976-80 plan over the 1980s suggest that despite its past success, the Ivory Coast is now having to invest in projects that yield a lower rate of return. Furthermore, without substantial policy changes, the Ivorian economy is unlikely to be able to generate sufficient domestic resources to finance the investment required by its growth targets. Since tax revenues in relation to income are already high in comparison with other countries, additional

savings will, unlike the past, have to be generated by the private sector. In addition, recent increases in foreign borrowing cannot be sustained because of rising debt service payments and their potential for lowering the Ivory Coast's credit ratings abroad.

The major implications of this simulation exercise are: (1) that the Ivory Coast has in the past been constrained more by domestic savings than by exports; (2) that it has been highly successful, however, in generating a large amount of savings in the public sector and in mobilizing additional resources from abroad; but (3) that this strategy already is becoming more difficult and will continue to do so in the future. If plan targets are to be achieved, therefore, either additional foreign aid will have to be forthcoming or the parameters of the model will have to change.

15.3 Project Aid for Agricultural and Rural Development

Most foreign assistance is offered in the form of specific projects embodying technical-organizational packages in the design of which donors usually play a very significant role. With this form of aid, the resource transfer may be of less importance than the package itself, though the host government's acceptance of the project is generally conditional upon the donor furnishing the bulk of the financing. In effect, the donor buys the right to influence how its resources are to be used to promote development. The effectiveness of this form of aid is thus measured by the degree to which project objectives are attained.

This section examines the effectiveness of project aid in promoting agricultural and rural development in Ghana and the Ivory Coast. It begins with a historical overview, followed by a description of foreign assistance programs and projects in the rural sector of the two countries. A discussion of the constraints on project design and implementation then precedes the concluding section, which assesses the usefulness of project assistance in an unfavorable policy environment.

Ghana

Cocoa, the mainstay of the Ghanaian economy,was introduced in the latter part of the 19th century. With scant assistance from the colonial administration, cocoa grew to become the principal export, with 270,000 mt being shipped abroad in 1935 (Gordon 1974: 71). In 1947, the Ghana Cocoa Marketing Board (CMB) was established to stabilize farmer incomes and real prices through the operation of a buffer stock and by shielding domestic prices from those on the world market. This yielded substantial public savings since on average one-half of export receipts were withheld as taxes or CMB surpluses, permitting the accumulation of large sterling reserves. World prices were sufficiently high, however, so that strong incentives could also be offered to farmers, with the result that production averaged 320,000 mt from 1954/55 to 1964/65, an increase of 40 percent over the previous decade. World prices continued to fluctuate, however, and, as seen in Table 15.5, Ghana's export earnings varied as well. Until the mid-1960s, though, shortfalls were compensated by drawing on the country's large reserves.

Starting with the seven year plan in 1961, the Nkrumah regime emphasized rapid, state-led industrialization. The government had little confidence in private, small-scale agriculture and felt that agricultural productivity and output could only be increased through large collective, motorized farms. By 1966, there were 135 state farms and about 35 Workers' Brigades employing a total of 21,000 salaried workers. The results of these projects were disappointing. The program cost $21 million in capital expenditures, imported farm equipment, and current operating expenses, while output was valued at only $4 million (Woronoff 1972: 186-187).

Table 15.5. World Prices, Production, Exports, and Export Receipts of Cocoa

	World Prices[a] ($/000'mt)	Production (000 mt)	Exports (000 mt)	Export Receipts (million $)
1950-54	3185	230.1	225.5	719.2
1955-59	2643	254.3	233.3	616.6
1960-64	1722	449.7	410.1	708.7
1965-69	2091	389.8	375.8	785.8
1970-74	2398	403.6	380.7[b]	912.9[b]
1975-77	3751	360.0	339.6[b]	1273.8[b]

Source: IBRD Commodity Trade 1980: 36.

Notes: [a] In 1979 constant prices, Spot New York.

[b] Estimate.

There were no government programs to assist the small farmer. Indeed, government policy penalized smallholder agriculture. Activities of the extension service, which were crucial to the cocoa subsector, were suspended in 1962 for about 5 years (McMurtry 1974: 219). In addition, marketing services were further centralized. The CMB purchasing monopoly was extended to other crops and private licensed buying agents (LBA) were replaced by the United Ghana Farmers Council (UGFC), which reduced the marketing system's flexibility and increased its costs.

The government's ambitious development and industrialization plan coincided with a slump in world cocoa prices in the early 1960s. To maintain its export revenue needed for growing import requirements, Ghana cut the cocoa producer price. By 1965/66, the nominal farmgate price of cocoa was only one-half of the 1951/52 price (Bateman 1974: 318-319). In real terms, the decline was even more severe as inflation accelerated from about 2 percent in 1960-63 to over 20 percent in 1965 (Leith 1974: 93). Output, however, continued to rise until the 1964/65 bumper harvest of 549,000 mt, in response to plantings in the 1950s. No additional plantings occurred thereafter and plantations were allowed to deteriorate. By the time the National Liberation Council replaced the Nkrumah regime in 1966, cocoa exports had declined and food production had dropped drastically.

Administrations after 1966 sought to redress the distortions accumulated over the early years of independence. All governments espoused the objective of self-sufficiency in food and industrial crops and the rehabilitation of the cocoa subsector. Increasing funds were allocated to the agricultural sector. The agricultural extension service was reestablished in 1967/68. Operation Feed Yourself (OFY), launched in

1972, sought to raise food production. Because of distrust of the innovative capacity of the small farmers and the overvalued cedi, which made imported inputs artificially cheap, OFY stressed motorized, large-scale production techniques. Motor services (land clearing, plowing, and combine harvesting) were heavily subsidized for these farms, as were intermediate inputs such as seeds, fertilizers, and insecticides. Overall, about 100,000 ha were put under mechanized cultivation, but yields remained low and economic costs very high (Winch 1976).

In the meantime, there was an acute scarcity of agricultural inputs for the small farmer. Furthermore, import restrictions on consumer goods resulted in few of these reaching the countryside, and those that did were very expensive. Cocoa farmers, already suffering from low producer prices, began to shift toward foodcrop production and to neglect their plantations. The age of cocoa trees rose, but little replanting occurred. Production declined by about 3 percent per annum from 1965/66 to 1972/73, and fell further by about 5 percent per annum to 230,000 mt in 1981/82 -- the lowest since the late 1950s.[3/] Ghana, which held the largest share of the world cocoa market in 1963/64 through 1972/73 at 30 percent, dropped in the late 1970s to third place behind the Ivory Coast and Brazil.

Ivory Coast

The development of export oriented agriculture in the Ivory Coast dates back to the early colonial period at the turn of the century. Rubber, palm products, and timber, the first export crops, were later replaced in importance by cocoa and coffee during the interwar period.

In 1940, the Ivory Coast exported about 45,000 mt of cocoa and 15,000 mt of coffee (Hermann 1981: 77). A decade later, local coffee trees were severely attacked by tracheomycosis, and were replaced by robusta varieties imported from the Belgian Congo. Timber exploitation expanded after World War II, and at the time of independence in 1960, coffee, cocoa, and timber had become the mainstay of the Ivorian economy, accounting for 85 percent of the country's export earnings.

Three policies were the key to the success of agriculture in the Ivory Coast. The first was the decision to build transport infrastructure opening up zones of unexploited potential at lowered transport costs. Equally important was the establishment of crop specific agricultural research institutes for the development, testing, multiplication, and dissemination of adapted varieties and technologies. Finally, coffee and cocoa production was supported through the operations of stabilization funds established in 1956.

The Ivorian government after independence continued the colonial strategy of export orientation and development base on agriculture. In addition, however, the government sought to broaden exports by diversifying away from coffee, cocoa, and timber into other export crops such as palm products, pineapples, and cotton. Research remained in the domain of sectoral agricultural research institutions. Extension of the new technologies, however, was delegated to autonomous regional authorities, (e.g., Autorité de la Vallée du Bandama, Autorité pour l'Amenagement de la Région du Sud-Ouest) or to crop specific development agencies (Sociétés de Développement, or SODE).

An ambitious oil palm program, aided by the World Bank, was begun in 1962 and sought to develop 63,000 ha of plantations by

1970.[4/] As shown in Table 15.6 output grew from 290,000 mt in 1961-63 to 707,000 mt in 1971-74. The growth of output of pineapples during the 1960-74 period was about 24 percent per annum,[5/] and cotton production in the drier areas to the north increased by 21 percent per year.

The traditional export products -- coffee, cocoa, and timber -- expanded at a slower rate. By 1970, the exploitation of timber resources was progressing more rapidly than regeneration, and reserves were being depleted. To sustain the levels of timber output, the government embarked upon an investment program in the San Pedro area to open up the hitherto unexploited tracts of the southwest. Coffee production continued to expand, but at only 3 percent per annum, reaching 258,000 mt in 1971-74. Production of cocoa grew more rapidly, aided by a large replanting and rehabilitation program.

Urbanization accelerated after independence, and national food requirements tripled in ten years. Even though food production increased more rapidly than population growth, urbanization and rising incomes placed large and increasing demands on food productivity. Food imports, perceived as threatening the positive trade balance, became a major concern for government. Rice production was promoted to substitute against imports and to generate additional income in the north. The first major investments were for mill and irrigation construction. Fertilizer, seed, and extension services complemented the program.

The 1973 drought and the commodity price boom of 1973-74 led to a major reassessment of Ivorian objectives. Concern over growing and increasingly expensive food imports, especially rice, and over fluctuating export earnings resulted in greater importance being attached to the reduction and eventual elimination of food imports as a central national

Table 15.6. Production of Key Agricultural Products in the Ivory Coast (1960-1974)

Product	1960-63	1971-74	% Increase
Palm Clusters (mt)	290,188	705,737	10
Pineapples (mt)	23,142	192,790	24
Timber (000 m^3)	3,470	4,669	4
Coffee (mt)	184,477	258,409[a]	3
Cocoa (mt)	91,965	199,829	8
Cotton (mt)	8,094[b]	55,933[b]	21

Source: La Cote d'Ivoire En Chiffres, Edition 1976-77.

Notes: [a] 1972-75

[b] 1959/60-1962/63 to 1971/72-1973/74

objective. As rice imports rose to over 100,000 mt per year in the early 1970s and world prices quadrupled, the Ivorian government accelerated its investment in swamp and irrigated paddy production. As an added incentive to producers and to aid farmers in the north, prices were increased sharply. In 1975-76, with new investments, higher producer prices, and demand dampened by a consumer price hike, the Ivory Coast became self-sufficient. The subsidies on locally produced rice, inputs, infrastructure, and services were a great fiscal burden, however, and the rice development agency, which began amassing large debts, was eventually disbanded in 1977.

Questionable investments were also made in sugar production, which received the largest chunk of public investment funds between 1971 and 1980 -- 21 percent of the total (Hermann 1981: 121). Production targets of 135-150,000 mt by 1980 were established despite anticipated high costs in relation to world market prices.

Foreign Assistance in the Rural Sector

In the 1960s, foreign assistance stressed capital development projects such as irrigation, roads, ports, and power facilities. World Bank lending to the agricultural sector consisted mainly of irrigation projects. Bank policy shifted in the early 1970s, however, towards maintaining the momentum of the green revolution to feed the developing countries and to increase the incomes of the poor (World Bank, Agricultural Sector 1972: McNamara 1973). Bilateral donors followed a similar transition. Whereas AID had been concerned in the 1960s primarily with infrastructural aid and balance of payments assistance, the "New Directions" mandate of 1973, and the subsequent "Basic Needs" philosophy shifted United States' aid to the "poorest of the poor" and to small-scale projects with better distributional effects. The history of foreign assistance to Ghana and the Ivory Coast followed this worldwide direction.

Ghana

Through 1966, most foreign assistance in Ghana was allocated to capital development projects and to assisting Nkrumah's industrialization policy. The World Bank had no projects in the rural sector, while AID, the largest donor, funded an agricultural extension and production project. The objective of AID strategy was to assist Ghanaian production programs through price supports, subsidized input deliveries, and credit programs. Technical assistance and management training were important components of this strategy.

The first World Bank Cocoa Project to Ghana was initiated in 1970. This called for 20,000 ha of cocoa to be rehabilitated and 15,000 ha of new trees planted over a five year period. Asked by the government to assist in revitalizing the extension service, AID revamped the Agricultural Extension and Production Project to emphasize extension and input delivery aspects. Further resources were directed to health and population projects. Significant amounts of PL 480 and about $30 million in program assistance were also made available.

The unilateral repudiation of part of Ghana's foreign debt by the NRC in 1972 resulted in a sharp drop in foreign assistance to Ghana. With the exception of few bilateral donors (e.g., Canada), disbursement against existing projects continued but no additional projects were designed. From 1972 to 1974, donors awaited major macroeconomic policy reforms before continuing their assistance programs. AID, no longer the largest donor, relied on World Bank leadership and minimized its involvement in policy questions (AID 1975, Vol. I: 34). The World Bank funded a Sugar Rehabilitation Project and designed a Rice Development Project in the north

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that was never funded. AID sought to influence policy indirectly through training of management. After 1972, the Economic Development Management Project and various other training projects gained importance in USAID's portfolio (AID 1975, Vol. I: 24).

When Ghana's external debt was successfully rescheduled in 1974, and long term stabilization seemed a likely prospect, project assistance increased significantly. Agricultural and integrated rural development projects predominated. Four World Bank Projects totalling $51 million (Cocoa II, Oil Palm, Livestock Development, and Upper Region Integrated Rural Development) were approved. US objectives, in line with the Congressional mandate, sought to ensure that "the poor majority have more adequate incomes and greater access to health care services of sufficient quality" (AID 1975, Vol. I: 21-22). The basic approach of better delivery of inputs and services, stronger planning and management, and development of local institutions focused on a specific region was maintained for all three sectors of AID involvement -- agriculture, health, and family planning. The large Managed Inputs and Delivery of Agricultural Services (MIDAS) Project illustrates this comprehensive approach. The project was comprised of imports and distribution of fertilizers, seed multiplication and distribution, extension services, rural credit, management training, studies of the marketing structure, and a number of other components.

By 1977, economic mismanagement in Ghana had resulted in triple-digit inflation, a severely overvalued cedi, and cumbersome import licensing procedures. Macroeconomic distortions created an undesirable incentive structure favoring corruption, smuggling, and arbitrage. The environment being no longer conducive to development, donor assistance

programs began to be scaled down. As existing projects come to completion even today, both multilateral and bilateral donors are reducing their assistance programs to Ghana.

Ivory Coast

Until 1967, the Ivory Coast relied heavily on bilateral, especially French, foreign assistance. Of an estimated total of about $260 million between 1960 and 1967, France contributed about $135 million in funds, personnel, and commodities, compared to $33 million from the US and $93 million from all multilateral donors (France 1976: 189: Appendix Table A-5).

Donors' programs supported the government's policy of rapid, export-oriented growth. In the early 1960's, infrastructural projects, training, studies, resource surveys, and research projects were important. France, for instance, financed one-half of the agricultural research agencies, to which it also furnished substantial technical personnel. In addition, a series of regional socioeconomic studies and resource surveys were also funded. Top-level technical and managerial personnel were sent from France to assist the Ivorian government in its program of rapid economic growth. The presence of top-level administrators and technicians, and the large financial support lent by France, undoubtedly accorded France an important influence on policy decisions and aided in the establishment of a stable and conservative economic environment.

