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Absorptive Capacity

The Concept and Its Determinants

JOHN H. ADLER

June 1965

THE BROOKINGS INSTITUTION WASHINGTON DC

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John H. Adler

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FOREWORD

The term "absorptive capacity" appears frequently in current discussions of economic development and foreign aid. It refers to the total amount of capital, or the amount of foreign capital, or the amount of foreign aid (capital plus technical assistance) that a developing country can use productively. Thus it means different things to different people, who may also have in mind different concepts of productivity and different time spans.

Clarification of the concept is needed. Policymakers and others are beginning to take positions on whether the absorptive capacity of the less developed countries exceeds by a wide margin the resources available to them, implying a need for larger foreign aid programs, or whether the apparent dearth of "good projects" that qualify for foreign financial support implies that the resources already available for development assistance exceed the absorptive capacity of the developing countries.

As the author of this study says, his purpose is to inquire into the meaning of the concept of absorptive capacity, to determine its usefulness for policy purposes, both for the developing countries and the national and international sources of capital potentially available to them, and to discuss factors determining the limits of absorptive capacity. The result is the most searching analysis yet made of an important concept that has been used rather uncritically in the past.

The study arises out of a request to the Brookings Institution in the late spring of 1964 to initiate some research on "absorptive capacity." An informal working group of representatives of the Agency for International Development, the World Bank, the Inter-American Development Bank, and Senior Staffs of the Division of Economic Studies and of Foreign Policy Studies at Brookings was convened under the Chairmanship of Robert E. Asher. The first step, it was agreed, would be to have a technically qualified economist explore the concept and seek to breathe some meaning into it. This, Dr. John H. Adler, Director of the Economic Development Institute of the World Bank and author and co-author of various books and articles in the field of international economics, has now done.

Dr. Adler's work represents a labor of love. The Brookings Institution is pleased to include it in the Staff Paper Series as the first result of the work initiated last spring. Although not a member of the Brookings Staff, the author has frequently served as a consultant to Brookings or as a member of one of its advisory committees. The Institution is deeply grateful to him for volunteering to undertake the present assignment and to the World Bank for enabling him to add this task to his many other duties.

The Institution is also grateful to the informal working group composed of Dragoslav Avramovic of the World Bank, Hollis B. Chenery and Lester E. Gordon, then of the Agency for International Development, Jose Epstein and James A. Lynn of the Inter-American Development Bank, Harvey Perloff, then of the Alliance-for-Progress Committee of Nine, and Edward F. Denison, Richard Goode, Joseph Grunwald, H. Field Haviland, Jr., and Walter S. Salant of the Brookings Institution. The views expressed in the paper are, of course, those of the author and do not necessarily reflect those of the officers or staffs of the Brookings Institution, the World Bank, or the members of the working group.

The author wishes to express his special gratitude to Robert E. Asher, George Baldwin, Edward S. Mason, and Louis J. Walinsky, as well as to the members of the working group, for having helped him to avoid some errors and for suggesting improvements in the paper. He wishes also to acknowledge with thanks the assistance of Mr. Muhammad Yaqub of Princeton University.

Robert D. Calkins
President

June 1965

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ABSORPTIVE CAPACITY: THE CONCEPT AND ITS DETERMINANTS

Introduction

The recent literature on economic development and foreign aid is full of references to absorptive capacity. It is defined by one source as setting "a limit to the amount of efficient investment physically possible ... particularly in the short run."[1] In this quotation--and in many other references[2]--it is implied that absorptive capacity is a well-defined concept with an established technical meaning, like "supply," "demand," or "the propensity to import," and therefore need not be explained or analyzed any further. This is unfortunately not the case.

The purpose of the paper is to inquire into the meaning of absorptive capacity, to determine its usefulness for purposes of policy, for both the developing countries and the national and international sources of capital potentially available to them and to discuss the factors which determine the limits of absorptive capacity.

Measurement of Absorptive Capacity

Although references to absorptive capacity occasionally convey the idea that there is an absolute limit to the amount of capital that can be used, most economists recognize, explicitly or implicitly, that the measurement of absorptive capacity must be somehow related to the

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[1] U.N. Economic Commission for Asia and the Far East, Programming Techniques for Economic Development (1960), pp. 8-13. Quoted in Gerald M. Meier, Leading Issues in Development Economics (1964), p. 93.

[2] P. N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," The Review of Economics and Statistics (May 1961), pp. 107-9. A. O. Hirschman, The Strategy of Economic Development, (1958), pp. 37-8. G. M. Meier, International Trade and Development (1963), pp. 90-92. F. Benham, Economic Aid to Underdeveloped Countries (London, 1961), pp. 115-17. B. K. Nehru, "Foreign Aid from the Viewpoint of Recipient Countries," Proceedings of the Academy of Political Science (January 1962), p. 59.

"productivity" or "effectiveness" of capital.[3] At first glance this is nothing other than Keynes's "marginal efficiency of capital." Absorptive capacity thus becomes a schedule relating an amount of capital to be invested to the expected rate of return.[4] The lower the rate of return on capital which the "investor"--the economic unit making an investment decision--is willing to accept as satisfactory, the higher the absorptive capacity.

In the conceivable but unlikely event that there is an absolute limit to absorptive capacity, the marginal efficiency of capital function, with capital measured along the horizontal and the rate of return along the vertical axis, becomes a vertical line. (ABX in Chart 1.) This shape of the return on capital function is unlikely because it implies that beyond a certain level of investment (OX) there is not a single investment opportunity which would yield a positive rate of return.

The more normal shape of the expected return on capital function is that of lines ABC or A_1BD. There are reasons to think, however, that line ABC is more typical for less developed countries than line A_1BD, which may be taken to reflect conditions prevailing in advanced countries. There is circumstantial and some direct empirical evidence that in less

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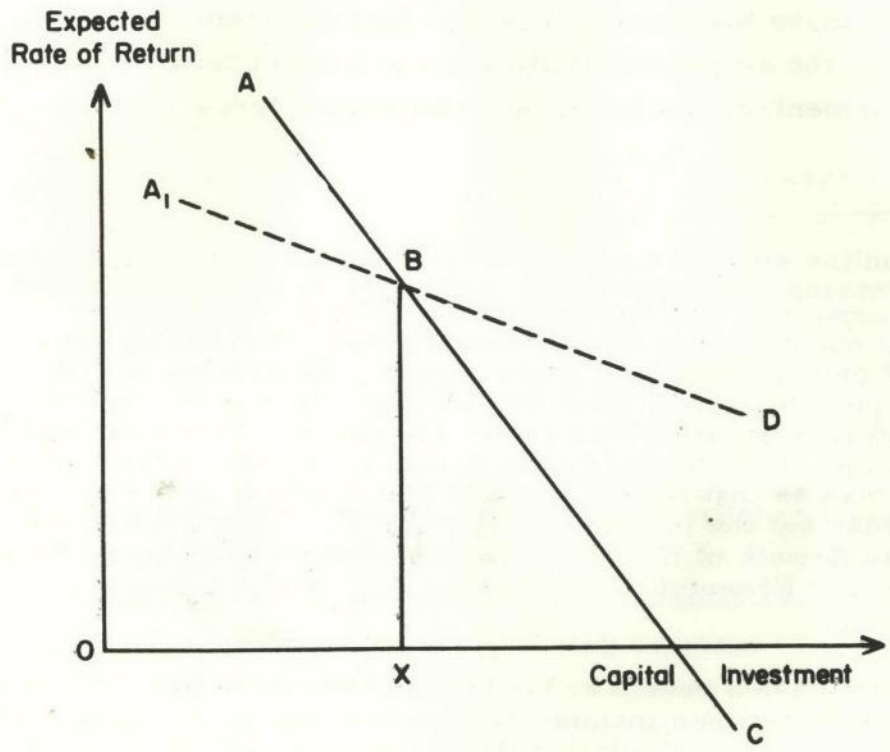
[3] "There may be a limit to how much foreign investment can be effectively used when the investment must not only cover its cost but also yield a reasonable increase in income." G. M. Meier, International Trade and Development (1963), p. 90. "Millikan and Rostow have proposed that the developed countries of the world should make available to underdeveloped countries as much capital as they can absorb by which they mean as much as can, with reasonable assurance, be productively used." C. P. Kindleberger, Economic Development (1958), p. 263.

[4] Keynes defines the marginal efficiency of capital as "equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price." J. M. Keynes, The General Theory of Employment, Interest, and Money (1936), p. 135. This definition is essentially the same as what has more recently been called the "internal rate of return" which is the discount rate at which the flow of total cost, including initial capital cost, replacement and recurrent cost is equal to the flow of total receipts (plus the terminal value of the capital asset). See Joel Dean, "Measuring the Productivity of Capital," Harvard Business Review (January-February 1954), pp. 120-30; J. G. McLean, "How to Evaluate New Capital Investments," Harvard Business Review, (November-December 1958), pp. 59-69.

developed countries the return on the existing stock of capital is high and that it is reasonable, therefore, to conclude that the expected rate of return on some additional investment also is high.[5] The evidence is the larger share of profits, rents and interest receipts in the national

Chart I - Absorptive Capacity



[5]The presumption that, in view of the high rate of return on existing capital, the return on some additional investment will also be high is even more plausible if it refers to gross rather than net investment, since gross investment includes the replenishment of the high-yielding stock of capital.

product of many less developed countries and the high rates of interest charged by noninstitutional lenders.[6]

On the other hand, the limitations on absorptive capacity, the scarcity of projects on which a high rate of return can be expected, is reflected in the steep slope of the return on capital functions. In developed countries, where absorptive capacity though not unlimited does not appear to pose a practical problem, the expected return on capital declines rather gently. Thus the problem for policy which limited absorptive capacity creates may be presented graphically as the "gap" between lines BC and BD. The objective of policy can be represented as an attempt to move the return on capital function from BC to BD. The gap closes if the supply elasticities of co-operant factors (the elements complementary to capital, such as a work force with the

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[6] On return on the stock of capital, Simon Kuznets writes, "...whatever the Y for the developed countries [the yield rate on wealth other than the equity of unincorporated enterprises] there is little question that in the underdeveloped countries, at least on assets other than the equity of unincorporated enterprises, it is much higher....Even if we include, as we should, the possibly lower rates of yield reflected in the income of government enterprises and gross corporate savings, it seems reasonable to assume that the weighted yield rate in underdeveloped countries is at least twice as high as that in developed countries. If we set the latter at 7 percent, we may set the former at 14 percent." "Quantitative Aspects of the Economic Growth of Nations: IV. Distribution of National Income by Factor Shares," Economic Development and Cultural Change (April 1959), p. 20.

"For India we have a recent effort to approximate a distribution of the national income between income from assets and other components. According to Mr. Patel's calculation the share of income from assets in India is 23.3 percent. Mr. Gulati's revision would bring the share down to 19.6 percent. Another item of evidence can be found in some data for Mexico. Of net domestic product at factor cost the share of profits (after allowance for imputed earnings of the self-employed), rent and interest rose from 34.5 percent in 1939 to 47.4 percent in 1950." Ibid., p. 12.

On interest rates charged by noninstitutional lenders, see U Tun Wai, "Interest Rates Outside the Organized Money Markets of Underdeveloped Countries," IMF Staff Papers (November 1957), pp. 99-100. Rates of 23 percent to 94 percent are mentioned for India, 10.6 percent to 45.8 percent for Ceylon, and 8.5 percent to 44.7 percent for Thailand.

appropriate skills) in less developed countries are increased to the level prevailing in developed countries.

Absorptive capacity may then be defined as that amount of investment, or that rate of gross domestic investment expressed as a proportion of GNP, that can be made at an acceptable rate of return, with the supply of co-operant factors considered as given.[7] This is not to say that the investor, or the investing authority, would not attempt to increase the supply of co-operant factors. But, in the short run, this increase is either a physical impossibility or is so costly that it increases sharply the total cost of investment or the total operating cost, and thereby reduces the return on capital below the acceptable rate.

Alternative Definitions

The preceding definition does not specify the acceptable rate of return and does not distinguish between the rate of return on domestic and foreign capital. The suggestion that for every economy there exists a threshold or cut-off rate which is the border between what is considered an acceptable and an unacceptable return, may be challenged. It is held that, given international differences in the supply of capital in relation to co-operant factors, the acceptable rate of return on foreign-owned capital may be lower than the acceptable rate of return on domestic investment. Foreign investors may be willing to invest in a country because the expected rate of return is better than the rate which they could earn at home even if it is lower than that considered acceptable by domestic investors in the capital-receiving country.

The existence of a difference between rates of return which investors of capital-exporting countries expect in capital-importing countries and rates which they can expect at home is an essential part of the theory of international capital movements. But the theory only stipulates a difference between the rates of return in the capital-exporting

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[7] E. S. Mason has used the term "socially acceptable discount rate" for this rate. "On the Appropriate Size of a Development Program," Occasional Papers in International Affairs, (Center for International Affairs, Harvard University, 1964), No. 8, p. 1. On the time dimension of absorptive capacity, see pp. 36-38.

and the capital-importing countries; it says, or implies, nothing about a difference between the rate of return earned by foreign investors and the rate obtained by the domestic investors in the capital-importing countries. On the contrary, with appropriate assumptions regarding the fungibility of funds, freedom of capital movements, appropriate risk premiums, and so on, the effect of capital inflows would be to reduce the rate of return on all capital to that prevailing in the capital-exporting country. But presumably long before this happy state of equilibrium is reached, the difference between the rate of return on capital of domestic origin and of foreign ownership would be reduced or eliminated altogether.[8]

The difference between rates of return on capital in capital-exporting and in capital-importing countries, as reflected in long-term rates of interest, is presumably the basis for the proposition that using foreign capital to finance investment is justified even if the return falls below the rate acceptable in the capital-importing country. Specifically, an Operational Manual of the U.S. Agency for International Development concerned with the selection of projects in aid-receiving countries proposes that, in the determination of the benefit-cost ratio of a project, an interest rate of 3-1/2 percent should be applied to the foreign cost. Local interest rates should be applied to the domestic cost of the project or, if an accurate rate cannot be determined, a rate of 6 percent should be used.[9] Apparently the minimum permissible rate of return on domestic

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[8]In practice, however, it is more likely that a difference between rates of return on foreign and on domestic investment continues to exist indefinitely--because of the selectiveness of foreign capital with regard to investment opportunities and the extent to which foreign capital can overcome the scarcity of co-operant factors by importing them. Depending on the latter and a variety of other factors, the rate of return on foreign investment may be smaller or larger than that obtained on domestic investment in the capital-importing country.

[9]"For A.I.D. benefit-cost evaluations an interest rate of 3-1/2 percent is established for amortizing U.S. dollar costs ... the above rate is applicable only to the U.S. dollar portion of project installation costs. The local cost of project installation and the cost of future additions or replacements are to be treated on the basis of the local interest rates....In cases where local rates are unreasonably high or low or where an accurate rate cannot be determined the rate of 6 percent per annum will be used." Department of State, Agency for International Development, Office of Engineering, Benefit-Cost Evaluations as Applied to Aid Financed Water or Related Land Use Projects, Supplement No. 1 to Feasibility Studies, Economic and Technical Soundness Analysis, Capital Projects, (1964), pp. 4-5.

capital is 6 percent but only 3-1/2 percent is required on capital provided by A.I.D.[10]

Whatever the political justification for this rule may be, its economic rationale is doubtful. It presupposes that: (a) a project suitable for partial financing by foreign aid with a rate of return at or above the cut-off rate cannot be developed because (b) the supply of co-operant factors cannot be increased in the short run, but (c) the undertaking of the project itself will somehow stimulate the supply of the deficient co-operant factors, and (d) that this cannot be brought forth by any other method, such as import or technical assistance. Only if these four conditions obtain is accepting a lower rate of return on the foreign-financed portion of an investment justified on economic grounds, as distinct from political or humanitarian grounds. Grants or loans on concessional terms may be in order if their chief, or sole, purpose is to raise consumption or curtail unemployment (as one of the causes of an intolerably low level of consumption); but then the decision is not based upon the most economic allocation of resources.

It should be emphasized that the possibilities for increasing the supply of the co-operant factors which will eventually increase the rate of return may be an adequate reason for accepting a lower rate of return initially. However, this would follow only if a discounted cash flow analysis covering the entire life span of the project shows that the internal rate of return is at or above the cut-off rate. In that event the project is "good," and what is bad, or inadequate, is the cost-benefit analysis which does not permit systematic and rational determination of the rate of return allowing for the lapse of time.[11]

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[10]The text of the Manual, by proposing to apply a discount rate of 6 percent on all "domestic" benefits however comes--presumably inadvertently--to the opposite result of what it intended to do: by applying a lower interest rate on foreign cost than on benefits it has an adverse effect on cost-benefit ratios, especially if the foreign cost accounts for a larger proportion of total cost. It is understood that the Manual is being revised.

[11]Alternatively, the project may be promoted on the ground that the supply of co-operant factors which it stimulates benefits the economy as a whole. This would constitute an example of heavy, not to say excessive, reliance on the development of external economies. See pp. 21-22.

But leaving aside this rather unlikely possibility, the willingness to consider that projects with such a low expected rate of return are qualified for foreign assistance is based on a pessimistic appraisal regarding (a) the possibility of identifying projects with a higher rate of return, or (b) the possibility of improving the supply of co-operant factors. The difficulty of finding a better project implies some sort of disequilibrium between the minimum acceptable rate of return and the "objective" availability of investment opportunities. And the pessimism regarding the supply of co-operant factors implies that domestic efforts or technical assistance to increase the supply are of no or little immediate avail. This twofold pessimism may be justified in exceptional circumstances; but it certainly goes too far to make it the basis for the general rule that projects with an expected rate of return below the cut-off rate are justified for foreign financing.

Still another definition of absorptive capacity is implied in an attempt to measure absorptive capacity by the observed increase in total investment "that can be carried out at an acceptable minimum level of productivity" over a certain period.[12] Thus it is claimed that a country's absorptive capacity may be considered as increasing if gross domestic investment has grown by, say, 10 percent one year to the next, or by 20 or 25 percent over a five-year period. Unfortunately, the apparent simplicity of this method of measuring absorptive capacity is more than offset by all the uncertainty which afflicts it. The rate of gross domestic investment may have increased because the economy managed to generate more savings for a variety of reasons or because more foreign capital or foreign aid has become available.

Moreover, the assumption that new investment can be carried out at an "acceptable" minimum level of productivity is apparently based on the observed relation of investment and output in the past. But this does not necessarily tell us anything about absorptive capacity. Investment may have been undertaken which was mistaken in the sense that it resulted in a return below the acceptable rate, while the increase

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[12]Hollis B. Chenery, Foreign Assistance and Economic Development, Policy Discussion Paper No. 7, [U.S.] Agency for International Development, (1964).

in output--the "productivity" in the preceding quotation--was causally not related to the investment. And the true absorptive capacity--the amount of investment expected to yield an acceptable rate of return--may not have increased at all.

Capital, Return, and Project Defined

Capital, rate of return, and investment projects are necessary concepts in determining absorptive capacity. To begin, it may be useful to stress that the capital on which a return is expected is total capital, not merely equity capital. From the standpoint of the economy there is, of course, no difference between equity and loan capital. Both types of capital represent the financial counterpart to real resources which are to be productively employed. Leaving aside the admittedly bothersome question of external economies and diseconomies, the expected return on total investment for the economy as a whole is equal to the sum total of the expected return on all individual investment projects. The aggregate rate of return is the ratio of total returns to total investments.

To determine the expected rate of return on capital invested in a private investment project is a rather simple accounting exercise--if one disregards at this point the difficulties of forecasting capital cost, replacement cost, and prices prevailing in the factor and product market.[13] The situation does not change materially for a revenue-producing project in the public sector. Other things being equal, it should not make any difference whether a steel mill or a railroad is in the public or the private sector.

The matter becomes somewhat more complicated in the case of projects that are not self-liquidating or that yield benefits (additional income) to an economic unit other than the investor. In the case of a highway for the use of which no toll charges are levied, the construction cost (and maintenance) are a burden on the government while the benefits (such as time saved, decrease in wear and tear on vehicles, and increases in the value of land made more accessible by the highway) accrue in the

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[13] The problem of uncertainty inherent in project evaluation is discussed later, pp. 17-18.

first instance to the highway users and other beneficiaries. True, the government may "charge" for the highway investment through gasoline taxes, motor vehicle licenses, and special assessments on increases in real estate values; but, as a matter of economic or social policy, it usually will not want to recover more than the investment cost and some return on capital (usually reflecting interest charges on public borrowings); in many instances it may have to settle for less. In almost any case, a part of the return on capital accrues to the public. But even then, the return on the highway investment--in that case more appropriately called the social return--must include the properly evaluated benefits derived by all beneficiaries.

If the benefits exceed the charges levied on the beneficiaries, these excess benefits may be considered "external economies." For practical purposes, however, it may be preferable to reserve the term external economies for benefits which are so widely diffused that the beneficiaries cannot be readily identified and treating as part of the return benefits for which the economic units that "internalize"[14] them can be identified.

The significance of this observation becomes clearer when it is realized that determining the rate of return (and of absorptive capacity at a given rate of return) depends very much on the "definition" or "delineation" of any specific investment project and on the causal relationship that can be established between a given investment and the increase in output (or decrease in cost) that is associated with it.

To illustrate the problem of defining a project one may think of an irrigation project that increases the supply of water to a large number of farmers on whom water charges giving a rate of return of, say, 6 percent on the irrigation investment are levied. But the 6 percent rate of return may have nothing to do with the economic rate of return of the project if the increased supply of water makes possible a substantial increase in the farmers' production. In this case the return on the project is not the increased supply of water (or the water charges levied to produce a 6 percent return) but the value of the increased agricultural production

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[14] The term was first used by A. O. Hirschman in The Strategy of Economic Development, (1958), p. 57.

minus the cost of the additional inputs, including the value of the farmers' additional work effort.[15] Then the project is no longer defined as the irrigation works producing water but the irrigation work plus all other agricultural production improvements producing additional crops.

This integrated definition of a project which takes account of forward linkages (or backward linkages, as the case may be) must not be carried too far. There is obviously a difference between an irrigation project and a steel mill which is to produce intermediate products such as billets, shapes, and sheets. If the parallel of the irrigation project were to apply, the appraisal--and the determination of the rate of return--of the steel mill project would also have to take into account the changes (of receipts, expenditures, and the rate of return) occurring in the steel-using enterprises such as automobile plants, foundries, and razor blade factories. This would make little or no sense. It is obviously more appropriate to determine the rate of return on the steel mill investment on the basis of a comparison of the (properly discounted) revenues and expenditures, including capital expenditures, of the steel mill itself and to "cut off" the project at the factor and product markets in which the inputs are purchased and the outputs are sold.

The difference between the irrigation project and the steel mill project should now be clear: the products of the steel mill are sold in an open market in which prices and the volume of demand are determined by competitive forces (which however may be restricted by policy intervention and direct controls). In the case of the irrigation project the market is not open in any meaningful sense. It is conceivable, though not likely, that irrigation water will be sold to the highest bidders; but in all except the most unusual circumstances the price of water is fixed by public intervention and frequently individual farmers obtain (and are charged for) water whether they want it or not.

The presence or absence of a reasonably well-functioning market is important not only for defining a project but also for determining the rate of return and thus the absorptive capacity. This is particularly important in certain types of public investments where problems of

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[15] Which may, however, be zero if the opportunity cost of this additional work effort is zero.

indivisibilities or complementarities exist. For example, a hydroelectric power project cannot be easily developed in several small stages for technical reasons, but a high rate of return can be assured for it only if a large amount of electric energy is immediately utilized (for example, the Volta project in Ghana). In this case, the market demand for electric energy will have to be supplemented by the demand resulting from investment in power-using industries, such as aluminum; for determining the rate of return and the absorptive capacity, the project must thus be redefined to embrace both power generation and aluminum production.

Similarly, with a farm-to-market road designed to open up, or make more accessible, an agricultural area, it is not enough to appraise the road project on the basis of the expected volume of traffic and to estimate the expected return on the capital invested in it. It is preferable to include also the capital and other outlays required to increase agricultural output in the area to be served and to relate these outlays to the expected increases in receipts from increased agricultural production. The integrated delineation of the project is particularly appropriate if there are reasons to doubt that the farmers near the road project will respond to the new economic opportunities of cheaper transportation. They may wish to respond but not have available the means of financing capital investment and other expenditures prerequisite to increased production. It may be essential, and not just preferable, to consider the transportation and agricultural production projects as one if the doubts regarding the automatic responses of the farmers to the new production opportunities can be resolved only by the public authorities taking on the responsibility for developing plans for increasing agricultural production and for supporting it by technical assistance, credit facilities, etc.

The preceding observations indicate that there is a close connection between the validity of the rate of return as an indication of absorptive capacity on the one hand and the existence of markets with a responsiveness by individual economic units to market opportunities and market incentives on the other. There is more discussion of this subject later. At this point, it may be useful to add that it follows that a meaningful assessment of absorptive capacity, based on an estimate of the expected rate of return on specific projects, becomes the more difficult and complex the more limited the development of markets and responses to markets.

This difficulty may be faced in economies where markets are deficient and the response to market forces is underdeveloped or impeded by institutions or controls or in sectors of economies where these conditions prevail, as in subsistence agriculture. Absorptive capacity, based on an appraisal of narrowly defined projects, may appear to be low, or, at any rate, lower than a more comprehensive assessment of absorptive capacity may indicate. In such "primitive" circumstances the interaction of individual projects with the rest of the economy cannot be left to imperfectly functioning markets. It must be brought about consciously by providing for the coordination and joint implementation of several projects. Or, more generally, the pattern of investment is itself a prime determinant of absorptive capacity. This is so because the pattern is brought about by the response of the economy to opportunities and incentives, or, if these forces are weak or weakened by institutional constraints, by coordination and planning.

In the graphic presentation of Chart I, this means that the position of line ABC is not unique. It refers only to a particular pattern of investment, or investment plans, and that with another set of investment plans the line may shift to the right or left and its slope may be changed. To recognize this problem unfortunately does not solve the innumerable practical difficulties besetting the comprehensive programming approach which this suggests. And it does not do away with the limitations of absorptive capacity. It is not enough to realize that the success (a satisfactory return) of project A depends on the simultaneous or subsequent carrying out of project B--if lack of technical knowledge, inadequate administrative competence, or simply paucity of information threatens the viability of project B.

Complementarity and Indivisibility

References to complementarity and indivisibility and to the need for joint appraisals lead to the conclusions that with these factors present it may happen that the rates of return on new investment--and therefore the absorptive capacity of the economy--are smaller for a smaller amount of proposed investment than for a larger amount. Chart II may be taken to illustrate either the power-with-aluminum or the irrigation-with-agricultural investment case. A given volume and pattern of intended investment including the power project gives a return r_1 on capital

function AB_1B_2. Return r_1, corresponding to an aggregate intended investment of OX_2 may be below the rate which the economy is willing to accept. If, however, the volume of investment is increased by the addition of a power-consuming industry which requires capital expenditures X_2X_3, the aggregate rate of return increases to r_2. This presentation implies that the power investment is at the lower end of the line of AB_1B_2. If it had a higher rate of return, then investment X_1X_2 would be dropped and replaced by X_2X_3, and the line CD would be spliced onto the line AB_1B_2 at the level of r_2. Total investment would become OX_3 minus X_1X_2.

In other circumstances the return on capital function may not be as discontinuous as shown in the chart. If there is a choice between various patterns of investment, involving different amounts of investment, it is conceivable that the return on capital function may move down and up, intermittently falling below the socially tolerable minimum rate of return, but re-emerging above it with additions of capital.

The argument and the examples given in the preceding section indicate that in some cases the expected rate of return on an investment project is likely to increase if the project is not considered in isolation but together with a related project or several related projects. The proposition that a larger amount of investment may under certain circumstances yield a higher rate of return than a smaller amount is nothing new. It is basic to the theory of the "big push" and an essential ingredient of the theory of "balanced growth."[16] But the discussion (and the very concept of limited absorptive capacity) suggests also that in many less developed countries the possibilities of a truly "big push"--beyond the complementarity of a small number of projects--are definitely limited by the low supply elasticities of co-operant factors.

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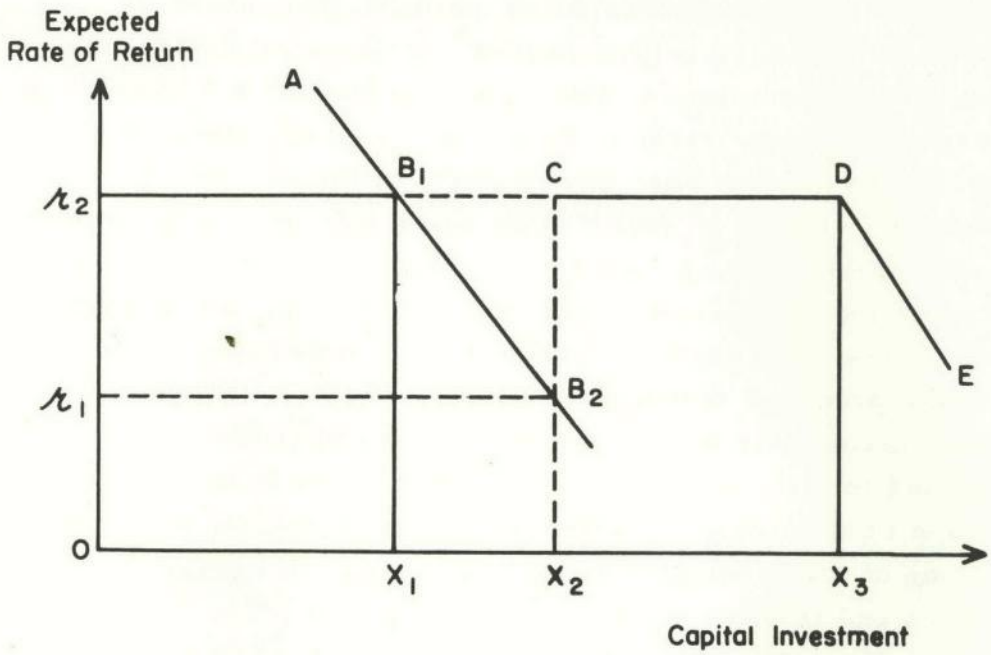
[16]See P. N. Rosenstein-Rodan "Note on the Theory of the Big Push," Economic Development for Latin America, H. S. Ellis, editor, (1961), pp. 57-81; R. Nurkse, Problems of Capital Formation in Underdeveloped Countries, (1955), pp. 11-17 and pp. 22-23.