By 1968, the Ivory Coast had built up an impressive infrastructure of ports, roads, and power networks. The government's emphasis on agriculture as the principal source of growth was lent support by increasing project aid. Donors' assisted the expansion of traditional export crops, as well as the diversification program that sought to widen the country's foreign exchange base.

Project identification was facilitated by extensive studies and surveys which analyzed the country's comparative advantage. Agricultural project financing increased rapidly from the mid-1960s. The World Bank group funded the first of over 15 agricultural projects in 1969. During 1968-81, of the $710 million in aid extended by the World Bank, one-quarter was for the agricultural sector. This included cocoa, rubber, oil palm, coconut, and cotton production projects. In the mid-1970s, the Bank's program towards integrated rural development projects (North-eastern Savannah Project, Center West Project, etc.).

American assistance in the post-1967 period declined to $23.3 million in AID projects and other economic assistance, and $7 in PL 480 assistance from 1968 to 1981. This is not surprising since, with sound international creditworthiness and a per capita GNP of $1200 in 1980, the Ivory Coast no longer met the congressional mandate conditions. On the other hand, the EX-IM Bank extended $255 million in various loans during the 1968-81 period.

Project aid proceeded satisfactorily until the late 1970s when the Ivorian government attached increasing importance to regional development and to foodcrop production, thus moving away from traditional, comparative advantage sectors into those with lower rates of return. The decreasing return on investment coincided with the oil crisis, and was soon followed by a drop in coffee and cocoa prices. The Ivorian public investment program for 1978 was planned during the 1976/77 coffee and cocoa boom. Over $2 billion was allocated, 40 percent from external sources. Available funds were used for some bad investments (the sugar complexes, rice production), to meet rising public recurrent expenditures, and for projects with long gestation periods (education and

health). The Ivory Coast's debt service had risen to 25 percent by 1980. and the need for structural readjustment was recognized.

Constraints on Project Design and Implementation

Ghana

Two broad types of projects have been financed in Ghana's rural sector. Directly productive investments include various cocoa, oil palm, rice, and livestock projects. At the other extreme are projects with an indirect impact on production, such as those involving health, education, and training. Integrated rural development projects, like the World Bank's Upper Region Project and USAID's Managed Inputs and Delivery of Agricultural Services (MIDAS) Project, have sought to incorporate elements from both ends of the spectrum.

Few, if any, projects in the rural sector have succeeded in attaining their targets in Ghana. This is particularly true of the directly productive projects. The World Bank's Eastern Region Cocoa Project, for example, set as its goal the replanting of 15,000 ha and the rehabilitation of an additional 20,000 ha. By the end of 1973/74, one year before foreign financing ended, only one half of the acreage had been planted, while only 29 percent of the target 20,000 ha had been rehabilitated.

Similar problems faced the MIDAS project, USAID's major integrated rural development project in Ghana. Whereas the project's stated goal was to increase agricultural production on small holdings through better input distribution, a 1979 mid-project evaluation stated that "the project failed to deliver agricultural inputs such as fertilizer, seeds, credit, and technical services to small farmers" (Hess and Biney 1979).

A common constraint to design and implementation of all Ghanaian projects has been the lack of a clear overall rural development plan to guide donor participation (AID 1973: 1). In addition, rapid staff turnovers of upper and middle level Ghanaian management have hindered constructive dialogue. These problems have been further compounded by the rapid rate of inflation and the overvaluation of the cedi. In 1977, inflation reached 60 percent, and thereafter exceeded 100 percent each year (AID 1981: 8). In the face of a constant official rate of exchange, this led to an increasingly overvalued currency. Imported inputs and tradable outputs were underpriced in relation to local currency expenditures and the opportunity cost of labor. Furthermore, local operating expenses of projects and donor missions, when converted to dollars at official exchange rates, became prohibitively expensive.[6/] The World Bank Oil Palm Project, for example, was appraised at $22.5 million in 1975 but cost $53.3 million in 1982 due to inflation. Price distortions encouraged people to take advantage of differentials in order to supplement their meager incomes. Managerial inefficiency and corruption became entrenched. Donors complained frequently that projects could not "keep good people" (North 1982).

A number of specific problems also constrained the successful implementation of projects in Ghana. The government's cocoa price policy, for example, inadequately reflected production costs. In 1975, the

producer price was the equivalent of 0.59 N¢/kg, whereas the breakeven price was estimated at about 0.73 to 0.88 N¢/kg. At those prices farmers were unwilling to maintain and, at times, to harvest their farms. They of course did little replanting. Shortages of consumer goods and farm inputs also reduced farmers' real purchasing power. Not surprisingly, even though cocoa was very profitable at economic prices (Stryker 1975: 21), farmers switched to privately more profitable foodcrops. The average age of trees in the meantime increased so that,by 1978, 85 percent of the cocoa trees were estimated to be 16 years or older.

To arrest the rapid decline in cocoa production, the Limann government tripled the producer price to 12 N¢/kg in 1981 (Economist Intelligence Unit 1982 (1): 10). Even at 12 N¢/kg, however, the Ghanaian cocoa producer received less than half the price to Ivorian producers. As a result, about 50-60,000 mt of Ghanaian cocoa are currently being smuggled annually to the Ivory Coast and Togo.

Pricing and availability of primary factors of production has also biased the types of techniques employed. Ghanaian exchange rate policy has favored capital intensive, mechanized production techniques. Due to the overvalued cedi, imported equipment appears less expensive than locally procurred labor services. This bias is compounded by the government's decision to apply no duty on mechanized equipment imports. Mechanized services are also strongly subsidized by the government, with subsidies ranging from 70 to 90 percent of costs. Yet studies have shown that whereas capital-intensive techniques are financially attractive, they are economically least profitable (Winch 1976: 92).

The Ghanaian government has also heavily subsidized other agricultural inputs. The subsidy on fertilizer was 77 percent in 1974 and 56 percent in 1981, while the subsidy in 1975 on sprayers and insecticides was 80 and 90 percent respectively. At these subsidized prices, however, insufficient inputs could be supplied. In 1972, only 8,000 of the required 11,000 mt of fertilizer were delivered (Gilbert 1972: 7). Imports of insecticides and sprayers also declined. Insecticide supplies averaged 205,450 gallons in 1957-64, but only 137,900 gallons in 1964-74. Between 1970 and 1975, sufficient insecticides were made available to spray only 15,000 hectares, or about 9 percent of the total land area each year. The World Bank Cocoa Project "had very few cutlasses which it could supply" and a "limited quantity of gammalin 20" to spray farms. Pruners and sprayers were "on order" (Christian 1974: 11).

Projects also suffered from inadequate local support services. Ghanaian seed multiplication farms had a total annual production capacity of 1.65 million cocoa pods in 1976, enough to replant 20,000 ha per year, or less than 1 percent of the cocoa area. Even the declining demand for seedlings could not be met. The Eastern Cocoa Project requested 250,000 pods in 1972/73 but received only 150,000, enough for 5,400 of the planned 8,000 acres (Christian 1974: 11-12).

In Ghana, it has not been the price of the input that has limited consumption but the "lack of an effective system of ... importation and distribution" (Gilbert 1972: 8). The foreign exchange constraint has limited the quantity of inputs imported. Agricultural inputs have not received priority in foreign exchange allocation. When funds have been allocated, the licensing procedure has been cumbersome, susceptible to corruption, and subject to long delays. Due to the lack of fuel and spare parts, transport of

inputs upcountry to the project areas has been delayed. Relative scarcity induced by the subsidized prices has necessitated elaborate controls to ensure input use by the target groups. But since sprayers in 1975 cost 30 N¢ in Ghana, and comparable sprayers cost the equivalent of 700 N¢ in the Ivory Coast, smuggling of project inputs has been prevalent. Credit, too, has been subsidized. In AID's MIDAS Project, rural credit has been made available at 8-12 percent. But inflation since 1977 has exceeded 100 percent, so the real rate of interest has been strongly negative. Whether the credit has been used for its intended productive ends under such circumstances is doubtful.

Finally, institutional weaknesses have hindered project success. Various government agencies involved in agriculture have been overstaffed, poorly trained and motivated, and underequipped. Recurrent administrative expenditures have been high. The CMB with a staff of about 50,000 had in 1982 an estimated 4,000 N¢ in administrative expenditures per ton of cocoa (Economic Intelligence Unit 1982(2): 16).

In the face of these difficulties, it has been extremely difficult to design and implement projects successfully. Infrastructure projects have become enormously expensive as local costs have mounted with the increasingly overvalued exchange rate. AID has concentrated instead, in recent years, on training projects designed to improve the human resource base upon which future development will depend. But it is estimated that as much as half of the participants subsequently emigrate from Ghana in search of more remunerative employment elsewhere. Furthermore, training and education projects have difficulty in meeting recurrent expenditures. In Ghana AID has covered about 90 percent of the operating costs of training projects.

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Ivory Coast

The economic performance of the Ivory Coast, which is heavily reliant on its rural sector, has been one of the few successes of independent sub-saharan Africa. Not surprisingly, most rural development projects have attained their objectives. Most commercial crops grown in the forest zone, for example, attained or exceeded their production targets in the 1971-75 Plan. Large investments in ill-planned projects financed chiefly by external borrowing, however, later led to structural imbalances in the Ivorian economy.

The factors that resulted in the structural difficulties of the economy also acted as constraints on the design and implementation of externally financed projects. One constraint stands out in particular In its desire to develop the relatively poor northern savannah region, the Ivory Coast moved away from its traditional comparative advantage in high rainfall crops produced in the south. Large amounts of resources were transferred north through production projects that were hastily selected and poorly prepared. Not only was there a shift towards the north, but there was an inappropriate selection of crops and techniques.

The Ivorian government planned, through the construction of twelve irrigated sugar complexes, to produce 600,000 mt of sugar. Of the public investment planned for 1976-80, 35 to 40 percent was to be allocated to sugar production. Since Ivorian demand was estimated at 100,000 mt, one-half million tons of sugar would have had to be exported. As the world sugar price declined, the number of sugar complexes was decreased to six, with 470,000 mt of sugar output. Capital costs were very high, and overruns not only resulted in partial completion of projects but they also severely affected project profitability (den Tuinder 1978: 35).

As designed, the complexes were capital intensive, used sophisticated technology, and would have few linkages with the rest of the Ivorian economy. Total production costs were estimated at $.23/lb, while 1980-85 world prices were projected at $.10/lb. It was unclear where the surplus of sugar could be exported and how the difference between the world price and domestic cost of production would be financed.

Cotton, which seems to be a reasonably profitable crop for the north, at first failed to reach its overoptimistic production targets. The cotton program has, however, successfully employed animal traction technology in an integrated regional development setting. Under the guidance of CIDT, the development agency for the north, cotton and foodcrop production has been expanding steadily.

The objectives of the rice program were to gain food self-sufficiency, to transfer income to the north, and to diversify production. Both price and investment policy were heavily employed. About 21 billion CFAF, or 6-15 percent of total public investment for the 1976-80 plan, were allocated to developing the rice sub-sector. Whereas the program achieved success -- producing large quantities of rice, the costs were very high. Rice projects generally involved costly irrigated and mechanized schemes with a high share of imported inputs (Humphreys 1981: 102). To be privately profitable, these required protection against lower cost imports. As discussed earlier, this was accomplished primarily by raising the producer price and incurring public marketing losses. This was not only financially, but also economically, unprofitable since the rice program was an inefficient means of saving foreign exchange (Humphreys 1981). Unsound projects could not be sustained over the longer run through public subsidies, and the system collapsed.

The second major constraint on projects has been the absorptive capacity of the Ivory Coast. Successful planning, design, and implementation of projects requires flexible and skilled administration. As the Ivorian economy has grown in complexity, centralized state-operated or supported programs have become more difficult to manage. A governmental reorganization occured in the 1970s to allow for greater decentralization of decision making and to render ministries more responsive and effective in implementing policy, but skilled Ivorian managers, though growing in number, are still in short supply.

Donors were faced with similar constraints in realizing the objectives of their programs. As project selection became less obvious and as the Ivorian government's objectives grew in complexity, the importance of planning became evident. Without effective planning of sectoral and intra-sectoral resource allocation, bad investment choices, as in the case of the sugar complexes, diverted scarce human and financial resources into inefficient activities.

Similarly, price policy has led to important misallocations of resources, reducing the effectiveness of foreign assistance. The large rice program of the 1970s absorbed labor, land, foreign and domestic capital, and managerial skills from other, more profitable uses. As another example, coffee and cocoa prices are currently both maintained at 250 CFAF/kg, even though coffee is more costly to produce and its price has recently been higher on world markets.

Finally, public enterprises have played a crucial role in the success of project design and implementation. The Ivory Coast has used these enterprises in relatively high risk agricultural programs and to further its efforts to promote Ivorianization. But over time, the public enterprises have became overstaffed and bureaucratic. At the same time,

many public enterprises have lacked the flexibility and autonomy to increase their operating efficiency. Thus donors desiring to participate in those sectors where these public development agencies are involved have been increasingly confronted with high administrative costs and inefficiency.

Foreign Assistance as an Unfavorable Policy Environment

As the previous discussion suggests, the impact foreign assistance is likely to have depends critically on the economic policy environment of the recipient country. Foreign assistance to the rural sector of a severely distorted economy, as in Ghana, is generally ineffective as a means of achieving either donor or host country goals. In many instances, it is simply a resource transfer to the government and to that segment of the Ghanaian population benefitting from the officially sanctioned economy.

This tends to encourage the design of projects that are impervious to the distortions and inefficiencies introduced by government policy. Local expenditures are minimized since they are much more expensive at the overvalued exchange rate than purchases in foreign currency. These enclaves, such as the Volta River aluminum project, replace projects with greater linkages to the local economy and beneficial distributive effects.

At the other extreme are the integrated development projects designed with the view that a single component is more likely to fail than a comprehensive package that maintains a critical momentum. Despite its size, however, the MIDAS project could not overcome the constraints facing isolated projects with more limited objectives. Administrative and managerial capacity proved insufficient to coordinate elements

of the project. The import licensing mechanism -- even though the project was exonerated -- delayed imports of goods and inputs. Lack of transport equipment slowed shipments upcountry. Costs rose at an annual rate of over 100 percent due to inflation.

Infrastructure projects, such as the construction or rebuilding of roads, have the advantage that their success does not depend on government incentives to producers. In many instances, they can benefit the market economy outside the public sector. But they suffer from the same problems as other projects with respect to implementation, and they are particularly susceptible to cost overruns to the extent they require large expenditures in local currency.

Probably most successful have been the human resource projects (health, training, and education), which are only indirectly productive. The objective of these projects has been to reach the people directly, rather than passing through the government. While delays, cost overruns, and partial competitions have been encountered, these projects are regarded as a relative success in Ghana by AID. Nevertheless, cost recovery is low, and as many as one-half of the successful trainees are believed to have left Ghana to work in neighboring countries. One can only hope that these people will someday return when conditions in Ghana improve.

It may be argued that ultimately foreign assistance should develop people and not governments, and thus human resource projects with long gestation periods and few direct quantifiable financial benefits are justified in cases like Ghana. The beneficiary of human resource projects will be able to earn higher income, and may, if he has migrated, even remit some funds to his family in Ghana. The difficulty, however, is that without quantifiable benefits there is no benchmark for evaluating the desireability of these projects.

15.4 The Economic Policy Environment and Foreign Aid

The analyses thus far has shown a remarkable difference in the experience since independence of the two neighboring countries, Ghana and the Ivory Coast. Ghana, despite a substantial inflow of foreign aid, has seen a steady deterioration in nearly all its macroeconomic indicators such as GDP per capita, real investment, imports, inflation, and the black market rate of exchange. The critical constraint on its development seems to have been a severe shortage of foreign exchange. The Ivory Coast, on the other hand, has experienced high rates of growth of investment, domestic savings, exports, capital inflows, and per capita income. Inflation has been relatively low and linked primarily to that of the rest of the world because of the country's openness. The CFA franc has been strong with little or no overvaluation, and, until recently at least, the country has increasingly been able to borrow on the international capital market, replacing concessionary aid.

At the project level, Ghana has experienced any number of problems. The choice of promoting mechanized farms during and after the Nkrumah period proved disastrous. Low producer prices, especially for cocoa, have discouraged farmers and reduced their incentives to participate in projects. Efforts to establish public agencies for the collection and distribution of food have been costly and have interfered with the development of private marketing. Input subsidies, including the influence of the overvalued cedi, have created financial problems for public distribution agencies, encouraged smuggling of inputs to neighboring countries, discouraged private distribution of inputs, and benefitted disproportionately those with sufficient influence to gain access to scarce supplies. Inflation and the increasingly overvalued exchange rate

have raised the cost of project expendistures in local currency to prohibitive levels. While projects in the Ivory Coast have also had problems, these have been relatively isolated, at least until recently, and have at no time taken on the proportions of those in Ghana.

A major thesis of this paper is that the varied experiences of Ghana and the Ivory Coast with respect to their ability to mobilize and make effective use of foreign aid are to be explained primarily by the differences in their economic policy environments. These differences have not been isolated and particular but rather have been systemic and general. This section describes those environments and how they have influenced the effectiveness of foreign assistance. Thereafter, the historic role of foreign aid in improving the economic policy environment in each of the two countries is examined.

The Impact of the Policy Environment on the Effectiveness of Foreign Aid

The economic policy environment is the set of laws, decrees, regulations, and other legal or administrative devices that establish the economic framework in which producers, traders, and consumers, whether public or private, operate. This framework consists of tax rates, subsidies, investment regulations, import quotas, exchange controls, regulated prices, and a host of other "policy constraints". All of these alter the profitability or desireability, from a private point of view, of economic activities.

Of major importance, in this respect, are the economic policies a country establishes that govern its economic relations with the rest of the world. These influence domestic prices relative to those on world markets, create differences between private market and official exchange rates, determine the availability of imported goods and services, affect

flows of labor and capital across international frontiers, and act in numerous other ways to relate one country's economy to those of the rest of the world.

Ghana

Ghana's economic policy environment has been characterized above all by shortages of foreign exchange and a system of import and exchange controls, which as a result of mounting inflation has led to an increasingly overvalued currency despite several devaluations and attempts at liberalization.[7/] One result has been artificially low official prices for agricultural products, especially export crops such as cocoa. In addition, the government has been heavily dependent on cocoa exports as a source of tax revenue, further depressing the official price to producers.

Equally important has been the effect of import and exchange controls on the prices and availability of consumer goods purchased by farmers in rural years. The supply of these goods has been severely restricted, with priority being given instead to imports of capital and intermediate goods and to basic foodstuffs consumed in the cities. As a result, there has been a severe shortage of consumer goods in the countryside and those that have been available have been sold at very high prices. The farmer, therefore, has suffered in two ways: the prices received for his export crops have been low, and the prices paid for consumer goods, when available, have been high.

Since the late 1960s, however, the Ghanaian government has tried to offset this disincentive by offering subsidies on credit and on agricultural inputs, such as seeds, fertilizers, insecticides, and machinery services. These subsidies have been facilitated by the over-valued exchange rate at which the external prices of imported inputs are converted to domestic currency. Nevertheless, the subsidies have been a financial burden on public supplying agencies and to some extent have encouraged inappropriate techniques and crops in which Ghana does not have a comparative advantage. In addition, the subsidies have strongly discouraged the distribution of agricultural inputs by private traders. Furthermore, severe shortages of the inputs, resulting from import restrictions and management problems, have biased their distribution towards larger, more prosperous farmers and have created uncertainty as to their availability.

Projects have succeeded only where these have been established in such a way as to be insulated from these problems. The Volta River project for example, was set up essentially as an enclave, importing capital and intermediate goods directly from abroad and bypassing the government's system of procurement. On the other hand, even when projects in the agricultural sector have been able to procure inputs without difficulty, these have had to be sold at subsidized prices that were substantially below prices on the private market or in neighboring countries. Diversion of the inputs from the project area and smuggling outside of Ghana have thus been strongly encouraged, enriching those able to gain access to to the inputs.

At the same time that export crops has been discouraged, the Ghanaian government has tried to promote the production of food and other import substitution crops. A key mechanism for accomplishing this has been its import policy. For imported rice, for example, tariffs and the margin of the Ghana National Trading Corporation equalled 66 percent of the c.i.f. value of imports in 1972. Distribution of this rice through established wholesale and retail traders was ostensibly made at officially regulated prices, but restrictions on imports and lack of enforcement of official prices resulted in large quantities of rice being sold at higher prices. The free market price of rice in Accra in 1972, in fact, was 2.3 times the c.i.f. price. Obviously, incentives for domestic farmers to produce rice were strong as long as that rice could be marketed by private traders.

The government, however, was more concerned about supplying urban areas with food at low prices. For this purpose, the Food Marketing Corporation was created under Nkrumah. This was later merged with the Task Force Distribution Unit to create in 1971 the Food Distribution Corporation. In 1975, this state agency took over the Marketing Division of the Grains Development Board. In addition, the Rice Mills Unit, which had been part of the Grains Development Board, was made an autonomous body under the Ministry of Agriculture.

Ostensibly these agencies have been responsible for implementing guaranteed minimum prices designed to cover production costs, especially for rice and maize. In fact, they have been obliged to sell at maximum prices that are insufficient to cover their operating costs in order to keep retail prices to consumers at low levels. As a result, they have incurred heavy financial losses. In most years, market prices

have been higher than the minimum prices offered by these agencies so that buying has been difficult. Even when the minimum price has been above the market price, buying operations have been limited because of lack of funds and storage space. Thus the influence of the state trading agencies on domestic marketing of food has had little importance at best and at worst has been detrimental since large producers and Agricultural Development Bank borrowers have at times been required to sell to these agencies at the official minimum price.

At the same time that government policy in Ghana has discouraged the production of export crops, it has offered positive incentives, in general, to industry. Import quotas and high tariffs, for example, have protected industrial firms from import competition. Non-traditional exports have enjoyed bonuses on their export earnings. In addition, the Capital Investments Board has provided tax holidays and exemptions from duties and other taxes on inputs. These benefits have been of limited value to foreign equity-holders, however, because remittances of profits and dividends have been blocked by exchange controls.

A useful way of comparing the incentives offered in different agricultural and industrial activities is to examine the effective rate of protection (ERP) in each. This measures the incentives applicable to both outputs and inputs and thus indicates the extent to which policy permits actual value added to diverge from its level in the absence of protection. The results are shown in Table 15.7 for 1972, a year in which the overvaluation of the cedi was not very great following its devaluation in late 1971, but the values of the ERP are essentially as expected. That of cocoa, Ghana's major export crops, is negative, showing the system's bias against this sector. The ERPs for maize, rice, and cotton are

Table 15.7. Effective Rates of Protection (ERP) for Selected Agricultural and Industrial Activities in Ghana, 1972

Activity	ERP	Activity	ERP
Cocoa	-0.5	Fiber and Paper Products	1.3
Maize	0.7	Chemicals	0.7
Rice	0.7	Nonmetallic Mineral Products	-2.4
Cotton	1.8	Basic Metal Products	0.6
Processed Food	1.4	Fabricated Metal Products, Machinery & Equipment	7.4
Textiles and Clothing	15.5		
Footwear	1.1		
Wood and Wood Products	2.9		

Source: Scott R. Pearson, Gerald C. Nelson, and J. Dirck Stryker, "Incentives and Comparative Advantage in Ghanaian Industry and Agriculture," August 1979, pp. 38-40 and calculations of the author.

positive at fairly modest levels. This primarily reflects the effect of restrictions on agricultural imports, leading to inflated prices on the private market. Effective protection of industry is in general much greater, partly because there is less political resistence to restrictions on imports of manufactured goods compared with foodstuffs. The ERP for nonmetallic mineral products is negative, not because protection is negative, as is true of cocoa, but because it is so strongly positive that resources are misallocated to such an extent that value added measured in world prices is negative.[8/]

Although comprehensive data are not available, it is clear that the policy distortions shown in Table 15.7 have become accentuated since 1972. The producer price for cocoa divided by the national consumer price index, for example, decreased by 37 percent from 1972 to 1979. In rural areas, consumer goods prices rose even faster, and in many instances the goods were not available at any price. As a result of inflation the cedi depreciated rapidly on the black market, making agricultural input subsidies for the favored few who could obtain them even greater. In addition, the requirement on the part of the donors to convert foreign exchange to cedis at the official rate of exchange implied that the cost of local purchases rose enormously, making most projects prohibitively expensive. At the same time, restrictions on food and other imports raised their domestic prices on the free market, further biasing the structure of incentives against the export sector. By the beginning of the 1980s, the result was a highly distorted economy in which the incentives for black market dealing, smuggling, and corruption were so great that almost any project channeled through the public sector was unlikely to succeed.

Ivory Coast

In contrast to Ghana, the Ivory Coast's economic policy environment has been one in which these kinds of distortions have been minimal. First, the CFA franc has been rigidly linked with the French franc and has remained a convertible currency without exchange controls on current account. Second, the use of quantitative import restrictions has been minimal, implying that the relation between domestic and world prices of tradeable goods has been determined primarily by tariffs and, for agricultural products, by the operations of the Caisse de Stabilisation et de Soutien des Prix des Produits Agricoles (CSSPPA), charged with stabilizing producer prices of the major cash crops, and the Caisse de Perequation, responsible for stabilizing the prices of rice and some other basic foodstuffs (den Tuinder 1978: 42). Third, the bias towards industry has been less than in Ghana. Coffee and cocoa have been taxed, but the priority given by the government to agricultural development has kept it from squeezing that sector too hard. Fourth, import tariffs have, in general, been moderate, though effective rates of protection have been higher because of low duties on intermediate inputs and because of benefits from the Ivory Coast's investment code. Finally, though input subsidies have hardly been absent from Ivorian agricultural policy, they have been much less pronounced than in Ghana.

The lesser degree of distortions in the Ivory Coast economy compared to that of Ghana can be seen by looking at effective rates of protection (ERP) in Table 15.8. Although cash crops in the Ivory Coast have been taxed and food grains protected, these distortions have been less severe than in Ghana. Furthermore, industry in the Ivory Coast has received substantially less protection than in Ghana. The net impact of these distortions was such as to cause the exchange rate to be overvalued by an estimated 15 percent in 1972.

Table 15.8. Effective Rates of Protection (ERP) for Selected Agricultural and Industrial Activities in the Ivory Coast, 1972

Activity	ERP	Activity	ERP
Coffee	-0.4	Edible Oils, Soap	1.5
Cocoa	-0.4	Milk Products	0.0
Palm Products	-0.1	Tobacco	0.2
Copra	-0.1	Textiles and Clothing	1.5
Pineapples	-0.3	Footwear	1.8
Bananas	-0.3	Lubricants	1.2
Cotton	-0.4	Chemical Products	0.8
Rice	0.3	Rubber Products	0.0
Maize	0.4	Cement	0.0
Grain Milling	2.7	Transport Equipment	0.2
Processed Foods	0.1	Metal Transformation, Machinery	0.8
Beverages	-0.4	Paper Products	-0.2

Source: J. Dirck Stryker, Garry Pursell, and Terry Munson, "Incitations et Coûts Réels en Côte d'Ivoire," May 23, 1975, Table A, and J. Dirck Stryker "Western Africa Regional Project: Ivory Coast -- Economic Incentives and Costs in Agriculture (Chapter II)," April 14, 1977, Tables 5 and 7.

Nevertheless, particular policy distortions have existed from time to time that have had an adverse impact on the effectiveness of foreign aid. One of the most notable of these, discussed earlier, was the sharp increase in 1974 of the official price offered to rice producers. This diverted large quantities of paddy from on-farm consumption and the private market to publicly operated mills that were required to sell to wholesalers at a price which did not cover their costs. The result was overflowing public storage facilities and financial disaster for the public agency concerned. A rice production and milling project that was being considered for financing at the time by the World Bank was abandoned as a result of this untenable situation.

More generally, there was during the last half of the 1970s a sharp decline in the productivity of public investment resulting from a series of high cost projects. Those involving the sugar complexes in the north were discussed above in the section on Agriculture and Rural Development. In addition, there were several very costly higher education projects and some excessive investment in highways. Much of this program was financed by foreign borrowing on fairly hard terms. As a result, debt service obligations rose sharply just as coffee and cocoa earnings were declining, threatening the country's pace of development. With growing fiscal problems, too, essential services such as those in agricultural extension were also threatened. There was, therefore, a strong need for structural readjustment and for better planning and preparation of investment projects.

The Role of Foreign Aid in Policy Reform

The role that foreign aid can play in promoting and enhancing the impact of policy reform has become increasingly recognized.[9/] To some

extent this can be accomplished at the project level, but more often it requires structural adjustments that are at least sectoral, if not macroeconomic, in nature. The history of foreign aid in Ghana and the Ivory Coast offers some illuminating examples.

Policy Reform and Project Aid

Aid donors generally establish with host governments certain understandings and preconditions considered as necessary for the success of a particular project. These may involve institutional changes, better accounting practices, reduced input subsidies, higher producer prices, and any number of other reforms. Frequently, compliance with these conditions has an influence not only on the project concerned but also on other projects in the same sector. This, plus political factors, may make agreement difficult and require extended discussions over a relatively long period of time, during which mutual confidence needs to be established.

As an example, the World Bank and the government of the Ivory Coast continued to discuss the issue of the producer price for rice for several years after the original project was first rejected. The government agreed in principle that a new policy was needed in order to eliminate the producer subsidies but argued that this would have to come about through inflation since a reduction in the producer price was politically impracticable. The Bank financed further studies but would not go ahead with a production project as long as its implementation was thought to worsen, rather than to improve, the problem in the rice sub-sector. The Bank's continuing involvement was nonetheless thought to be useful if it could help improve policies and institutions or identify projects that would meet the needs of the sub-sector. A dialogue was thus maintained, though it became

increasingly apparent that the agricultural policy problems were not limited simply to rice but extended across the entire sector. The rice issue was, therefore, finally dealt with as part of the overall approach to policy reform discussed below.

In Ghana, the Managed Input Delivery and Agricultural Services (MIDAS) project, financed by AID, also offers some useful lessons. At the time the project was prepared, in 1973/74, agricultural inputs and services were being supplied to farmers by the Ministry of Agriculture, with credit being handled primarily by the Agricultural Development Bank. These inputs and services were offered either for free or at highly subsidized prices but were generally in very short supply because of foreign exchange shortages and because the Ministry's capacity to manage an input distribution system was very limited. The MIDAS project was designed to overcome these constraints by financing the foreign exchange costs of the project and by establishing autonomous agencies to handle distribution. Another major goal was to reduce or eliminate input subsidies.