Chart II - Absorptive Capacity with Complementary and Indivisible Projects



The Causal Connection Between Capital and Return

Throughout the discussion it has been assumed that there exists a causal relation between the investment and the activity expected to bring a return. For most projects this relation may be taken for granted. There are instances, however, in which it is difficult to decide whether there is a direct causal connection between the investment and the flow of income.

Two examples may be enough to illustrate the point. In a number of countries, recent proposals for rehabilitating railway systems envisaged large capital outlays for the modernization of rolling stock, of repair shops, and other physical facilities. They also suggested closing down branch

lines which had become--or always had been--unprofitable and expendable in view of the growth of motor transportation. In some cases rehabilitation of the railways also involved the dismissal of railway employees either because their services had become unnecessary with the introduction of more modern equipment or because their numbers were excessive to begin with as a result of mismanagement, political pressures, etc. The analysts who determined the return on these projects related the financial results of all recommendations to the recommended volume of investment. This is correct if for some reason--technical, organizational, or "institutional"--the various cost-saving parts of the proposal (dismissal of redundant labor, closing of unprofitable lines) are impossible without the capital investment in the proposed magnitude. If, however, changes in current costs (and changes in receipts) can be brought about without capital expenditures, it is obviously wrong to attribute the resulting changes in revenue to the proposed investment.

The situation may be similar in a hypothetical irrigation project which is expected to yield a high return because it involves, among other things, a change in the cropping pattern and improvements in marketing and warehousing of the produce of the affected area. If changes in the cropping pattern and in other activities could not take place without additional water, then attributing the total increase in agricultural income to the irrigation project is justified. If, however, improvements in the cropping pattern, in warehousing, or in transportation could be accomplished without irrigation, then it would clearly be inappropriate to attribute the gains derived from these measures to the irrigation project.

The preceding examples indicate the complexity of the problem of attribution which must be resolved if an appropriate measure of the expected rate of return of a project (and of absorptive capacity) is to be found. In practice the solutions are difficult because the questions raised frequently cannot be resolved by a decision to include or not to include increases in income in the return on the proposed investment. In most cases it may be more appropriate to include only a part, and it is difficult to decide which part should be and which part should not be included.

Uncertainty and Absorptive Capacity

It is a basic characteristic of the appraisal of investment projects that it involves the assessment of future events and the evaluation of factors which are uncertain. The cost of an investment project is not known until the last machine is in place; the cost of operation depends on many factors not fully known at the time when the appraisal is made. The suitability of a productive process is uncertain until it has been applied in the specific circumstances of the project. Factor costs may suddenly change; the market for the goods or services to be produced depends on future events beyond the control of the investor; and so on. Lack of knowledge is an important factor limiting absorptive capacity. So are the constant changes that go with growth in an underdeveloped economy, the importance of the export sector with its peculiarly uncertain outlook, the inexperience of management in coping with changes. All are factors which make for more uncertainty in underdeveloped countries than in advanced countries.

Two types of uncertainties may be distinguished. One pertains to a specific project or to a particular aspect of a project--such as the uncertainty whether a new technical process will work, what price the products to be produced will fetch, etc. The other uncertainty besets the economy as a whole: What will the growth of income be in the next five or ten years? How fast will traffic expand in a particular area? At what rate will industrial production increase? How will changes in the distribution of income affect consumer demand?

These uncertainties may be considered another kind of limitation on absorptive capacity if they serve as a basis for discounting expected rates by the risks which they entail. But, more important, these uncertainties are probably the most important basis for disagreeing about the appraisal of future returns and the limits of absorptive capacity. Proponents of a project may play down some of the uncertainties and take the sanguine view that in the end everything will turn out all right. Lenders and sources of foreign aid, on the other hand, may take a more cautious, perhaps an overly cautious, attitude about these uncertainties. Because they may not be used to dealing with the uncertainties peculiar to underdeveloped countries, they may be inclined to underrate the future rate of return and absorptive capacity.

Uncertainties about the rate of growth of the economy as a whole may be particularly significant for industries in which the scale of operations is important. Frequently the expected rate of return on a power project depends on the time it takes for demand to rise to the full generating capacity. Similarly, decisions about investment and transportation depend very much on the growth of demand and supply of movable goods which reflect in turn the growth of the whole economy. The effect of high aggregate growth rates on expected rates of return is one reason why such high rates seem to resolve the concern with the adequacy of particular returns. If Gross National Product (GNP) grows at 7 percent per year and the industrial and utility sector increases about 10 percent, many more investment projects appear to be sound than if the projected rates were, say, 4 percent and 6 percent respectively.[17]

The importance of uncertainty in determining rates of return and absorptive capacity brings out the significance of coordination and planning. A well-conceived plan in which investments in various projects are interrelated can go a long way toward eliminating uncertainties. Thus it can also raise absorptive capacity.

The Price System and Absorptive Capacity

So far the rate of return as a measure of absorptive capacity has been discussed without relating it to prices of factors of production or to comparisons of prices prevailing in the economy with those in the rest of the world. There would be no need to bring factor prices and international price relations into the argument if they reflected relative economic scarcities. But it is generally recognized that in less developed countries prices reflect resource scarcities much less adequately than in more advanced market economies and thus do not lead to an optimum resource allocation.[18] The concept of shadow prices which reflect more accurately

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[17] The high growth rates have still another important effect: a high growth rate promises a rapidly rising rate of saving which in turn permits a high rate of investment and so on.

[18] Jan Tinbergen, The Design of Development (1958), pp. 39-41, 76-78. This was the first systematic exposition of the inappropriateness of market prices and of the use of shadow or accounting prices instead.

the relative scarcity of resources has become generally accepted; however, many problems of practical application remain unsolved.

There is no need to discuss in detail the conceptual and practical problems arising with the use of shadow prices in this context. For the purpose on hand it is sufficient to point out that, in the opinion of most exponents of the use of shadow prices: (a) the shadow price of capital is usually higher than the market price; (b) the shadow price of unskilled labor is generally lower, and frequently much lower, than the market price; and (c) the shadow price of imports and exports is frequently higher than their market price, reflecting either an overvalued domestic currency or the need to achieve a "structural" balance-of-payments equilibrium through export promotion and import substitution. (a) and (b) will be discussed in this section and (c) in the next (see page 26).

Proposition (a) rests on two contentions. One is that in many countries the interest rates charged by financial institutions, or paid by government, and the rediscount rates of central banks do not adequately reflect the scarcity of transferable capital and the return on capital which private entrepreneurs expect and obtain. The second contention is that the expected rate of return on (public or private) investment projects is low because it is adversely affected by an inadequate supply of such complementary elements as management and skills, by the high cost of other inputs (such as transport cost) or by the diseconomies of small-scale operations. In other words, absorptive capacity is limited unless the supply of co-operant factors is increased or made cheaper or the technique of production is modified, or demand is increased to overcome diseconomies of small scale on the supply and on the demand side. However, this does not show whether the market or a higher shadow rate of interest should be used to determine what constitutes a reasonable rate of return that can be used to establish a cut-off rate and absorptive capacity.

The level of institutional interest rates is only indirectly relevant for the purposes of our inquiry. It determines only the distribution of the return on capital between equity holders and lenders. This rate (as distinct from the rate on total capital invested in a project) is important only if the supply of risk takers and other entrepreneurial talents is increased by low institutional lending rates and, as a consequence, absorptive capacity is increased.

Institutional interest rates that are "too low" are also important if they are used as a basis for price setting (rate making) in such quasi-monopolistic industries as electric energy or transportation particularly in the public sector or if the prices charged by privately owned enterprises are controlled. Low power or transportation rates resulting from low interest charges may have adverse effects on total savings and on the economic allocation of resources because they may induce the excessive use of electricity or transport services and reduce that of other factors. They may also lead to the wrong location of productive facilities that depend on power and transportation services and the wrong utilization of investable resources. In other words, "wrong" industries may be started. As a consequence wrong (more capital intensive) techniques of production may be chosen, and other factors of production (such as labor) will be under-utilized. This situation may adversely affect the level of investment and the growth of output.

But the price of capital and the difference between its market and its shadow price cannot be considered in isolation. They must be related to the prices of other inputs. In economies in which the shadow price of unskilled labor is significantly lower than the market price,[19] part of the labor force will remain unemployed, and the return on capital will be smaller than it would be if lower wages were paid. In underdeveloped countries widespread unemployment in industrial centers and under-employment in rural areas offer indirect but strong evidence of the existence of a spread between market and equilibrium prices of unskilled labor; however, it must be noted that this proposition pertains only to unskilled labor and not to labor in general. In fact, there is considerable evidence that technical skills are scarce--frequently scarcer than the wages for foremen, craftsmen, and managerial employees indicate. Thus the discrepancy between the shadow and the market price of all labor may have less effect on the return on capital than is suggested by the argument that the market price of unskilled labor is too high.

Some economists have used this argument not only as an explanation for the existence of unemployment and underemployment and for the low

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[19] For an at least partial explanation of the rationale of paying higher than equilibrium wages to unskilled workers, see H. Leibenstein, "Underemployment in Backward Economies," Journal of Political Economy (April 1957), pp. 91-103.

return on capital investment projects but also as the basis for proposing that entrepreneurs be somehow compensated for this difference, presumably by a government subsidy.[20] Proposals of this sort in essence convert the investment problem into a fiscal problem. The taxable capacity of underdeveloped countries is so limited, and the claims on the public treasury to finance other developmental activities are so many and varied that it is not surprising to find that schemes of this sort have not been put into effect.

The difference between market and shadow prices for unskilled labor is frequently used as justification for the low rate on publicly owned enterprises. This justification overlooks the simple fact that low earnings of state enterprises pose exactly the same fiscal problem as subsidies which would be paid to private enterprises; in some ways they are even worse. The consequence of low returns on state enterprises, aside from the distortion effects already mentioned, is either the need to increase public revenues or to curtail public expenditures elsewhere. They are worse than public subsidies paid for low earnings on private investment (justified by differences between the market and the shadow price for unskilled labor) because the payments to private entrepreneurs may be saved for them and augment the flow of investable resources. Low earnings of public enterprises are revenues foregone and are more likely to result in more consumption rather than in more investment.

Another justification that is frequently used for accepting low returns on investment in publicly owned enterprises (and thereby apparently stretching absorptive capacity) is the argument that additional returns benefit the rest of the economy in the form of external economies which lower cost and/or increase returns to their beneficiaries and thus contribute to capital formation and growth. There is no need to deny the importance of external economies in the growth process, although by their nature their quantification is difficult; and there is no need in this context to become involved in arguments about external economies and the extent to which they are offset by diseconomies. Only one aspect is relevant. It is clearly

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[20] Jan Tinbergen, op. cit., p. 53.

a misuse of the concept of external economies to use it to justify a low "internalized" return on capital.[21]

The practical effect of using the discrepancy between market and shadow prices of unskilled labor (and of other inputs) as a reason for accepting low returns on capital as an indication of absorptive capacity is a lowering, immediately or gradually, of the rate of savings in the economy. More exactly, since private entrepreneurs are not likely to be willing to accept low rates of return in the first place, it would tend to lower public capital formation. This in turn may affect tax policies and lead to an increased tax burden on income which would be available for private capital formation. To accept a low return on capital, therefore, would increase the scope for public investment (and absorptive capacity), but at the same time it would curtail the rate of capital formation and impose on the economy the constraint of inadequate savings instead of the limitations of absorptive capacity.

Closely related to the argument that low returns on capital are not an indication that the limits of absorptive capacity have been reached is the argument that investment expenditures are justified as long as the economy shows a rate of growth, that is, as long as there is a positive capital output ratio.[22] Although this proposition appears plausible at first glance, its implication is that the rate of return somehow reflects only the appropriateness or optimization of the allocation of capital. The implication is particularly plain if it is related to the market-prices-versus-equilibrium-prices argument. This is, of course, a misreading of the essence of economic theory. The maximization of the return on capital is also a measure, or proof, of the rationality of the allocation of all resources. In other words, a low rate of return does not prove per se that capital is plentiful compared to other factors. In underdeveloped countries where

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[21]It would be equally reasonable to argue that capital formation in any economy would be enhanced if somebody took money out of his savings account and used it for making bets on horses because even if he did not win some other bettor would benefit from them. E. S. Mason writes, "So frequently does it happen that low-yield projects are accepted with an airy reference to undemonstrated and undemonstrable 'external' economies that I am tempted to observe, paraphrasing Dr. Johnson, that an external economy is the last refuge of a scoundrel." op. cit., p. 18.

[22]Jorge Ahumada, "Investment Priorities," Economic Development for Latin America, edited by H. S. Ellis (1961), pp. 366-396.

the presumption that capital is scarce seems amply justified by the low rate of capital formation, a low rate of return on any particular project is evidence that the allocation of capital and other resources is deficient and could be and should be improved. A low rate of return on investment is an indication that absorptive capacity has been reached and that the growth rate of the national product can be increased by devoting resources to increase the supply of co-operant factors rather than capital formation.

Foreign Exchange Supply, Exchange Rates, and Absorptive Capacity

There is also a relation between an economy's absorptive capacity and its balance of payments. The effects of the international transactions of an economy on its development effort are rather obvious. Exports provide the foreign exchange to purchase goods and services from abroad to supplement the goods and services available from domestic sources. Since the international range of goods and services is infinitely wider than that of domestic products, access to foreign resources through foreign exchange earnings, foreign capital, and foreign assistance greatly extends the possibilities of factor combinations.

The lower an economy's level of development the smaller is the range of goods and services which it produces. One of the characteristics of most underdeveloped countries is the absence, or virtual absence, of capital goods industries. So investment activities require a certain amount of imported goods which may have to be supplemented by imported technical and managerial services. Moreover, as was pointed out by Felipe Pazos,[23] the import content of consumption is frequently much lower than the import content of investment. Therefore, a policy aiming at a curtailment of consumption and an increase in savings and investment may lead to a balance-of-payments deficit, unless the flow of foreign exchange can be increased.

23"Desarrollo Economico y Estabilidad Financiera," Tercera Reunion de Tecnicos de los Bancos Centrales del Continente Americano (Havana, 1952), pp. 365-406. See also Celso Furtado, "Capital Formation and Economic Development," International Economic Papers, Vol. 4 (1954), pp. 124-144.

What matters for the development effort, however, is not the total availability of foreign exchange but only that part which can be used for investment purposes. A country may have large foreign exchange earnings relative to its national product and still be unable to mount a major development effort. It may suffer from inadequate foreign exchange because it has to use all its foreign exchange earnings to import food, fuel, and raw materials, or it may feel compelled to use a large part of foreign exchange earnings to purchase military equipment. This underlines the importance of foreign capital and foreign grants. Foreign capital and foreign aid supplement the flow of domestic capital formation, and because of the unlimited variety of goods and services which can be provided by them, they are worth more than their nominal amount.[24] As Chenery has pointed out, countries supplementing their domestic capital formation through foreign capital and foreign assistance generally experienced a significantly lower marginal capital/output ratio than countries which choose to, or must, "go it alone." Similarly, the availability of foreign exchange to purchase any capital (or current) input not available from domestic sources, or available only at a high cost, is bound to permit a higher return on capital.

Given the positive effect on the rate of return and thus on absorptive capacity of having foreign resources available to supplement domestic resources, it is surprising at first to find that the concept of absorptive capacity has frequently been applied chiefly and sometimes exclusively to foreign capital and foreign aid. This is in clear contradiction to the proposition that limits on the availability of foreign exchange themselves are liable to restrict absorptive capacity.

On second thought, however, applying the concept of absorptive capacity to foreign capital and foreign aid is meaningful. If foreign capital and foreign aid are considered in strict national accounting terms

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[24] "... the fact that external resources can be provided in whatever form is needed to break a particular bottleneck is likely to give them a value of several times their market price in the country from which they are supplied." Hollis Chenery, "Foreign Assistance and Economic Development," paper presented at the Boston meeting of the Econometric Society (December, 1963).

as supplementing resources available for investment, the limit of absorptive capacity is determined by the inflow of foreign capital since it represents the marginal amount of total capital.

In practical terms, the idea that the absorptive capacity for foreign capital is limited makes more sense if the use of foreign capital is restricted for specific purposes either by the sources of foreign aid or by the recipient country than it would if foreign funds were obtained for unlimited uses. The absorptive capacity for funds which can be used only to finance foreign capital equipment may be limited by the ability of the recipient to mobilize domestic resources to finance domestic investment expenditures for the same project. This is not necessarily a problem of increasing total domestic capital formation, but rather one of channeling domestic savings into the specific sector or project for which foreign financing is available. This kind of limitation on absorptive capacity is usually significant in countries where governments are unable to increase fiscal revenues or to borrow savings from the private sector. In such a situation the availability of foreign financing for public investment and the limited availability of domestic financial resources may lead to a warping of the investment pattern because projects with a large foreign exchange content get preference over projects for which large amounts of domestic resources are required.[25]

The situation is similar when, for some reason, a country which capital exporters consider as a promising place for investment does not permit the importation of co-operant factors in the form of managerial, technical, or supervisory personnel and these personnel are locally in short supply. The absence or inadequate supply of these factors lowers the rate of return and absorptive capacity. Import restrictions of this sort presumably limit the flow of private direct investment in a number of Latin American and Asian countries. Arguments advanced in defense of these restrictive measures are either that they will accelerate the

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[25]The situation is exactly the opposite when foreign exchange resources are insufficient. In that case the investment pattern will be warped in favor of a pattern of investment relying as much as possible on domestic resources.

training of local personnel or that they save foreign exchange. By contrast, the absorptive capacity for petroleum investment in uninhabited parts of the Sahara or of the Arabian peninsula may be unlimited as long as oil companies are allowed to bring in not only capital equipment but all other factors necessary to exploit the oil resources.

One other aspect of the relation of the absorptive capacity of an economy to its international transactions remains to be explored. As indicated before,[26] it is frequently argued that, in determining the rate of return, shadow exchange rates should be used instead of the existing "market" rates either because the balance of payments is in actual disequilibrium or because it is liable to get out of equilibrium on account of an expected adverse development of export earnings. This argument is valid insofar as balance-of-payments difficulties are unavoidable; but when they are the consequence of mistaken policies, the discrepancy between actual and shadow prices of imports and exports are but the reflection of these policies. The use of shadow prices is not a substitute for proper corrective action.

On theoretical and empirical grounds the argument that an economy mounting a determined development effort is liable to experience pressures on its balance of payments may be readily accepted. To accept the possibility or even the probability of balance-of-payments difficulties is but another way of emphasizing the important role which foreign exchange resources play in the development process. But in practice this line of reasoning frequently disregards two problems. One is a question as to the appropriateness of the existing exchange rates. In many developing countries the exchange rate is not a market price but an administered price which is maintained by exchange controls at a level that overvalues the domestic currency. The effects of an overvalued currency on the balance of payments of a developing country are well known and need not be elaborated at length here. An overvalued currency adversely affects activities and investment in the "traditional" export sectors and prevents the development of new export products; thus it aggravates the balance of payments disequilibrium. On the import side it raises the demand for imports of all kinds and makes the efficient

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[26] See p. 19 above.

allocation of exchange earnings more difficult. If it is accompanied by policies aiming at the development of import-substitution industries, it may draw resources away from the export sector and thus aggravate, and not cure, the balance-of-payments problem. The indiscriminate protection of import-substitution industries by the prohibition of competing imports will probably lead to an increase in the domestic price and cost structure and thus further accentuate the balance-of-payments difficulties.

What is required under those conditions is not a resort to shadow prices in the evaluation and selection of investment projects, but, in the first instance, an adjustment in the rate of exchange to reflect more adequately the prevailing balance-of-payments conditions. This is not to say that an adjustment in the exchange rate will cure all balance-of-payments difficulties; some form of direct controls over international transactions may be unavoidable. But there is no doubt that the rational allocation of resources can be greatly enhanced by exchange rate policies which more accurately reflect the scarcity of foreign exchange than exchange rates now prevailing in many underdeveloped countries.

If overvalued exchange rates are adjusted, the case for using shadow rates in the evaluation of projects becomes much weaker, although it would not be entirely eliminated. Whether or not shadow rates should be used in the determination of the social rate of return on investment depends largely on what measures can be devised to make the shadow rates effective. Devaluation itself may go a long way toward increasing the profitability of investment in import substitution and in export promotion industries, even if the cost of imported equipment increases as a result of the devaluation. It may also enhance investment opportunities in the production of raw materials and semi-manufactured goods which are inputs in import-substitution industries. But beyond that, the shadow prices of imports and exports may have to be made effective by fiscal and other measures which permit rates of return in export and import-substitution industries to be at or above the socially tolerable cut-off rate.

The preceding discussion of the shadow exchange rate indicates the true relevance of the concept of shadow prices. If it is found that the actual prices in an economy do not even approximately reflect the relative scarcities of factors and thereby distort the allocation of resources, then efforts must be made to correct the inappropriate market prices by

changes in policies and controls. Shadow prices are not a reason for engaging in investment activities in which the effective rate of return on capital is low; they are an indication that causes of the distortions must be eliminated insofar as possible. This applies not only to exchange rates but also to institutional rates of interest, to the prices charged by utilities, and to the whole range of administered prices of goods and services. In many countries the discrepancies between market and shadow prices are not so much a phenomenon of underdevelopment as the result of restrictions imposed on the price system. If these restrictions are eliminated, the market rates of return may well be taken as a reasonably accurate indication of a rational allocation of resources and of absorptive capacity.

Time Dimension of Absorptive Capacity

The absorptive capacity of an economy depends on the time that is allowed for adjustments in the factors determining its limits. The more time is allowed to overcome the lack, or inadequate supply, of the co-operant factors, the greater absorptive capacity becomes.[27] Like the price elasticity of supply, the short-run absorptive capacity is smaller than the absorptive capacity in the medium- and the long-run. The short-run absorptive capacity is determined by the extent to which co-operant factors are underutilized, or in excess supply, and can be combined immediately with additional capital; the medium-run absorptive capacity would be determined by the extent to which the co-operant factors which are initially deficient can be mobilized and applied in the course of, say, three or four years; and the long-run absorptive capacity may be defined as that absorptive capacity which prevails after the supply of the limiting co-operant factors has been further increased.

Though conceptually unassailable, this distinction suffers from one serious flaw. It disregards the fact that the process of absorption,

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[27] On occasion, absorptive capacity may also deteriorate--as a result of a decline in administrative efficiency or political disturbances. For example, in some former French-controlled parts of Africa, absorptive capacity may have declined.

the investment activity itself, has a time dimension and that within the investment process itself various phases can and must be distinguished. In practice, short-run or instantaneous absorptive capacity may, therefore, be more appropriately defined as the ability to undertake investment projects which are "ready to go," projects which have been completely engineered and appraised and reported to be viable. Medium-term absorptive capacity then refers to the availability of investment projects which have been determined to be "feasible;" it has been found that their return is likely to be above the cut-off point, but their engineering has not yet reached the blueprint stage. An important variant of the same concept of medium-run absorptive capacity (which is, in practice, of considerable importance and has on occasion given cause for concern) is the availability of projects which have been found to be technically feasible but which have not yet been investigated as to their economic and financial viability.[28]

It is somewhat more difficult to give practical meaning to the concept of long-run absorptive capacity because the ability to make effective use of additional capital in the long run depends primarily on the progress of economic development itself. The inadequate supply of co-operant factors such as the ability to appraise and engineer investment projects and to manage enterprises is itself an aspect of underdevelopment and the growing supply of co-operant factors is part and parcel of the development process itself.

Sectoral Versus Aggregate Absorptive Capacity

Since the limit of absorptive capacity is reached in each specific case by a lack of specific co-operant factors, the absorptive capacity of a particular sector of the economy may be smaller than in other sectors or in the economy as a whole. That is to say, a rate of return below the cut-off rate is reached when the ratio of gross investment to the value added of the sector is smaller either than the ratio in other sectors or

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[28]The distinction between technical feasibility on the one hand and economic and financial feasibility on the other is much less clear in practice than in theory since the engineering, the choice of technology, the scale of the project, etc. depend on economic considerations.

the rate of gross investment to the gross national product.[29] This is not simply a reflection of the principle of diminishing marginal productivity of factors in any specific use; it is also the result of the limitations of factor mobility. The absorptive capacity for investment in, say, highways is likely to be limited by the number of engineers in the planning office of the highway department, by the amount of information available about present and future traffic in particular locations, etc. But when the absorptive capacity for highway construction is reached, the absorptive capacity for irrigation projects or for investment in industry or for housing may still exceed the volume of investment taking place in these sectors. Similarly, within a particular sector the absorptive capacity for small projects which do not require elaborate engineering and other preparations may be greater than the absorptive capacity for major projects.

This rather obvious proposition is of considerable practical significance when decisions have to be made as to the allocation of total investable resources between the public and the private sectors. Investment in the public sector may be impeded by the difficulties of transferring co-operant factors from the private to the public sectors--because of inadequate salary scales, the bad reputation of the government or government agencies as employers, etc. The flow of investment in the private sector on the other hand may be limited by the inability to provide technical assistance and advice from public sources to private investors. This is probably one of the most important limitations of international technical assistance activities since much of technical assistance inevitably takes place on a government-to-government basis and the benefits of such assistance accrue in the first instance to public authorities. Public authorities in turn may find it impossible or may not be inclined to transmit technical assistance to the private sector. The result, quite common in underdeveloped countries, is that investment in new industries takes place in the public sector although the private sector may well be

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[29] Since the limits of absorptive capacity pertain to replacement investment as well as new investment, it is the ratio of gross investment to value added (or, in the aggregate, to gross national product) that is relevant, not net investment.

better equipped to undertake such investment if it had ready access to foreign technical assistance.

The difference between sectoral and aggregate absorptive capacity points up once more the interdependence of projects in aggregate investment. Coordination, or the joint preparation and evaluation of projects in two or more sectors, raises the limits of absorptive capacity. In the formulation of a development program, the limitations of absorptive capacity in the various sectors must be taken into account in order to achieve "balance" and thus maximize aggregate absorptive capacity.

Specific Limitations

The preceding sections have shown that absorptive capacity is a rather simple and straightforward concept. They have also shown, however, that the limitations on absorptive capacity can take so many forms that it is not very meaningful in practice to propose policies to increase absorptive capacity in general. The only way to come to grips with the practical limitations of absorptive capacity is to devise specific measures to raise specific limitations.

The following comments may be considered a rudimentary (and presumably incomplete) typology of the limitations on absorptive capacity. Such a typology could be based on a variety of criteria. It would be possible, for example, to distinguish limitations on pre-investment activities, on investment activities, and on the management of the newly established facilities; alternatively, distinctions could be made among limitations that can be easily removed, those that can be overcome with some difficulty, and those that are likely to prove obstinate; or it may be useful to distinguish between those limitations that are susceptible to foreign assistance and those that are not.

In the list that follows the various factors limiting absorptive capacity have been grouped under headings reflecting the distinctions normally made among the various co-operant factors of production.

(a) Lack of Knowledge. Lack of knowledge limits absorptive capacity particularly if it pertains to natural resources and to the availability of technology. Information about mineral resources, the composition of soils, rainfall, river flows, temperatures, etc. are pre-requisites for most projects in agriculture, mining, and power. It is useful, though perhaps not essential, for projects in other sectors.

In many cases, the lack of data cannot be immediately overcome since it takes time and effort to organize the gathering of data and to analyze them.

Lack of knowledge of the best technology may well be one of the limiting factors most difficult to overcome--since it takes time and effort and expense to devise a new technology or to modify an existing one. The difficulties which have been encountered and continue to be encountered in attempts to make effective use of tropical woods for the production of newsprint are a good example of the problem of inadequate knowledge of technology.

(b) Lack of Skills. Lack of skill or expertise is generally recognized as one of the more important characteristics of underdeveloped economies. In relation to absorptive capacity it may be convenient to distinguish among (i) the skills necessary to prepare investment projects, to do the engineering and economic and financial appraisals; (ii) the skills necessary to carry out investment projects once they have been found to be feasible; and (iii) the skills necessary to perform the manufacturing and clerical tasks of new enterprises.

For many years the lack of skills in the preparation of projects has been a major concern to national and international lending agencies and other sources of financial assistance. It has been considered one of the prime limitations on absorptive capacity. The difficulties of preparing and appraising investment projects are compounded by the fact that there is no generally accepted methodology for these tasks. Numerous requests for assistance in project preparation and appraisal have been addressed to national and international institutions, but these skills are in short supply in advanced countries as well. In order to overcome this limitation on absorptive capacity, it may be necessary to train personnel both in underdeveloped and advanced countries.

The skills required to carry out investment projects, the engineering and organizational efforts required in the physical investment process, are also scarce in most if not all underdeveloped countries. But in this field the supply of engineering firms, technical consultants, and advisors from abroad is more ample. Therefore this limitation can in practice be overcome. Finding foreign personnel skilled in the execution of investment may be an inappropriate solution, however, for small projects which cannot stand the cost of foreign technicians.

The lack of skills in the preparation and execution of projects is likely to increase the cost of investment; the lack of skills to operate new enterprises is bound to affect adversely the cost of operation and thus the rate of return. To overcome this absence of skills, training facilities for foremen and workers must be provided. This is an expensive and time-consuming task in which foreign assistance may be of some help.

(c) Lack of Management Experience. The reason for distinguishing between the lack of skills and the lack of managerial talent and experience is that skills can be acquired by training, but it is doubtful whether "management" can be made the subject of systematic training. Effective management requires a basic understanding of the techniques of production and the skills required, the elements of business finance, and the social environment in which an enterprise operates--plus ingenuity and competence to deal with unforeseen problems which arise in any business enterprise.