Success with the MIDAS project has been highly uneven. The Ghana Fertilizer Company was established to import, blend, bag, and distribute fertilizers, but complications developed, partly because of deep vested interests, and the Ministry continued to supply fertilizers at subsidized prices, primarily to larger farmers with influence. On the other hand, the Ghana Seed Company was successfully established and the seed subsidy was eliminated. The project was reduced in scope, however, from the national level to a single region. This has subsequently reduced the impact it might have on national policy.

These are but two examples, but they suggest some important lessons. First, changes in economic policy are often very difficult because of vested interests and political pressures. The leverage offered by donor financing of projects is seldom great enough to overcome these obstacles. Second, policy changes do not come quickly and often involve a long period of dialogue and building of mutual trust. This is difficult or impossible if there are frequent changes in personnel by the host government or lack of a long-term commitment on the part of donors. Finally, economic policy issues often extend beyond the domain of a particular project, requiring a sectoral or macroeconomic perspective on foreign aid.

A Comprehensive Approach to Policy Reform

The experience of both Ghana and the Ivory Coast suggests the importance of taking a comprehensive approach to policy reform and designing foreign aid programs that can reinforce this approach.

Ghana

At the end of the Nkrumah period in 1966, Ghana was in serious macroeconomic difficulties with mounting inflation, growing budget deficits, a deteriorating balance of payments, and rising debt service obligations. With assistance from the IMF, a stabilization program was undertaken by the National Liberation Council (NLC) government, which used external aid and short-term debt relief to maintain Ghana's capacity to import at the same time that aggregate demand was reduced through credit constraints and a tight budget. Although the exchange rate was devalued in 1967 from 0.714 to 1.02 cedis per dollar, relatively little attention was otherwise paid to removing the distortions resulting from overvaluation of the exchange rate, import and exchange controls,

the tariff structure, the credit system, and the government's monopoly on the distribution of agricultural inputs (Gilbert 1976: 290-94). By 1969, when the Busia government took over from the NLC, the economy was more stable and functioned more smoothly than three years earlier, but inflation had eroded the effects of devaluation, and the long term prospects for Ghana's economy were little improved. In retrospect, it appears that the stabilization program of the post-Nkrumah era was too short-term in nature, partly because economists at that time were not fully aware of the serious effects that distortions such as existed in Ghana could have on the allocation of resources and long-term development. In addition, the political situation probably would not have permitted more fundamental reforms without substantially more program aid to soften the blow to Ghana's urban population. Yet donors were unwilling to commit that level of aid and the administrative machinery in Ghana was hard pressed to utilize the new aid that was made available without a significant liberalization of procurement-tying provisions. Untied drawings on the IMF were extensively made but were inadequate by themselves. World Bank loans were also available, but only for projects, requiring a slow process of project identification and preparation. Finally, the contribution of debt rescheduling was limited because this was predominantly the responsibility of government export and investment credit guarantee agencies in the donor countries, which were unsympathetic to broader foreign policy and development concerns (Gilbert 1976: 333-37).

By late 1971, however, this situation had changed very substantially. The Ghanaian government and the Consultative Group of donors, under the chairmanship of the IMF and the World Bank, had decided to shift away

from the IMF-led stabilization program of 1966-69 and to combine broad-based economic reform and liberalization of the economy with large-scale balance of payments support and a generous rescheduling of the medium-term debt. The total package of external assistance required for committment in 1972 was estimated at $150 million. The US contribution was envisioned as $30 million in program loans, with direct US involvement in policy questions being minimized by the establishment of the World Bank as the principal external economic policy advisory agent (Agency for International Development: 1975, Vol. 1, 34-35).

The cedi was devalued in late 1971, but the rest of the reform program was cut short with the military coup in January 1972. The National Redemption Council, which came to power at that time, partially reversed the devaluation, repudiated much of the debt, imposed restrictions on private foreign investors, provided large subsidies for "essential" commodities, and otherwise undermined the structure of reform. Donors and creditors held up on their assistance plans awaiting resolution of the debt issue. Under the threat of complete repudiation, negotiations were entered into. They lasted two years during which foreign aid continued at only minimal levels.

There was another opportunity to deal comprehensively with the issue of policy reform in Ghana following the settlement of the debt situation in 1974. The donors appeared to be ready to commit over $100 million, and professional members of the World Bank staff were assisting Ghanaian economic policy and planning ministries. On the other hand, after the experience of the early 1970s, the government was more interested in concrete projects than in macroeconomic policy issues. Furthermore, the interests of the donors were shifting away from program loans towards

projects that were particularly likely to aid the poor, especially in rural areas. These types of projects took an especially long time to prepare in relation to the quantities of resources being transferred. Finally, there was a serious lack of coordination among donors, who frequently competed for projects rather than worried about structural reform. The opportunity for policy reform was thus missed, and the economic situation in Ghana continued to deteriorate.

Another stabilization program was attempted in September 1978 with a 58 percent devaluation, an austerity budget, and a stand-by agreement with the IMF, but this program was abandoned following the coup d'etat of June 1979. By this time, the correlation between devaluations and coups d'etat was deeply embedded in Ghanaian minds, and attempts at austerity measures alone proved useless in the face of massive price distortions (Morrison and Wolgin 1980).

Ivory Coast

The use of foreign aid to support policy reform in the Ivory Coast was in startling contrast to the experience in Ghana. The World Bank began project lending in the late 1960s, and by 1981 had made 41 loans and credits, mostly in agriculture and complementary infrastructure. Although the economic policy environment in the Ivory Coast was far superior to that in Ghana, a number of problems, discussed earlier, were beginning to appear by the mid-1970s. Many of these were identified in the Bank's 1977 basic economic report and in its reviews of external borrowing and investment policies and programs between 1978 and 1980. The government responded well to the Bank's advice during this period, reducing the size of the public investment program and the external borrowing to finance it. In addition, the government began to seek the

Bank's advice in devising a longer-term approach to the restructuring of the economy and the institutional framework to manage the process. This was a national consequence of the years of dialogue that had taken place at the project level over various aspects of economic policy.

The result was a World Bank Structural Adjustment Loan (SAL) which responded to the government's programs for wide-scale reform, including improved economic management of agriculture and industry, as well as a revised role for public enterprises. This loan of $150 million complemented an IMF Extended Fund Facility (EFF) program and paved the way for further lending by private banks and bilateral donor agencies to cover the expected external payments gap over a period of several years. Prior to approval of the loan, the Ivorian government undertook a number of specific policy reforms, including eliminating cash subsidies on cocoa and lowering the producer price of rice. Under the terms of its EFF agreement, the government also agreed to limit its borrowings of less than 12 years maturity. Further reforms included increasing budgetary discipline, centralizing public finances, strengthening the Ministry of Agriculture's capacity for sectoral planning and for project preparation and implementation, reforming the public enterprise sector, and improving the industrial incentives system.

15.5 Some Conclusions

The major conclusion of this comparative analysis of the impact of development assistance in Ghana and the Ivory Coast is that foreign aid is unlikely to be effective in achieving either donor or host country goals in the absence of an economic policy environment that is reasonably conducive to long term development. This is true regardless of whether aid is seen as a transfer of resources or as a means of implementing project packages involving a combination of capital, technology and managerial knowhow. When the policy environment is severely distorted, as it has been in Ghana on several occasions, it is difficult to find any type of foreign assistance that can be successfully implemented, except possibly for some training and investment in human capital that may prove valuable sometime in the future.

The donors cannot be absolved of responsibility simply because the existing policy envornment is inappropriate, however, since foreign aid can play an effective role in altering that environment. There were several occasions over the past two decades when that might have been the case in Ghana, but each time the opportunity was lost. At first, there was excessive focus on short-term stabilization through control of demand without enough attention to eliminating the fundamental distortions that were restricting supply. Later, after the debt settlement, donors concentrated on designing projects to aid the poor, oblivious to the fact that the poor could never benefit if the entire economy was running downhill. Throughout Ghana's history since independence, there have been deep misunderstandings on both sides.

Even in the Ivory Coast, where both project and program aid were highly effective during the 1960s and early 1970s, project aid was first

seen as the means to improve the policy environment threatening to retard growth in the latter half of the 1970s. Soon it became apparent, however, that the problems were sectoral or macroeconomic in nature and that it was inappropriate to deal with them at the project level -- even though experience with projects had helped to identify these problems and to build the mutual trust and confidence to overcome them. Ultimately, it was medium-term program assistance from both the IMF and the World Bank that was found to be most useful in undertaking the structural reforms necessary to promote development over the longer term.

Footnotes

1/ Stephen H. Hymer has argued that the colonial government's investments and policies in Ghana were largely unproductive and may even have retarded growth of the economy (Hymer, 1971: 129).

2/ The incremental capital-output ratio (ICOR) would more appropriately be estimated using investment net of depreciation. Unfortunately, data on depreciation are unavailable so that gross investment is used instead. This should result in a downward bias in the estimated coefficient of I or an upward bias in the estimated ICOR.

3/ Production is in fact higher than 230,000 mt since it is estimated that 40-50,000 mt are smuggled to Togo and the Ivory Coast each year (Economist Intelligence Unit, 1982: 12).

4/ By the late 1960's, oil palm was the Ivory Coast's major investment project taking 45 percent of all public agricultural investment. Rice investments during the same period (1967-70) comprised 17 percent, while cocoa, a traditional export received only 8 percent of total investment.

5/ From only 23,000 mt in 1960-63, pineapple production grew to 193,000 mt in 1971-74. One-third of the output was exported as fresh fruit, mainly to France, and the rest, or about 150,000 mt, was processed at three local plants for exports as canned product.

6/ Per diem in Ghana ranged in the fall of 1982 from $130 when local staff housing was provided up to $283 with hotel accommodations, compared to $88 in Abidjan, Ivory Coast (Standardized Regulations, Section 925, October 1982: 3-4).

7/ Part of this section is drawn from Pearson, Nelson, and Stryker (1979), which summarizes the literature available on the Ghanaian incentive system at the time of the mid-1970's and analyzes a substantial body of new data.

8/ The effective rate of protection can be written as:

$$\frac{\text{Value Added in Domestic Prices}}{\text{Value Added in World Prices}} - 1$$

If value added in world prices is negative but value added in domestic prices is positive, the ERP is less than minus one.

9/ The World Bank, Accelerated Development in Sub-Saharan Africa: An Agenda for Action, Washington, 1981: 121-33.

APPENDIX TABLE A-1

OFFICIAL FOREIGN CAPITAL FLOWS FOR GHANA (1971-1980)
($ million)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
GRANTS										
Investment	8.4	5.7	4.6	10.0	5.9	18.0	23.7	29.5	31.7	20.0
Technical Assistance	15.9	14.9	17.6	19.7	25.9	27.4	29.2	37.4	35.4	44.9
Total	24.3	20.6	22.2	29.7	31.8	45.4	52.9	66.9	67.1	64.9
LOANS										
Concessional	38.1	43.3	24.1	13.8	102.0	29.1	47.3	55.7	114.6	140.9
Other[a]	na	na	na	na	na	na	19.0	34.1	34.9	30.5
Total	38.1	43.3	24.1	13.8	102.0	29.1	66.3	89.8	149.5	171.4
Gross Official Flows	62.2	63.9	46.3	43.6	133.6	74.5	119.1	156.7	216.6	236.3
Debt service	5.3	5.4	5.3	7.1	7.9	10.5	13.1	15.4	20.6	22.9
Net Official Flows	56.9	58.5	41.0	36.5	125.7	64.0	106.0	141.3	196.0	213.4

Source: OECD 1978: 80-81 and OECD 1981: 82-83

Note: [a] Other official flows are not reported for 1971-1976.

APPENDIX TABLE A-2

OFFICIAL FOREIGN CAPITAL FLOWS FOR THE IVORY COAST (1971-1980)
($ million)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
GRANTS										
Investment	10.0	34.5	13.6	25.2	16.8	15.6	17.4	11.8	24.1	25.1
Technical Assistance	23.8	26.8	35.7	39.4	55.2	54.2	57.3	61.6	83.7	101.4
Total	33.8	61.3	49.3	64.6	72.0	69.8	74.7	73.4	107.8	126.5
LOANS										
Concessional	23.2	[illegible]	23.0	20.9	41.6	49.7	42.4	73.3	67.8	100.0
Other[a]	na	[illegible]	na	na	na	na	136.2	117.8	102.3	188.4
Total	23.2	[illegible]	23.0	20.9	41.6	49.7	178.6	191.1	170.1	288.4
Gross Official Flows	57.1	76.9	72.4	85.5	113.6	119.4	253.3	264.4	277.9	414.9
Debt Service	[illegible].0	28.6	9.0	9.5	13.0	11.2	22.2	29.7	34.5	44.8
Net Official Flows	51.1	48.3	63.4	76.0	100.6	108.2	231.1	234.8	243.4	370.1

Source: OECD 1978: 110,111 and OECD 1981: 108, 109.

Note: [a] The period 1971-76 does not report other official flows.

APPENDIX TABLE A-3

TOTAL AID RECEIVED BY THE IVORY COAST (1960-1973)
(million CFAF)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
GRANTS	3000	5165	3216	3594	2354	10584	2006	680	976	1044	2393	970	5045	2840
% of Total	51	56	57	34	37	62	49	15	3	13	12	5	19	8
LOANS	2891	4089	2391	6932	4016	6352	2101	3750	34640	7196	17435	18257	21425	31646
% of Total	49	44	43	66	63	38	51	85	97	87	88	95	81	92
TOTAL	5891	9254	5607	10526	6370	16936	4107	4430	35616	8240	19828	19227	26470	34486
% from France	65	48	73	44	49	35	83	57	26	15	27	26	19	15
Total in $[a] (million)	26.3	40.4	24.4	45.5	27.2	71.2	16.9	18.0	146.5	31.5	65.2	59.4	82.9	103.4

FOREIGN TECHNICAL ASSISTANCE PERSONNEL IN THE IVORY COAST (1960-1972)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
TOTAL NUMBER OF PERSONNEL	1300	1215	1355	1432	1484	1692	1772	1936	2373	2577	2849	2966	3614
% from France	96.9	95.5	95.2	95.0	95.0	94.0	89.1	88.5	88.5	87.3	86.9	86.3	85.1

Source: The Republic of France, Ministry of Cooperation, Côte d'Ivoire; Données Statistiques sur les Activités Economiques, Culturelles, et Sociales, Paris, Janvier 1976 (p. 139).

Note: [a] 1967-69 = 100, constant dollars.

APPENDIX TABLE A-4

US OVERSEAS LOANS AND GRANTS AND ASSISTANCE FROM INTERNATIONAL ORGANIZATIONS TO GHANA (1960-1981)

OBLIGATIONS AND LOAN AUTHORIZATIONS IN $ MILLION (current)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	(1958-81) Total
USAID[a]	0.8	21.4	63.9	1.6	0.5	1.0	1.5	23.9	19.3	4.5	17.7	18.6	2.6	22.0	2.6	2.9	11.9	7.5	6.9	7.6	10.0	5.0	$254.90
FOOD FOR FREEDOM[b]	0.1	1.0	0.7	0.6	2.0	0.8	7.0	8.6	14.2	19.1	12.1	1.7	10.7	0.9	2.1	2.8	3.9	8.7	3.0	14.6	15.7	19.0	$150.00
OTHER ECONOMIC AID	--	--	0.5	0.7	0.8	0.9	0.7	1.2	1.1	1.1	1.4	1.8	1.8	1.5	1.3	1.8	1.6	2.4	2.3	2.0	1.8	1.8	$ 28.50
TOTAL	0.9	22.4	65.1	2.9	3.3	2.7	9.2	33.7	34.6	24.7	31.2	22.1	15.1	24.4	6.0	7.5	17.4	18.6	12.2	24.2	27.5	25.8	$433.40
EXIM LOANS	--	--	65.0	--	--	--	0.2	1.5	2.8	5.2	--	--	--	0.6	--	11.9[c]	--	27.6	--	--	--	--	$114.80
INTERNATIONAL DONORS	0.3	1.1	48.4	3.7	1.9	3.7	2.7	3.3	12.7	7.8	15.5	9.7	1.0	17.7	20.5	61.2	79.9	71.9	2.8	21.1	74.7	31.3	$493.70
WORLD BANK GROUP	--	--	47.0	--	--	--	--	--	10.0	6.0	14.6	7.1	--	15.6	13.0	49.0	76.5	57.0	--	19.0	54.5	29.0	$398.30

Source: U.S. Department of State, AID, U.S. Overseas Loans and Grants (Green Books), Washington, D.C., various.

Notes: [a] USAID and its predecessor agencies.

[b] Later Food for Peace (PL 480)

[c] Includes some OPIC direct loans.

APPENDIX TABLE A-5

US OVERSEAS LOANS AND GRANTS AND ASSISTANCE FROM INTERNATIONAL ORGANIZATIONS TO THE IVORY COAST (1961-1981)

OBLIGATIONS AND LOAN AUTHORIZATIONS IN $ MILLION (current)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	(1961-81) Total
USAID[a]	2.1	2.1	2.0	6.0	-0.1	0.3	0.8	0.2	3.1	--	--	--	--	--	--	--	0.1	0.1	0.1	--	--	$13.8
FOOD FOR FREEDOM[b]	--	--	--	2.1	4.0	1.8	--	--	2.1	--	1.3	--	1.0	0.7	1.2	0.5	0.1	0.2	0.1	--	--	$15.1
OTHER ECONOMIC AID	--	0.4	0.6	1.0	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.9	1.2	1.4	1.3	1.5	1.3	1.4	1.5	1.3	$19.3
TOTAL	2.1	2.5	2.6	9.1	4.5	2.7	1.4	0.9	2.9	0.7	2.1	0.8	1.9	1.9	2.6	1.8	1.7	1.6	1.6	1.5	1.3	$48.2
LOANS	--	--	4.6	--	--	3.0	0.2	31.5	5.1	16.1	--	20.8	2.0	32.3	5.1	2.5	6.7	--	37.4	--	95.3	$262.60
INTERNATIONAL DONORS	14.8	6.8	8.0	3.0	38.5	8.4	13.0	10.1	31.3	27.7	35.0	35.8	32.2	64.8	45.7	13.4	89.2	107.5	60.8	87.9	161.8	$895.70
WORLD BANK GROUP	--	--	--	--	0.2	--	--	5.8	17.1	18.5	27.9	17.5	7.5	33.4	79.5	7.1	80.9	82.2	59.1	65.8	151.0	$657.50

Source: U.S. Department of State, AID, U.S. Overseas Loans and Grants (Green Books): Washington, D.C., various.

Notes: [a] USAID and its predecessor agencies.

[b] Later Food for Peace (PL 480).

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APPENDIX A

ALLOCATION OF DEVELOPMENT ASSISTANCE TO FIVE COUNTRIES*

* This appendix was prepared by Charles Adelberg.

Appendix A

Allocation of Development Assistance to Five Countries

The primary purpose of this Appendix is to present the broad trends in development assistance to the five countries selected for the country studies - India, Korea, Turkey, Ghana and Ivory Coast.

In Section A-1 overall trends in U.S. economic assistance with other assistance to all developing countries is presented. This is followed in Sections A-2 to A-6 with (a) a comparison of trends in assistance from multilateral organizations with trends in U.S. bilateral assistance and (b) trends in U.S. assistance by the several assistance categories.

In Section A-7 trends in U.S. bilateral and multilateral assistance for 1970-81 and projections for 1982-85 are presented.

A.1. Assistance to Developing Countries from all Sources

Total official concessional and nonconcessional flows from developed to developing countries increased from $19 billion in 1970 to nearly $89 billion in 1980. Total net resource receipts in the form of nonconcessional flows compared to that of official development assistance (ODA) rose from approximately 57% in 1970 to over 65% in all years since 1976.[1/]

Development Assistance Committee (DAC) statistics[2/] of the 1970's consistently show the U.S. with the highest absolute amounts of ODA to developing countries and multilateral agencies in comparison with all other DAC members. However, the U.S. compares poorly among DAC members in terms of ODA as a percentage of GNP. The U.S. stays consistently around .25% of GNP, while the composite average of all DAC countries is .35%. Comparing total official and private net flows reported for 1980, the U.S. ranked 14 among 17 countries.

The graph which follows and the subsequent country tables utilize AID data.[3/] These data are more useful in making country level comparisons of assistance provided by the U.S. and multilateral agencies. They exclude some amounts of U.S. assistance that are included in ODA but are not country-specific. Assistance from multilateral organizations excludes U.S. assistance

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1/ Lewis, J. P. (1981), Development Co-operation (Paris, 1981 Review, OECD), (November): 172.

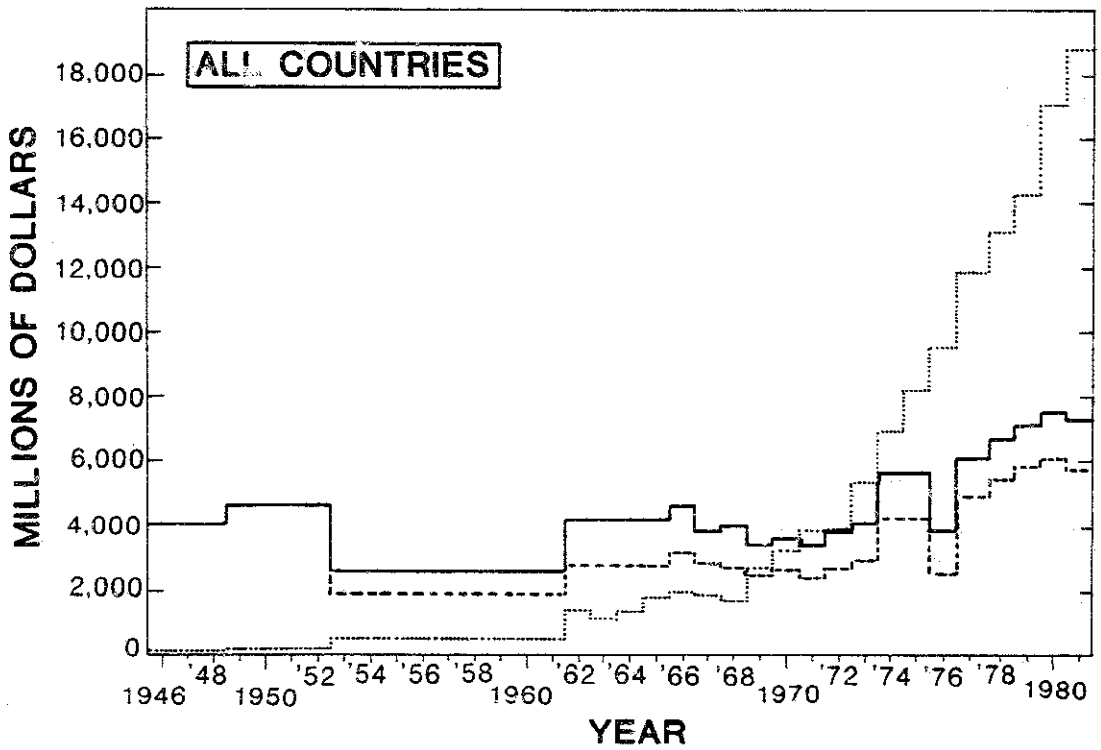
2/ Includes 17 members of the Organization of Economic Co-operation and Development (OECD) that provide economic assistance. The DAC data exclude all military assistance.

3/ AID, "U.S. Overseas Loans and Grants," various years 1973-1981.

through capital subscriptions, contributions or other mechanisms channeled through these agencies.

U.S. economic assistance attained high levels relative to US GNP and the budget during the years 1946-1952. The bulk of this aid was channeled to countries in need of post-World War II relief and Marshall Plan assistance. During the Mutual Security Act period, 1953-1961, total U.S. economic assistance declined absolutely. However, it was still larger than multilateral aid. Assistance from multilateral organizations was one quarter of total U.S. economic assistance during this period, and less than U.S. economic assistance in the form of PL 480 loans. Through the 1960's and 1970's, and into the 1980's, U.S. foreign economic assistance has fluctuated from year to year, but has increased moderately overall in nominal terms. PL 480 loans have consistently remained in the 1.0-1.5 billion range during this period. By contrast, assistance from international organizations increased moderately during the 1950's, exceeding U.S. economic assistance by the early 1970's. Since then, it has risen very rapidly, totalling approximately 250% of total U.S. economic assistance in 1981.

All Countries: A Comparison of U.S. Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)



KEY

— TOTAL U.S. ECONOMIC AID

—— OTHER ASSISTANCE FROM MULTILATERAL ORGANIZATIONS

---- U.S. AID EXCLUDING FOOD FOR PEACE LOANS

Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), International Finance Corporation (IFC), Asian Development Bank (ADB), African Development Bank (AFDB), Inter-American Development Bank (IDB), United Nations Development Program (UNDP), European Economic Community (EEC), and other United Nations programs.

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A.2. Assistance to India

Multilateral organizations' assistance to India remained at a level of one-third or less of U.S. bilateral assistance to India throughout the 1950's and until the late 1960's. After a large decline in 1968, assistance from multilateral organizations picked up during the period 1969-1971. In 1972, multilateral assistance overtook U.S. bilateral assistance, which by that time had fallen sharply. 1973 marked the beginning of a rapidly increasing trend in assistance from multilateral organizations which has continued ever since. In 1981, assistance from multilateral organizations was eight times greater than U.S. bilateral assistance.

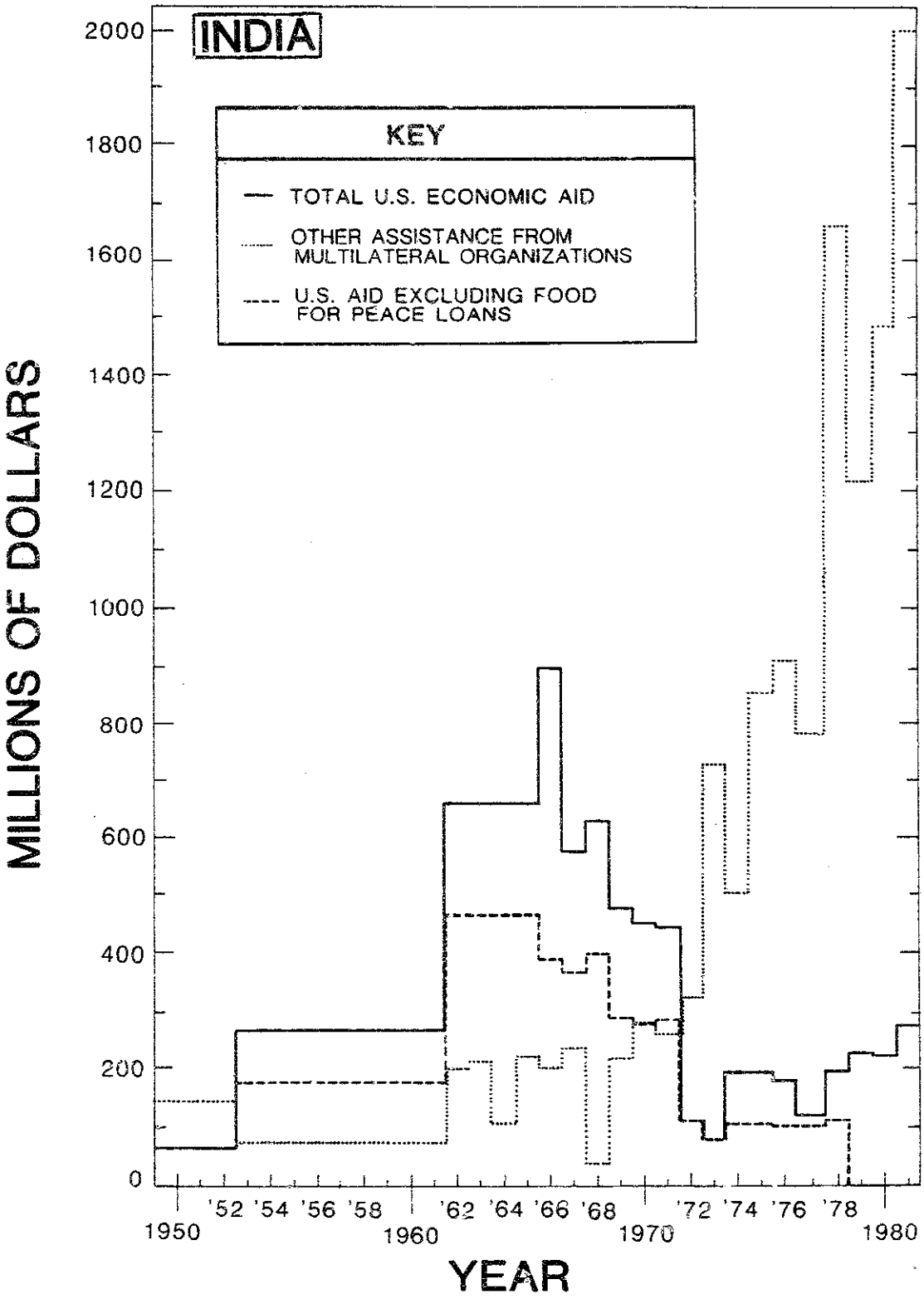
Although some aid in the form of technical assistance and emergency relief was provided by the U.S. government to India during 1948-52, the beginning of a broadly based program of U.S. bilateral economic assistance to India began after the Indo-U.S. Technical Cooperation Agreement of 1952. During the 1950's and into the 1960's, economic assistance increased greatly. It peaked in 1966 at approximately $900 million, in large part due to a disastrous harvest necessitating greatly increased PL 480 grain shipments. Assistance continued to be significant until the early 1970's, though slowly declining from 1968 until 1971.

Loans rather than grants predominated throughout the period 1953-1971. A significant portion of these loans were repayable in local currency. The bulk of these local currency obligations were cancelled by the

U.S. government in 1974. 1/ PL 480 loans were discontinued in 1972-73, and restarted in 1974, but at a much reduced level compared to the 1960's and early 1970's. Development assistance, a large part of economic assistance from 1953-71, was very small or non-existent between 1972 and 1978. Grants rather than loans became the largest percent of foreign aid since 1972, reflecting the importance of PL 480 Title II and technical assistance activities.