The task of management can be entrusted to foreign managers but only enterprises over a certain size can afford the high cost of foreign management. Foreign management is not a solution for the numerous smaller enterprises which are poorly managed and therefore show small returns.

The absence of efficient management is of particular importance in the case of state enterprises which for political reasons find it difficult to accept foreign management. By experience, training, emotional inclination, and aversion to taking risks, successful civil servants who frequently are entrusted with the management of state economic enterprises are not good business managers, notwithstanding the fact that many of them have much technical competence. The confusion between technical skills and managerial competence, frequently observed in less developed countries, is one of the prime causes of the low rate of return from state economic enterprises and thus limits absorptive capacity.

(d) Institutional Limitations. Limitations at the enterprise level can be overcome by action at the enterprise level. There are, however, limitations of absorptive capacity which cannot be eliminated by improvements of any particular investment project, since by their nature they affect the economy as a whole and make it difficult for all economic units to operate with the prospects of an adequate rate of return on capital. Inadequate measures to maintain law and order are an example of such institutional limitations. The threat of riots, disorder, banditry, or other

forms of lawlessness not only limits the absorptive capacity for foreign private direct investment; it also makes it difficult or impossible for domestic investment to proceed.

There are many underdeveloped countries in which law and order are well maintained but institutional constraints of another kind limit absorptive capacity. The administrative procedures of government may be so cumbersome and so time-consuming that they make it difficult for investors, foreign or domestic, to carry out projects which they consider promising and profitable. In the public sector the slowness of the decision-making process, the difficulties of achieving coordination between various parts of the government, or the lack of communication between government departments adversely affect the rate of return on public investment because they all increase the cost of investment and the length of the physical investment process.

The adverse effects of administrative inefficiency become the more serious the greater the extent of direct controls. If private and public investment decisions and the management of public enterprises are constantly subject to government sanction through licenses, allocations, etc. and if the licenses, allocations, and permits of one kind or another are not readily forthcoming, the rate of return on new investment is bound to be smaller and absorptive capacity limited.

(e) Cultural and Social Constraints. The various types of limitations on absorptive capacity commented on in the preceding paragraphs are only the specific forms in which both cultural and social constraints assert themselves in underdeveloped countries. The lack of skills reveals frequently not just the underdevelopment of the educational system but, beyond that, the reluctance to acquire new skills. Even where optimum techniques have been devised for some kind of production, their introduction may run into opposition because of cultural factors, the unwillingness to accept the discipline of controlled working hours, supervision, etc. of an industrial society.

There is no point here in elaborating the differences in social structure and cultural values between advanced and underdeveloped countries. It is enough to stress that, unlike the other limiting factors, cultural and social factors are not directly amenable to technical assistance or concerted action. They can be overcome only by the process of development itself.

The Role of Technical Assistance

Throughout this paper references have been made to the possibility that technical assistance could be instrumental in increasing the supply of those co-operant factors whose shortages impede the effective utilization of capital. The term "technical assistance" has been intentionally used ambiguously. In some instances technical assistance itself constitutes the co-operant factor in short supply. For example, foreign consulting firms engaged to make feasibility studies or prepare the economic or financial appraisal of a project may be said to provide technical assistance. So may a foreign firm taking on the technical or commercial management of an enterprise under a management contract. But frequently technical assistance itself does not constitute the missing or inadequate co-operant factor but is designed merely to increase the supply of these factors from domestic sources. Training of personnel, either abroad or in the country; and advice given on how training is to be organized and conducted; and, more generally, how shortages of co-operant factors can be overcome fall into this category of technical assistance.

Little would be gained by attempting to draw a sharp distinction between these two types of technical assistance. In practice all arrangements which would fall under the first "direct supply" type inevitably include an element of the second type. Conversely, technical assistance personnel employed to provide education, training, and advice are frequently called upon to help with some specific tasks; or they may choose to give a demonstration of the skills and expertise which they are expected to teach.

There is, however, an important difference in the availability of technical assistance between the factors limiting absorptive capacity which fall into categories (a), (b) and (c) and those included under (d) and (e). Broadly speaking, the factors listed under the first three headings are replaceable by, or in various degrees amenable to, technical assistance. But deficiencies in factors limiting absorptive capacity enumerated under (d) and (e) cannot be made good by technical assistance, at least in the short run. True, technical assistance to help overcome institutional limitations can be provided, but it inevitably takes a long time for technical assistance in this field to become effective. Moreover, it cannot be brought to bear at the project level but only for the economy as a whole, or at least for an entire sector. Technical assistance is of no avail to

alleviate the cultural and social constraints limiting the supply of co-operant factors.

It is for that reason (and because of the time it takes for technical assistance to overcome the lack of knowledge, the lack of skills, and the lack of managerial experience) that one may speak of the limited absorptive capacity for technical assistance itself. It is the variety of limitations on absorptive capacity which makes the limitations on the capacity to utilize capital resources effectively the more real and important.

Summary and Conclusions

Since this paper has dealt with a variety of aspects of the concept of absorptive capacity and touched upon many issues arising in the course of economic development, it may be useful to list the most important conclusions that have emerged from the discussions.

1. Absorptive capacity is a meaningful concept if it is related to the rate of return on capital which an economy finds socially acceptable. Because one of the major characteristics of underdeveloped economies is the lower rate of capital formation (and the smaller size of the capital stock) the socially tolerable rate of return may be well above the rate which is acceptable in more advanced countries.
2. The array of rates of return and absorptive capacity can be increased by the coordination and orderly programming of investment projects.
3. Absorptive capacity must pertain to total capital, not just to foreign capital. The availability of foreign capital itself is likely to be an important factor increasing absorptive capacity.
4. The evaluation of absorptive capacity is beset by much uncertainty. It is the uncertainty of the expected rate of return on capital which is probably the most important reason for the wide differences in the appraisal of absorptive capacity of underdeveloped economies.
5. Because the rate of return on investment is limited in each specific project by specific factors, general prescriptions for raising absorptive capacity are not likely

to be meaningful. It is possible, however, through the proper identification of the factor or factors limiting the rate of return and absorptive capacity in each particular case to raise these limitations; in this connection technical assistance can play a major role.

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ABSORPTIVE CAPACITY: THE CONCEPT AND ITS DETERMINANTS

by

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ABSORPTIVE CAPACITY: THE CONCEPT AND ITS DETERMINANTS

The recent literature on economic development and foreign aid to economic development is full of references to the concept of absorptive capacity. It is defined by one source as setting "a limit to the amount of efficient investment physically possible ... particularly in the short run."/1 In the context of this quotation--and in many other references/2 --it is implied that absorptive capacity is a well-defined concept, with an established technical meaning, like supply, or demand, or the propensity to import, and therefore need not be explained, or analytically explored any further. This is unfortunately not the case.

The purpose of the paper is to inquire into the meaning of the concept, to determine its usefulness for policy purposes, both from the point of view of the developing countries and of the national and international sources of capital potentially available to them, and discuss the factors determining the limits of absorptive capacity.

/1 U.N. Economic Commission for Asia and the Far East, Programming Techniques for Economic Development, 1960, pp 8-13, quoted in Gerald M. Meier, Leading Issues in Development Economics, New York, 1964, p 93.

/2 P.N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries" The Review of Economies and Statistics, May, 1961, pp 107-9. A. O. Hirschman, The Strategy of Economic Development, New Haven, 1958, pp 37-8. G. M. Meier, International Trade and Development, New York, 1963, pp 90-92. F. Benham, Economic Aid to Underdeveloped Countries, London, 1961, pp 115-117. B. K. Nehru, "Foreign Aid from the Viewpoint of Recipient Countries" Proceedings of the Academy of Political Science, New York, January, 1962, p 59.

Measurement of Absorptive Capacity

Although references to absorptive capacity occasionally convey the idea that there is an absolute limit to the amount of capital that can be used, most economists recognize, explicitly or by implication, that the measurement of absorptive capacity must be somehow related to its "productivity," or its "effectiveness."/1 This "productivity," or "effectiveness" is at the first glance nothing else than Keynes' marginal efficiency of capital, and absorptive capacity thus becomes a schedule relating an amount of capital to be invested to the expected rate of return./2 The lower the rate of return on capital which the "investor"--the economic unit making an investment decision--is willing to accept as satisfactory, the higher the absorptive capacity.

In the conceivable but on general grounds unlikely event that there is an absolute limit to the absorptive capacity, the marginal efficiency of

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/1 Cf."... There may be a limit to how much foreign investment can be effectively used when the investment must not only cover its cost but also yield a reasonable increase in income." G. M. Meier, International Trade and Development, New York, 1963, p 90. "Millikan and Rostow have proposed that the developed countries of the world should make available to underdeveloped countries as much capital as they can absorb by which they mean as much as can, with reasonable assurance, be productively used." C. P. Kindleberger, Economic Development, New York, 1958, p 263.

/2 Keynes defines the marginal efficiency of capital as "equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price." J. M. Keynes, The General Theory of Employment, Interest, and Money, New York, 1936, p 135. This definition is essentially the same as what has more recently been called the "internal rate of return" which is the discount rate at which the flow of total cost, including initial capital cost, replacement and recurrent cost is equal to the flow of total receipts (plus the terminal value of the capital asset). Cf. Joel Dean, "Measuring the Productivity of Capital," Harvard Business Review, January-February, 1954, pp 120-130; J. G. McLean, "How to Evaluate New Capital Investments," Harvard Business Review, November-December, 1958, pp 59-69.

capital function, with capital measured along the horizontal, and the rate of return along the vertical axis, becomes a vertical line. (ABX in Chart I.) This shape of the return on capital function is unlikely because it implies that beyond a certain level of investment (OX) there is not a single investment opportunity which would yield a positive rate of return.

The more normal shape of the expected return on capital function is that of lines ABC or A_1BD. There are reasons to think, however, that line ABC is more typical for less developed countries than line A_1BD, which may be taken to reflect conditions prevailing in advanced countries. There is circumstantial and some direct empirical evidence that in less developed countries the return on the existing stock of capital is high and that therefore it is reasonable to conclude that the expected rate of return on some additional investment also is high./1 The evidence is the larger share of profits, rents and interest receipts in the national product of

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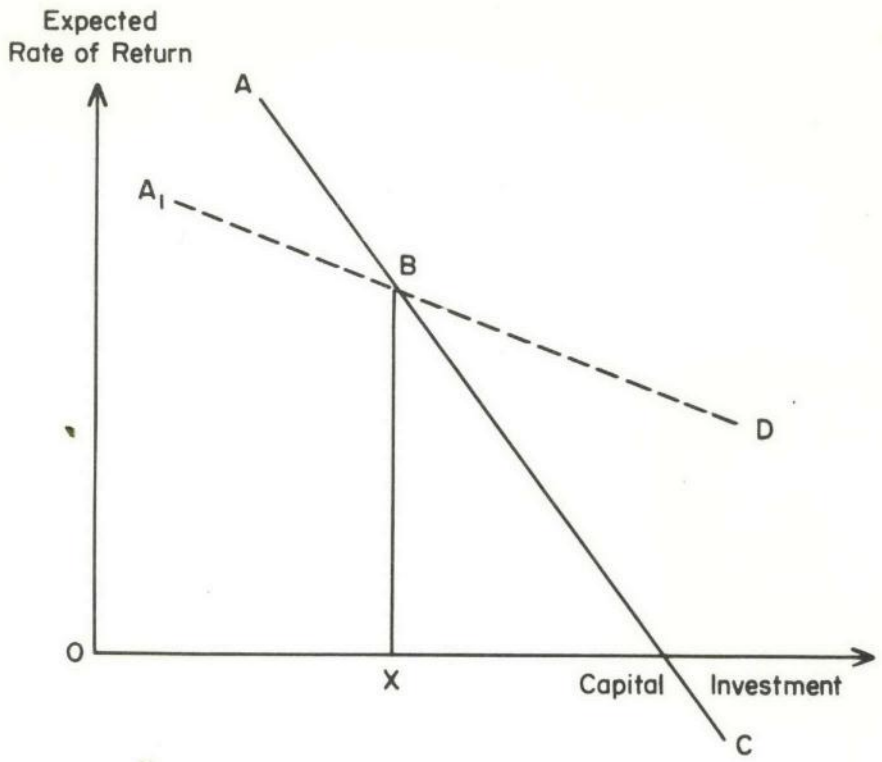
/1 The presumption that in view of the high rate of return on existing capital the return on investment also will be high is even more plausible if it refers to gross rather than net investment, since gross investment includes the replenishment of the high-yielding stock of capital.

CHART I

ABSORPTIVE CAPACITY



many less developed countries and the high rates of interest charged by non-institutional lenders./1

The limitations on absorptive capacity on the other hand, the scarcity of projects on which a high rate of return can be expected, is reflected in the steep slope of the return on capital functions. While in developed countries, where absorptive capacity though not unlimited does not appear to pose a practical problem, the expected return on capital declines rather gently. Thus the policy problem of limited absorptive capacity may be presented graphically as the "gap" between lines BC and BD and the policy objective of raising absorptive capacity as an attempt to move the return on capital function from BC to BD. The gap closes if the supply elasticities of co-operant factors in less developed countries are increased to the level prevailing in developed economies.

/1 Cf. on return on the stock of capital S. Kuznets, "..Whatever the Y for the developed countries /the yield rate on wealth other than the equity of unincorporated enterprises/ there is little question that in the underdeveloped countries, at least on assets other than the equity of unincorporated enterprises, it is much higher ... Even if we include, as we should, the possibly lower rates of yield reflected in the income of government enterprises and gross corporate savings it seems reasonable to assume that the weighted yield rate in underdeveloped countries is at least twice as high as that in developed countries. If we set the latter at 7%, we may set the former at 14%." "Quantitative Aspects of the Economic Growth of Nations: IV Distribution of National Income by Factor Shares" in Economic Development and Cultural Change, April, 1959, p 20. "For India we have a recent effort to approximate a distribution of the national income between income from assets and other components. According to Mr. Patel's calculation the share of income from assets in India is 23.3%. Mr. Gulati's revision would bring the share down to 19.6%. Another item of evidence can be found in some data for Mexico. Of net domestic product at factor cost the share of profits (after allowance for imputed earnings of the self-employed), rent and interest rose from 34.5% in 1939 to 47.4% in 1950." ibid. p 12. On interest rates charged by non-institutional lenders cf. U Tun Wai, "Interest rates outside the organized money markets of underdeveloped countries" IMF Staff Papers, November, 1957, pp 99-100. Rates of 23% to 94% are mentioned for India, 10.6% to 45.8% for Ceylon, and 8.5% to 44.7% for Thailand.

Absorptive capacity may then be defined as that amount of investment, or that rate of (gross) domestic investment--expressed as a proportion of GNP--that can be made at an acceptable rate of return, with the supply of co-operant factors considered as given./1 This is not to say that the "investor," or the investing authority, would not attempt to increase the supply of co-operant factors. But this increase is in the short run either a physical impossibility, or can be secured only at such a cost as to increase sharply the total cost of investment, or total operating cost, and to reduce thereby the return on capital below the acceptable rate.

Alternative Definitions

The preceding definition does not specify the acceptable rate of return and does not distinguish between the rate of return on domestic and foreign capital. The suggestion that for every economy there exists a single threshold or cut-off rate which is the border between what is considered an acceptable and an unacceptable return, may be challenged on the ground that, given international differences in the supply of capital relative to co-operant factors, the acceptable rate of return on foreign-owned capital may be lower than the acceptable rate of return on domestic investment. Foreign investors may be willing to invest in a country because the expected rate of return on their investment there compares favorably with the rate which they could earn at home even if it is lower than that considered acceptable by domestic investors in the capital receiving country.

/1 E. S. Mason has used the term "socially acceptable discount rate" for this rate. Cf. "On the Appropriate Size of a Development Program," Occasional Papers in International Affairs, No. 8, p 1 (Center for International Affairs, Harvard University, 1964). On the time dimension of absorptive capacity, see pp 36-38.

The existence of a difference between rates of return which investors of capital exporting countries expect in capital importing countries and rates which they can expect at home is an essential part of the theory of international capital movements. But the theory only stipulates a difference between the rates of return in the capital exporting and the capital importing countries; it says, or implies, nothing regarding a difference between the rate of return earned by foreign investors and the rate obtained by the domestic investors of the capital importing countries. To the contrary, with appropriate assumptions regarding the fungibility of funds, freedom of capital movements, appropriate risk premiums, etc., the effect of capital inflows would be to reduce the rate of return on all capital (of foreign and domestic origin) to that prevailing in the capital exporting country. But presumably long before this happy state of equilibrium is reached, the difference between the rate of return on capital of domestic origin and of foreign ownership would be reduced or eliminated altogether./1

The difference in the rate of return on capital between capital exporting and capital importing countries, as reflected in long-term rates of interest, is presumably the basis for the proposition that the use of foreign capital to finance investment is justified even if the return falls below the rate acceptable in the capital importing country. Specifically,

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/1 In practice, however, it is more likely than not that a difference between rates of return on foreign and on domestic investment continues to exist indefinitely--because of the selectiveness of foreign capital with regard to investment opportunities and the extent to which foreign capital can overcome the scarcity of co-operant factors by importing them. Depending on the latter, and a variety of other factors, the rate of return on foreign investment may be smaller or larger than that obtained on domestic investment in the capital importing country.

an Operational Manual of the U. S. Agency for International Development concerned with the selection of projects in aid receiving countries proposes that in the determination of the benefit-cost ratio of a project an interest rate of 3½ percent should be applied to the foreign cost, while local interest rates, or, if an accurate rate cannot be determined, a rate of 6 percent should be applied to the domestic cost of the project./1 The apparent implication of this recommendation is to accept as the minimum permissible rate of return on domestic capital 6 percent, but to require only 3½ percent on capital provided by A.I.D./2

Whatever the political justification for this rule may be, its economic rationale is doubtful. It presupposes that (a) a project suitable for partial financing by foreign aid with a rate of return at or above the cut-off rate cannot be developed, because (b) the supply of co-operant factors cannot be increased in the short-run, but (c) that the undertaking of the project itself will somehow stimulate the supply of the deficient co-operant factors--and (d) that this cannot be brought forth by any other method such as import or technical assistance. Only if these four conditions obtain, may the acceptance of a lower rate of return on the foreign-financed portion of an investment project be considered justified on economic grounds, as distinct from political or humanitarian grounds. This does not mean that grants or loans on concessional terms are out of order if their chief, or sole, purpose is to raise consumption, or curtail unemployment (as one of the causes of an intolerably low level of consumption); but in that case one can no longer argue on economic grounds pertaining to the most efficient allocation of resources.

/1 "For A.I.D. benefit-cost evaluations an interest rate of 3½ percent is established for amortizing U.S. dollar costs ... the above rate is applicable only to the U.S. dollar portion of project installation costs. The local cost of project installation and the cost of future additions or replacements are to be treated on the basis of the local interest rates ... In cases where local rates are unreasonably high or low or where an accurate rate cannot be determined the rate of 6 percent per annum will be used." Source: Department of State, Agency for International Development, Office of Engineering, Benefit-Cost Evaluations As Applied To Aid Financed Water or Related Land Use Projects, Supplement No. 1 to Feasibility Studies, Economic and Technical Soundness Analysis, Capital Projects (Washington, D. C., 1964) pp 4-5.

/2 The text of the Manual, by proposing to apply a discount rate of 6 percent on all "domestic" benefits however comes--presumably inadvertently-- to the opposite result of what it intended to do: by applying a lower interest rate on foreign cost than on benefits it has an adverse effect on cost-benefit ratios, especially if the foreign cost accounts for a larger proportion of total cost. It is understood that the Manual is being revised.

It should perhaps be emphasized that the stimulation of the supply of co-operant factors which after some time will increase the rate of return on the capital invested may be an adequate reason for initially accepting a lower rate of return--but only if a discounted cash flow analysis covering the entire life span of the project shows that the internal rate of return is at or above the cut-off rate. In that event the project is "good" and what is bad, or inadequate, is the cost-benefit analysis which does not permit systematic and rational determination of the rate of return allowing for the lapse of time./1

But leaving aside this rather unlikely possibility, the willingness to consider projects as qualified for foreign assistance although their expected rate of return is below the cut-off rate of the aid receiving country is based on a pessimistic appraisal regarding (a) the possibility of identifying projects with a higher rate of return, or (b) the possibility of improving the supply of co-operant factors. The difficulty of finding a better project implies some sort of disequilibrium between the minimum acceptable rate of return and the "objective" availability of investment opportunities. And the pessimism regarding the supply of co-operant factors implies that domestic efforts or technical assistance to increase the supply are of no or little avail. This twofold pessimism may be justified in exceptional circumstances; but it certainly goes too far to make it the basis for the general rule that projects with an expected rate of return below the cut-off rate are justified for foreign financing.

/1 Alternatively, the project may be promoted on the ground that the supply of co-operant factors which it stimulates benefits the economy as a whole. This would constitute an example of heavy, not to say excessive, reliance on the development of external economies. Cf. pp 27-8 below.

Still another definition of absorptive capacity is implied in an attempt of measuring absorptive capacity by the observed increase in total investment "that can be carried out at an acceptable minimum level of productivity" over a certain period./1 Thus, it may be said that a country's absorptive capacity is increasing if gross domestic investment has grown by, say, 10% from one year to the next, or by 20 or 25% over a five-year period. Unfortunately, the apparent virtue of simplicity of this method of measuring absorptive capacity is more than offset by all the uncertainty which afflicts it. The rate of gross domestic investment may have increased because the economy managed to generate more savings--for a variety of reasons; or, because more foreign capital or foreign aid has become available. Or, investment may have been undertaken which was simply mistaken in the sense that it resulted in a return below the acceptable rate while the increase in output--the "productivity" in the preceding quotation--was causally not related to the investment. And the true absorptive capacity--the amount of investment expected to yield an acceptable rate of return--may not have changed at all.

Capital, Return and Project Defined

We may now proceed to explore further the concepts which determine absorptive capacity, i.e. capital, the rate of return, and investment projects. To begin with, it may be useful to stress that the capital on which a return is expected is total capital, not merely equity capital. From the point of view of the economy there is of course no difference between equity and loan capital, with both types of capital representing

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/1 Hollis B. Chenery, Foreign Assistance and Economic Development, Policy Discussion Paper No. 7, /U.S./ Agency for International Development (Washington, D. C., 1964).

the financial counterpart to real resources which are to be productively employed. Leaving aside the (admittedly bothersome) question of external economies and diseconomies, the expected return on total investment for the economy as a whole is thus equal to the sum total of the expected return on all individual investment projects, and the aggregate rate of return is the ratio of total returns to total investments.

To determine the expected rate of return on capital invested in a private investment project is a rather simple accounting exercise--if we disregard at this point the difficulties of forecasting capital cost, replacement cost, and the prices prevailing in the factor and product market./1 The situation does not change materially if we consider a project in the public sector which is revenue producing. Other things being equal, it should not make any difference whether a steel mill, or a railroad, is in the public or in the private sector.

The matter becomes somewhat more complicated in the case of projects that are not self-liquidating, or that yield benefits, i.e. additional income, to an economic unit other than the investor. In the case of a highway for the use of which no toll charges are levied, the construction cost (and maintenance) are a burden on the government while the benefits (which include such things as time saved, a decrease in the wear and tear on vehicles, and increases in the value of land made more accessible by the highway) accrue in the first instance to the highway users and other beneficiaries. True, the government may "charge" for the highway investment through gasoline taxes,

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/1 The problem of uncertainty inherent in project evaluation is discussed below, pp 21-3.

motor vehicle licenses, and special assessments on increases in real estate values; but it is likely that as a matter of economic or social policy it will not want to recover more than the investment cost and some return on capital (usually reflecting interest charges on public borrowings); in many instances it may have to settle for less. In almost any case, a part of the return on capital accrues to the public. But even then, the return on the investment--in that case more appropriately called the social return--must include the properly evaluated benefits derived by all beneficiaries from the highway investment.

If the benefits exceed the charges levied on the beneficiaries, these excess benefits may be considered external economies. For practical purposes it may be preferable, however, to reserve the term external economies to benefits with an incidence which cannot be readily identified--because it is widely diffused--and to treat as part of the return benefits for which the economic units that "internalize"/1 them can be identified.

The significance of this observation becomes clearer when it is realized that the determination of the rate of return (and of absorptive capacity at a given rate of return) depends very much on the "definition" of any specific investment project, and on the causal relationship that can be established between a given investment and the increase in output (or decrease in cost) that is associated with it.

To illustrate the problem of definition (or "delineation" of a project) we may think of an irrigation project that increases the supply of water to a large number of farmers on whom water charges giving a rate of

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/1 The term was first used by A. O. Hirschman in The Strategy of Economic Development, New Haven, 1958, p 57.

return of say 6% on the irrigation investment are levied. But the 6% rate of return may have nothing to do with the economic rate of return of the project if the increased supply of water makes possible a substantial increase in the farmers' production. In this case the return on the project is not the increased supply of water (or the water charges levied to produce a 6% yield) but the value of the increased agricultural production minus the cost of the additional inputs, including the value of the farmers' additional work effort,/1 and the project is no longer defined as the irrigation works producing water but the irrigation work plus all other agricultural production improvements producing additional crops.

This "integrated" definition of a project which takes account of forward linkages (or backward linkages, as the case may be) must not be carried too far. There is obviously a difference between an irrigation project as just described and a steel mill which is to produce intermediate products such as billets, shapes and sheets. If the parallel of the irrigation project were to apply, the appraisal--and the determination of the rate of return--of the steel mill project would also have to take into account the changes (of receipts, expenditures and the rate of return) occurring in the steel-using enterprises such as automobile plants, foundries, and razor blade factories. This would make little or no sense. It is obviously more appropriate to determine the rate of return on the steel mill investment on the basis of a comparison of the (properly discounted) revenues and expenditures, including capital expenditures, of the steel mill itself and to "cut off" the project at the factor and product markets in which the inputs are purchased and the outputs are sold.

/1 Which may however be zero if the opportunity cost of this additional work effort is zero.

The difference between the irrigation project and the steel mill project should now be clear: the products of the steel mill are sold into an open market in which prices and the volume of demand are determined by competitive forces (which however may be restricted by policy interventions and direct controls). In the case of the irrigation project the market is not open in any meaningful sense. It is conceivable, though not likely, that irrigation water will be sold to the highest bidders; but in all except the most unusual circumstances the price of the water is fixed by public intervention and frequently individual farmers obtain (and are charged for) water whether they want it or not.

The presence or absence of a reasonably well functioning market is important not only for the definition of a project, but also for the determination of the rate of return and thus of the absorptive capacity. This is particularly important in the case of certain types of public investments where problems of indivisibilities or complementarities exist. Take for example a hydro-electric power project which for technical reasons cannot be easily developed in several small stages, but for which a high rate of return can be assured only if a large amount of electric energy is immediately utilized (e.g. the Volta project in Ghana). In that case, the market demand for electric energy will have to be supplemented by the demand resulting from investment in power-using industries (e.g. aluminum) and, for the determination of the rate of return and the absorptive capacity, the project must thus be re-defined to embrace both power generation and aluminum production.

Similarly, in the case of a "development" or farm-to-market road designed to open up, or make more accessible, an agricultural production area, it is not enough to appraise the road project (on the basis of the expected volume of transportation) and to estimate the expected return on the capital

invested in it. It is preferable to take account also of the capital and other outlays required to increase agricultural output in the area to be opened up and to relate these outlays to the expected increases in receipts derived from increased agricultural production. To substitute in the determination of the return and of the absorptive capacity the road-cum-agricultural production project for the road project simple is preferable if there are reasons to doubt that the farmers of the area affected by the road project will respond to the new economic opportunities of cheaper transportation, or that they have at their disposal, or can readily secure, the means of financing capital investment and other expenditures prerequisite to increase production. It may be essential (and not just preferable) to consider the transportation and agricultural production projects as one if the doubts regarding the automatic responses of the farmers to the new production opportunities can be resolved only by the public authorities taking on the responsibility for developing plans for increasing agricultural production and for supporting it by technical assistance, credit facilities, etc.

The preceding observations indicate that there is a close connection between the validity of the rate of return (as an indication of absorptive capacity) on the one hand and the existence of markets and the responsiveness of individual economic units to market opportunities and market incentives on the other.

We comment further on this below. At this point, it may be useful to add only that it follows that a meaningful assessment of absorptive capacity, based on an estimate of the expected rate of return on specific projects, becomes the more difficult and complex the more limited the development of markets and responses to markets. In economies in which markets are

deficient and the response to market forces is underdeveloped or impeded by institutions or controls, or in sectors of economies in which these conditions prevail (e.g. in subsistence agriculture), the absorptive capacity, assessed on the basis of the appraisal of narrowly defined projects, may appear to be low, or, at any rate, lower than a more comprehensive assessment of absorptive capacity may indicate. In other words, in such "primitive" circumstances the inter-action of individual projects with the rest of the economy cannot be left to imperfectly functioning markets, but must be brought about consciously by providing for the coordination and joint implementation of several projects. Or, more generally, the pattern of investment, brought about by the response of the economy to opportunities and incentives, or, if these forces are weak, or weakened by institutional constraints, by coordination and planning, is itself a prime determinant of absorptive capacity. In the graphic presentation of Chart I, this means that the position of line ABC is not unique but that it refers only to a particular pattern of investment, or investment plans, and that with another set of investment plans the line may shift to the right (or left) and its slope may be changed. To recognize this need unfortunately does not solve the innumerable practical problems besetting the comprehensive programming approach which this suggests. And it does not do away with the limitations of absorptive capacity. It is not enough to realize that the success (i.e. a satisfactory return) of project A depends on the simultaneous or subsequent carrying out of project B if lack of technical knowledge, inadequate administrative competence, or simply paucity of information threatens the viability of project B.

Complementarity and Indivisibility

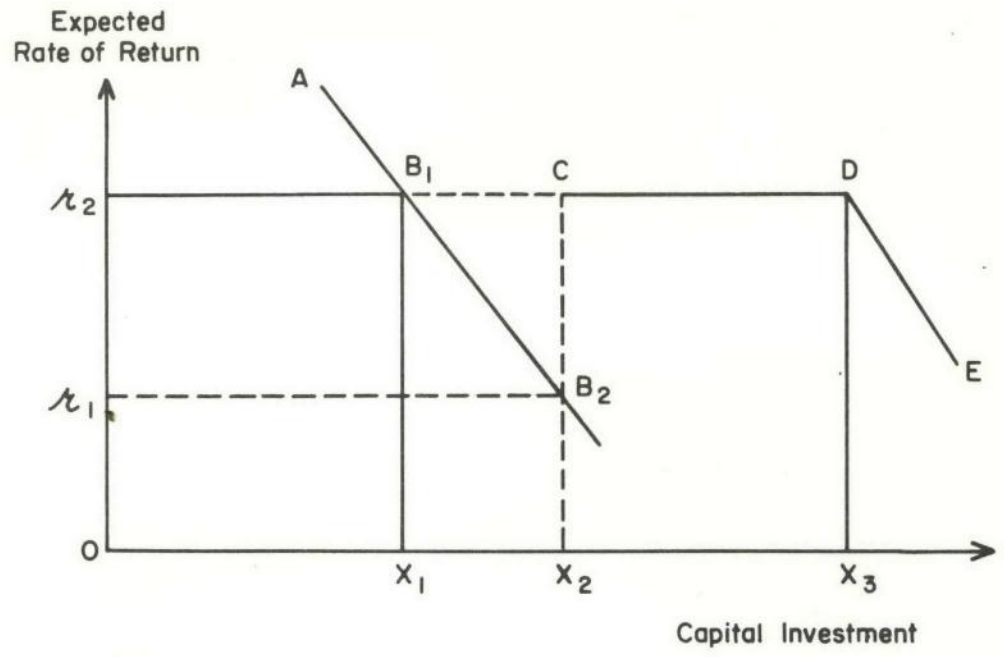
The references to complementarity and indivisibility and to the need for joint appraisals lead to the conclusion that with these factors present it may happen that the absorptive capacity of an economy is smaller--at a given rate of return--for a smaller amount of proposed investment than for a larger amount. Chart II may be taken to illustrate the power-cum-aluminum, or the irrigation-cum-agricultural investment case. A given volume and pattern of intended investment including the power project gives a return r_1 on capital function AB_1B_2. Return r_1, corresponding to an aggregate intended investment of OX_2 may be below the rate which the economy is willing to accept. If however the volume of investment is increased by the addition of a power consuming industry which requires capital expenditures X_2X_3, the aggregate rate of return increases to r_2. This presentation implies that the power investment is at the lower end of the line of AB_1B_2. If it were higher, i.e. had a higher rate of return, then investment X_1X_2 would be dropped and replaced by X_2X_3, and the line CD would be spliced onto the line AB_1B_2 at the level of r_2. Total investment would become OX_3 minus X_1X_2.

In other circumstances the return on capital function may not be as discontinuous as shown in the chart. If there is a choice between various patterns of investment, involving different amounts of investment, it is conceivable that the return on capital function may move down and up, intermittently falling below the socially tolerable minimum rate of return, but re-emerging above it with additions of capital.

The argument and the examples given in the preceding section indicate that in some cases the expected rate of return on an investment project is likely to increase if the project is not considered in isolation but together

CHART II

ABSORPTIVE CAPACITY
WITH COMPLEMENTARY AND INDIVISIBLE PROJECTS



with a related project or several related projects. The proposition that a larger amount of investment may yield under certain circumstances a higher rate of return than a smaller amount is nothing new. It is basic to the theory of the "big push" and an essential ingredient of the theory of "balanced growth."/1 But the discussion (and the very concept of limited absorptive capacity) suggests also that in many less developed countries the possibilities of a truly "big push"--beyond the complementarity of a small number of projects--are definitely limited by the low supply elasticities of co-operant factors.

The Relation of Return to Capital

Throughout the discussion it has been assumed that there existed a causal relation between the investment and the activity expected to bring a return. For most projects this relation may be taken for granted. There are however instances in which it is difficult to decide whether there is a direct causal connection between the investment and the flow of income.

Two examples may be enough to illustrate the point. In recent years, proposals for the rehabilitation of railway systems in a number of countries envisaged large capital outlays for the modernization of rolling stock, of repair shops and other physical facilities and also the closing down of branch lines which had become--or always had been--unprofitable and could be readily dispensed with in view of the growth of motor transportation. In some cases rehabilitation of the railways also involved the dismissal of railway

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/1 Cf. P. N. Rosenstein-Rodan "Note on the Theory of the Big Push" in Economic Development for Latin America, H. S. Ellis, editor, New York, 1961, pp 57-81; R. Nurkse Problems of Capital Formation in Underdeveloped Countries, New York, 1955, pp 11-17 and pp 22-23.

employees, partly because their services had become unnecessary because of the introduction of more modern equipment, but partly also because their numbers were excessive to begin with, as a result of mismanagement, political pressures, etc. The experts analyzing these projects and determining their return related the financial results of all recommendations to the recommended volume of investment. This is correct if for some reason--which may be technical, organizational, or "institutional"--the various cost-saving parts of the proposal (dismissal of redundant labor, closing of unprofitable lines) are impossible without the capital investment in the proposed magnitude. If however the changes in current cost (and changes in receipts) can be brought about without capital expenditures, it is obviously wrong to attribute the resulting changes in revenue to the proposed investment.

The situation may be similar in a (hypothetical) irrigation project which is expected to yield a high return because it involves, among other things, a change in the cropping pattern and improvements in such related matters as marketing and warehousing of the production of the affected area. If the change in the cropping pattern and in the other activities could not take place without the availability of additional water, then the attribution of the total increase in agricultural income to the irrigation project is justified. If however improvements in the cropping pattern, in warehousing, in transportation, etc. could be accomplished without irrigation, then it would clearly be inappropriate to attribute the gains derived from these measures to the irrigation project.

The preceding examples give an indication of the complexity of the problem of attribution which must be resolved if an appropriate measure of the expected rate of return of a project (and of absorptive capacity) is to

be found. In practice the solutions are difficult because the questions raised frequently cannot be resolved by a decision to include or not to include increases in income in the return on the proposed investment. In most cases it may be more appropriate to include only a part, and it is difficult to decide which part should be, and which part should not be, included.

Uncertainty and Absorptive Capacity

It is a basic characteristic of the appraisal of investment projects that it involves the assessment of future events and the evaluation of factors which are uncertain. The cost of an investment project is not known until the last machine is in place; the cost of operation depends on many factors not fully known at the time when the appraisal is made. The suitability of a productive process is uncertain until it has been applied in the specific circumstances of the project. Factor costs may suddenly change; the market for the goods or services to be produced depends on future events beyond the control of the investor; and so on. The lack of knowledge mentioned before as an important factor limiting absorptive capacity, the constant changes entailed by the growth process in an underdeveloped economy, the importance of the export sector with its peculiarly uncertain outlook, the inexperience of management in coping with changes, are all factors which make for more uncertainty in underdeveloped countries in comparison with advanced countries.

Two types of uncertainties may be distinguished. One kind of uncertainty is the one pertaining to a specific project or to a particular aspect of a project such as the uncertainty as to whether a new technical process will work, what price the products to be produced will fetch, etc. The other type of uncertainty is one besetting the economy as a whole: what will the growth of income be in the next five or ten years? how fast will

traffic expand in a particular area? at what rate will industrial production increase? how will changes in the distribution of income affect consumer demand?

These uncertainties may be considered another kind of limitation on absorptive capacity if they serve as a basis for discounting expected rates by the risks which they entail. But a more important aspect of these uncertainties is that they are probably the most important basis for the disagreement on the appraisal of future returns and regarding the limits of absorptive capacity. Proponents of a project may be prone to play down some of the uncertainties and take the sanguine view that in the end everything will turn out all right. Lenders and sources of foreign aid on the other hand may take a more cautious, and perhaps an overly cautious, attitude regarding these uncertainties. They may not be used to dealing with the kinds of uncertainties peculiar to underdeveloped countries and they may be inclined to underrate the future rate of return and absorptive capacity.

Uncertainties regarding the rate of growth of the economy as a whole may be particularly significant in this respect in industries in which the scale of operations is of importance. Frequently the expected rate of return on a power project depends on the time it takes for demand to rise to the full generating capacity. Similarly, decisions regarding investment and transportation depend very much on the rate of growth of the demand and supply of movable goods which of course reflect in turn the growth of the economy as a whole. The effect on expected rates of return of high aggregate growth rates is one of the reasons why such high rates seem to resolve the concern with the adequacy of rates of return. With a GNP growth of 7% and growth of the

industrial and utility sector of the order of 10%, many more investment projects appear to be sound than if the projected rates were, say, 4% and 6% respectively./1

The importance of uncertainty in the determination of rates of return and of absorptive capacity brings out again the significance of concerted efforts of coordination and planning. A well conceived plan in which investments in various projects are inter-related can go a long way toward elimination of these uncertainties and thus raise absorptive capacity.

The Price System and Absorptive Capacity

So far we have referred to the rate of return as a measure of absorptive capacity without in any way relating the rate to the prices of factors of production and to prices prevailing in the economy with those prevailing in the rest of the world. There would be no need to bring prices of factors of production and international price relations into the argument if they properly reflected relative economic scarcities. But it is generally recognized that in less developed countries prices reflect resource scarcities much less adequately than in more advanced countries and thus do not lead to an optimum resource allocation./2 The concept of shadow prices reflecting more accurately the relative scarcity of resources has become generally accepted although many issues regarding the practical applications of the concept still remain to be resolved.

/1 The high growth rates have still another important effect: a high growth rate promises a rapidly rising rate of saving which in turn permits a high rate of investment and so on.

/2 J. Tinbergen's The Design of Development, (Baltimore, 1958, pp 39-41 and pp 76-78) was the first systematic exposition of the inappropriateness of market prices and of the use of shadow or accounting prices instead.

There is no need to discuss in detail the conceptual and practical problems arising in connection with the use of shadow prices in this context. For the purpose on hand it is sufficient to point out that, in the opinion of most exponents of the use of shadow prices, (a) the shadow price of capital is usually higher than the market price; (b) the shadow price of unskilled labor is generally lower, and frequently much lower, than the market price; and (c) the shadow price of imports and exports is frequently higher than their market price, reflecting either an over-valued domestic currency or the need to achieve a "structural" balance-of-payment equilibrium through export promotion and import substitution. We shall deal with (a) and (b) in this section and (c) in the next.

Proposition (a) rests on two contentions. One is that in many countries interest rates charged by financial institutions, or paid by government, and re-discount rates of central banks do not adequately reflect the scarcity of transferable capital and the return on capital which private entrepreneurs expect (and obtain). The second one is that the expected rate of return on (public or private) investment projects is low because it is adversely affected by an inadequate supply of such co-operant factors as management and skills, the high cost of other inputs (e.g. transport cost) or by the diseconomies of small scale operations. The latter thus is in a sense but another way of saying that without taking action to improve (i.e. increase or make cheaper) the supply of co-operant factors, or to modify the technique of production or to increase demand--to overcome diseconomies of small scale on the supply and on the demand side--absorptive capacity is limited. But this does not help us decide whether the market or a higher shadow rate of interest should be

used to determine what constitutes a reasonable rate of return that can be used to establish a cut-off rate and absorptive capacity.

The level of institutional interest rates is only indirectly relevant for the purposes of our inquiry. It determines only the distribution of the return on capital between equity holders and lenders. This rate (as distinct from the rate on total capital invested in a project) is important only if the supply of risk takers and other entrepreneurial talents is increased by low institutional lending rates and, as a consequence, absorptive capacity is increased.

Institutional interest rates that are "too low" are also important if they are used as a basis for price setting (rate making) in such quasi-monopolistic industries as electric energy or transportation, particularly in the public sector, or if the prices charged by privately-owned enterprises are controlled. Low power or transportation rates resulting from low interest charges may have adverse effects on total savings and on the optimum allocation of resources since they may induce the excessive use of electric energy or transport services and reduce that of other factors; they may also lead to the wrong location of productive facilities that depend on power and transportation services and the wrong utilization of investible resources. In other words, "wrong" industries may be started. If this happens, and as a consequence wrong (i.e., more capital intensive) techniques of production are chosen, other factors of production (i.e., labor) will be under-utilized, and this may adversely affect the level of investment and the growth of output.

But the price of capital and the difference between its market and its shadow price cannot be considered in isolation. They must be related to the prices of other inputs. In economies in which the shadow price of unskilled

labor is significantly lower than the market price,/1 (a) part of the labor force will remain unemployed, and (b) the return on capital will be smaller than it would be if lower wages were paid.

Although widespread unemployment in industrial centers and underemployment in rural areas in underdeveloped countries offer indirect but strong evidence of the existence of a spread between market and equilibrium prices of unskilled labor, it must be noted that this proposition pertains only to unskilled labor and not to labor in general. As a matter of fact, there is also considerable evidence that technical skills are scarce--frequently scarcer than the wages for such skilled labor as foremen, craftsmen and managerial employees indicate. Thus the effect of the discrepancy between the shadow and the market price of labor in the aggregate on the return on capital may be less than is indicated by the argument that the market price of unskilled labor is too high.

Some economists have used the difference between the market and the shadow price of unskilled labor not only as an explanation for the existence of unemployment and underemployment and for the low return on capital investment projects, but also as the basis for proposing that entrepreneurs be somehow compensated for this difference, presumably by a government subsidy./2 Proposals of this sort in essence convert the investment problem into a fiscal problem. Given the limitations of the taxable capacity of underdeveloped

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/1 For an (at least partial) explanation of the rationale of paying higher than equilibrium wages to unskilled workers, see H. Leibenstein, "Underemployment in Backward Economies" in Journal of Political Economy, April, 1957, pp 91-103.

/2 Jan Tinbergen, op. cit. p 53.

countries and the claims on the public treasury to finance other activities essential for the support of economic development, it is difficult to see how this can be done and it is not surprising to find that schemes of this sort have not been put into effect.

The difference between market and shadow prices for unskilled labor is frequently used however as justification for the low rate on publicly-owned enterprises. The reasoning underlying this justification overlooks the simple fact that low earnings of state enterprises pose exactly the same fiscal problem as subsidies which would be paid to private enterprises; in some senses they are even worse. The consequence of low returns on state enterprises, aside from the distortion effects already mentioned, is either the need to increase public revenues or to curtail public expenditures elsewhere. They are worse than public subsidies paid for low earnings on private investment (justified by differences between the market and the shadow price for unskilled labor) because the subsidy payments accruing to private entrepreneurs may be saved by them and thus augment the flow of investible resources, while low earnings of public enterprises are revenues foregone and more likely than not result in more consumption rather than in more investment.

Another justification that is frequently used for accepting low returns on investment in publicly-owned enterprises (and thus apparently "stretching" absorptive capacity) is the argument that additional returns accumulate to the rest of the economy in the form of external economies which lower cost and/or increase returns to their beneficiaries and thus contribute to capital formation and growth. There is no need to deny the importance of external economies in the growth process, although by their very nature their quantification appears difficult; and there is no need to become involved in this context

in the arguments concerning the concept of external economies and the extent to which they are offset by diseconomies. Only one aspect is relevant. It is clearly a misuse of the concept to justify with it a low "internalized" return on capital./1

The practical effect of using the discrepancy between market and shadow prices of unskilled labor and, it might be added, of other inputs, as an argument in favor of accepting low returns on capital as a measure of absorptive capacity is a lowering, immediately, or gradually, of the rate of savings in the economy. More exactly, since private entrepreneurs are not likely to be willing to accept low rates of return in the first place, it would tend to lower public capital formation. This in turn may affect tax policies and lead to an increased tax burden on income which would be available for private capital formation. To accept a low return on capital thus would increase the scope for public investment (and absorptive capacity) but at the same time would curtail the rate of capital formation and impose on the economy the constraint of inadequate savings instead of the limitations of absorptive capacity.

Closely related to the argument that low returns on capital are not an indication that the limits of absorptive capacity have been reached is the argument that investment expenditures are justified as long as the economy

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/1 It would be equally reasonable to argue that capital formation in any economy would be enhanced if somebody took money out of his savings account and used it for making bets on horses because even if he did not win some other bettor would benefit from them. Cf. also E. S. Mason "So frequently does it happen that low-yield projects are accepted with an airy reference to undemonstrated and undemonstrable 'external' economies that I am tempted to observe, paraphrasing Dr. Johnson, that an external economy is the last refuge of a scoundrel." op. cit. p 18.

shows a rate of growth, i.e., as long as there is a positive capital output ratio.[1] The implication of this proposition which at first glance appears plausible, particularly if it is related to the argument that market prices do not adequately reflect equilibrium prices, is that the rate of return somehow reflects only the appropriateness or optimization of the allocation of capital. This is of course a misreading of the essence of economic theory. The maximization of the return on capital is also a measure, or proof, of the rationality of the allocation of all resources. In other words, a low rate of return does not prove per se that capital is plentiful relative to other factors. In the situation in which underdeveloped countries find themselves and in which the presumption that capital is scarce seems amply justified by the low rate of capital formation, a low rate of return on any particular project is evidence in the first instance that the allocation of capital and of other resources is deficient and could be and should be improved. A low rate of return on investment may be taken as an indication that absorptive capacity has been reached and that the growth rate of the national product can be increased by devoting resources to raising the supply of co-operant factors rather than capital formation.

The Supply of Foreign Exchange, Exchange Rates, and Absorptive Capacity

We now turn to a discussion of the relation of an economy's absorptive capacity to its balance of payments. The relevance of the international transactions of an economy to its development effort is rather obvious. Exports provide the foreign exchange to purchase goods and services from abroad to supplement the goods and services available from domestic sources. Since the range of goods and services internationally available is infinitely

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[1] Cf. Jorge Ahumada "Investment Priorities," in Economic Development for Latin America, edited by H. S. Ellis, (New York, 1961) pp 366-396.

wider than that resulting from domestic production, access to foreign resources, through foreign exchange earnings, foreign capital and foreign assistance greatly extends the possibilities of factor combinations.

The lower the level of development of an economy, the smaller is the range of goods and services which it produces. One of the common characteristics of most underdeveloped countries is the absence, or virtual absence of capital goods industries. Therefore investment activities require a certain amount of imported goods, which may have to be supplemented by some imported technical and managerial services. Moreover, as was pointed out by Felipe Pazos, the import content of consumption is frequently significantly lower than the import content of investment. Therefore a policy aiming at a curtailment of consumption and an increase in savings and investment may lead to a balance of payments deficit, unless the flow of foreign exchange can be increased./1

What matters for the development effort however is not the total of foreign exchange availabilities, but only that part which can be used for investment purposes. A country which has large foreign exchange earnings relative to its national product still may not be able to mount a major development effort if it suffers from inadequate foreign exchange because it has to devote all its foreign exchange earnings to purchase food, fuel and raw materials from abroad, or because it feels compelled to use a large proportion of foreign exchange earnings for the purchase of military equipment. This

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/1 Dr. F. Pazos R. "Desarrollo Economico y Estabilidad Financiera," Tercera Reunion de Tecnicos de los Bancos Centrales del Continente Americano, Havana, 1952, pp 365-406. Cf. also Celso Furtado "Capital Formation and Economic Development," in International Economic Papers, Vol. 4 (1954), pp 124-144.

underlines the importance of foreign capital and of foreign grants. Foreign capital and foreign aid do not only supplement the flow of domestic capital formation, but beyond that, because of the unlimited variety of goods and services which can be provided by them, they are worth more than their nominal amount./1 As Chenery has pointed out, countries supplementing their domestic capital formation through foreign capital and foreign assistance experienced, by and large, a significantly lower marginal capital/output ratio than countries which choose, or are forced, to "go it alone." Similarly, the availability of foreign exchange to purchase any capital (or current) input not available, or available only at a high cost, from domestic sources is bound to result in a higher return on capital in countries benefiting from an inflow of foreign capital and foreign assistance than countries relying entirely on their own savings.

Given the positive effect on the rate of return, and thus on absorptive capacity, of the availability of foreign resources to supplement domestic resources available for investment, it is at first blush somewhat surprising to find that the concept of absorptive capacity has been frequently applied not to total investment but chiefly, and on occasion exclusively, to foreign capital and foreign aid. This is in clear contradiction to the proposition that limits on the availability of foreign exchange themselves are likely to restrict absorptive capacity.

/1 "... the fact that external resources can be provided in whatever form is needed to break a particular bottleneck is likely to give them a value of several times their market price in the country from which they are supplied." Hollis Chenery in "Foreign Assistance and Economic Development," paper presented at the Boston meeting of the Econometric Society, December, 1963.

On second thought, however, the application of the concept "absorptive capacity" to foreign capital and foreign aid turns out to be meaningful. If foreign capital and foreign aid are considered in strict national accounting terms as supplementing resources available for investment, the limit of absorptive capacity is reached with respect to the inflow of foreign capital since it represents the marginal amount of total capital.[1]

In practical terms, the idea that the absorptive capacity for foreign capital is limited makes more sense if foreign capital is not obtained in the form of foreign funds with unlimited use, but if its use is restricted for specific purposes, either by the foreign lenders or sources of foreign aid, or by the recipient country. The absorptive capacity for funds which can be used only to finance foreign capital equipment may be limited by the ability of the recipient to mobilize domestic resources necessary to finance domestic investment expenditures for the same project. This is not necessarily a problem of increasing total domestic capital formation, but rather to channel domestic savings into the specific sector or project for which foreign financing is available. This particular kind of limitation on absorptive capacity is likely to be of considerable significance in countries in which government authorities are unable to increase fiscal revenues or to borrow savings from the private sector. One of the consequences of such a situation is that the availability of foreign financing for public investment and the limited availability of

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[1] i.e., $I - S = M - X = F$, where I stands for investment, S for savings, M for imports of goods and services, X for exports of goods and services, and F for the effective use of foreign capital, equivalent to the balance of payments deficit on current account.

domestic financial resources may lead to a warping of the investment pattern because projects with a large foreign exchange content get preference over projects for which large amounts of domestic resources are required./1

The situation is similar if for some reason a country which capital exporters consider as a promising place for investment does not permit the importation of co-operant factors in the form of managerial, technical or supervisory personnel and if these co-operant factors are locally in short supply. The absence or inadequate availability of these factors lowers the rate of return and absorptive capacity. Import restrictions of this sort presumably limit the flow of private direct investment in a number of Latin American and Asian countries. Arguments advanced in defense of these restrictive measures are either that they will accelerate the training of local personnel or that they save foreign exchange. By contrast, the absorptive capacity for petroleum investment in uninhabited parts of the Sahara or of the Arabian peninsula may be unlimited as long as oil companies are allowed to bring in not only capital equipment but all other factors necessary to exploit the oil resources.

One other aspect of the relation of the absorptive capacity of an economy to its international transactions remains to be explored. As indicated before,/2 it is frequently argued that, in the determination of the rate of return, shadow exchange rates should be used instead of the existing "market"

/1 The situation is exactly the opposite when foreign exchange resources are insufficient. In that case the investment pattern will be warped in favor of a pattern of investment relying as much as possible on domestic resources.

/2 Cf. p 24 above.

rates, either because the balance of payments is in actual disequilibrium, or because it is likely to get out of equilibrium on account of an expected adverse development of export earnings. This argument is valid insofar as balance of payments difficulties are unavoidable; but when they are the consequence of mistaken policies, the discrepancy between market and shadow prices of imports and exports are but the reflection of these policies and the use of shadow prices is not a substitute for proper corrective action.

On theoretical and empirical grounds the argument that an economy mounting a determined development effort is likely to experience pressures on its balance of payments may be readily accepted. To accept the possibility or even the likelihood of balance of payments difficulties is but another way of emphasizing the important role which foreign exchange resources play in the development process. But in practice this line of reasoning frequently disregards two problems. One is a question as to the appropriateness of the existing exchange rates. In many developing countries the exchange rate is not a market price but an administered price which is maintained by exchange controls at a level that is too low. The effects of an overvalued currency on the balance of payments of a developing country are well-known and need not be elaborated at length here. An overvalued currency adversely affects the activities and investment in the "traditional" export sectors and prevents the development of new export products and thus aggravates the balance of payments disequilibrium. On the import side it raises the demand for imports of all kinds and makes the efficient allocation of exchange earnings more difficult. If it is accompanied by policies aiming at the development of import substitution industries it may draw resources away from the export sector and thus aggravate, and not cure, the balance of payments problem. The indiscriminate

protection of import substitution industries by the prohibition of competing imports is likely to lead to an increase in the domestic price and cost structure and thus further accentuate the balance of payments difficulties.

What is required under those conditions is not resort to shadow prices in the evaluation and selection of investment projects, but, in the first instance, an adjustment in the rate of exchange to reflect more adequately the prevailing balance of payments conditions. This is not to say that an adjustment in the exchange rate will cure all balance of payments difficulties; some form of direct controls over international transactions may be unavoidable. But there is no doubt that the rational allocation of resources can be greatly enhanced by exchange rate policies which more accurately reflect the scarcity of foreign exchange than exchange rates now prevailing in many underdeveloped countries.

If overvalued exchange rates are adjusted, the case for the use of shadow rates in the evaluation of projects becomes much weaker, although it would not be entirely eliminated. Whether or not shadow rates should be used in the determination of the social rate of return on investment depends largely on what measures can be devised to make the shadow rates effective. Devaluation itself may go a long way toward increasing the profitability of investment in import substitution and in export promotion industries, even if as a result of the devaluation the cost of imported equipment increases. It may also enhance investment opportunities in the production of raw materials and semi-manufactured goods which are inputs in import substitution industries. But beyond that, the shadow prices of imports and exports may have to be made effective by fiscal and other measures permitting rates of return in export

and import substitution industries to be at or above the socially tolerable cut-off rate.

The preceding discussion of the shadow exchange rate indicates the true relevance of the concept of shadow prices. If it is found that in an economy the existing market prices do not even approximately reflect the relative scarcities of factors and thus result in a distortion of the allocation of resources, then efforts must be made to correct the inappropriate market prices by changes in policies and controls. Shadow prices are not a reason for engaging in investment activities in which the effective rate of return on capital is low; they are an indication that causes of the distortions must be eliminated insofar as possible. This applies not only to exchange rates but also to institutional rates of interest, to the prices charged by utilities and the whole range of administered prices of goods and services. In many countries the discrepancies between market and shadow prices are not so much a phenomenon of underdevelopment as the result of restrictions imposed on the price system. If these restrictions are eliminated, the market rates of return may well be taken as a reasonably accurate indication of a rational allocation of resources and of absorptive capacity.

Time Dimension of Absorptive Capacity

The absorptive capacity of an economy depends on the time that is allowed for adjustments in the factors determining its limits. The more time is allowed to overcome the lack or inadequate supply of the co-operant factors, the greater absorptive capacity becomes. Like the price elasticity of supply, the short-run absorptive capacity is smaller than the absorptive capacity in the medium- and the long-run. The short-run absorptive capacity is determined by the extent to which co-operant factors are under-utilized, or in excess

supply, and can be combined immediately with additional capital; the medium-run absorptive capacity would be determined by the extent to which the co-operant factors which are initially deficient can be mobilized and applied in the course of, say, three or four years; and the long-run absorptive capacity may be defined as that absorptive capacity which prevails after the supply of the limiting co-operant factor has been increased.

This distinction though conceptually unassailable, suffers from one serious flaw. It disregards the fact that the process of absorption, i.e. the investment activity itself has a time dimension and that within the investment process itself various phases can and must be distinguished. In practice short-run or instantaneous absorptive capacity may therefore more appropriately be defined as the ability to undertake investment projects which are "ready to go," that is to say projects which have been completely engineered and appraised and believed to be viable. Medium-term absorptive capacity then refers to the availability of investment projects which have been determined to be "feasible," i.e. it has been found that their return is likely to be above the cut-off point, but their engineering has not yet reached the blueprint stage. An important variant of the same concept of medium-run absorptive capacity (which is in practice of considerable importance and has on occasion given cause for concern) is the availability of projects which have been found to be technically feasible but which have not yet been investigated as to their economic and financial viability./1

/1 The distinction between technical feasibility on the one hand and economic and financial feasibility on the other is in practice much less clear than in theory since the engineering, the choice of technology, the scale of the project, etc. depend on economic considerations.

It is somewhat more difficult to give practical meaning to the concept of long-run absorptive capacity because the ability to make effective use of additional capital in the long run depends primarily on the progress of economic development itself. The inadequate supply of co-operant factors such as the ability to appraise and engineer investment projects and to manage enterprises is itself an aspect of underdevelopment and the growing supply of co-operant factors is part and parcel of the development process itself.

Sectoral vs. Aggregate Absorptive Capacity

Since the limit of absorptive capacity is reached in each specific case by a lack of specific co-operant factors, the absorptive capacity of a particular sector of the economy may be smaller than in other sectors or in the economy as a whole. That is to say a rate of return below the cut-off rate is reached when the ratio of gross investment to the value added of the sector is smaller than in other sectors, or the rate of gross investment to the gross national product./1 This is not simply a reflection of the principle of diminishing marginal productivity of factors in any specific use but it is also the result of the limitations of factor mobility. The absorptive capacity for investment in, say, highways is likely to be limited by the number of engineers in the planning office of the highway department, by the amount of information available about present and future traffic in particular locations, etc. But when the absorptive capacity for highway construction is reached the absorptive capacity for irrigation projects or

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/1 Since the limits of absorptive capacity pertain to replacement investment as well as new investment, it is the ratio of gross investment to value added (or, in the aggregate, to gross national product) that is relevant, not net investment.

for investment in industry or for housing may still exceed the volume of investment taking place in these sectors. Similarly, within a particular sector the absorptive capacity for small projects which do not require elaborate engineering and other preparations may be greater than the absorptive capacity for major projects.

This rather obvious proposition is of considerable practical significance when decisions have to be made as to the allocation of total investible resources between the public and the private sectors. Investment in the public sector may be impeded by the difficulties of transferring co-operant factors from the private to the public sectors--because of inadequate salary scales, the bad reputation of the government, or government agencies as an employer, etc. The flow of investment in the private sector on the other hand may be limited by the inability to provide technical assistance and advice from public sources to private investors. This is probably one of the most important limitations of international technical assistance activities since much of technical assistance inevitably takes place on a government-to-government basis and the benefits of such assistance accrue in the first instance to public authorities. Public authorities in turn may find it impossible, or may not be inclined, to transmit technical assistance to the private sector. The result of this condition, quite common in underdeveloped countries, is that investment in new industries takes place in the public sector although the private sector may well be better equipped to undertake such investment if it had ready access to foreign technical assistance.