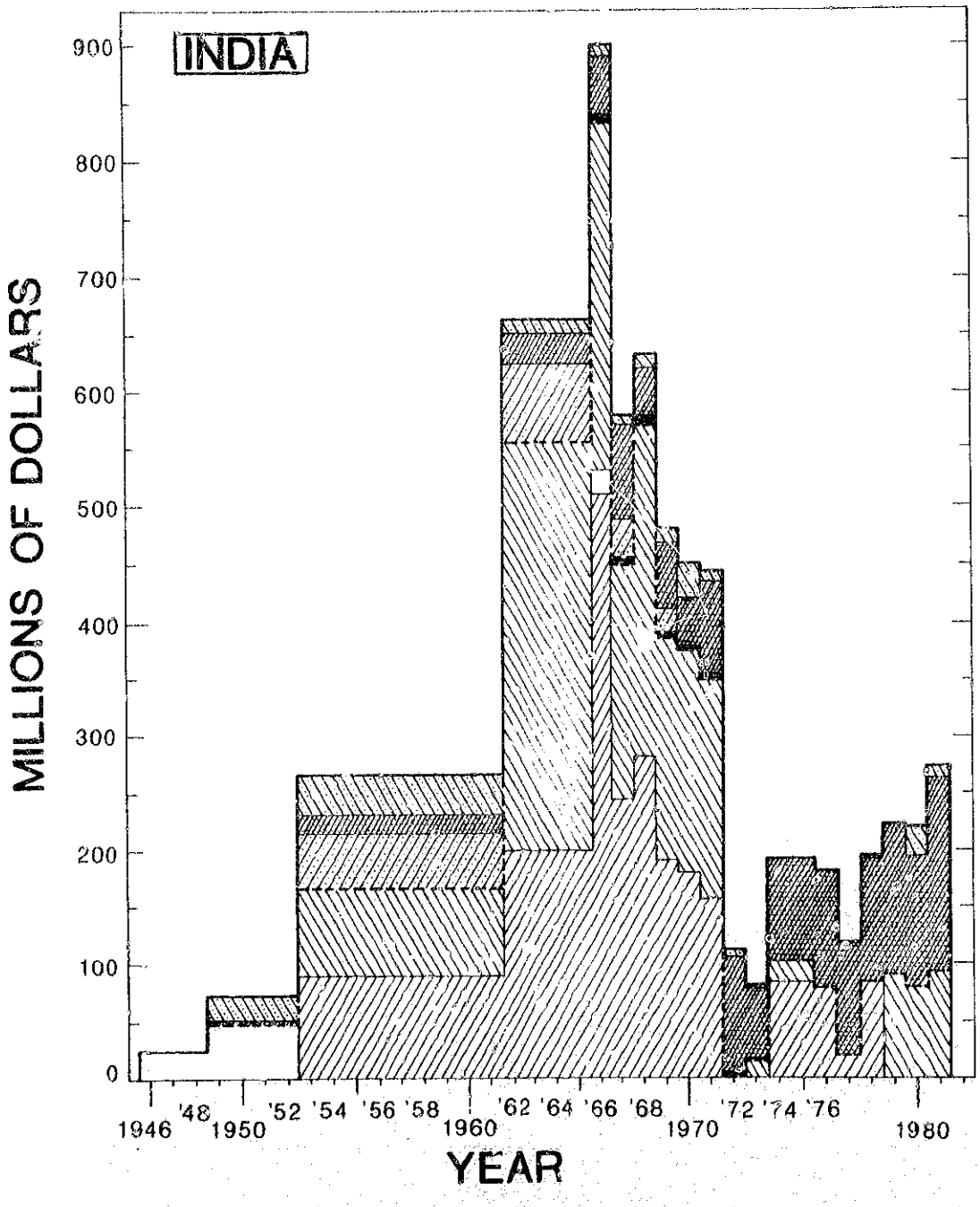
1/ Development assistance loan program was reintroduced in 1979 and continues to the present. The fluctuating bilateral assistance levels to India reflect primarily the state of foreign policy relations between the two countries rather than India's development needs or capacity to utilize assistance effectively.

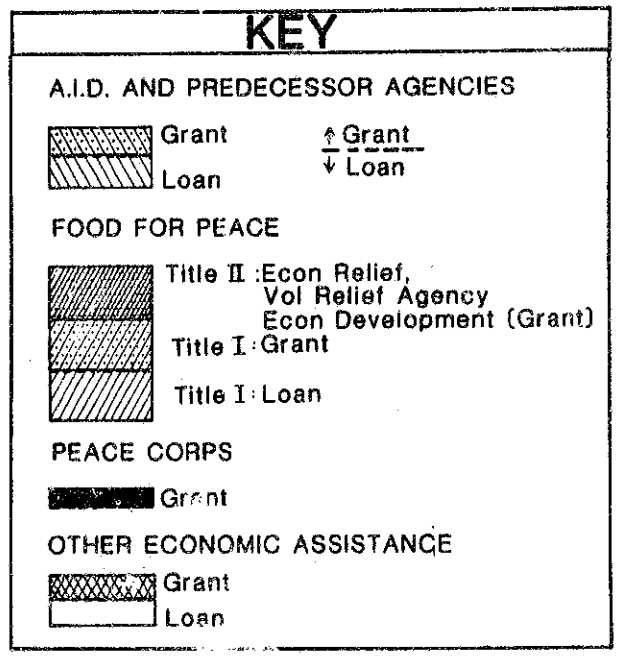
India: A Comparison of U.S. Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)



Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

U.S. Foreign Assistance by Category: India.





Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

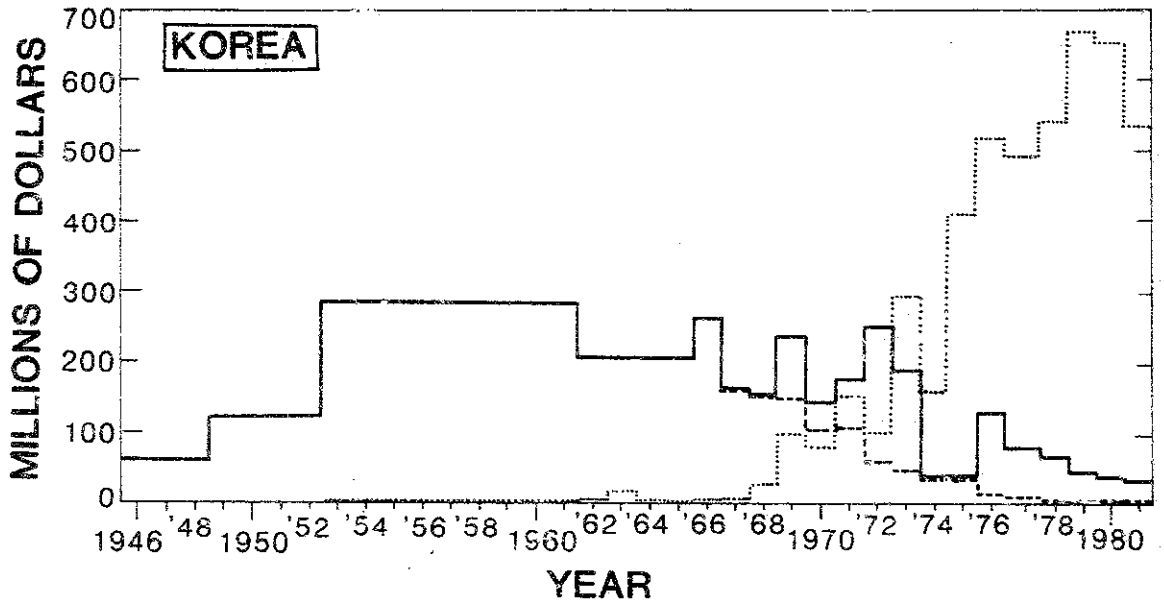
A.3. Assistance to Korea

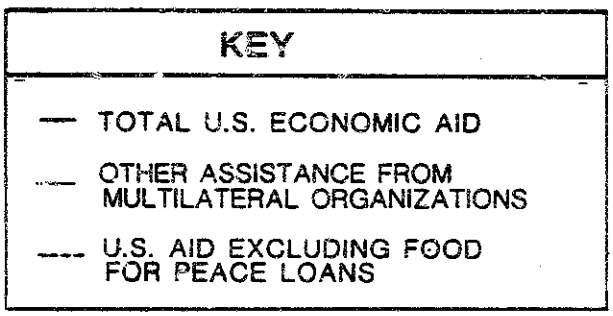
Multilateral organizations' assistance to Korea, negligible throughout the 1950's and most of the 1960's, began rising rapidly in 1968. In 1973, multilateral aid levels surpassed those of the U.S. bilateral assistance, which had been relatively stable until then. AID's bilateral assistance terminated in 1974, although PL 480 lending continued until the end of the decade. Since 1975, multilateral assistance, in contrast to U.S. bilateral assistance, has risen greatly. It peaked in 1979, but remained high in 1980 and 1981.

U.S. bilateral assistance to Korea was almost all in the form of grants through the 1950's and predominantly in the form of grants until the late 1960's. Development aid was greatest both in absolute amount and as a percentage of total aid during the 10 years following the Korean War. It was aimed at rebuilding infrastructure and general productive capacity, but little attention was directed to agricultural development until the 1960's.

PL 480 Title I assistance was initiated in the 1950's and grew to significant level in the late 1960's and early 1970's mostly in the form of loans rather than grants. The peak in 1972 reflects a shortage of grain due to drought. U.S. bilateral assistance, relatively stable in total amount through 1973, declined greatly in 1974 and 1975, when the program was phased out. Smaller amounts of PL 480 assistance were extended through the 1980's both as a gesture of political good will and as a result of U.S. domestic political pressures for a food aid program.

Korea: A Comparison of U.S. Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)





Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

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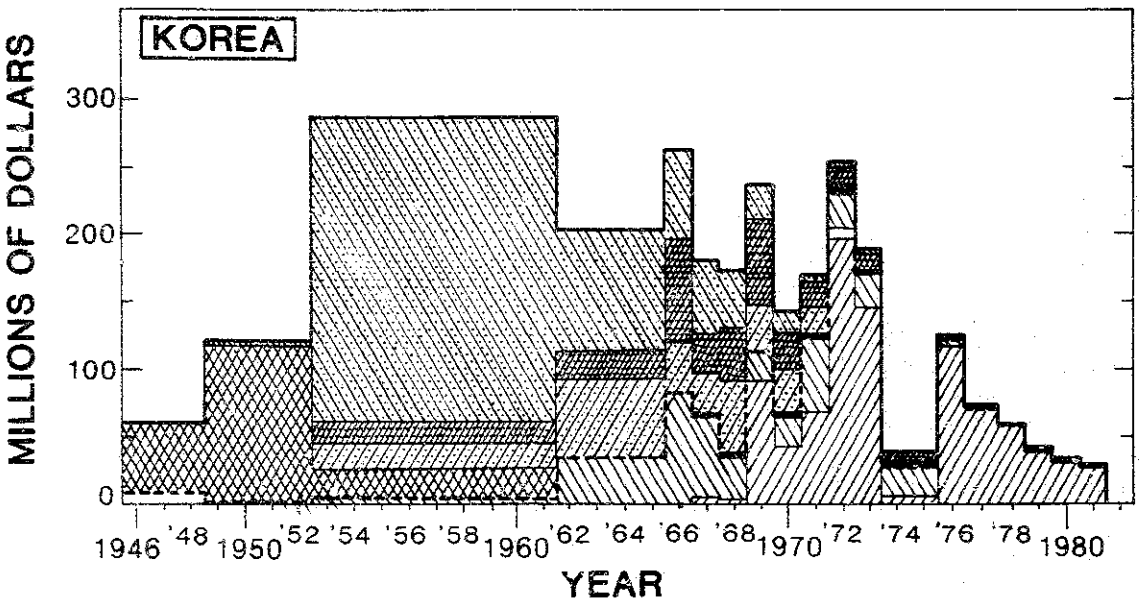
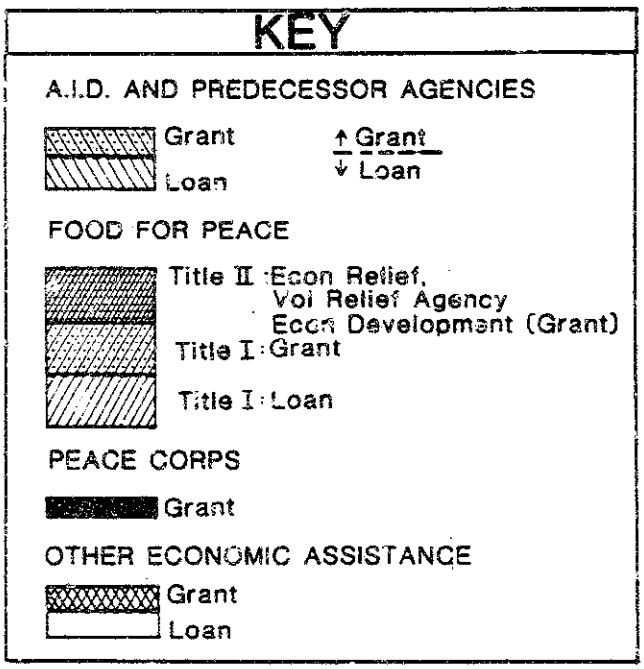
U.S. Foreign Assistance by Category: Korea.





Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

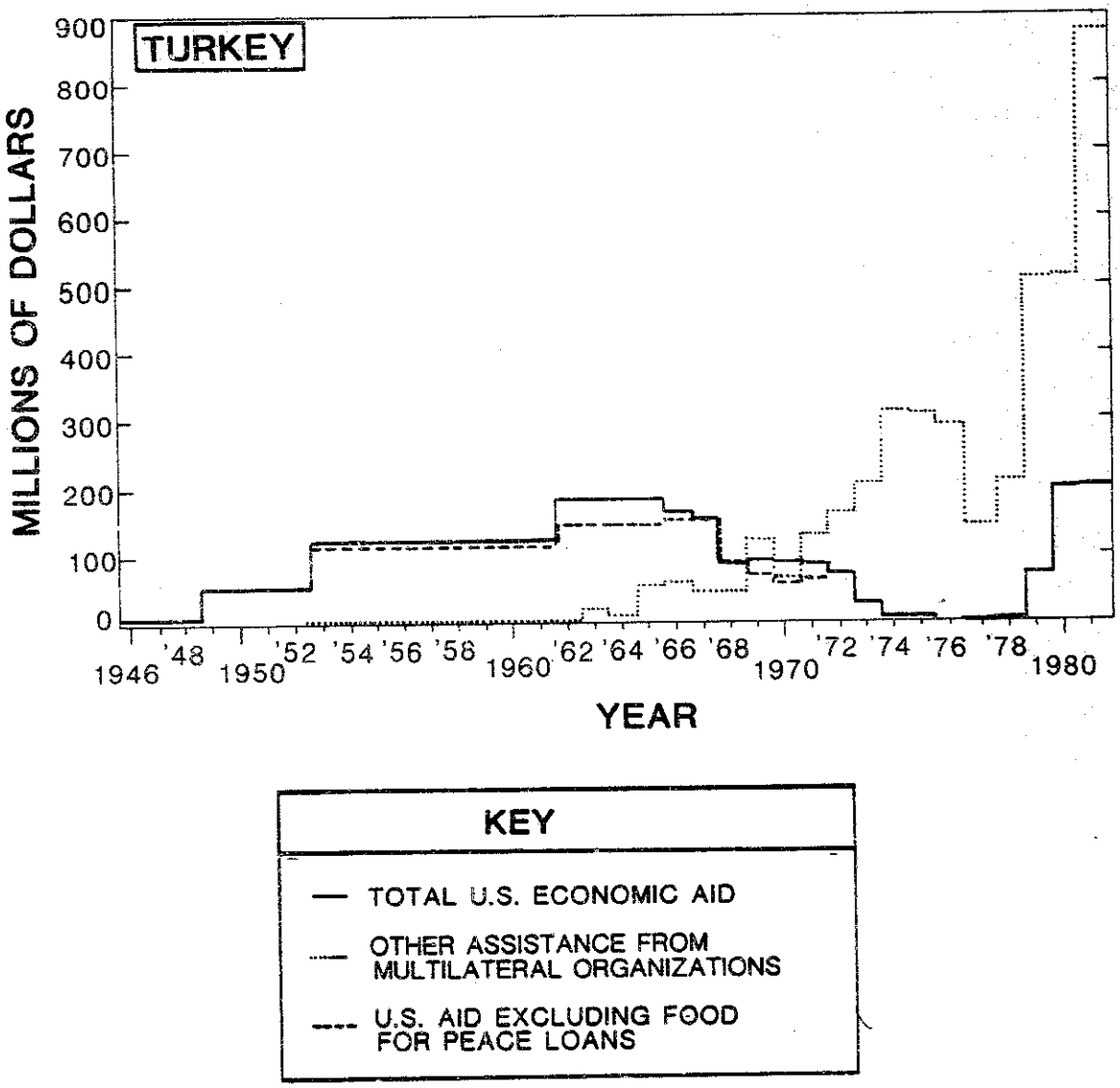
A.4. Assistance to Turkey

Assistance from multilateral organizations to Turkey was virtually non-existent until the early 1960's. From then on it grew, overtaking U.S. bilateral assistance, on average, during the period 1969-1971. It continued to rise steeply through the 1970's, with a decline only during the years 1976-1978. During the 1973-1978 period, the assistance from multilateral organizations contrasted greatly with U.S. and other donor bilateral assistance, which was greatly reduced during this period. During this period, Turkey also borrowed heavily from commercial sources. Ineffective economic policies resulted in severe balance of payment difficulties and other symptoms of extreme dislocation in the economy in the late 1970's. At that time, international donors under U.S. leadership mobilized a significant increase both in bilateral and multilateral assistance.

U.S. bilateral assistance to Turkey began with the Marshall Plan, 1949-1952, and increased throughout the 1950's until the late 1960's. During the 1950's, most assistance of the project type aimed primarily at infrastructure and agricultural development. Also most of the aid was in the form of grants. Through the 1960's there was emphasis toward "program" rather than "project" aid and most development assistance was in the form of loans. PL 480 concessional loans were also greatest during this period, in particular during 1962-1965, and 1969-1971. Average annual level of U.S. bilateral assistance declined slowly during the 1960's. The development assistance program was actually terminated in 1973 on the belief that Turkey's economy was sufficiently strong that it no longer needed ODA. Turkey thus became one of the early AID "graduates". U.S. bilateral assistance to Turkey had to be restarted in 1979 and expanded in 1980, when difficulties

in the Turkish economy once again became apparent. Assistance during this later period has been in the form of ESF loans - all in a program mode. Turkey thus has the dubious distinction of having been one of the few "graduates" whose economic situation deteriorated so badly after "graduation" that a new program had to be started.

Turkey: A Comparison of U.S Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)



Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

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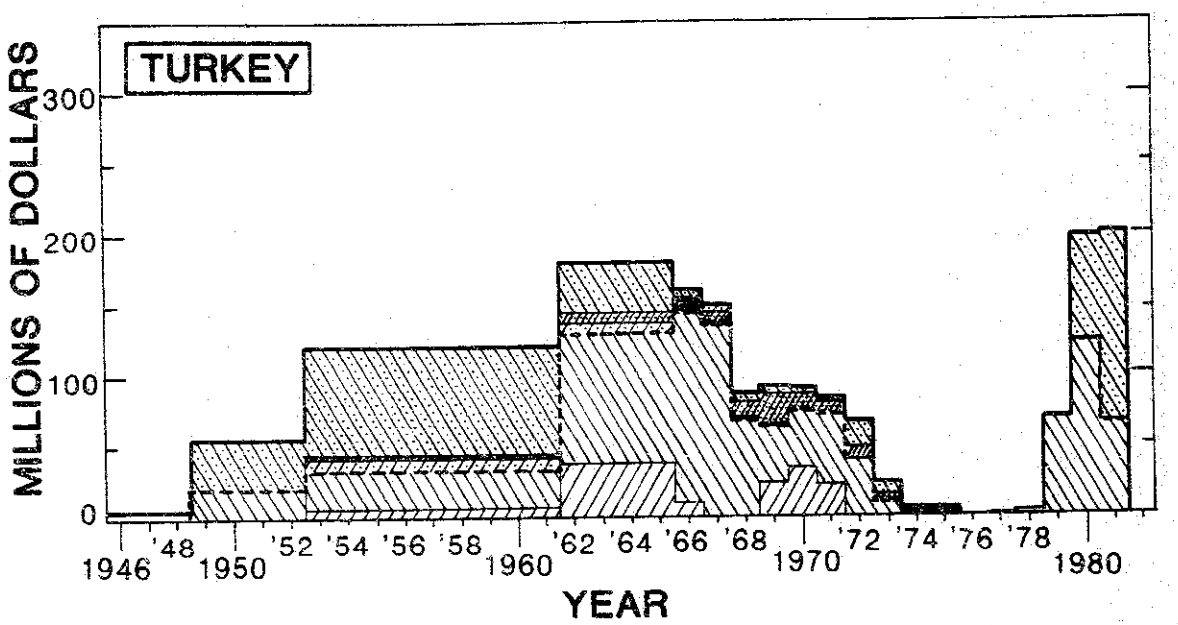
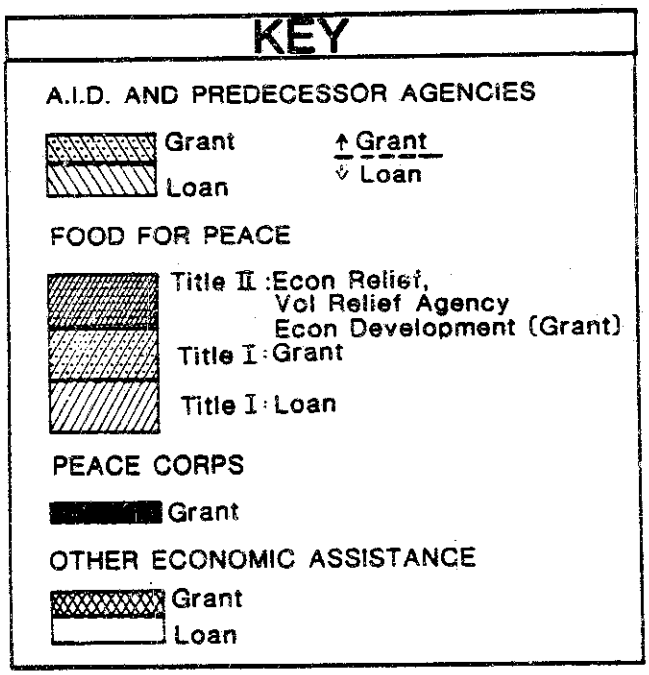
U.S. Foreign Assistance by Category: Turkey.





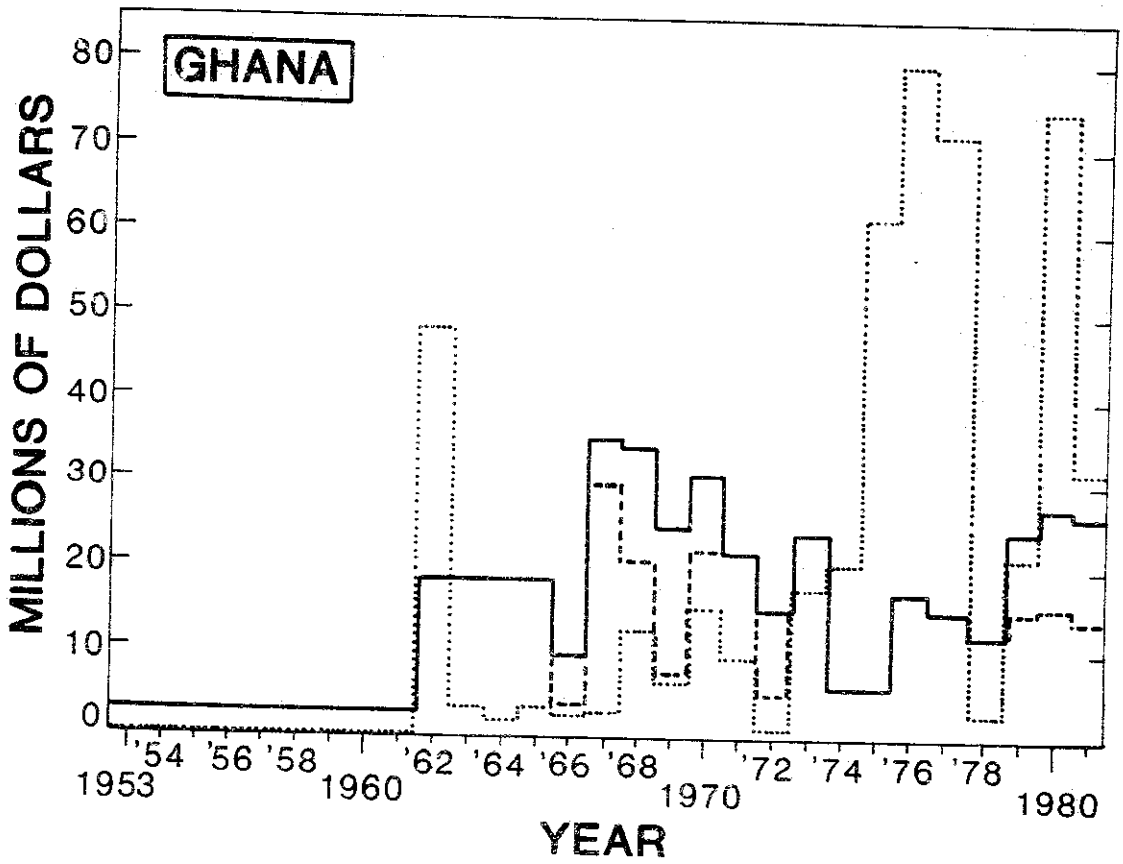
Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

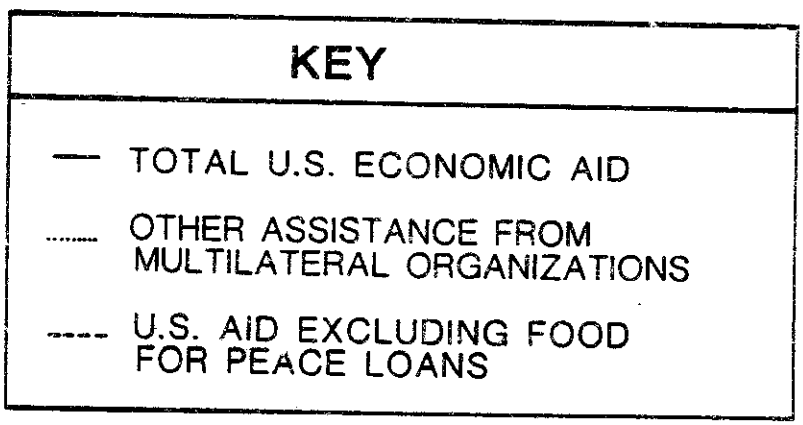
A.5. Assistance to Ghana

Assistance from multilateral organizations to Ghana increased greatly during the 1970's, on average, compared to the 1960's. The greatest assistance levels were reached in 1975-1977, following the rescheduling of Ghana's debt in 1975. A comparably large annual amount of assistance from multilateral organizations occurred in 1980.

U.S. bilateral assistance, by contrast, was greater on average during the 1960's than during the 1970's. The relatively erratic changes in the amounts and composition of development assistance reflects the lack of a clear development plan, especially related to the rural sector, to guide donor participation in Ghanaian development. Nevertheless, there has been a rising trend in donor aid during the years 1973-1980. PL 480 concessionary loans, greatest in the late 1960's and early 1970's, have risen again since 1979, partly because failures in economic policy have reduced the likelihood that other types of assistance would be especially productive. Redressing past failures in U.S. bilateral economic assistance to Ghana, development assistance more recently has concentrated on training projects designed to improve the human resource base upon which future development will depend.

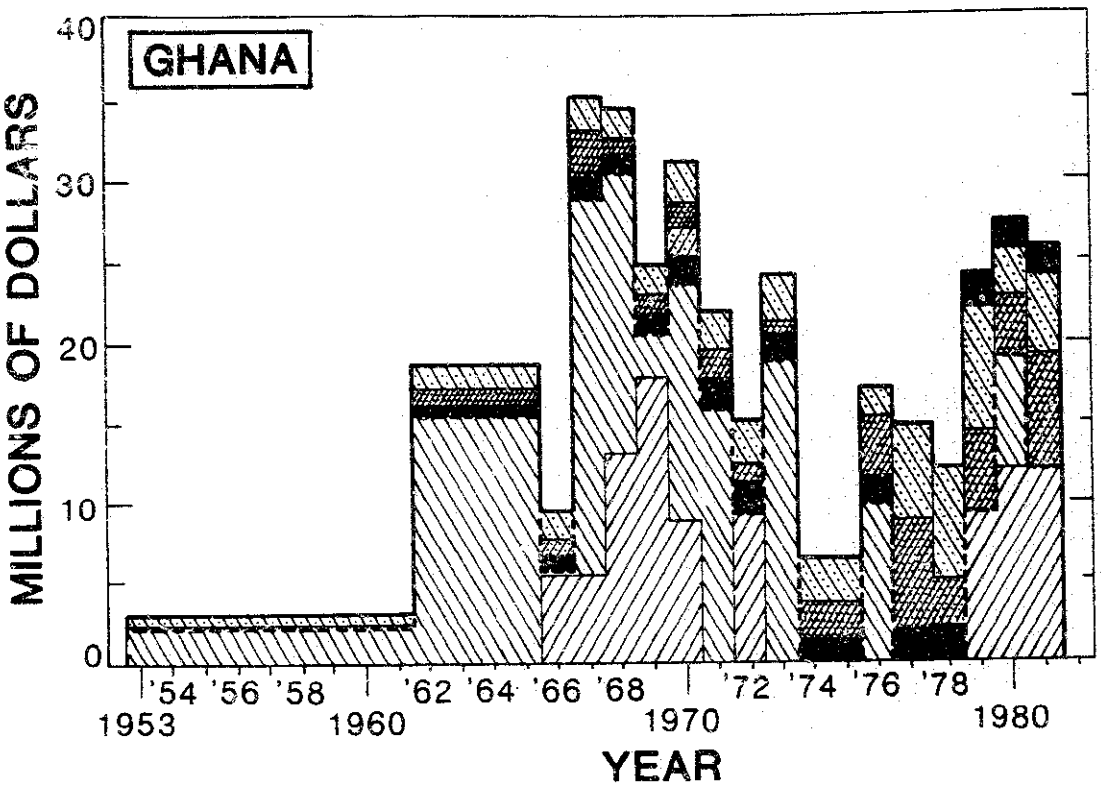
Ghana: A Comparison of U.S. Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)

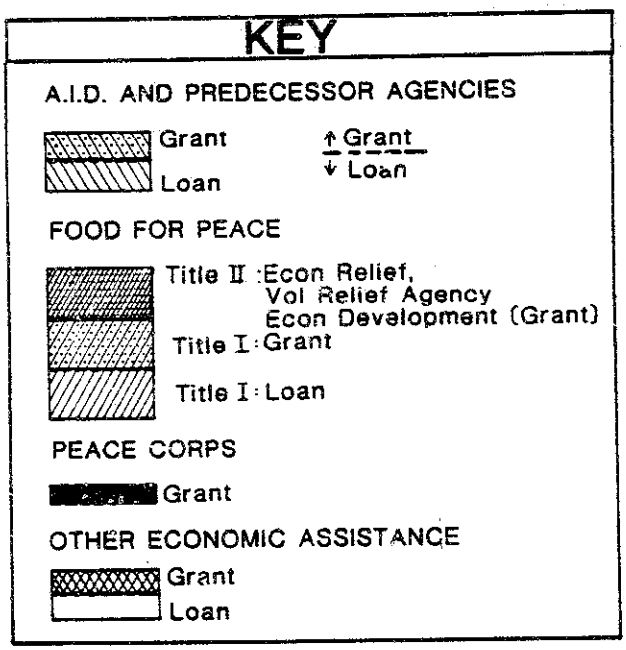




Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

U.S. Foreign Assistance by Category: Ghana.