The difference between sectoral and aggregate absorptive capacity points up once more the inter-dependence of projects in aggregate investment.

The coordination, or the joint preparation and evaluation of projects in two, or more, sectors raises the limits of absorptive capacity. In the formulation of a development program, the limitations of absorptive capacity in the various sectors must be taken into account in order to achieve "balance" and thus maximize aggregate absorptive capacity.

Specific Limitations

The preceding sections have shown that absorptive capacity is a rather simple and straightforward concept. They have also shown however that the limitations on absorptive capacity can take so many forms that it is in practice not very meaningful to propose policies to increase absorptive capacity in general. The only way to come to grips with the practical limitations of absorptive capacity is to devise specific measures to raise specific limitations.

The following comments may be considered a rudimentary (and presumably incomplete) typology of the limitations on absorptive capacity. But before listing some of the more important facets of the concept, some further general observations appear useful.

Such a typology could be based on a variety of criteria. It would be possible for example to distinguish limitations on pre-investment activities, or investment activities, and on the management of the newly established facilities; alternatively, a distinction could be made between limitations that can be easily removed, those that can be overcome with some difficulties, and those that are likely to prove obstinate; or it may be useful to distinguish between those limitations that are susceptible to foreign assistance, and those that are not.

In the list that follows the various factors limiting absorptive capacity have been grouped under headings reflecting the distinctions normally made between the various co-operant factors of production.

(a) Lack of Knowledge - Lack of knowledge limits absorptive capacity particularly if it pertains to natural resources and to the availability of technology. Information about mineral resources, the composition of soils, rainfall, river flows, temperatures, etc. are prerequisites for most projects in agriculture, mining and power, and useful though perhaps not essential for projects in other sectors. In many cases, the lack of data cannot be immediately overcome since it takes time and effort to organize the gathering of data, and to analyze them.

Lack of knowledge of the best technology may well be one of the limiting factors most difficult to overcome--since it takes time and effort and expense to devise a new technology or to modify an existing one. The difficulties which have been encountered, and continue to be encountered in attempts to make effective use of tropical woods for the production of newsprint are a good example of the problem of inadequate knowledge of technology.

(b) Lack of Skills - Lack of skill or expertise is generally recognized as one of the more important characteristics of underdeveloped economies. In relation to absorptive capacity it may be convenient to distinguish between (i) the skills necessary to prepare investment projects, i.e. to do the engineering and economic and financial appraisals; (ii) the skills necessary to carry out investment projects once they have been found to be feasible; and (iii) the skills necessary to perform the manufacturing and clerical tasks of new enterprises.

The lack of skills in the preparation of projects has for many years been a matter of major concern to national and international lending agencies and other sources of financial assistance to underdeveloped countries and has been considered as one of the prime limitations on absorptive capacity. The difficulties of preparing and appraising investment projects are compounded by the fact that there is no generally accepted methodology for these tasks. Numerous requests for assistance in project preparation and appraisal have been addressed to national and international institutions but these skills are in short supply in advanced countries as well. Thus in order to overcome this limitation on absorptive capacity, it may be necessary to train personnel both in underdeveloped and advanced countries.

The skills required to carry out investment projects, i.e. the engineering and organizational efforts required in the physical investment process are also scarce in most if not all underdeveloped countries. But in this field the supply of engineering firms, technical consultants and advisors from abroad is more ample. Therefore this type of limitation can in practice be overcome. The solution of finding foreign personnel skilled in the execution of investment may be inappropriate, however, in the case of small projects which cannot stand the cost of foreign technicians.

The lack of skills in the preparation and execution of projects is likely to increase the cost of investment; the lack of skills to operate new enterprises is bound to affect adversely the cost of operation and thus the rate of return. To overcome this absence of skills training facilities for foremen and workers must be provided. This is both an expensive and time consuming task in which foreign assistance may be of some help.

(c) Lack of Management Experience - The reason for distinguishing between the lack of skills and the lack of managerial talent and experience is that while skills can be acquired by training it is more doubtful whether "management" can be made the subject of systematic training. Effective management requires not only a basic understanding of the techniques of production and the skills required, and a knowledge and understanding of the elements of business finance, but also a familiarity with the social environment in which an enterprise operates, plus ingenuity and competence to deal with unforeseen problems which arise in any business enterprise.

The task of management can be entrusted to foreign managers but only enterprises over and above a certain size can afford the high cost of foreign management. Foreign management is not a solution for the numerous smaller enterprises which are poorly managed and therefore show small returns.

The absence of efficient management is of particular importance in the case of state enterprises which for political reasons find it difficult to accept foreign management. By experience, training and emotional inclinations, successful civil servants who frequently are entrusted with the management of state economic enterprises are not good business managers, notwithstanding the fact that many of them have much technical competence. The confusion between technical skills and managerial competence, frequently observed in less developed countries, is one of the prime causes of the low rate of return of state economic enterprises and thus limits absorptive capacity.

(d) Institutional Limitations - So far we have mentioned factors limiting absorptive capacity at the enterprise level. These limitations can be overcome by action at the enterprise level. There are, however, limitations

of absorptive capacity which cannot be eliminated by improvements of any particular investment project, since by their nature they affect the economy as a whole and make it difficult for all economic units to operate with the prospects of an adequate rate of return on capital. Inadequate measures to maintain law and order are an example of such institutional limitations. The prevalence or the threat of riots, disorder, banditry or other forms of lawlessness not only limits the absorptive capacity for foreign private direct investment; it also makes it more difficult or impossible for domestic investment to proceed.

But there are many underdeveloped countries in which law and order are well maintained but institutional constraints of another kind limit absorptive capacity. The administrative procedures of government may be so cumbersome and so time-consuming that they make it difficult for investors, foreign or domestic, to carry out projects which they consider promising and profitable. In the public sector likewise the slowness of the decision-making process, the difficulties of achieving coordination between various parts of the government, or the lack of communication between government departments adversely affect the rate of return on public investment because they all increase the cost of investment and the length of the physical investment process.

The adverse effects of administrative inefficiency become the more serious the greater the extent of direct controls. If private and public investment decisions and the management of public enterprises are constantly subject to government sanction through licenses, allocations, etc. and if the licenses, allocations and permits of one kind or another are not readily forthcoming, the rate of return on new investment is bound to be smaller and absorptive capacity limited.

(e) Cultural and Social Constraints - The various categories of limitations on absorptive capacity commented on in the preceding paragraphs are only the specific forms in which both cultural and social constraints assert themselves in underdeveloped countries. The lack of skills reveals frequently not just the underdevelopment of the educational system but, beyond that, the reluctance to acquire new skills. Even where optimum techniques have been devised for some kind of production, their introduction may run into opposition because of cultural factors, the unwillingness to accept the discipline of controlled working hours, supervision, etc. of an industrial society.

There is no point in laboring the differences in the social structure and the cultural values between advanced and underdeveloped countries in this context. It is sufficient to stress the fact that, unlike the factors limiting absorptive capacity enumerated in the preceding paragraphs, the cultural and social factors limiting absorptive capacity are not directly amenable to technical assistance or concerted action. They can be overcome only by the process of development itself.

The Role of Technical Assistance

Throughout this paper references have been made to the possibility that technical assistance could be instrumental in increasing the supply of those co-operant factors whose shortages impede the effective utilization of capital. The term technical assistance has been intentionally used ambiguously. In some instances technical assistance itself constitutes the co-operant factor in short supply. For example, foreign consulting firms engaged for the purpose of making feasibility studies or preparing the economic or financial appraisal of a project may be said to provide technical assistance. The

situation is similar in the case of a foreign firm taking on the technical or commercial management of an enterprise under a management contract. But frequently technical assistance itself does not constitute the missing or inadequate co-operant factor but is designed merely to increase the supply of these factors from domestic sources. The training of personnel, either abroad or in the country and advise given how training is to be organized and conducted, and, more generally, how shortages of co-operant factors can be overcome fall into this category of technical assistance.

Little would be gained by attempting to draw a sharp distinction between these two types of technical assistance. In practice all arrangements which would fall under the first "direct supply" type inevitably include an element of the second type. Conversely, technical assistance personnel employed to provide education, training and advise are frequently called up to help with some specific tasks; or they may choose to give a demonstration of the skills and expertise which they are expected to teach.

There is however an important difference with regard to the availability of technical assistance between the factors limiting absorptive capacity which fall into categories (a), (b) and (c) and those included under (d) and (e) above. Broadly speaking the factors listed under the first three headings are replaceable by, or in various degrees amenable to, technical assistance. But deficiencies in factors limiting absorptive capacity enumerated under (d) and (e) cannot be made good by technical assistance, at least in the short run. True, technical assistance to help overcome institutional limitations can be provided, but it takes inevitably a long time for technical assistance in this field to become effective. Moreover, it cannot be brought

to bear on the project level but only for the economy as a whole or at least for an entire sector; it is of no avail to alleviate the cultural and social constraints limiting the supply of co-operant factors.

It is for that reason (and because of the time it takes for technical assistance to overcome the lack of knowledge, the lack of skills, and the lack of managerial experience) that one may speak of the limited absorptive capacity for technical assistance itself. It is this variety of the limitations on absorptive capacity which makes the limitations on the capacity to utilize effectively capital resources the more real and important.

Summary and Conclusions

Since this paper has dealt with a variety of aspects of the concept of absorptive capacity and touched upon many issues arising in the course of economic development, it may be useful to list the most important conclusions which have emerged from the discussions.

1. Absorptive capacity is a meaningful concept if it is related to the rate of return on capital which an economy finds socially acceptable. Because one of the major characteristics of underdeveloped economies is the lower rate of capital formation, the socially tolerable rate of return may be well above the rate which is acceptable in more advanced countries.
2. The rate of return and absorptive capacity can be increased by the coordination and orderly programming of investment projects.
3. Absorptive capacity must pertain to total capital, not only to foreign capital. The availability of foreign capital itself is likely to be an important factor increasing absorptive capacity.

4. The evaluation of absorptive capacity is beset by much uncertainty. It is the uncertainty of the expected rate of return on capital which is probably the most important reason for the wide differences in the appraisal of absorptive capacity of underdeveloped economies.

5. Because the rate of return on investment is limited in each specific project by specific factors, general prescriptions for raising absorptive capacity are not likely to be meaningful. It is possible, however, through the proper identification of the factor or factors limiting the rate of return and absorptive capacity in each particular case to raise these limitations; in this connection technical assistance can play a major role.

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LA CAPACIDAD DE ABSORCION: CONCEPTO Y FACTORES DETERMINANTES

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La capacidad de absorción: concepto y factores determinantes *

Introducción

La literatura reciente sobre desarrollo económico y ayuda extranjera está llena de referencias a *la capacidad de absorción*. Esta se define por algunos fijándose «un límite a la cantidad de inversión eficiente físicamente posible..., en particular a corto plazo» (1). En esta cita —y en otras muchas referencias (2)— se da a entender que la capacidad de absorción es un concepto bien definido, con un significado técnico consolidado, como «oferta», «demanda» o «propensión a importar», y, por tanto, no hay por qué explicarlo o analizarlo más; pero, desgraciadamente, no ocurre así.

El propósito de este trabajo es investigar el significado de la capacidad de absorción, determinar su utilidad para los fines de política, tanto para los países en vías de desarrollo como para las fuentes nacionales e internacionales de capital, de las que potencialmente se puede disponer, así como estudiar los factores que determinan los límites de la capacidad de absorción.

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* La realización de este trabajo me fue sugerida por la Brookings Institution y será incluído en su *Staff Paper Series*.

(1) *U. N. Economic Commission for Asia and the Far East, Programming Techniques for Economic Development* (1960), pp. 8-13. Citado en Gerald M. Meier: *Leading Issues in Development Economics* (1964), p. 93.

(2) P. N. Rosenstein-Rodan: «International Aid for Underdeveloped Countries», *The Review of Economics and Statistics* (mayo 1961), pp. 107-109. A. O. Hirschman: *The Strategy of Economic Development* (1958), pp. 37-38. G. M. Meier: *International Trade and Development* (1963), pp. 90-92. F. Benham: *Economic Aid to Underdeveloped Countries* (Londres, 1961), pp. 115-17. B. K. Nehru: «Foreign Aid from the Viewpoint of Recipient Countries», *Proceedings of the Academy of Political Science* (enero 1962), p. 59.

La medición de la capacidad de absorción

Aunque las referencias a la capacidad de absorción dan idea incidentalmente de que la cantidad de capital que se puede utilizar tiene un límite, la mayoría de los economistas reconocen, explícita o implícitamente, que la medición de la capacidad de absorción tiene que estar relacionada de alguna manera con la «productividad» o «eficacia» del capital (3). A primera vista esto no es más que «la eficiencia marginal del capital» de Keynes. La capacidad de absorción se convierte de este modo en una relación entre la cantidad de capital a invertir y el tipo de rendimiento esperado (4). Cuanto menor sea la tasa de rendimiento del capital que el «inversor» —la unidad económica que adopta la decisión de inversión— está dispuesto a aceptar como satisfactoria, mayor sería la capacidad de absorción.

En el caso posible, pero poco probable, de que haya un límite absoluto de la capacidad de absorción, la eficiencia marginal de la función de capital se convierte en una línea vertical *(ABX* de la fig. 1) si se mide el capital en el eje horizontal y la tasa de rendimiento en el vertical. Este desenvolvimiento del rendimiento en la función de capital es poco probable, ya que supone que, por encima de un cierto nivel de inversión *(OX)*, no existe ni una sola oportunidad de inversión que proporcione un rendimiento positivo.

La forma más general del rendimiento esperado en la función de capital es la que representan las líneas *ABC* o *A*1*BD*. Existen razones para pensar, sin embargo, que la línea *ABC* resulta más típica para las naciones menos desarrolladas que la línea *A*1*BD*, la cual, se puede suponer, refleja las condiciones que prevalecen en las naciones avanzadas. Existen hechos y pruebas

(3) «Puede haber un límite para la cantidad de inversión extranjera que se puede usar eficazmente cuando la inversión no solamente tiene que cubrir su coste, sino producir también un aumento razonable de la renta.» G. M. Meier: *International Trade and Development* (1963), p. 90. «Millikan y Rostow han propuesto que los países avanzados del mundo deberían poner a disposición de las naciones en vías de desarrollo tanto capital como éstas puedan absorber, con lo que quieren dar a entender tanto como se pueda usar productivamente con seguridad razonable.» C. P. Kindleberger: *Economic Development* (1958), p. 263.

(4) Keynes define la eficiencia marginal del capital como «igual a la tasa de descuento, que haría el valor presente de la serie de anualidades dadas por los rendimientos esperados del activo de capital durante su vida exactamente igual a su precio de oferta». J. M. Keynes: *The General Theory of Employment, Interest and Money* (1936), p. 135. Esa definición es esencialmente la misma que lo que más recientemente se ha llamado «la tasa interna de rendimiento», que es el descuento al que la corriente de coste total, incluyendo el coste de capital inicial, coste de sustitución y periódico es igual a la corriente de entradas totales (más el valor terminal del activo de capital). Véase Joel Dean: «Measuring the Productivity of Capital», *Harvard Business Review* (enero-febrero 1954), pp. 120-130; J. G. McLean: «How to Evaluate New Capital Investments», *Harvard Business Review* (noviembre-diciembre 1958), pp. 59-69.

de que, en las naciones menos desarrolladas, el rendimiento del *stock* de capital existente es alto y que resulta razonable, por tanto, llegar a la conclusión que la tasa de rendimiento esperado de *alguna cantidad* de inversión adicional sea también alta (5). La demostración se encuentra en la mayor proporción de beneficios, alquileres e ingresos por intereses respecto del producto nacional de muchos países menos desarrollados y las altas tasas de interés cargadas por los prestamistas particulares (6).

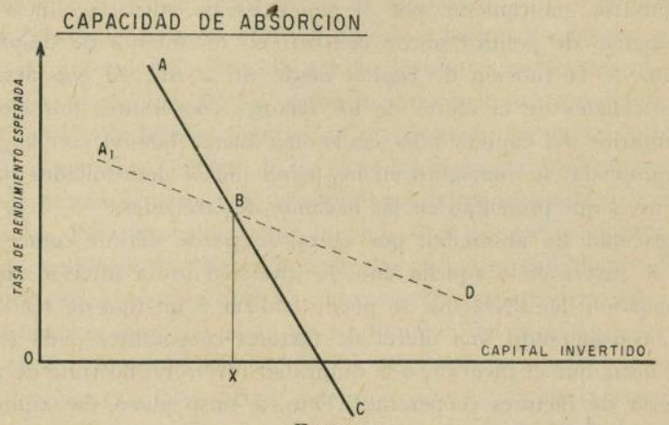

Figura 1

(5) El supuesto de que, en vista de la tasa elevada de rendimiento del capital existente el rendimiento de alguna inversión adicional también será alto, es aún más plausible si se refiere a la inversión bruta en vez de la neta, puesto que la bruta incluye el reaprovechamiento del *stock* de capital de alto rendimiento.

(6) Sobre el rendimiento del *stock* de capital, Simón Kuznets escribe: «... cualquiera que sea el *Y* de los países desarrollados [la tasa de rendimiento sobre la riqueza que no sea el capital representado por las acciones de las empresas no incorporadas] no cabe la menor duda de que en las naciones subdesarrolladas, por lo menos en activos distintos de las acciones de empresas no incorporadas, es mucho más alta... Incluso si incluímos, como deberíamos hacer, las tasas posiblemente menores de rendimiento reflejadas en la renta de las empresas gubernamentales y ahorros brutos de sociedades, parece razonable suponer que la tasa de rendimiento ponderada en las naciones subdesarrolladas es por lo menos el doble que la de los países desarrollados. Si fijásemos la última en el 7 por 100, podríamos fijar la primera en el 14 por 100.» «Quantitative Aspects of the Economic Growth of Nations: IV. Distribution of National Income by Factor Shares», *Economic Development and Cultural Change* (abril 1959), p. 20.

«Para la India tenemos un esfuerzo reciente para aproximar la distribución de la renta nacional entre renta de activos y otros componentes. Según los cálculos de Mr. Patel, la fracción de la renta de activos en la India es 23,3 por 100. La revisión de Gulati llevaría la fracción a 19,6 por 100. Otra partida se puede encontrar en algunos datos de Méjico. Del producto neto nacional a coste de factores la parte de beneficios (después del descuento por ganancias imputadas del autoempleado), alquiler e interés se elevó desde el 34,5 por 100 en 1939 a 47,4 por 100 en 1950.» *Ibíd.*, p. 12.

Sobre las tasas de interés cargadas por los prestamistas particulares, véase U. Tun Wai: «Interest Rates Outside the Organized Money Markets of Underdeveloped Countries», *IMF Staff Papers* (noviembre 1957), pp. 99-100. Se mencionan tasas del 23 por 100 hasta el 94 por 100 en la India; 10,6 por 100 al 45,8 por 100 en Ceilán, y del 8,5 al 44,7 por 100 en Tailandia.

Por otra parte, las limitaciones de la capacidad de absorción, la escasez de proyectos en los que se pueda esperar una tasa de rendimiento elevada, queda reflejado en la pendiente del rendimiento en las funciones de capital. En los países desarrollados, donde la capacidad de absorción, aunque no ilimitada, no parece plantear ningún problema práctico, el rendimiento esperado del capital disminuye con bastante suavidad. De este modo el problema que origina para la política la capacidad de absorción limitada, puede representarse gráficamente por el *gap* existente entre las líneas *BC* y *BD*. El objetivo de política puede consistir en un intento de desplazar el rendimiento de la función de capital desde *BC* a *BD*. El *gap* desaparece si las elasticidades de la oferta de los factores cooperantes (los elementos complementarios del capital, tales como una fuerza laboral con la especialización apropiada) se aumentan en los países menos desarrollados hasta alcanzar el nivel que presentan en las naciones desarrolladas.

La capacidad de absorción, por tanto, se puede definir como aquella cantidad de inversión, o aquella tasa de inversión bruta interior expresada como proporción del PNB, que se puede realizar a un tipo de rendimiento aceptable, considerando una oferta de factores cooperantes dada (7). Esto no quiere decir que el inversor, o la autoridad inversora, no trate de aumentar la oferta de factores cooperantes. Pero, a corto plazo, ese aumento es o imposible físicamente o tan costoso que aumenta enormemente el coste total de la inversión o el coste total de explotación, lo que reduce entonces el rendimiento del capital por debajo de la tasa aceptable.

Definiciones alternativas

La definición precedente no especifica cuál sea la tasa de rendimiento aceptable, y no hace distinción entre la tasa de rendimiento del capital nacional y la del extranjero. Puede ponerse en tela de juicio la proposición de que para cada economía existe un umbral o tasa límite, que separa lo que se considera un rendimiento aceptable de otro que ya es inaceptable. Se sostiene que, dadas las diferencias internacionales en la oferta de capital en relación con los factores cooperantes, el tipo de rendimiento del capital extranjero aceptable puede ser más bajo que el que proporciona la inversión nacional. Los inversores extranjeros pueden desear invertir en un país porque la tasa de rendimiento esperada sea mejor que la que podrían obtener en su

(7) E. S. Mason ha utilizado la frase «tasa de descuento socialmente aceptable» para esa tasa. «On the Appropriate Size of a Development Program», Occasional Papers in International Affairs (Center for International Affairs, Harvard University, 1964), número 8, p. 1. Sobre la dimensión del tiempo de la capacidad de absorción, véase páginas 36-38.

país, incluso siendo ésta menor que la considerada como aceptable por los inversores nacionales del país que recibe el capital.

La existencia de una diferencia entre los tipos de rendimiento esperados por inversores de los países exportadores de capital en los países importadores y los tipos que aquellos pueden esperar en su país, es una parte esencial de la teoría de los movimientos internacionales de capital. Pero la teoría solamente especifica la diferencia que existe entre las tasas de rendimiento de los países exportadores e importadores de capital; no dice, o no deduce nada sobre la diferencia existente entre el tipo de rendimiento ganado por los inversores extranjeros y el obtenido por los inversores nacionales en los países importadores de capital. Por el contrario, con supuestos apropiados sobre la fungibilidad de los fondos, libertad de movimientos de capital, primas apropiadas de riesgo, etc., el efecto de las entradas de capital consistiría en reducir la tasa de rendimiento de todo el capital a la reinante en el país exportador de capitales. Pero, probablemente, mucho antes de que se alcance ese feliz estado de equilibrio, la diferencia entre las tasas de rendimiento del capital nacional y extranjero se reducirá o desaparecerá por completo (8).

La diferencia entre las tasas de rendimiento del capital en las naciones exportadoras e importadoras de capital, tal como se pone de manifiesto en los tipos de interés a largo plazo, constituye probablemente la base de la proposición de que el uso de capital extranjero para financiar la inversión está justificado incluso si el rendimiento desciende por debajo de la tasa aceptable en el país importador de capital. Concretamente, un «Operational Manual» de la Agencia Norteamericana para el Desarrollo Internacional (USAID) relativo a la selección de proyectos en las naciones que reciben ayuda extranjera propone que, al determinar la relación beneficio-coste de un proyecto, debe aplicarse un tipo de interés del 3,5 por 100 para determinar el coste extranjero. Los tipos de interés interiores deberán aplicarse para obtener el coste nacional del proyecto o si no se puede determinar una tasa exacta, deberá emplearse un tipo del 6 por 100 (9). Evidentemente, la tasa

(8) En la práctica, sin embargo, es más probable que la diferencia entre las tasas de rendimiento de la inversión extranjera y nacional continúe existiendo indefinidamente, debido a la selectividad del capital extranjero en relación con las oportunidades de inversión y la medida con que el capital extranjero puede vencer la escasez de factores cooperantes importándolos. Dependiendo de lo último y de otros factores, la tasa de rendimiento de la inversión extranjera puede ser menor o mayor que la obtenida en la inversión nacional en el país importador de capitales.

(9) «Para las valoraciones de beneficio-coste de la AID se establece una tasa de interés del 3,5 por 100 para amortizar los costes en dólares norteamericanos... la tasa anterior es aplicable solamente a la parte de dólares norteamericanos de los costes de instalación. El coste local de la instalación y el coste de las adiciones o sustituciones futuras se han de tratar sobre la base de las tasas de interés locales... En los casos en que las tasas locales sean desproporcionadamente altas o bajas o cuando no se pueda determinar una tasa exacta, se utilizará la tasa del 6 por 100 anual.» Department of

mínima de rendimiento para el capital nacional es el 6 por 100, pero solamente se exige un 3,5 para el capital proporcionado por la AID (10).

Cualquiera que pueda ser la justificación política de esta regla, su razonamiento económico es dudoso. Supone que: *a)* no se puede desarrollar un proyecto adecuado para ser financiado parcialmente con ayuda extranjera con una tasa de rendimiento igual o superior a la tasa límite, porque, *b)* la oferta de factores cooperantes no se puede aumentar a corto plazo; aunque *c)* la puesta en marcha del propio proyecto estimulará de alguna forma la oferta de los factores cooperantes insuficientes, y *d)*, que éste no puede llevarse adelante por cualquier otro método, tal como importación o ayuda técnica. Solamente si se dieran esas cuatro condiciones estaría justificado, por motivos económicos, y no por razones políticas o humanitarias, el aceptar una tasa de rendimiento más baja para aquella parte de inversión financiada por los extranjeros. Pudieran estar indicadas las ayudas o préstamos en condiciones de concesión si la finalidad principal o única fuera aumentar el consumo o reducir el paro (como una de las causas de un nivel intolerablemente bajo de consumo); pero entonces la decisión no estaría basada en la distribución de recursos más económica.

Hay que recalcar que las posibilidades de aumentar la oferta de factores cooperantes, que incidentalmente aumentarán la tasa de rendimiento, pueden ser una razón adecuada para aceptar inicialmente una tasa de rendimiento menor. Sin embargo, esto se seguiría solamente si un análisis de flujos de caja con valores descontados que abarcaran toda la vida del proyecto demostrara que la tasa de rendimiento interior se encuentra en la tasa límite o por encima de ella. En tal caso, el proyecto es «bueno», y lo que es malo o inadecuado es el criterio beneficio-coste, que no permite la determinación sistemática y racional de la tasa de rendimiento teniendo en cuenta el transcurso del tiempo (11).

Pero, dejando a un lado esta posibilidad bastante inverosímil, el deseo de considerar que los proyectos con una tasa de rendimiento esperada tan

State, Agency for International Development, Office of Engineering, Benefit-Cost Evaluations as Applied to Aid Financed Water or Related Land Use Projects, Supplement No. 1 to *Feasibility Studies, Economic and Technical Soundness Analysis, Capital Projects* (1964), pp. 4-5.

(10) El texto del Manual, al proponer aplicar una tasa de descuento del 6 por 100 a todos los beneficios «interiores» procedan de donde sea —probablemente sin advertirlo—, lleva al resultado opuesto de lo que se pretendía: aplicando una tasa de interés menor sobre el coste extranjero que sobre los beneficios tiene un efecto adverso sobre las relaciones de coste a beneficio, especialmente si el coste extranjero constituye una proporción mayor del coste total. Se tiene entendido que el Manual se va a revisar.

(11) Alternativamente, el proyecto puede ser estimulado con motivo de que la oferta de factores cooperantes que estimula y beneficia a la totalidad de la economía. Esto constituiría un ejemplo de una confianza grande, por no decir excesiva, en el desarrollo de las economías externas.

baja, sean los idóneos para la ayuda exterior se basa en una apreciación pesimista en relación con: *a)* la posibilidad de identificar aquellos proyectos que tengan un tipo de rendimiento más alto; o *b)* la posibilidad de mejorar la oferta de factores cooperantes. La dificultad para encontrar un proyecto mejor implica cierta clase de desequilibrio entre la tasa de rendimiento mínima aceptable y la disponibilidad «objetiva» de oportunidades de inversión. Y el pesimismo relativo a la oferta de factores cooperantes quiere decir que los esfuerzos internos o la ayuda técnica para aumentar la oferta son de poca o ninguna eficacia. Este doble pesimismo puede estar justificado en circunstancias excepcionales; pero, ciertamente, hacer de él la base de la regla general de que los proyectos con una tasa de rendimiento esperada inferior a la tasa límite están justificados para la financiación exterior es ir demasiado lejos.

Aún otra definición de capacidad de absorción está relacionada con un intento de medir la capacidad de absorción por el aumento de la inversión total observado «que se puede llevar a cabo a un nivel de productividad mínimo aceptable» durante un cierto período (12). De este modo, se afirma que la capacidad de absorción de un país se puede considerar que está aumentando si la inversión bruta nacional aumenta, por ejemplo, en un 10 por 100 en un año o el 20 ó 25 por 100 durante un período de cinco años. Desgraciadamente, la sencillez aparente de este método de medición de la capacidad de absorción, está más que neutralizado por toda la incertidumbre que le rodea. La tasa de inversión bruta nacional puede haber aumentado debido a que la economía consiguió engendrar más ahorro por una diversidad de razones o porque se ha contado con más capital extranjero o ayuda exterior.

Además, la hipótesis de que la nueva inversión se puede efectuar a un nivel mínimo de productividad «aceptable» se basa, evidentemente, en la relación entre inversión y producción observada en el pasado. Pero esto no nos dice necesariamente algo sobre la capacidad de absorción. Se puede haber efectuado una inversión, que estaba equivocada en el sentido de que daba por resultado un rendimiento inferior a la tasa aceptable, en tanto que el aumento de la producción —«la productividad» en la cita precedente— no estaba relacionada causalmente con la inversión. Y la verdadera capacidad de absorción —la cantidad de inversión que se espera proporcione una tasa de rendimiento aceptable— puede no haber aumentado en absoluto.

(12) Hollis B. Chenery: «Foreign Assistance and Economic Development», *Policy Discussion Paper* núm. 7 (U.S.). Agency for International Development (1964).

Capital, rendimiento y proyecto: definiciones

El capital, la tasa de rendimiento y los proyectos de inversión son conceptos necesarios para tratar de determinar la capacidad de absorción. Para empezar, puede ser conveniente subrayar que el capital del cual se espera un rendimiento es capital total, no simplemente capital de acciones. Desde el punto de vista económico no hay, naturalmente, ninguna diferencia entre capital de acciones y de empréstito. Ambas clases de capital representan la contrapartida financiera de los recursos reales que se han de emplear productivamente. Dejando a un lado la enojosa cuestión de las economías y deseconomías externas, el rendimiento esperado de la inversión total para la economía en su conjunto es igual a la suma total de los rendimientos esperados en todos los proyectos de inversión individuales. La tasa de rendimiento colectiva es la relación entre los rendimientos totales y las inversiones totales.

Para determinar la tasa de rendimiento esperada en el capital invertido en un proyecto de inversión privado basta un simple ejercicio de contabilidad —si no se tienen en cuenta las dificultades de predecir el coste de capital, el coste de sustitución y los precios reinantes en el mercado de factores y de productos— (13). La situación no cambia materialmente para un proyecto que produzca ingresos para el sector público. En igualdad de condiciones, no debería suponer ninguna diferencia el que una fábrica de acero o un ferrocarril sea del sector público o del privado.

La cuestión se hace algo más complicada en el caso de proyectos que no sean autoliquidables o que rindan beneficios (renta adicional) a una unidad económica distinta del inversor. En el caso de una carretera, cuyo uso no esté sometido a derechos de peaje, el coste de construcción (y de conservación) constituyen cargas para el Gobierno, mientras que los beneficios (como el tiempo ahorrado, la disminución del desgaste de los vehículos y el aumento del valor de las tierras que se hayan hecho más accesibles por la construcción de la carretera) afluyen, en primer lugar, a los usuarios de la carretera y a otros beneficiarios. Es verdad que el Gobierno podría «cobrarse» de la inversión en la carretera mediante impuestos sobre la gasolina, matriculación y valoraciones especiales sobre los incrementos del valor de los bienes raíces; pero, como cuestión de política económica o social, generalmente no deseará recuperar más que en el coste de inversión y algún rendimiento del capital (reflejo, generalmente, de las cargas por intereses que

(13) El problema de la incertidumbre inherente en la valoración del proyecto se estudia más adelante.

entraña el empréstito público); en muchos casos puede que tenga que contentarse con menos. En cualquier caso, una parte del rendimiento del capital va a parar el público. Pero, incluso entonces, el rendimiento de la inversión en la carretera —llamándolo en tal caso, más apropiadamente, el rendimiento *social*— tiene que incluir los beneficios que se derivan para todos los usuarios debidamente valorados.

Si los beneficios son mayores que las cargas impuestas sobre los beneficiarios, esos beneficios en exceso pueden considerarse «economías externas». Para fines prácticos, sin embargo, puede ser preferible reservar el término de economías externas para aquellos beneficios que están tan repartidos que los beneficiarios no pueden identificarlos fácilmente y tratarlos como parte de los beneficios proporcionados, aunque sí pueden ser identificadas las unidades económicas que los «internalizan» (en inglés *internalizen)* (14).

La importancia de esta observación se hace más clara cuando se entiende que la determinación de la tasa de rendimiento (y de la capacidad de absorción para una tasa de rendimiento dada) depende en buena medida de la «definición» o «delimitación» de cualquier proyecto de inversión y de la relación causal que se puede establecer entre una inversión dada y el incremento de la producción (o disminución del coste) que se deduce de dicho proyecto.

Para aclarar el problema de definir un proyecto, se puede pensar en un plan de regadío que aumente la cantidad de agua disponible para un gran número de agricultores, sobre quienes se imponen gravámenes, dada una tasa de rendimiento, por ejemplo, del 6 por 100, sobre la inversión en el regadío. Pero la tasa de rendimiento del 6 por 100 puede no tener nada que ver con la tasa de rendimiento *económica* del proyecto, si la mayor cantidad de agua hace posible un aumento grande de la producción de esos agricultores. En este caso el rendimiento del proyecto no es la mayor disponibilidad de agua (o los gravámenes percibidos para producir un rendimiento del 6 por 100), sino el valor de la mayor producción agrícola menos el coste de las entradas adicionales, incluyendo el valor del trabajo adicional de los agricultores (15). Entonces el proyecto no se puede definir ya como las obras de regadío que producen agua, sino estas obras de regadío más otras mejoras en las producción agraria que originan cosechas adicionales.

Esta definición de un proyecto, que tiene en cuenta las conexiones hacia delante (o hacia atrás, según sea el caso), no debe llevarse demasiado lejos.

(14) La palabra se usó por primera vez por A. O. Hirschman en *The Strategy of Economic Development* (1958), p. 57.

(15) Que puede ser, sin embargo, cero, si el coste de oportunidad de este esfuerzo adicional fuera cero.

Evidentemente, hay una diferencia entre un proyecto de regadíos y el de una fábrica de acero que ha de producir artículos intermedios, tales como lingotes, planchas y láminas. Si se aplicara lo dicho para el proyecto de regadío, la valoración —y la determinación de la tasa de rendimiento— del proyecto de una fábrica de acero tendría que tener en cuenta los cambios (de ingresos, gastos y la tasa de rendimiento), que tienen lugar en las empresas que utilizan el acero, tales como las fábricas de automóviles, fundiciones y fábricas de hojas de afeitar. Esto casi no tendría sentido. Evidentemente es más adecuado determinar la tasa de rendimiento de la inversión en la fábrica de acero sobre la base de una comparación de los ingresos (debidamente descontados) y los gastos, incluyendo los gastos de capital de la propia fábrica de acero y limitar el proyecto a los mercados de factores y productos en los que compran los *inputs* y se venden las producciones.

La diferencia entre el proyecto de regadío y el de la fábrica de aceros debe dejarse bien clara: los productos de la fábrica se venden en el mercado libre, en el que los precios y el volumen de la demanda se determinan por las fuerzas competitivas (que, sin embargo, pueden restringirse por intervención política y por controles directos). En el caso del proyecto de regadío, el mercado no es libre en un sentido claro. Puede pensarse, aunque no es probable, que el agua de riego se venda a los mejores postores; pero en todos los casos, salvo en las circunstancias más extraordinarias, el precio del agua se fija por la intervención pública y, frecuentemente, los agricultores individuales obtienen (y se les carga por ella) agua, la necesiten o no.

La existencia de un mercado que funcione razonablemente bien, es importante no sólo para definir un proyecto, sino también para determinar la tasa de rendimiento y, por ello, la capacidad de absorción. Esto es especialmente importante en ciertas clases de inversiones públicas, donde existen los problemas de indivisibilidades o complementariedades. Por ejemplo, un proyecto hidroeléctrico no se puede desarrollar fácilmente en varias pequeñas etapas por razones técnicas, pero se puede asegurar un alto porcentaje de rendimiento solamente si una gran cantidad de la energía eléctrica se utiliza inmediatamente (por ejemplo, el proyecto Volta en el estado de Ghana). En este caso, la demanda de energía eléctrica del mercado tendrá que ser complementada con la demanda resultante de la inversión en industrias que utilicen la electricidad, tales como la de aluminio; para determinar la tasa de rendimiento y la capacidad de absorción, se ha de volver a definir el proyecto para incluir la generación de electricidad y la producción de aluminio.

Lo mismo ocurre con una carretera que una la explotación agraria con el mercado, con la finalidad de abrir una área agrícola o hacerla más accesible, en cuyo caso no es suficiente para valorar el proyecto de construcción de la carretera, tomar como base el volumen de tráfico esperado y estimar el rendimiento esperado del capital invertido en ella. Es preferible incluir también el capital y otros desembolsos que sean necesarios para aumentar la producción agraria en la zona que se va a beneficiar y relacionar esos desembolsos con los aumentos de ingresos esperados como consecuencia de la mayor producción agrícola. El diseño completo del proyecto es adecuado particularmente si hay razones para dudar que los campesinos próximos de la carretera responderán a las nuevas oportunidades económicas proporcionadas por el transporte más barato. Pueden querer responder y no tener medios para financiar la inversión de capital y otros gastos previos para alcanzar la mayor producción. Puede ser esencial, y no meramente preferible, considerar los proyectos de transporte y producción agrícola como uno solo, si se duda de que las respuestas automáticas de los agricultores a las nuevas oportunidades de producción se puedan resolver solamente por las autoridades públicas cargando con la responsabilidad de diseñar planes para aumentar la producción agraria y para apoyarla con ayuda técnica, créditos, etcétera.

Las observaciones precedentes indican que hay una estrecha conexión entre la validez de tipo de rendimiento como indicador de la capacidad de absorción, por una parte, y la existencia de mercados con una respuesta de las unidades económicas individuales a las oportunidades del mercado e incentivo de éste, por la otra. Se volverá a discutir este tema más adelante. En este punto sería conveniente añadir que se deduce que una valoración significativa de la capacidad de absorción, basada en un cálculo de la tasa de rendimiento esperado en proyectos específicos, se convierte en tanto más difícil y complejo cuanto más limitado sea el desarrollo de los mercados y las respuestas a los mismos.

Se puede plantear esta dificultad en economías en que los mercados son deficientes y la respuesta a las fuerzas del mercado está poco desarrollada o se encuentra frenada por instituciones o controles o en sectores de economías donde prevalecen esas condiciones, como en la agricultura de subsistencia. La capacidad de absorción basada en una valoración de proyectos mal definidos puede parecer baja o, de cualquier forma, menor que lo que una valoración más amplia de la capacidad de absorción pudiera indicar. En esas circunstancias «primitivas» la interacción de los proyectos individuales con el resto de la economía no se puede dejar a mercados que funcionan de manera imperfecta. Debe realizarse conscientemente tomando las medidas necesarias para coordinar varios proyectos y llevarlos a cabo conjuntamente. O más generalmente, el modelo de inversión es en sí mismo una determi-

nante principal de la capacidad de absorción. Esto se debe a que el modelo se produce por la respuesta de la economía a las oportunidades e incentivos o, si estas fuerzas son débiles o se delibitaran por restricciones institucionales, por coordinación y planificación.

En la figura 1 esto significa que la posición de la línea *ABC* no es única. Se refiere solamente a un modelo particular de inversión o de planes de inversión, y con otra serie de planes de inversión la línea se puede desviar a la derecha o a la izquierda, pudiendo así modificarse su pendiente. El tener en cuenta este problema no resuelve desgraciadamente las innumerables dificultades prácticas que rodean al enfoque de amplia programación que esto sugiere. Y no elimina las limitaciones de la capacidad de absorción. No es bastante darse cuenta de que el éxito (un rendimiento satisfactorio) del proyecto A depende de llevar a efecto simultánea o ulteriormente el proyecto B, si la falta de conocimientos técnicos, la inadecuada competencia administrativa o, simplemente, la escasez de información amenazaran la viabilidad del proyecto B.

Complementariedad e indivisibilidad

Las referencias a la complementariedad e indivisibilidad y la necesidad de realizar valoraciones conjuntas llevó a las conclusiones de que, teniendo presente esos factores, puede suceder que las tasas de rendimiento de la nueva inversión —y por ende, la capacidad de absorción de la economía— sean menores para una cantidad de inversión propuesta menor que para una cantidad mayor. La figura 2 se puede tomar como ejemplo de los casos de la energía con el aluminio o del regadío o con la agricultura. Un volumen y modelo de inversión propuesta dados del proyecto de energía eléctrica da un rendimiento r_1 en la función de capital AB_1B_2. El rendimiento r_1, correspondiente a una inversión conjunta proyectada de OX_2, puede ser inferior a la tasa que la economía está dispuesta a aceptar. Sin embargo, si el volumen de inversión se aumentara por la adición de una industria que consumiese electricidad, la cual precisara unos gastos de capital X_2X_3, la tasa de rendimiento conjunta aumentaría hasta r_2. Esta representación supone que la inversión en energía está en el extremo inferior de la línea AB_1B_2. Si se quisiera una tasa de rendimiento más alta, entonces la inversión X_1X_2 habría de eliminarse, sustituyéndola por X_2X_3, con lo que la línea *CD* se uniría con la línea AB_1B_2 al nivel de r_2. La inversión total se convertiría así en OX_3 menos X_1X_2.

En otras circunstancias el rendimiento de la función de capital puede

no ser tan discontinuo como se representa en la figura. Si existe posibilidad de elección entre distintos tipos de inversión, los cuales supusiesen diferentes cantidades de inversión, se concibe que el rendimiento de la función de capital pueda disminuir y aumentar, cayendo de forma intermitente por debajo de la tasa de rendimiento mínima socialmente tolerable, pero volviendo a subir por encima de ésta con las adiciones de capital.

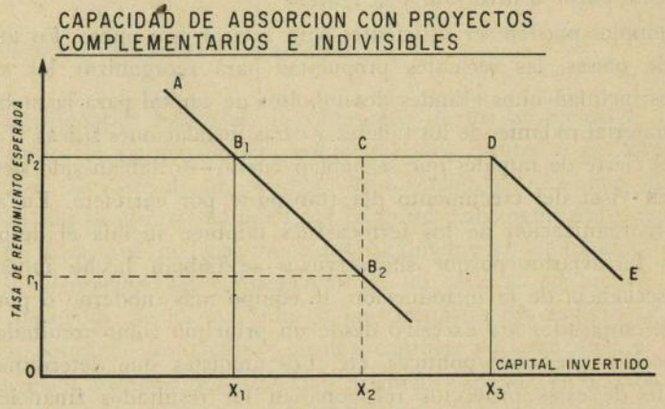

Figura 2

El razonamiento y los ejemplos dados en la sección precedente indican que en algunos casos la tasa esperada de rendimiento en un proyecto de inversión es probable que aumente, si éste no se examina aisladamente, sino junto con un proyecto con él relacionado o con varios proyectos relacionados entre sí. La proposición de que en determinadas circunstancias una cantidad mayor de inversión puede producir una tasa más alta de rendimiento que una cantidad menor, no es nada nuevo. Es básica en la teoría del «gran empuje» y un ingrediente esencial de la teoría del «crecimiento equilibrado» (16). Pero la discusión (y el propio concepto de capacidad limitada de absorción) sugiere también que en las naciones menos desarrolladas la posibilidad de un «gran empuje» —más allá de la complementariedad de un pequeño número de proyectos— está claramente limitada por las bajas elasticidades de oferta de los factores cooperantes.

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(16) Véase P. N. Rosenstein-Rodan: «Note on the Theory of the Big Push», *Economic Development for Latin America*, H. S. Ellis, editor (1961), pp. 57-81; R. Nurkse: *Problems of Capital Formation in Underdeveloped Countries* (1955), pp. 11-17 y pp. 22-23.

La relación causal entre capital y rendimiento

Durante toda la discusión se viene suponiendo que existe una relación causal entre la inversión y la actividad que se espera proporcione un rendimiento. En la mayor parte de los proyectos se tiene que dar por supuesta esa relación. Hay casos, sin embargo, en que es difícil decidir si hay una relación causal directa entre la inversión y la renta.

Dos ejemplos pueden ser suficientes para aclarar este punto. En un cierto número de países, las recientes propuestas para reorganizar los sistemas ferroviarios incluían unos grandes desembolsos de capital para la modernización del material rodante, de los talleres y otras instalaciones físicas. También sugerían el cierre de ramales que se habían vuelto —o habían sido siempre— ruinosos en vista del crecimiento del transporte por carretera. En algunos casos, la reorganización de los ferrocarriles también incluía el despido de empleados ferroviarios porque sus servicios se habían hecho innecesarios como consecuencia de la introducción de equipo más moderno o porque el número de empleados era excesivo desde un principio como resultado de la mala dirección, presiones políticas, etc. Los analistas que determinaron el rendimiento de estos proyectos relacionaban los resultados financieros de todas las recomendaciones con el volumen aconsejado de inversión. Esto es correcto, si por alguna razón —técnica, de organización o «institucional»— las distintas partes de la proposición que suponen reducción de los costes (despido del trabajo sobrante, cierre de líneas ruinosas) son imposibles de realizar si no se lleva a cabo la inversión de capital en la magnitud propuesta. Sin embargo, si los cambios en los costes actuales (y cambios en los ingresos) se pueden conseguir sin gastos de capital, es evidentemente erróneo atribuir a la inversión propuesta los cambios de ingresos resultantes.

La situación puede ser similar a un proyecto de regadío hipotético, el cual se espera produzca un elevado rendimiento porque supone, entre otras cosas, un cambio en el tipo de cosechas y mejoras en la venta y almacenamiento de la producción en la zona afectada. Si los cambios en el tipo de cosecha y en otras actividades no pudiera tener lugar sin más agua, entonces estaría justificado el atribuir el incremento total de la renta agraria al proyecto de regadío. Sin embargo, si las mejoras en el tipo de cosechas, en el almacenamiento o en el transporte se pudieran conseguir sin el regadío, entonces sería evidentemente inadecuado atribuir las ganancias derivadas de esas medidas al proyecto de regadío.

Los ejemplos precedentes ponen de relieve la complejidad del problema de la atribución, el cual ha de resolverse si se quiere encontrar una medida

adecuada de la tasa de rendimiento esperada de un proyecto (y de la capacidad de absorción). En la práctica las soluciones son difíciles debido a que los problemas planteados frecuentemente no se pueden resolver por una decisión para incluir o no los aumentos de la renta en el rendimiento de la inversión propuesta. En la mayor parte de los casos puede ser más apropiado incluir solamente una parte, y es difícil decidir qué parte se debería incluir y cuál no.

Incertidumbre y capacidad de absorción

Una característica básica de la valoración de los proyectos de inversión es que implica la estimación de acontecimientos futuros y de factores que son inciertos. El coste de un proyecto de inversión no se conoce hasta que se ha instalado la última máquina; el coste del funcionamiento depende de muchos factores, que no son conocidos totalmente en el momento en que se hace la valoración. La conveniencia de un proceso productivo es deconocida hasta que se ha aplicado en las circunstancias específicas del proyecto. Los costes de los factores pueden cambiar súbitamente; el mercado de los bienes o servicios que se van a producir depende de acontecimientos futuros, que están fuera del control del inversor, y así sucesivamente. La falta de conocimiento es un factor importante que limita la capacidad de absorción. Lo mismo sucede con los cambios que acompañan al crecimiento en una economía subdesarrollada: la importancia del sector de exportación, con su perspectiva peculiarmente incierta, la inexperiencia de la dirección al enfrentarse con los cambios. Todos estos son factores que hacen exista más incertidumbre en las naciones subdesarrolladas que en los países avanzados.

Se pueden distinguir dos tipos de incertidumbre. Uno corresponde a un proyecto concreto o a un aspecto particular de un proyecto, tales como la incertidumbre sobre un nuevo proceso técnico, que no se sabe si dará resultado, o a qué precio saldrán los artículos que se van a producir, etc. La otra incertidumbre se refiere a la totalidad de la economía. ¿Cuál será el crecimiento de la renta en los próximos cinco o diez años? ¿Con qué rapidez aumentará el tráfico en determinada zona? ¿A qué tasa aumentará la producción industrial? ¿Cómo afectarán los cambios de la distribución de la renta a la demanda del consumidor?

Esas incertidumbres se pueden considerar como otra clase de limitación de la capacidad de absorción, si sirven como base para descontar las tasas esperadas por los riesgos que llevarán consigo. Pero, lo que es aún más

importante, esas incertidumbres son probablemente las bases más importantes para estar en desacuerdo sobre la valoración de rendimientos futuros y los límites de la capacidad de absorción. Los partidarios de un proyecto pueden dar poco énfasis a algunas incertidumbres y adoptar un punto de vista confiados de que al final todo resultará bien. Los prestamistas y las fuentes de ayuda exterior, por otra parte, pueden adoptar una actitud más cautelosa, tal vez excesivamente cautelosa, sobre esas incertidumbres. Debido a que pueden no estar acostumbrados a tratar con esas incertidumbres peculiares de las naciones subdesarrolladas, pueden inclinarse a dar un valor bajo a la tasa de rendimiento futura y a la capacidad de absorción.

Las incertidumbres sobre la tasa de crecimiento de la economía en su conjunto pueden ser particularmente significativas para industrias en las que es importante la escala de las operaciones. Frecuentemente, la tasa de rendimiento esperada en un proyecto de energía depende del tiempo que se necesite para que la demanda aumente hasta la plena capacidad generadora. Análogamente, las decisiones sobre la inversión y el transporte dependen en medida importante del crecimiento de la demanda y de la oferta de artículos transportables, los cuales reflejan, a su vez, el crecimiento de toda la economía. El efecto de altas tasas de crecimiento colectivo sobre las tasas de rendimiento esperado es una razón por la que esas tasas tan altas parecen conjugar el interés con la adecuación de rendimientos particulares. Si el Producto Nacional Neto (PNB) aumenta al 7 por 100 anual y el sector industrial y de servicios aumenta alrededor del 10 por 100, muchos más proyectos de inversión parecerán buenos que si las tasas proyectadas fueran, por ejemplo, el 4 y 6 por 100, respectivamente (17).

La importancia de la incertidumbre al determinar las tasas de rendimiento y la capacidad de absorción saca a luz la significación de la coordinación y el planeamiento. Un plan bien concebido, en el que las inversiones en distintos proyectos están relacionadas entre sí, puede llegar muy lejos en el camino de eliminar las incertidumbres. De este modo se puede aumentar también la capacidad de absorción.

El sistema de precios y la capacidad de absorción

Hasta ahora se ha estudiado la tasa de rendimiento como medida de la capacidad de absorción sin relacionarla con los precios de los factores de producción o sin realizar comparaciones de los precios que reinan en la

(17) Las tasas de crecimiento altas tienen un otro efecto importante: una tasa de crecimiento elevada promete una tasa de ahorro que crece rápidamente, lo que a su vez permite una alta tasa de inversión, y así sucesivamente.

economía con los del resto del mundo. No habría necesidad de introducir los precios de los factores y las relaciones de precios internacionales en el razonamiento si los mismos reflejaran las escaseces económicas relativas. Pero generalmente se reconoce que en las naciones menos desarrolladas los precios reflejan las escaseces de recursos mucho menos adecuadamente que en las economías de mercado más avanzadas y, por tanto, no llevan a una distribución óptima de recursos (18). Se ha aceptado generalmente el concepto de precios sombra, que reflejan más exactamente la escasez relativa de recursos; sin embargo, quedan sin resolver muchos problemas de aplicación práctica.

No hay necesidad de estudiar con todo detalle los problemas conceptuales y prácticos que se plantean con el uso de precios sombra en este contexto. Para la finalidad de este trabajo basta señalar que, en opinión de la mayor parte de los partidarios del uso de los precios sombra: *a)* el precio sombra del capital es, generalmente, superior al precio del mercado; *b)* el precio sombra del trabajo no especializado es inferior generalmente, y frecuentemente mucho menor, que el precio de mercado, y *c)* que el precio sombra de las importaciones y exportaciones es más alto, frecuentemente, que su precio de mercado, reflejando una moneda nacional sobrevalorada o la necesidad de conseguir un equilibrio «estructural» de la balanza de pagos mediante el fomento de la exportación y la sustitución de las importaciones. Los apartados *a)* y *b)* serán estudiados en esta sección, dejándose el *c)* para la siguiente.

La proposición *a)* descansa en dos afirmaciones. Una es que en muchas naciones las tasas de interés cargadas por las instituciones financieras o pagadas por el gobierno y las tasas de redescuento de la banca central no reflejan adecuadamente la escasez de capital transferible y el rendimiento del capital que esperan obtener los empresarios privados. La segunda afirmación es que la tasa esperada de rendimiento en los proyectos de inversión (públicos o privados) es baja porque es afectada adversamente por una oferta inadecuada de elementos complementarios, tales como dirección y especializaciones, por el elevado coste de otras entradas (tales como el coste del transporte) o por la deseconomías de las operaciones en pequeña escala. En otras palabras: la capacidad de absorción es limitada si la oferta de los factores cooperantes no se aumenta, o no se hace más barata, o no se modifica la técnica de producción, o no se aumenta la demanda para vencer las deseconomías de pequeña escala sobre la oferta y la demanda. Sin em-

(18) Jan Tinbergen: *The Design of Development* (1958), pp. 39-41, 76-78. Esta fué la primera exposición sistemática de lo inapropiado de los precios del mercado y del uso de los precios sombra contables en su lugar.

bargo, esto no demuestra que deba utilizarse el tipo de interés del mercado o un tipo sombra más alto para determinar lo que constituya una tasa de rendimiento razonable que se pueda usar para establecer una tasa límite y la capacidad de absorción.

El nivel de las tasas de interés institucionales tiene importancia sólo indirectamente a los fines de nuestra investigación. Dicho nivel determina solamente la distribución del rendimiento del capital entre los tenedores de acciones y los prestamistas. Esta tasa (a diferencia de la tasa del capital total invertido en un proyecto) es importante solamente si la oferta de personas que quieran correr el riesgo y otros empresarios aumentara para reducir las tasas de empréstito institucional y, como consecuencia, se elevase la capacidad de absorción.

Las tasas de interés institucionales que son «demasiado bajas» también son importantes si se usan como base para fijar el precio (señalar tarifas) en esas industrias casi monopolísticas, como la energía eléctrica o el transporte, particularmente en el sector público, o si están controlados los precios cobrados por las empresas de propiedad privada. Las tasas bajas de energía y transporte resultantes de tipos bajos de interés pueden tener efectos adversos sobre los ahorros totales en la distribución económica de los recursos, porque pueden inducir al uso excesivo de electricidad o servicios de transporte y reducir el de otros factores. También pueden llevar a la localización errónea de instalaciones productivas que dependan de la energía y transportes y a la utilización equivocada de recursos que se puedan invertir. En otras palabras, pueden iniciarse industrias «equivocadas». Como consecuencia, se pueden escoger técnicas de producción equivocadas (más intensivas de capital) y se utilizarán por defecto otros factores de producción (como el trabajo, por ejemplo). Esta situación puede afectar de manera adversa al nivel de inversión y al crecimiento de la producción.

Pero el precio del capital y la diferencia entre su precio de mercado y su precio sombra no se puede considerar de manera aislada. Tienen que relacionarse con los precios de otras entradas. En las economías en que el precio sombra del trabajo no especializado es significativamente menor que el precio del mercado (19), parte de la fuerza laboral permanecerá parada, y el rendimiento del capital será menor que el que hubiera sido si se hubieran pagado salarios más bajos. En las naciones subdesarrolladas, el paro generalizado o extendido en los centros industriales y el subempleo en las zonas

(19) Sobre una explicación por lo menos parcial del razonamiento de pagar salarios superiores a los de equilibrio a los obreros no especializados, véase H. Leibenstein: «Underemployment in Backward Economics», *Journal of Political Economy* (abril, 1957), pp. 91-103.

rurales ofrecen una prueba indirecta, aunque sólida, de la existencia de una divergencia entre los precios del mercado y de equilibrio de la mano de obra no especializada; sin embargo, se tiene que observar que esta proposición corresponde solamente a la mano de obra *no especializada,* y no tal trabajo en general. En efecto, hay considerables indicios de que los obreros con habilidades técnicas escasean frecuentemente más de lo que los salarios de los capataces, artesanos y directores indican. Por tanto, la discrepancia entre los precios sombra y de mercado de toda la mano de obra puede tener menos efecto sobre el rendimiento del capital que el sugerido por el razonamiento de que el precio de mercado del trabajo no especializado es demasiado alto.

Algunos economistas han usado este argumento no solamente como una explicación de la existencia de desempleo y subempleo y del bajo rendimiento de los proyectos de inversión de capital, sino también como base para proponer que se compense de alguna manera a los empresarios por esa diferencia, probablemente por medio de un subsidio gubernamental (20). En esencia, las propuestas de este tipo convierten el problema de la inversión en un problema fiscal. La capacidad impositiva de los países subdesarrollados es tan limitada y las peticiones a la tesorería pública para financiar otras actividades del desarrollo son tantas y tan variadas que no es sorprendente hallar que planes de este tipo no se hayan puesto en vigor.

La diferencia entre los precios de mercado y los sombra de la mano de obra no especializada se usa frecuentemente como justificación del bajo rendimiento de las empresas de propiedad pública. Esta justificación pasa por alto el sencillo hecho de que las reducidas ganancias de las empresas estatales plantean exactamente el mismo problema fiscal que los subsidios que habrían de pagarse a las empresas privadas; en algún aspecto son incluso peores. La consecuencia de los rendimientos reducidos de las empresas estatales, aparte de los efectos de distorsión ya mencionados, es la necesidad de aumentar los ingresos públicos o reducir los gastos públicos. Son peores que los subsidios públicos pagado por ganancias reducidas en la inversión privada (justificados por las diferencias entre los precios de mercado y sombra de la mano de obra no especializada), porque los pagos a los empresarios privados pueden ser ahorrados por ellos y aumentan la corriente de recursos susceptibles de ser invertidos. Las reducidas ganancias de las empresas públicas son ingresos predeterminados, y es más verosímil que den por resultado más consumo en vez de más inversión.

Otra justificación que se usa frecuentemente para aceptar rendimientos pequeños producidos por la inversión en empresas de propiedad pública (y de esta manera extendiéndolo claramente a la capacidad de inversión)

(20) Jan Tinbergen: *Op. cit.*, p. 53.

es el razonamiento de que los rendimientos adicionales benefician al resto de la economía en forma de economías externas, que reducen el coste y/o aumentan los rendimientos para sus beneficios, y de esta forma contribuyen a la formación de capital y al crecimiento. No se puede negar la importancia de las economías externas en el proceso de crecimiento, aunque su medida sea difícil debido a su naturaleza; y no hay necesidad en este contexto de llegar a vernos envueltos en discusiones sobre las economías externas y la extensión con que son contrarrestadas por las deseconomías. Solamente es pertinente un aspecto. Evidentemente es un mal empleo del concepto de economías externas usarlo para justificar un rendimiento del capital «internalizado» bajo (21).