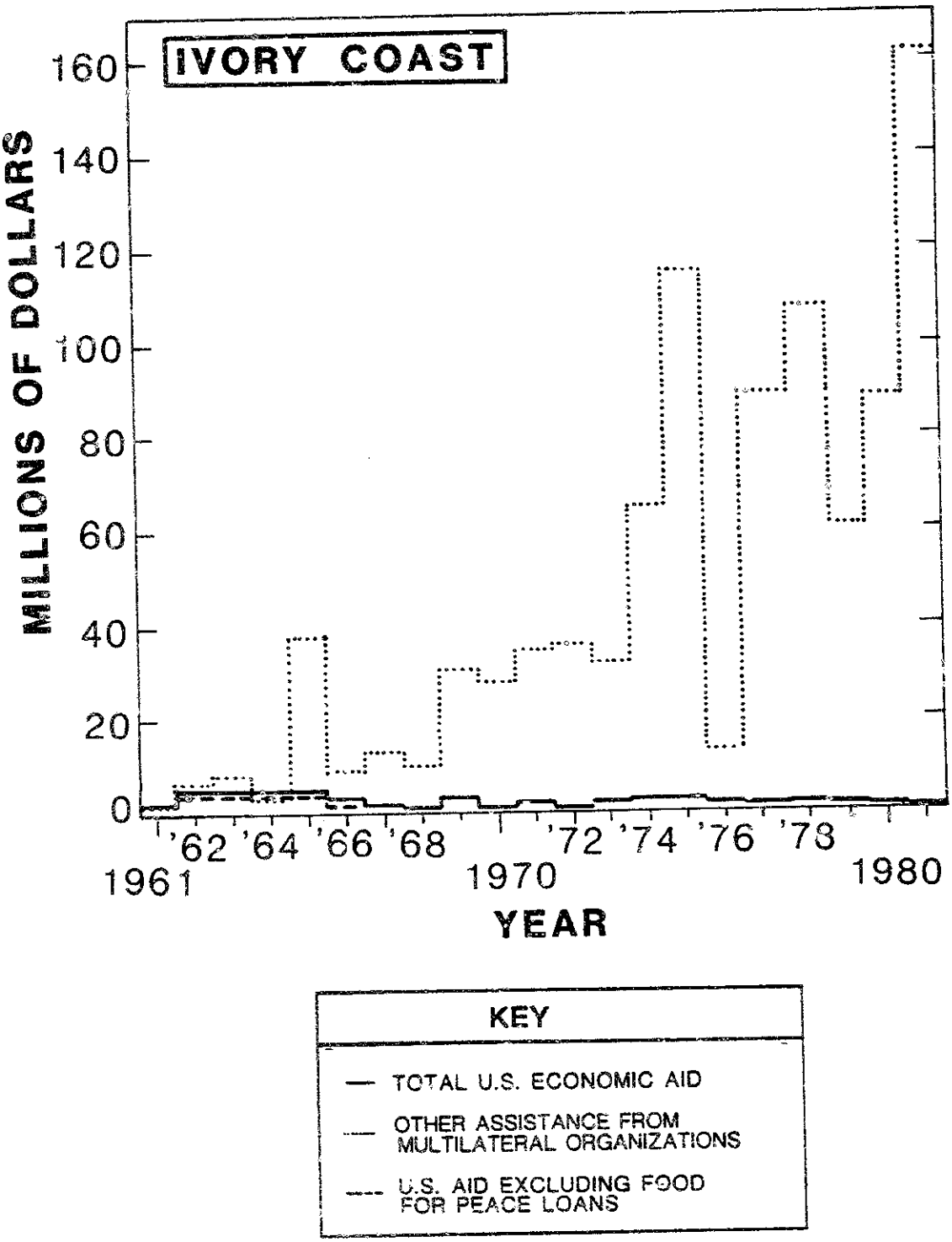


Source: U. . Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

A.6. Assistance to Ivory Coast

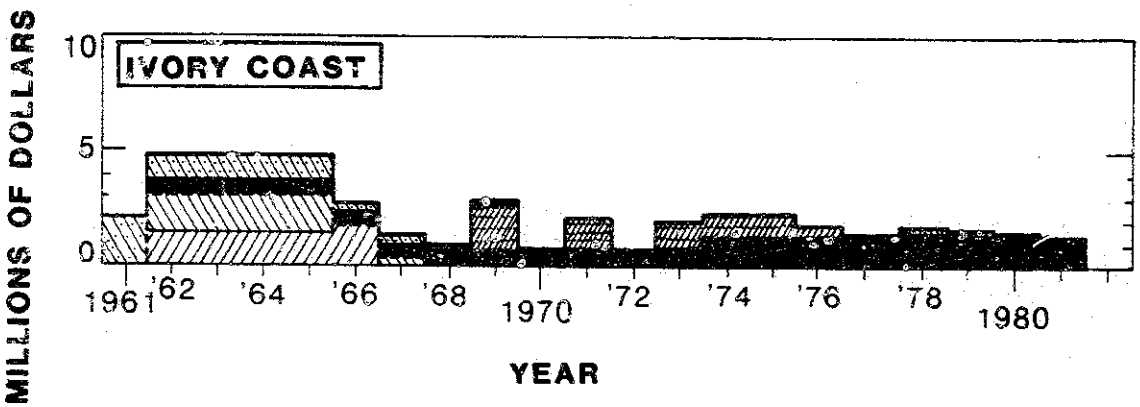
Assistance from multilateral organizations to the Ivory Coast has been increasingly significant in recent years. By contrast U.S. bilateral assistance has always been very small. There is no resident AID mission. In earlier years the low levels of assistance reflected in part U.S. policy to limit assistance levels to Francophone Africa where it was considered that French bilateral assistance would take the level. In later periods, it was believed that the Ivory Coast had reached levels of development that permitted adequate access to international private capital flows and no longer needed concessional assistance. The Ivory Coast and Turkey have similar levels of per capita income and access to private capital. However, in contrast to Turkey the Ivory Coast has neither encountered the balance of payments difficulties nor does it command the foreign policy interest that necessitated resumption of U.S. assistance to Turkey in recent periods.

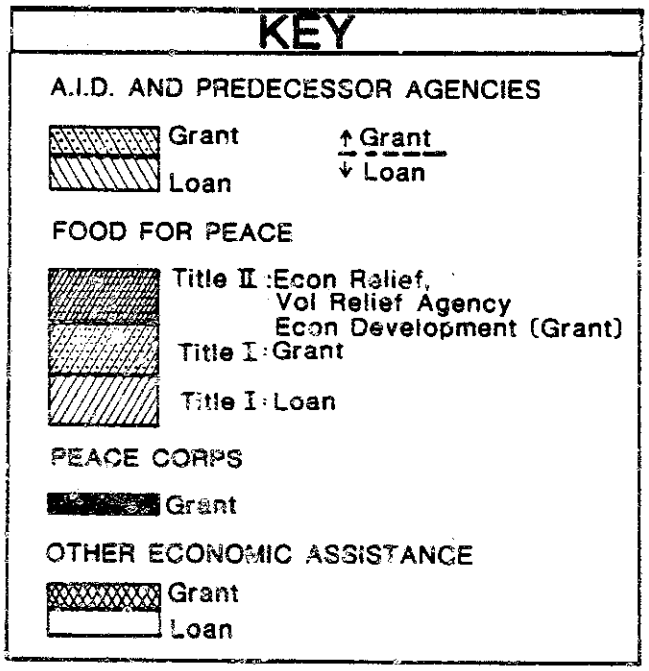
Ivory Coast: A Comparison of U.S. Economic Assistance with Other Assistance from International Organizations. (U.S. economic assistance includes both bilateral and multilateral assistance. Assistance from multilateral organizations excludes U.S. assistance channeled through multilateral agencies.)



Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

U.S. Foreign Assistance by Category: Ivory Coast.





Source: U.S. Overseas Loans and Grants and Assistance from International Organizations: Obligations and Loan Authorizations, 1973, 1978, 1981. U.S. Agency for International Development, Washington, D.C. Organizations included: IBRD, IDA, IFC, ADB, AFDB, IDB, UNDP, EEC, and other UN. (For full titles see page 4).

A.7. U.S. Assistance Trends

Total U.S. foreign aid has generally risen in absolute dollar terms during the last decade (1970-1981). Budget estimates show this trend continues through FY 1985 but at a lower rate. The percentage of total foreign aid allocations by category also shows trends. Multilateral assistance, less than 10% of total foreign aid in 1970, increased to more than 20% during 1976-1978, but has declined to less than 20% since then. Development assistance, the largest category of foreign aid during the early 1970's, has declined to about one-fifth of the total. Food aid has shown a similar decline. By contrast, the Economic Support Fund has more than doubled in relative importance as a part of U.S. foreign aid, and is estimated to be around one-third of the total in FY's 1982-1985. Military assistance has generally fluctuated. 1974 and 1975 are the years of highest relative importance, reflecting greater assistance to South Vietnam and Israel, at that time.

Foreign Aid Budget by Category, FY 70-85
(outlays, millions of dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982[1]	1983[1]	1984[1]	1985[1]
I. Economic and Financial Assistance																
Multilateral Assistance																
International Financial Institutions/Multilateral Development Banks	224	201	276	324	446	569	902	875	858	683	784	955	1,109	1,253	1,366	1,316
International Organizations	113	129	196	186	168	115	143	250	230	199	243	336	250	224	233	238
Subtotal: Multilateral Assistance	337	330	472	510	614	684	1,045	1,125	1,088	882	1,027	1,291	1,359	1,477	1,599	1,554
Non-Military Bilateral Assistance																
Bilateral Development Assistance																
Development Assistance (AID)	1,040	1,087	926	837	863	940	1,001	976	1,007	1,175	1,366	1,544	1,605	1,720	1,768	1,818
Public Law 480 - Food Aid	937	918	993	754	639	936	693	850	808	976	1,073	1,254	1,141	1,028	1,004	988
Peace Corps	90	89	77	74	81	86	69	87	87	94	101	99	105	98	98	98
Bilateral Strategic Assistance																
Economic Support Fund/ Security Support Assistance/Peacekeeping Operations	485	460	717	645	382	396	601	1,062	1,908	1,755	1,904	2,082	2,471	2,737	2,973	2,976
Refugee Assistance	--	--	--	--	43	76	42	--	75	166	466	384	465	455	436	395
Indochina Post-War Reconstruction Assistance	--	--	--	--	246	496	65	--	--	--	--	--	--	--	--	--
Subtotal: Non-Military Bilateral Assistance	2,552	2,554	2,713	2,310	2,254	2,930	2,471	2,975	3,885	4,166	4,910	5,363	5,787	6,038	6,279	6,275
Offsetting Receipts/Other	-14	-72	-7	-257	-128	-55	-301	-366	-345	-304	-311	-357	-398	-451	-476	-494
Subtotal, Economic and Financial Assistance	2,875	2,812	3,178	2,563	2,740	3,559	3,215	3,734	4,628	4,744	5,626	6,297	6,748	7,064	7,402	7,335

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982[1]	1983[1]	1984[1]	1985[1]
II. Military Assistance																
Grant Military Assistance	548	510	563	485	460	556	367	209	169	140	219	228	317	203	137	124
Foreign Military Training	--	--	--	--	--	--	--	25	22	28	26	22	40	50	51	53
Foreign Military Credit Sales	51	520	216	356	406	247	280	570	570	640	644	507	755	913	1,363	1,653
Military Assistance: South Vietnam	--	--	--	--	--	402	--	--	--	--	--	--	--	--	--	--
Emergency Security Assistance/ Relocation of Facilities: Israel	--	--	--	--	640	930	--	--	--	31	341	--	--	--	--	--
Offsetting Receipts/ Other	-16	-35	-60	24	-195	-256	454	-311	-277	-276	-355	292	-97	-67	-20	-19
Subtotal, Military Assistance	593	995	719	865	1,312	1,879	1,101	494	484	563	875	1,049	1,015	1,099	1,522	1,811
TOTAL FOREIGN AID	3,468	3,807	3,897	3,428	4,052	5,438	4,316	4,228	5,112	5,307	6,501	7,346	7,763	8,163	8,924	9,146

[1] Estimates

Source: Budget of the U.S. Government, Fiscal Year 1972-Fiscal Year 1983.

Foreign Aid Budget by Category; FY 70-85
(outlays, as percentage of total)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982[1]	1983[1]	1984[1]	1985[1]
Multilateral Assistance	9.7	8.7	12.1	14.9	15 2	12.6	24.2	26.6	21.3	16.6	15.8	17.6	17.5	18.1	17.9	17.0
Non-Military Bilateral Assistance																
Development Assistance	30.0	28.6	23.8	24.4	21.3	17.3	23.2	23.1	19.7	22.1	21.0	21.0	20.7	21.1	19.8	19.9
Food Aid	27.0	24.1	25.5	22.0	15.8	17.2	16.1	20.1	15.8	18.4	16.5	17.1	14.7	12.6	11.3	10.8
Economic Support Fund	14.0	12.1	18.4	18.8	9.4	7.3	13.9	25.1	37.3	33.1	29.3	28.3	31.8	33.5	33.3	32.5
Other	2.6	2.0	2.0	2.2	9.1	12.1	4.1	2.1	3.2	4.9	8.7	6.6	7.3	6.8	6.0	5.4
Military Assistance	17.1	26.1	18.5	25.2	32.4	34.6	25.5	11.7	9.5	10.6	13.5	14.3	13.1	13.5	17.1	19.8
TOTAL[2]	100.4	101.6	100.3	107.5	103.2	101.1	107.0	108.7	106.8	105.7	104.8	104.9	105.1	105.6	105.4	105.4

[1] Estimates

[2] Totals exceed 100% because of offsetting receipts to economic and financial assistance and because of rounding.

Source: Budget of the U.S. Government, Fiscal Year 1972-Fiscal Year 1983.