El efecto práctico de usar la discrepancia entre los precios de mercado y los sombra de la mano de obra no especializada (y de otros factores) como razón para aceptar rendimientos bajos del capital como un indicio de capacidad de absorción es un descenso, inmediato o gradual, de la tasa de ahorro de la economía. Más exactamente, puesto que los empresarios privados no estarán dispuestos probablemente a aceptar tasas de rendimiento bajas en principio, tenderán a reducir la formación de capital público. El aceptar un rendimiento bajo del capital, por tanto, aumentaría la esfera de inversión pública (y la capacidad de absorción), pero al mismo tiempo reduciría la tasa de formación de capital e impondrá sobre la economía la restricción de ahorros inadecuados, en lugar de las limitaciones de la capacidad de absorción.

Intimamente relacionado con el razonamiento de que los rendimientos bajos del capital no son una indicación de que se hayan alcanzado los límites de la capacidad de absorción, está el argumento de que los gastos de inversión están justificados mientras la economía presente una tasa de crecimiento, esto es, en tanto haya una relación capital-producto positiva (22). Aunque esta proposición parece plausible a primera vista, su implantación es que la tasa de rendimiento refleja de alguna manera solamente la idoneidad u optimización de la asignación del *capital*. La implicación es particularmente sencilla si se relaciona con el razonamiento de precios de mercado frente a precios de equilibrio. Esto, naturalmente, es una interpretación equivocada

(21) Sería igualmente razonable afirmar que la formación de capital en cualquier economía se aumentaría si alguien sacara dinero de la cuenta de ahorros y lo usara para hacer apuestas sobre caballos, porque incluso si él no ganara, algún otro apostante se beneficiaría con ello. E. S. Mason escribe: «Con tanta frecuencia sucede que proyectos de bajo rendimiento son aceptados con referencia a las economías «externas» sin demostrar y que no se pueden demostrar, que estoy tentado a decir, imitando al doctor Johnson, que la economía externa es el último refugio de un bribón.» *Op. cit.*, p. 18.

(22) Jorge Ahumada: «Investment Priorities», *Economic Development for Latin America*, editado por H. S. Ellis (1961), pp. 366-396.

de la esencia de la teoría económica. La maximización del rendimiento del capital también es una medida o prueba de la racionalidad de la distribución de *todos* los recursos. En otras palabras, una tasa baja de rendimiento *per se* no prueba que el capital sea abundante en comparación con otros factores. En los países subdesarrollados, en los que la suposición de que el capital es escaso parece estar ampliamente justificada por la baja tasa de formación de capital, una tasa pequeña de rendimiento en cualquier proyecto es prueba de que la distribución de capital y otros recursos es deficiente y que se podría y debería mejorar. Una tasa baja de rendimiento de la inversión es indicio de que se ha alcanzado la capacidad de absorción y de que la tasa de crecimiento del producto nacional se puede aumentar destinando recursos a incrementar la oferta de factores cooperantes en vez de a la formación de capital.

Oferta de divisas extranjeras, tipos de cambio y capacidad de absorción

También hay una relación entre la capacidad de absorción de la economía y la malanza de pagos. Los efectos que tienen las transacciones internacionales de una economía sobre su esfuerzo de desarrollo son bastante claros. Las exportaciones propocionan las divisas extranjeras para comprar bienes y servicios del extranjero para complementar los bienes y servicios disponibles procedentes de fuentes nacionales. Puesto que la gama internacional de bienes y servicios es infinitamente más amplia que la de los productos nacionales, el acceso a los recursos extranjeros mediante las ganancias de divisas extranjeras, capital extranjero y ayuda exterior, amplía mucho las posibilidades de combinaciones de factores.

Cuanto más bajo sea el nivel de desarrollo de una economía, menor será la gama de bienes y servicios que produzca. Una de las características de la mayoría de las naciones subdesarrolladas es la ausencia, o la ausencia virtual, de las industrias de bienes de capital. Por ello, las actividades de inversión exigen una cierta cantidad de bienes importados, que pueden tener que ser complementadas por medio de servicios técnicos y directivos importados. Además, como se señalaba por Felipe Pazos (23), el contenido de consumo importado es frecuentemente mucho más bajo que el contenido de inversión importada. Por tanto, una política que aspire a una reducción del consumo

(23) *Desarrollo económico y estabilidad financiera.* Tercera Reunión de Técnicos de los Bancos Centrales del Continente Americano (La Habana, 1952), pp. 365-406. Véase también Celso Furtado: «Capital Formation and Economic Development», *International Economic Papers*, vol. IV (1954), pp. 124-144.

y a un incremento del ahorro y la inversión puede conducir al déficit de la balanza de pagos, a menos que se pueda incrementar la corriente de divisas extranjeras.

Lo que importa para el esfuerzo del desarrollo, sin embargo, no es la disponibilidad total de divisas extranjeras, sino solamente aquella parte que se pueda usar para fines de inversión. Un país puede tener grandes ganancias de divisas extranjeras en relación con su producto nacional y, sin embargo, no poder llevar a cabo un gran esfuerzo de desarrollo. Puede sufrir por tener divisas extranjeras inadecuadas debido a que tiene que usar todas sus ganancias de esas divisas para importar alimentos, combustibles y materias primas, o puede creerse obligado a usar una gran parte de las ganancias de divisas extranjeras para comprar equipo militar. Esto subraya la importancia del capital extranjero y las ayudas exteriores. El capital extranjero y la ayuda exterior complementan la corriente de formación de capital nacional y, debido a la variedad ilimitada de bienes y servicios que se pueden adquirir con ellos, valen más que su importe nominal (24). Como ha señalado Chenery, los países que complementan su formación de capital nacional mediante capital extranjero y ayuda exterior tuvieron generalmente una relación capital-producto marginal marcadamente más baja que los países que escogían «ir solos» o no tenían más remedio que hacerlo así. Similarmente, la disponibilidad de divisas extranjeras para comprar cualquier *input* de capital (o corriente) no disponible en las fuentes nacionales o disponible solamente a elevado coste, está destinada a permitir un rendimiento del capital más elevado.

Dado el efecto positivo que sobre la tasa de rendimiento, y por tanto sobre la capacidad de absorción supone disponer de recursos extranjeros para complementar los recursos nacionales, es sorprendente descubrir en una primera consideración que el concepto de capacidad de absorción frecuentemente se ha aplicado principalmente, y algunas veces exclusivamente, al capital extranjero y a la ayuda exterior. Esto está en clara contradicción con la proposición de que los límites sobre la disponibilidad de divisas extranjeras pueden restringir la capacidad de absorción.

Sin embargo, pensándolo mejor, la aplicación del concepto de capacidad de absorción al capital extranjero y a la ayuda exterior tiene significación. Si el capital extranjero y la ayuda exterior se consideran en términos estrictos de contabilidad nacional como recursos complementarios disponibles para

(24) «... el hecho que los resurcos externos se puedan proporcionar en cualquier forma que se necesiten para deshacer un embotellamiento cualquiera, es probable que les dé un valor de varias veces su precio de mercado en el país donde se suministran.» Hollis Chenery: «Foreign Assistance and Economic Development», trabajo presentado en la reunión de Boston de la Econometric Society (diciembre, 1963).

la inversión, el límite de la capacidad de absorción está determinado por la entrada de capital extranjero, puesto que representa la cantidad marginal de capital total.

En términos prácticos, tiene más sentido la idea de que la capacidad de absorción de capital extranjero está limitada, si el uso del capital extranjero se restringe para fines específicos, ya sea por las fuentes de ayuda exterior, ya sea por el país que la recibe, que si los fondos extranjeros se obtuvieran para usos ilimitados. La capacidad de absorción de fondos que se pueden usar solamente para financiar el equipo de capital exterior puede estar limitada por la capacidad que el país que los recibe tenga para movilizar recursos nacionales para financiar gastos de inversión nacionales para el mismo proyecto. Esto no es necesariamente un problema de aumentar la formación de capital nacional total, sino más bien de canalizar los ahorros nacionales hacia el sector o proyecto específico para el que se cuenta con financiación exterior. Esta clase de limitación de la capacidad de absorción suele ser importante en los países en que los gobiernos no pueden incrementar los ingresos fiscales o tomar a préstamo los ahorros del sector privado. En tal situación la disponibilidad de financiación exterior para la inversión pública y la disponibilidad limitada de recursos financieros nacionales puede llevar a una desviación del modelo de inversión porque los proyectos con un elevado contenido de divisas extranjeras obtienen preferencia sobre los proyectos en los que se precisan grandes cantidades de recursos nacionales (25).

La situación es similar cuando, por alguna razón, un país, que los exportadores de capital consideran como un lugar prometedor para la inversión, no permite la importación de factores cooperantes en forma de personal directivo, técnico o de inspección, y esta clase de personal escasea en el interior. La ausencia u oferta inadecuada de esos factores disminuye la tasa de rendimiento y la capacidad de absorción. Las restricciones de importaciones de esta clase limitan presumiblemente la corriente de inversión directa privada en algunos países sudamericanos y asiáticos. Los argumentos expuestos en defensa de estas medidas restrictivas son que así se acelerará la capacitación del personal del país o que se ahorrarán divisas extranjeras. En contraste con esto, la capacidad de absorción para la inversión del petróleo en los países deshabitados del Sahara o de la península de Arabia puede ser ilimitada mientras se permita a las compañías petrolíferas traer no sola-

(25) La situación es exactamente la contraria a la que se da cuando los recursos de divisas extranjeras son insuficientes. En tal caso el cuadro o modelo de inversión será distorsionado en favor de otro que se apoye tanto como sea posible en los recursos nacionales.

mente el equipo de capital, sino otros factores necesarios para explotar los recursos petrolíferos.

Queda por estudiar otro aspecto de la relación que guarda la capacidad de absorción de una economía con sus transacciones internacionales. Como se ha indicado antes (26), se alega frecuentemente que, al determinar la tasa de rendimiento, deberían emplearse tipos de cambio sombra en lugar de los tipos de «mercado» existentes, ya sea porque la balanza de pagos está en desequilibrio real o porque puede desequilibrarse debido a algún acontecimiento adverso esperado de los beneficios derivados de la exportación. Este razonamiento es válido siempre que las dificultades de la balanza de pagos sean ineludibles; pero cuando éstas son consecuencia de políticas equivocadas, la discrepancia entre los precios reales y sombra de las importaciones y exportaciones no son más que el reflejo de esas políticas. El uso de los precios sombra no es un sustitutivo de una acción correctora apropiada.

Por razones teóricas y empíricas se puede aceptar fácilmente el razonamiento de que una economía que esté tratando de llevar a cabo un determinado esfuerzo de desarrollo está sujeta a experimentar presiones sobre su balanza de pagos. Aceptar la posibilidad o incluso la probabilidad de que se presenten dificultades para la balanza de pagos no es más que otra forma de subrayar el importante papel que los recursos de divisas extranjeras desempeñan en el proceso del desarrollo. Pero, en la práctica, esta forma de razonamiento olvida a menudo dos problemas. Uno es un problema de idoneidad de los tipos de cambio existentes. En muchos países en vías de desarrollo el tipo de cambio no es un precio de mercado, sino un precio administrado, que se mantiene por controles de cambio a un nivel que sobrevalora la moneda nacional. Los efectos de una moneda sobrevalorada sobre la balanza de pagos de un país en desarrollo son bien conocidos y no necesitan ser detallados aquí. Una moneda sobrevalorada afecta adversamente a las actividades y a la inversión de los sectores «tradicionales» de exportación e impide el desarrollo de nuevos productos de exportación; por tanto, agrava el desequilibrio de la balanza de pagos. Del lado de las importaciones, aumenta la demanda de importaciones de todas clases y se hace más difícil la distribución eficiente de las ganancias de divisas. Si fuera acompañada de políticas que trataran de desarrollar las industrias de sustitución de importaciones, podría alejar recursos del sector de exportación y, de esta forma, agravar, y no curar, el problema de la balanza de pagos. La protección indiscriminada de industrias de sustitución de importación mediante la prohibición de importaciones competitivas conducirá probablemente a un aumento

(26) Véase la pág. 14.

de los precios nacionales y de la estructura de coste y, de esta forma, acentuará más las dificultades de la balanza de pagos.

En estas condiciones lo que se necesita no es recurrir a los precios sombra en la valoración y selección de los proyectos de inversión, sino, en primer lugar, un ajuste del tipo de cambio, con objeto de que refleje más adecuadamente las condiciones reinantes en la balanza de pagos. Esto no quiere decir que un ajuste del tipo de cambio va a curar todas las dificultades de la balanza de pagos; puede ser inevitable algún tipo de controles directos sobre las transacciones internacionales. Pero no hay duda de que se puede mejorar mucho la distribución racional de recursos mediante políticas del tipo de cambio que reflejen más exactamente la escasez de divisas extranjeras que los tipos de cambio que prevalecen en muchas naciones subdesarrolladas.

Si se reajustan los tipos de cambio sobrevalorados, se hace mucho más débil la defensa del uso de los tipos sombra en la valoración de los proyectos, aunque no se eliminaría completamente. El que deban usarse o no tipos sombra en la determinación del tipo de rendimiento social de la inversión depende en gran parte de las medidas que puedan idearse para hacer efectivos los tipos sombra. La propia devaluación puede suponer un gran avance en favor del incremento del beneficio de la inversión en las industrias de sustitución de importación y promoción de exportaciones, incluso si el coste del equipo importado aumentara como resultado de la devaluación. También puede mejorar las oportunidades de inversión en la producción de materias primas y artículos semimanufacturados, que son *inputs* en las industrias de sustitución de importaciones. Pero más allá de eso, los precios sombra de las importaciones y exportaciones pueden tener que hacerse efectivos por medidas fiscales y de otro tipo, que permitan que las tasas de rendimiento en las industrias de exportación y de sustitución de importaciones sean iguales o superiores a la tasa límite socialmente tolerable.

El estudio precedente sobre el tipo de cambio sombra indica la verdadera importancia del concepto de precios sombra. Si se descubre que los precios reales de una economía no reflejan ni siquiera en forma aproximada las escaseces relativas de factores, por lo que distorsionan la distribución de recursos, entonces se tienen que hacer esfuerzos para corregir los precios inadecuados del mercado por medio de cambios en las políticas y en los controles. Los precios sombra no son una razón para dedicarse a actividades de inversión en que la tasa efectiva de rendimiento del capital sea baja; son una indicación de que se deben eliminar en lo posible las causas de las distorsiones. Esto se aplica no solamente a los tipos de cambio, sino también a los tipos institucionales de interés, a los precios cobrados por los servicios pú-

blicos y a la totalidad de los precios administrados de bienes y servicios. En muchos países las discrepancias entre los precios de mercado y los precios sombra no son tanto un fenómeno de subdesarrollo como un resultado de restricciones impuestas sobre el sistema de precios. Si se eliminaran esas restricciones, las tasas de rendimiento del mercado se podrían tomar razonablemente como una indicación exacta de una distribución de recursos racional y de la capacidad de absorción.

La dimensión temporal de la capacidad de absorción

La capacidad de absorción de una economía depende del tiempo que se conceda para los reajustes en los factores que determinan sus límites. Cuanto más tiempo se conceda para vencer la falta o la oferta inadecuada de los factores cooperantes, mayor se hará la capacidad de absorción (27). Como la elasticidad precio de la oferta, la capacidad de absorción es menor a corto plazo que a medio y largo plazo. La capacidad de absorción a corto plazo está determinada por la medida en que son subutilizados los factores cooperantes, o se encuentran en oferta excesiva, y pueden ser combinados inmediatamente con capital adicional; la capacidad de absorción a medio plazo estaría determinada por la medida en que se pueden movilizar y aplicar los factores cooperantes que son deficientes inicialmente e nel plazo de tres o cuatro años, por ejemplo; y la capacidad de absorción a largo plazo se puede definir como aquella capacidad de absorción que prevalece una vez que se ha aumentado más la oferta de los factores cooperantse limitativos.

Aunque sea irrecusable conceptualmente, esa distinción tiene un grave defecto. No tiene en cuenta el hecho de que el proceso de absorción, la propia actividad de inversión, tiene una dimensión temporal que, y dentro del propio proceso de inversión, se pueden y se deben distinguir varias fases. En la práctica, la capacidad de absorción a corto plazo o instantánea se puede definir, por tanto, más adecuadamente como la capacidad para emprender proyectos de inversión que están «listos para empezar», proyectos que han sido estudiados y valorados y que se ha declarado son viables. Siendo esto así, la capacidad de absorción a medio plazo se refiere a la disponibi-

(27) De cuando en cuando la capacidad de absorción puede también disminuir —como consecuencia de una disminución de la eficiencia administrativa o trastornos políticos. Por ejemplo, en algunas partes de Africa, anteriormente controladas por los franceses, la capacidad de absorción puede haber disminuído.

lidad de proyectos de inversión que se ha determinado que son «factibles»; se ha averiguado que su rendimiento estará probablemente por encima del punto límite, pero todavía no se ha alcanzado la etapa de proyecto. Una variante importante del mismo concepto de capacidad de absorción a plazo medio (que, en la práctica, es de considerable importancia y en algunas ocasiones ha sido causa de preocupación) es la disponibilidad de proyectos que se ha averiguado que son técnicamente factibles pero que aún no han sido investigados en cuanto a su viabilidad económica y financiera (28).

Es algo más difícil dar significado práctico al concepto de capacidad de absorción a largo plazo, porque la posibilidad de hacer un uso eficaz del capital adicional a largo plazo depende, principalmente, del progreso del propio desarrollo económico. La oferta inadecuada de factores cooperantes tales como la capacidad para valorar y desarrollar proyectos de inversión y dirigir empresas es un aspecto de subdesarrollo y la oferta creciente de factores cooperantes es parte del propio proceso de desarrollo.

La capacidad de absorción sectorial frente a la colectiva

Puesto que el límite de la capacidad de absorción se alcanza en cada caso concreto por una falta de factores cooperantes específicos, la capacidad de absorción de un sector particular de la economía puede ser menor que la de otros sectores o que la del conjunto de la economía. Es decir, se alcanza una tasa de rendimiento inferior a la límite cuando la relación entre la inversión bruta y el valor añadido del sector es menor que esta relación en otros sectores o que la tasa de inversión bruta respecto del producto nacional bruto (29). Esto no es simplemente un reflejo del principio de productividad marginal decreciente de los factores en cualquier uso específico; también es el resultado de las limitaciones de la movilidad de factores. La capacidad de absorción para inversión en carreteras, por ejemplo, estará limitada probablemente por el número de ingenieros que haya en la oficina de proyectos del departamento de carreteras, por la cantidad de información disponible sobre el tráfico presente y futuro en determinadas poblaciones, etc. Pero cuando se alcanza la capacidad de absorción para la construcción de

(28) La distinción entre posibilidad técnica por una parte y posibilidad económica y financiera por la otra está mucho menos clara en la práctica que en teoría, puesto que la ingeniería, la elección de la tecnología, la escala del proyecto, etc., dependen de consideraciones económicas.

(29) Puesto que los límites de la capacidad de absorción pertenecen a la inversión de sustitución, así como a la nueva inversión, lo pertinente es la relación de inversión bruta a valor añadido (o, en conjunto, al producto nacional bruto), no la inversión neta.

carreteras, la capacidad de absorción de los proyectos de regadío o de inversión en la industria o en la vivienda puede ser todavía superior al volumen de inversión que tiene lugar en esos sectores. Análogamente, dentro de un sector determinado la capacidad de absorción de pequeños proyectos que no exigen una complicada ingeniería y otros preparativos puede ser mayor que la capacidad de absorción de proyectos mayores.

Esta proposición, bastante evidente, es de considerable significado práctico cuando se tienen que tomar decisiones sobre la distribución de los recursos que se pueden invertir entre los sectores público y privado. La inversión en el sector público puede ser impedida por las dificultades de transferir factores cooperantes desde el sector privado al público —debido a escalas inadecuadas de salarios, mala reputación del gobierno u organismos gubernamentales como patronos, etc.—. La corriente de inversión en el sector privado, por otra parte, puede ser limitada por la incapacidad para proporcionar ayuda técnica procedente de fuentes públicas a los sectores privados. Esta es probablemente una de las limitaciones más importantes de las actividades de ayuda técnica internacional, puesto que gran parte de la ayuda técnica tiene lugar inevitablemente sobre la base de gobierno a gobierno y los beneficios de tal ayuda afluyen en primer término a las autoridades públicas. Estas, a su vez, pueden ver que es imposible transmitir la ayuda técnica al sector privado o pueden no sentirse inclinadas a ello. El resultado, bastante corriente en las naciones subdesarrolladas, es que la inversión en nuevas industrias se realiza por el sector público, aunque el sector privado pudiera estar mejor equipado para efectuar tal inversión si tuviera fácil acceso a la ayuda técnica extranjera.

La diferencia entre capacidad de absorción sectorial y colectiva apunta una vez más hacia la interdependencia de los proyectos dentro de la inversión total. La coordinación o la preparación y valoración conjunta de los proyectos en dos o más sectores eleva los límites de la capacidad de absorción. Las limitaciones de la capacidad de absorción en los distintos sectores se han de tener en cuenta en la formación de un plan de desarrollo a fin de conseguir un «equilibrio» y, de esta manera, elevar al máximo la capacidad colectiva de absorción.

Limitaciones específicas

Las secciones precedentes han demostrado que la capacidad de absorción es un concepto bastante sencillo y claro. También han mostrado, sin embargo, que las limitaciones de la capacidad de absorción pueden tomar tan-

tas formas que no es muy significativo en la práctica proponer políticas para aumentar la capacidad de absorción *en general*. La única forma de enfrentarse con las limitaciones prácticas de la capacidad de absorción es diseñar medidas *específicas* para evitar limitaciones *específicas*.

Los comentarios siguientes se pueden considerar como una tipología rudimentaria (y probablemente incompleta) de las limitaciones de la capacidad de absorción. Esa tipología se podría basar en diferentes criterios. Por ejemplo, sería posible distinguir limitaciones en las actividades anteriores a la inversión, en las actividades de inversión y en la dirección de las nuevas instalaciones; alternativamente se podrían hacer distinciones entre las limitaciones que se pueden eliminar fácilmente, las que se pueden vencer con alguna dificultad y las que probablemente resultarán más difíciles; o podría ser útil distinguir entre aquellas limitaciones que son susceptibles de vencer con la ayuda exterior y las que no lo son.

En la lista que sigue se han agrupado los distintos factores que limitan la capacidad de absorción bajo unos epígrafes, que reflejan las distinciones hechas normalmente entre los distintos factores cooperantes de producción.

a) *Falta de conocimiento.*—La falta de conocimiento limita la capacidad de absorción particularmente si se refiere a los recursos naturales y a la disponibilidad de tecnología. La información sobre los recursos minerales, la composición del suelo, la lluvia, corrientes de agua, temperaturas, etcétera, son requisitos previos para la mayor parte de los proyectos de agricultura, minería y energía. Esos datos son útiles, aunque tal vez no esenciales, para proyectos en otros sectores. En muchos casos, la falta de datos no se puede vencer inmediatamente, puesto que se necesitan tiempo y esfuerzo para organizar la recogida de datos y para analizarlos.

La falta de conocimiento de la mejor tecnología puede ser uno de los factores limitadores más difíciles de vencer —puesto que se necesitan tiempo, esfuerzos y gastos para crear una nueva tecnología y modificar la existente—. Las dificultades con que se ha tropezado, y que continúan presentándose, en los esfuerzos destinados a hacer un uso eficaz de los bosques tropicales para la producción de papel de periódicos son un buen ejemplo del problema del conocimiento inadecuado de la tecnología.

b) *Falta de especialización.*—La falta de especialización se reconoce generalmente como una de las características más importantes de las economías subdesarrolladas. En relación con la capacidad de absorción puede ser conveniente distinguir entre: 1) la especialización necesaria para preparar proyectos de inversión, para hacer la labor de ingeniería y las valoraciones económicas y financieras; 2) la especialización necesaria para llevar a cabo los proyectos de inversión una vez que se ha sabido que son factibles,

y 3) la pericia necesaria para ejecutar los trabajos de fabricación y administración de las nuevas empresas.

Durante muchos años la falta de especialización en la preparación de los proyectos ha sido una gran preocupación para los organismos nacionales e internacionales de préstamo y para otras fuentes de ayuda financiera. Se ha considerado como una de las primeras limitaciones de la capacidad de absorción. Las dificultades de preparar y valorar los proyectos de inversión se combinan con el hecho de que no hay una metodología generalmente aceptada para esos trabajos. Se han dirigido numerosas peticiones de ayuda a las instituciones nacionales e internacionales para la preparación y valoración de proyectos, pero estas especializaciones escasean también en los países avanzados. Para superar esta limitación sobre la capacidad de absorción, puede ser necesario capacitar a personal en los países avanzados y subdesarrollados.

También escasean en la mayor parte de las naciones subdesarrolladas, si no en todas, las especialidades requeridas para llevar a cabo los proyectos de inversión y los esfuerzos necesarios de ingeniería y organización. Pero en este campo la oferta de las empresas de ingeniería, consejeros técnicos y personal consultivo del extranjero es más amplia. Por tanto, en la práctica se puede vencer esta limitación. Sin embargo, puede ser una solución inapropiada utilizar personal extranjero capacitado en la ejecución de la inversión para pequeños proyectos, que no pueden sostener el coste de técnicos extranjeros.

Es probable que la falta de especialización en la preparación y ejecución de los proyectos incremente el coste de la inversión; la falta de especialistas para hacer funcionar nuevas empresas está destinada a afectar de manera adversa el coste de funcionamiento y, por tanto, la tasa de rendimiento. Para vencer esta falta de especialistas se tienen que establecer centros de capacitación de capataces y obreros. Esta es una labor cara y duradera en la que puede ser beneficiosa la ayuda extranjera.

c) *Falta de experiencia directiva.*—La razón para hacer una distinción entre la falta de especialistas y la de talento y experiencia directiva es que la primera se puede subsanar mediante adiestramiento, pero es dudoso que la «dirección» pueda ser objeto de una capacitación sistemática. Una dirección eficaz exige un conocimiento básico de las técnicas de producción y las especializaciones precisas, de los elementos de la financiación del negocio y del ambiente social en que funciona una empresa —más el ingenio y competencia para enfrentarse con problemas imprevistos que se plantean en cualquier empresa comercial.

El trabajo de dirección se puede confiar a directores extranjeros, pero solamente las empresas superiores a un cierto tamaño pueden permitirse el alto coste de la dirección extranjera. La dirección por extranjeros no es una solución para las numerosas empresas más pequeñas que están mal dirigidas y, por tanto, obtienen rendimientos pequeños.

La ausencia de una dirección eficiente es de importancia particular en el caso de las empresas estatales, que, por razones políticas, no pueden aceptar la dirección extranjera. Por la experiencia, la capacitación, la inclinación emocional y la aversión a correr riesgos, los funcionarios triunfadores a quienes frecuentemente se confía la dirección de empresas económicas estatales no son buenos directores comerciales, a pesar de que muchos de ellos cuentan con una gran competencia técnica. La confusión entre conocimientos técnicos y competencia directiva, observada frecuentemente en las naciones menos desarrolladas, es una de las primeras causas de la reducida tasa de rendimiento de las empresas económicas estatales y, por ello, limita la capacidad de absorción.

d) *Limitaciones institucionales.*—Las limitaciones al nivel de empresa se pueden vencer por medidas a este mismo nivel. Sin embargo, hay limitaciones de la capacidad de absorción que no se pueden eliminar por mejoras de cualquier proyecto de inversión determinado, puesto que por su naturaleza afectan a toda la economía y hacen difícil que todos los sujetos económicos operen con las perspectivas de una tasa adecuada de rendimiento del capital. Un ejemplo de estas limitaciones institucionales es la existencia de medidas inadecuadas para mantener la ley y el orden. La amenaza de algaradas, desórdenes, bandolerismo u otras formas de ilegalidad, no solamente limita la capacidad de absorción para la inversión privada directa extranjera; también hace difícil, o imposible, la inversión nacional.

Hay muchas naciones subdesarrolladas en que la ley y el orden están bien mantenidos, pero restricciones institucionales de otra clase limitan la capacidad de absorción. Los procedimientos administrativos del gobierno pueden ser tan molestos y consumir tanto tiempo que hagan difícil que los inversores, extranjeros o nacionales, lleven a cabo proyectos que ellos consideran prometedores y lucrativos. En el sector público, la lentitud en el proceso de tomar decisiones, las dificultades para conseguir la coordinación entre distintas partes del gobierno o la falta de comunicación entre departamentos gubernamentales, afectan de manera adversa a la tasa de rendimiento de la inversión pública, porque todas aumentan el coste de la inversión y la duración del proceso físico de la misma.

Los efectos adversos de la ineficacia administrativa se hacen más graves cuanto mayor sea la esfera de los controles directos. Si las decisiones de

inversión privadas y públicas y la dirección de las empresas públicas están constantemente sujetas a la aprobación o sanción gubernamentales mediante permisos, asignaciones, etc., y si los permisos, asignaciones y licencias de una clase u otra no se obtienen fácilmente, la tasa de rendimiento de la nueva inversión está destinada a ser menor y a limitar la capacidad de absorción.

e) *Limitaciones culturales y sociales.*—Los distintos tipos de limitaciones que pesan sobre la capacidad de absorción comentados en los párrafos precedentes son solamente formas específicas en que las restricciones culturales y sociales actúan en las naciones subdesarrolladas. La falta de especialistas revela frecuentemente no solamente el subdsarrollo del sistema educativo, sino, además, la aversión a adquirir nuevas especializaciones. Incluso cuando se han ideado técnicas óptimas para algún tipo de producción, su introducción puede tropezar con la oposición debido a factores culturales, a la falta de voluntad para aceptar la disciplina de horas de trabajo controladas, inspección, etc., de una sociedad industrial.

No sirve de nada desarrollar aquí las diferencias existentes en los valores culturales y estructura social entre las naciones avanzadas y subdesarrolladas. Basta subrayar que, a diferencia de los otros factores limitativos, los culturales y sociales no se pueden corregir directamente con la ayuda técnica o una acción concertada. Solamente se pueden vencer por el propio proceso de desarrollo.

El papel de la ayuda técnica

A lo largo de este trabajo se han hecho referencias a la posibilidad de que la ayuda técnica pudiera ser el instrumento para incrementar la oferta de aquellos factores cooperantes cuya escasez impide la utilización eficaz del capital. El término «ayuda técnica» se ha usado intencionadamente de forma ambigua. En algunos casos, la propia ayuda técnica constituye el factor cooperante que escasea. Por ejemplo, se puede decir que proporcionan ayuda técnica las empresas consultoras extranjeras dedicadas a hacer estudios de posibilidades o a preparar la valoración económica o financiera de un proyecto. Igualmente puede una empresa extranjera aceptar la dirección técnica o comercial de una empresa bajo un contrato de dirección. Pero, frecuentemente, la ayuda técnica no constituye el factor cooperante ausente o inadecuado, sino que está diseñada simplemente para incrementar la oferta de esos factores procedentes de fuentes nacionales. La capacitación de personal, en el extranjero o en el país, el consejo dado sobre cómo capacitar

y, más generalmente, cómo la escasez de factores cooperantes se puede vencer, caen en esa categoría de ayuda técnica.

Poco se ganaría tratando de trazar una clara distinción entre esos dos tipos de ayuda técnica. En la práctica todos los planes que se encuadraran bajo el primer tipo de «oferta directa» incluirían inevitablemente un elemento del segundo tipo. Inversamente, el personal de ayuda técnica empleado para dar educación, capacitación y consejos tiene que ayudar con frecuencia en algunos trabajos concretos o puede tener que hacer una demostración de los conocimientos y pericia que se espera que enseñe.

Hay, sin embargo, una diferencia importante en la disponibilidad de ayuda técnica entre los factores que limitan la capacidad de absorción, que caen en las categorías *a)*, *b)* y *c)* y los incluídos bajo *d)* y *e)*. Hablando en términos generales, los factores incluídos bajo los tres primeros epígrafes se pueden reemplazar por ayuda técnica. Pero las deficiencias en los factores que limitan la capacidad de absorción enumerados bajo los apartados *d)* y *e)* no se pueden salvar con la ayuda técnica, por lo menos a corto plazo. Se puede prestar ayuda técnica para ayudar a vencer las limitaciones institucionales, pero, inevitablemente, se necesita mucho tiempo para que la asistencia técnica se haga efectiva en este campo. Admás, no se puede concentrar al nivel del proyecto, sino sólo para toda la economía o, por lo menos, para todo un sector. La ayuda técnica no sirve para aliviar las restricciones culturales y sociales que limitan la oferta de los factores cooperantes.

Por esa razón (y debido al tiempo que se necesita para que la ayuda técnica venza la falta de conocimientos, de especificaciones y la ausencia de experiencia directiva) es por lo que se puede hablar de la limitada capacidad de absorción de la propia asistencia técnica. Es la variedad de limitaciones de la capacidad de absorción lo que hace que las limitaciones de la capacidad para utilizar eficazmente los recursos de capital sea lo más real e importante.

Resumen y conclusiones

Como este trabajo ha tratado de distintos aspectos del concepto de capacidad de absorción y tocado muchos problemas que se plantean en el camino del desarrollo económico, será útil indicar las conclusiones más importantes surgidas de las discusiones.

1. La capacidad de absorción es un concepto significativo si se relaciona con la tasa de rendimiento del capital que una economía encuentra socialmente aceptable. Debido a que una de las principales

THE PROGRESS OF ECONOMIC DEVELOPMENT

Talk by DR. JOHN H. ADLER, *Director, Economic Development Institute, World Bank, at the Economics Roundtable Session of the Fifty-first National Foreign Trade Convention, November 18, 1964, New York City, New York.*

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
WORLD BANK

IN THE last 15 or 20 years we have all learned a great deal about economic development, which we think of as something that is really new. The Articles of Agreement of the World Bank which were written at Bretton Woods a little over 20 years ago, referred to the economic development in the less developed areas of the world as a major objective. The documents establishing the United Nations also referred specifically to the problems of development as a major task for international action. This is significant because it indicates a new departure, in contrast with what has happened before, say, for the last 250 years.

We have had development and economic growth for a long time—certainly for the last 250 years. But it didn't go under that name; it used to be simply called "progress." However, this progress was confined to the countries of Western Europe and to the countries which the League of Nations used to call "countries of recent settlement"—meaning the United States, Canada, Australia, South Africa, and perhaps also such places as Argentina. It is difficult to find in the literature of the 19th century any indication that economic development, as it took place in Western Europe and the other parts of the world just referred to, would also be something to be expected in the "colonial territories" as they were called at that time. In those days people made placid assumption

that economic growth was something that was a specialty of what we now call the West; that for the rest of the world stagnation or simply no growth was the normal thing to be expected.

Since then things have changed. This, I think, is a major departure of the last 20 years: economic development now is taking place all over the world. It is taking place continuously and without any significant wavering. If I were to put my remark in quantitative terms I would say that economic growth has proceeded in the last 15 years or so at a rate of something like 4 per cent per annum. Now, 4 per cent doesn't mean really very much in our daily reckoning; there isn't very much difference between 3½ per cent or 5 per cent or 4 per cent. What it means—and this is maybe a better way of putting the same proposition—is that in the last 17 or 20 years the total income of the underdeveloped areas of the world has just about doubled. This, I suggest, is a major accomplishment of the era in which we live. We don't always realize that this is taking place, because we are constantly concerned and preoccupied with difficulties here and there, with one country after another running out of funds, one country after another having problems with its development programs and so on.

But, after everything is said and done, what is happening still adds up to a large measure of accomplishment, an accomplishment which I don't think can any longer be considered as simply a temporary deviation from the normal situation of no-growth, but must be considered as something that has permanently changed the economic history of the world.

Is Development Fast Enough?

Now, in order to evaluate whether this 4 per cent has been much or little, it is not enough to refer back to past history and say it is more than ever happened before—because as we have seen nothing happened before—but we have to relate it to some kind of objective criterion. In order to do that you have to relate first the growth rate of 4 per cent to the population growth which, of course, offsets to a considerable extent this accomplishment. Population growth in the underdeveloped parts of the world has in recent years been running at a rate of something like 2 per cent, or perhaps a bit higher. So we are left with a rate of income growth per capita of 1½ per cent on the average.

The question then is whether this 1½ per cent per capita growth rate is adequate. The answer is a matter of judgment—judgment as to what is considered a "significant" rate of growth: what do people feel when their family income goes up by 1, or 1½, or 2 per cent per year?

One way of looking at this problem is to see how long it takes for a family, for a social class, for a group, to achieve a doubling of its income. You can read in any compound interest table that a 1 per cent rate requires approximately 70 years to double in income. Well, I suggest that 70 years is too long a time to wait for such doubling of income. It takes almost three generations. There, 1 per cent would not be enough.

What then would be enough? I would suggest something in the order of 2½ per cent might be a reasonable standard and an adequate accomplishment, because it means that per capita income doubles within 28 years, a period which is well within the life span of a generation. It means that on the whole people are twice as well off as their parents and four times as well off as their grandparents.

This, then, I would consider a reasonable and adequate rate of growth. Have we achieved this? On the basis of the previously mentioned figures the answer is no, but we have come close to it. We have come close to it on the average, and we have reached it in important parts of the world. In some countries we have done even better.

Let me now go on to try to see why this has happened. Why has it happened only the last 20 years? Why didn't it happen 50 years ago? Obviously, the fact that many countries have become independent has something to do with the development accomplishments

in such parts of the world as Africa. But a variety of other circumstances also have had something to do with it. Perhaps the most important factor is that in recent years underdeveloped countries have obtained considerable assistance in the form of capital movements — support through grants and loans on conventional and non-conventional terms.

The Role of Foreign Assistance

These capital movements as estimated by the OECD, have in recent years, added up to something in the order of $8½ billion a year, and last year they came to $9 billion. These figures include public and private grants and loans from all sources advanced to the underdeveloped countries of the world. (I should add at this point that my concern is exclusively with what is known as the free world —I plead ignorance to speak about the area of the world behind the Iron Curtain).

How important has the contribution of the advanced countries of the world to the underdeveloped countries been? From the point of view of the advanced countries taken together this flow of capital and grants has been somewhat less than 1 per cent of the Gross National Product. Only one country, perhaps two, have contributed to this flow in one form or another more than 1 per cent of the Gross National Product.

From the point of view of the recipient countries, however, this contribution has been a major factor in the availability of resources for development purposes. In order to appreciate its significance, we must look at it in the context of the resources of the recipient countries. Total investment in the underdeveloped countries has probably been in the order of $24 billion a year. This figure is of course uncertain, particularly since it is made up of many national figures that are uncertain, and there are all kinds of problems of adding them up at unrealistic exchange rates, but if you add and subtract and correct you still come out with a figure of this general magnitude. If you relate that then to the flow of foreign assistance in the broad sense, of $8½ billion, you find that approximately one-third of the investment resources of the underdeveloped world have come from the advanced countries.

In some countries this proportion has of course been much larger and in others it has been smaller; and in some places the foreign contribution to capital formation was insignificant. But, when you take an average this is where you come out.

If you then compare this one-third contribution to aggregate economic growth with population growth rates you come to the rather startling and perhaps not very pleasant conclusion that if it hadn't been for the flow of the capital from the advanced countries to the underdeveloped countries, an

increase in the per capita income would not have taken place.

This is obviously one of those gross overstatements which, in order to make it correct would need many more footnotes than you would wish to listen to. They would keep you here for much longer than you would care to stay.

But, like all such overstatements, there is an element of truth in it and the element of truth simply is that from the point of view of the recipient countries foreign assistance, including the flow of private capital has been a major element in making growth possible. This is not to say that the underdeveloped countries themselves have not done well because, after all, two-thirds of their capital formation have come from their own resources and one should not play up the one-third coming from abroad without paying respect to the achievement of the countries to mobilize, under very difficult circumstances, two-thirds of their total.

Unsolved Problems

Let me now go one step further and indicate now what the major problems are which economic development is facing at this juncture. There is some indication that the rate of growth of the underdeveloped world has been slowing down in recent years. I do not want to exaggerate this since I believe that there are some hopeful signs that the decline

in growth rates, which took place two or three years ago, is coming to an end and that perhaps an increase of growth rates may be in the making. But, it is quite clear that the problems that have caused this slowing down still have to be solved, if the development process is not to run up against recurring—and growing—resistance.

There are three major problems which have arisen. In the first place, economic development has not only been uneven as between regions and countries, but it also has been highly uneven within most economies of the world.

Specifically, it turned out—contrary to the expectations of some of my colleagues in the field of economics—that industrial development and the development of social overhead capital, the kind of investment with which the World Bank is very much concerned, seems to offer less of a problem than the remaining sector of the economies, namely, agriculture. This is where the real difficulty seems to lie. In many underdeveloped countries the agricultural sector has been sadly lagging behind, to the point that in a number of countries an agricultural production per capita is smaller than it was 10 or 15 years ago. Depending upon which of the latest reports you read, you find that food production the world over has just about kept pace with the population growth or, according to some more pessimistic estimates food production has already fallen behind the population growth.

Unfortunately, it is not easy to devise an answer to this most difficult problem, largely I suspect, because we have not adequately dealt with it. We have not done enough to find a solution to the problem, partly because the underdeveloped countries themselves have been so much concerned with industrial development as compared with agriculture, and partly because the advanced countries have been reluctant to focus on agricultural development because there is a danger of their being accused of keeping the underdeveloped countries from becoming industrialized.

Somewhat related to the field of agriculture, but perhaps of importance if looked at from a different angle, is the second problem, and that is that the foreign exchange proceeds of the underdeveloped countries have not kept pace with the growth of the countries themselves. This is clearly shown in all trade statistics—one of the few pieces of reliable information that is regularly available.

These statistics show that in the last 20 years world trade has expanded at a rate never before achieved and that we now have much more international trade than we have ever had before. But they also show that most of the expansion has taken place in trade between the advanced countries and from the advanced countries to the underdeveloped countries, while exports from the underdeveloped countries have not significantly risen.

Why? In my opinion, the answer is: only to a lesser extent because the underdeveloped countries have not managed their affairs efficiently. It is well known that many underdeveloped countries have neglected the export sectors of their economies and there are many things that have been done wrong. But even after some of the blame is put on them, you still cannot escape the conclusion that the trouble with exports from many underdeveloped countries is that they simply are in the wrong kind of business. They are in the wrong kind of business in the sense that they have to sell commodities for which demand doesn't rise very fast.

Look at coffee. Look at cocoa. Look at natural rubber. Look at basic foodstuffs and industrial raw materials and you find that these commodities are constantly under pressure. They are under pressure because the demand for them rises only very slowly. Some of the commodities are under pressure because more and more synthetic substitutes come into the picture and some are under pressure because the advanced countries themselves have managed to produce them more cheaply.

The third problem that plagues underdeveloped countries that I want to mention follows directly from the second. Because of the slow growth of the export earnings, many of the underdeveloped countries are now facing a serious debt problem. In the early postwar period underdeveloped countries found it relatively easy to get loans and private investment from advanced countries. This is no longer true because these loans and investments were made in the expectation that the export earnings of the underdeveloped countries would keep pace with their growth. This, as I said before, was not the case and as the result many countries now face debt problems of serious proportions. I am not saying that the underdeveloped countries are bankrupt; far from it. But I do say that a number of underdeveloped countries have growing difficulties meeting their debt service obligations, particularly in the next three or four years.

The situation is acute in the next three years or so, because many of the underdeveloped countries have incurred—I should add, with the encouragement of many of their suppliers—debts which are simply too short to be paid off comfortably. It is clear that one should not finance a major industrial installation or a big power plant on five or six-year credits—but this is exactly what has happened. Some countries found it easy to secure short and medium-term accommodations from suppliers or financial institutions. They now have what the people concerned with debt service call a "debt bulge." Over the next three years some of the countries I have in mind face the prospects of having to set aside something like 25 to 30 per cent of their foreign exchange earnings to meet their debt service obligations.

Clearly, this is not a comfortable position to be in—for two reasons. In the first place, it means that they have to forego imports which are essential to maintain their development process. Secondly, under these conditions, it becomes inadvisable for the countries to incur further debts and for lenders to lend them at conventional rates.

The result of all this is that if development is to continue the need arises of providing more capital to underdeveloped countries on terms which are benignly called "non-conventional." I am referring to grants and loans on very generous terms.

The Outlook

This then is the story of the progress of development so far. If I may, I will take another minute or so to say what the outlook appears to be. In spite of the difficulties which I indicated and because of the accomplishment which I mentioned before, I believe the outlook is rather favorable for the continued growth of the underdeveloped countries. It is inconceivable that the underdeveloped countries will now again slow down and sink back in the morass of underdevelopment. I believe that they will do everything in their own power to continue the growth process which they have started on and I also believe that the advanced countries will continue their support of this development process.

It is certainly not an accident that in one of the last speeches during the American presidential election campaign, President Johnson went on record with the following proposition: that he considers it unthinkable that the advanced countries can continue their own growth as they have done in the last few years and for many decades before, while at the same time the underdeveloped countries are falling behind. I believe this is inconceivable, not only on moral and human grounds, but also on political grounds. It is inconceivable to live in a world in which you go back to the 19th century situation where one-third of the world was advancing while the rest was standing still. This, I think, is the overriding argument for the continued support through capital and technical assistance, advice and guidance to the underdeveloped countries of the world. The recognition of this has gone very far among all the advanced countries; it is an assurance that this development will continue.

LA MARCHA DEL PROCESO DE DESARROLLO ECONOMICO

Charla del Dr. John H. Adler, Director del
Instituto de Desarrollo Económico del Banco Mundial,
ante una sesión de la Quincuagésimaprimera Convención
sobre Comercio Exterior, celebrada en Nueva York
el 18 de noviembre de 1964

En el curso de los últimos 15 o 20 años todos hemos aprendido mucho sobre el proceso de desarrollo económico, y consideramos que lo aprendido constituye algo realmente nuevo. En el Convenio Constitutivo del Banco Mundial, redactado en Bretton Woods hace poco más de 20 años, se mencionaba el desarrollo económico de las zonas menos desarrolladas del mundo como el objetivo primordial. Asimismo, los documentos que establecieron las Naciones Unidas, también hacían referencia específica a los problemas del desarrollo como una tarea de suma importancia para la acción internacional. Lo significativo de esos hechos es que constituyeron una orientación nueva que contrastaba con lo acontecido anteriormente, digamos durante los últimos 250 años.

No es que no haya habido desarrollo y crecimiento económico durante mucho tiempo -- e indudablemente durante los últimos 250 años. Lo que sucedía es que entonces no se le daba ese nombre, sino que sencillamente se le llamaba "progreso". Pero ese progreso se limitaba a los países de Europa Occidental y a los que en la Liga de las Naciones se solían llamar los "países de reciente asentamiento" -- refiriéndose a los Estados Unidos, el Canadá, Australia, Sudáfrica y, tal vez, a lugares como la Argentina. No es fácil encontrar en los escritos del siglo XIX indicio alguno de que fuera de esperarse que el proceso de desarrollo económico, tal como tuvo lugar en Europa Occidental y en las otras partes del mundo mencionadas anteriormente, se produjera en los "territorios coloniales", que era como se denominaban entonces. En esa época se suponía que el crecimiento económico era algo propio de la zona del mundo que actualmente llamamos el Occidente, y que para el resto lo normal era el estancamiento o sencillamente la ausencia de crecimiento.

Pero las cosas han cambiado desde entonces. A mi juicio el acontecimiento más importante en los últimos 20 años es que el proceso de desarrollo económico está llevándose a efecto en todo el mundo. Y, aun más, que es continuo y que no experimenta vacilaciones de importancia. Si fuera a expresar esta afirmación de forma cuantitativa, diría que en el curso de los últimos 15 años más o menos la economía ha crecido a un ritmo de aproximadamente 4% anual. Ahora bien, un 4% no quiere decir gran cosa en lo que respecta a nuestras cuentas diarias, y realmente no hay mucha diferencia entre el 3-1/2% o el 5%, o el 4%. Lo que sí quiere decir -- y tal vez ésta sea una forma más clara de expresar esa misma idea -- es que en el curso de los últimos 17 o 20

años, los ingresos totales de las zonas subdesarrolladas del mundo casi se han duplicado. En mi opinión, ésto constituye un logro muy significativo de nuestra era. No siempre nos damos cuenta de ese proceso debido a nuestro desvelo y preocupación por las dificultades que se presentan en un lugar y en otro, por el hecho de que a un país tras otro se le agoten los fondos o por el que un país tras otro tengan problemas con sus programas de desarrollo, etc.

Pero cuando se consideran todos los factores del caso, lo que está sucediendo sí constituye un gran logro que, a mi juicio, no se puede seguir estimando como una simple desviación temporal de la situación normal de ausencia de crecimiento, sino que ha de considerarse como algo que ha introducido un cambio permanente en la historia de la economía mundial.

¿Es el ritmo del desarrollo lo bastante rápido?

Para poder determinar si la tasa de 4% mencionada anteriormente es considerable o reducida, no es suficiente remontarnos a la historia y afirmar que es mucho más de lo que nunca se había alcanzado -- como dijimos previamente nada se había logrado antes -- sino que es preciso buscar una relación entre ese porcentaje y algún otro criterio objetivo. Para ello es preciso establecer primero una relación entre la tasa de crecimiento de 4% y el crecimiento de la población que, desde luego, neutraliza ese logro en gran medida. En los últimos años el aumento demográfico de las zonas subdesarrolladas del mundo se ha mantenido a un ritmo de aproximadamente 2%, o tal vez algo más. De modo que la tasa de incremento de los ingresos per cápita se queda en un promedio del 1-1/2%.

La cuestión es determinar si esa tasa de crecimiento de 1-1/2% per cápita es adecuada. Y esa es una cuestión de opinión sobre lo que se considera una tasa de crecimiento "significativa": por ejemplo, ¿qué se piensa cuando los ingresos familiares aumentan en 1%, 1-1/2% o 2% anual?

Se puede considerar esta cuestión desde el punto de vista del tiempo que le toma a una familia, a una clase social, o a un grupo el duplicar sus ingresos. En cualquier tabla de intereses compuestos se puede ver que se necesitan aproximadamente 70 años para duplicar los ingresos a una tasa del 1% anual. Ahora bien, me parece demasiado esperar 70 años para obtener ese aumento, ya que casi equivale a tres generaciones. Decididamente, una tasa del 1% no sería suficiente.

Pero entonces, ¿qué tasa sería suficiente? Me parecería que una de aproximadamente 2-1/2% sería norma razonable y un resultado adecuado, ya que a ese ritmo los ingresos per cápita se duplicarían en un período de 28 años que está ciertamente dentro de la longevidad de una generación. En general, sobre esa base las personas estarían en una situación doblemente mejor que la de sus padres y cuatro veces mejor que la de sus abuelos.

Esa tasa es, por lo tanto, la que considero como un ritmo de crecimiento razonable y adecuado. Pero, ¿hemos logrado ese ritmo de crecimiento? Basándonos en las cifras mencionadas anteriormente es preciso dar una respuesta negativa, aunque sí nos hemos acercado bastante a esa meta. Como término medio hemos estado cerca de esa tasa, habiéndola alcanzado en algunas partes importantes del mundo y en algunos países se ha logrado aun más.

Permítanme ahora que trate de encontrar las razones de que ésto aconteciera. ¿Por qué no sucedió sino en el curso de los últimos 20 años? ¿Por qué no hace 50 años? El que muchos países hayan obtenido su independencia evidentemente ha influído en los logros en materia de desarrollo alcanzados por algunas regiones del mundo como, por ejemplo, Africa. Pero otra serie de circunstancias también han intervenido en ese proceso hasta cierto punto. Tal vez el factor más importante sea que en los últimos años los países subdesarrollados han recibido considerable ayuda en la forma de movimiento de capitales -- donaciones y préstamos tanto en condiciones convencionales como no convencionales.

El papel de la ayuda exterior

Según estimados de la OCDE el volumen de ese movimiento de capitales en años recientes ha sido del orden de US$8.500 millones anuales, alcanzando en el año 1964 la cifra de US$9.000 millones. Esas cifras comprenden las donaciones, tanto públicas como privadas, y los préstamos provenientes de cualquier fuente concedidos a los países subdesarrollados del mundo. (En este punto debo señalar que me refiero solamente a la parte conocida como el mundo libre -- reconozco mi ignorancia sobre la zona tras la Cortina de Hierro.)

¿Qué importancia ha revestido esa aportación de los países avanzados del mundo a los subdesarrollados? Desde el punto de vista de los países avanzados, esa afluencia de capitales y esas donaciones equivalen, en conjunto, a algo menos del 1% del Producto Nacional Bruto. Solamente un país, o a lo más dos, han hecho aportaciones de uno u otro tipo equivalentes a más del 1% del Producto Nacional Bruto.

Sin embargo, desde el punto de vista de los países beneficiarios esa contribución ha sido un factor importante en lo que respecta a la disponibilidad de recursos para fines de desarrollo. Para poder evaluar plenamente su importancia, es preciso considerarla dentro del contexto de los recursos de que disponen los países beneficiarios. Las inversiones totales en los países subdesarrollados probablemente han sido del orden de US$24.000 millones anuales. Desde luego, esa cifra no es muy exacta, especialmente debido a que se basa en muchas cifras de los diversos países que no son fidedignas y a que se tropieza con innumerables problemas al sumar todas esas cifras porque los tipos de cambio son poco realistas; sin embargo, después de sumar, restar y hacer ajustes, todavía se llega a una cifra que, en general, es de ese mismo orden. Si entonces se establece una relación entre esa cifra y la afluencia de ayuda exterior en el sentido amplio de esa frase, de US$8.500 millones, se encontrará que aproximadamente una tercera parte de los fondos de inversión de los países subdesarrollados del mundo han provenido de los países avanzados.

Desde luego, en algunos países la proporción ha sido mucho mayor, en otros ha sido menor, y en algunos lugares la aportación exterior a la formación de capitales ha sido insignificante. Pero, en conjunto, esa es la proporción que se obtiene.

Cuando se compara esa aportación de una tercera parte al crecimiento económico total, se llega a la conclusión, bastante sorprendente y tal vez no muy agradable, de que de no ser por la afluencia de capitales de los países avanzados a los subdesarrollados, no hubiera habido un aumento en los ingresos per cápita.

Esta es evidentemente una de esas crasas exageraciones que, para ponerla en la debida perspectiva, sería necesario dar muchas más explicaciones de las que ustedes desearían escuchar, y que los retendrían aquí más tiempo del que desearían quedarse.

Pero como todas las exageraciones ésta contiene un elemento de verdad, y es que desde el punto de vista de los países beneficiarios la ayuda exterior, inclusive la afluencia de capitales privados, ha constituído un elemento de primordial importancia para hacer posible el proceso de crecimiento. Esto no quiere decir que los propios países subdesarrollados no hayan cumplido ya que, al fin y al cabo, dos terceras partes de su formación de capitales han provenido de sus propios recursos; no es justo darle tanta importancia a la tercera parte procedente del extranjero y restar méritos al esfuerzo de los diversos países al movilizar, en circunstancias muy difíciles, dos terceras partes del total.

Problemas pendientes de resolución

Permítanme ir un poco más allá y señalar en este punto cuáles son los problemas más importantes que confrontan al proceso de desarrollo económico en esta coyuntura. Hay algunos indicios de que el ritmo de crecimiento de los países subdesarrollados ha venido aminorándose en los últimos años. No es mi intención exagerar este aspecto, ya que considero que hay algunas señales alentadoras de que el descenso en las tasas de aumento registrado en los últimos dos o tres años está al terminar, y que es posible que se esté gestando un incremento en las tasas de crecimiento. Sin embargo, es evidente que todavía es preciso solucionar los problemas que dieron lugar a ese descenso para evitar que el proceso de desarrollo tenga que enfrentarse a una resistencia repetida, y cada vez mayor.

Son tres los principales problemas que han surgido. En primer lugar, el proceso de desarrollo económico no sólo ha sido desigual en las diversas regiones y países, sino que también ha sido en extremo desigual dentro de la mayor parte de las economías del mundo.

Precisamente ha sucedido que contrariamente a lo que esperaban algunos de mis colegas en el campo de la economía, el desarrollo industrial y el desarrollo de las inversiones en infraestructura social, el tipo de inversión de que se ocupa en gran medida el Banco Mundial, parecen confrontar menos dificultades que el otro sector de las economías, o sea, la agricultura.

Es en ese sector en que parece radicar la dificultad principal. En muchos de los países subdesarrollados el sector agrícola se ha venido quedando atrás de manera lamentable, hasta el punto de que en una serie de países la producción agrícola per cápita es menor que la de hace 10 o 15 años. Según los informes más recientes que se lean, se verá que la producción en todo el mundo apenas si se mantiene a la par del crecimiento de la población o, de acuerdo con los estimados más pesimistas, que la producción de alimentos ya está a la zaga del aumento de la población.

Lamentablemente, no es nada fácil encontrar una salida a este muy difícil problema y sospecho que, en gran medida, es porque no se ha estudiado lo suficiente y no hemos hecho lo bastante para encontrar una solución, en parte porque los propios países subdesarrollados relativamente se han ocupado mucho más del desarrollo industrial que del de la agricultura, y en parte porque los países avanzados se han mostrado renuentes a concentrar su atención en el desarrollo agrícola porque existe el peligro de que los acusen de tratar de impedir que los países subdesarrollados se industrialicen.

El segundo problema que guarda cierta relación con la agricultura, y que tal vez revista mayor importancia considerado desde otro punto de vista, es que los ingresos en divisas de los países subdesarrollados no han ido parejos con el crecimiento de los propios países. Esto se ve claramente en todas las estadísticas comerciales -- una de las pocas informaciones fidedignas de que se dispone con regularidad.

Esas estadísticas muestran que en el curso de los últimos 20 años el comercio mundial ha aumentado a un ritmo sin precedentes, y que en la actualidad el volumen del comercio internacional es mayor que nunca. Pero también muestran que ese crecimiento se ha registrado en el comercio entre países avanzados y de países avanzados a subdesarrollados, mientras que las exportaciones de los países subdesarrollados no han experimentado ningún incremento considerable.

¿A qué se debe ésto? A mi juicio, solamente en pequeño grado a que los países subdesarrollados no han administrado sus asuntos de manera eficiente. Es bien sabido que varios países subdesarrollados han descuidado los sectores de exportación de sus economías, y que muchas cosas han sido conducidas erróneamente. Pero aunque se les eche parte de la culpa, no se puede dejar de llegar a la conclusión de que las dificultades relativas a las exportaciones de muchos de los países subdesarrollados se deben sencillamente a que se dedican a las actividades equivocadas, pues la demanda de los productos básicos que esos países tienen para la venta no aumenta con rapidez.

Considérese el caso del café, el del cacao, el del caucho natural. Considérese también el caso de los productos alimenticios básicos y de las materias primas para fines industriales, y se verá que esos productos básicos constantemente atraviesan una situación difícil, porque su demanda aumenta a un ritmo lento. Algunos de los productos básicos confrontan dificultades porque cada vez surgen más sustitutos sintéticos y, en algunos casos, porque los propios países avanzados han logrado producirlos a menor costo.

El tercer problema que aflige a los países subdesarrollados, y que deseo mencionar, es consecuencia directa del segundo. Debido al ritmo lento a que aumentan los ingresos por concepto de exportaciones, muchos de los países subdesarrollados confrontan en la actualidad un serio problema respecto a su endeudamiento. Durante la época inmediatamente posterior a la postguerra, a los países subdesarrollados les resultó relativamente fácil obtener préstamos e inversiones privadas de países avanzados. No ocurre así actualmente ya que esos préstamos e inversiones se hicieron esperando que los ingresos por concepto de exportaciones de los países subdesarrollados se mantendrían a la par con su crecimiento. Como ya dije, no sucedió así y, por consiguiente, muchos países ahora confrontan problemas de graves proporciones relativos a su endeudamiento. No quiero decir con esto, de manera alguna, que los países subdesarrollados estén en bancarrota. Pero sí quiero decir que una serie de países subdesarrollados hacen frente a dificultades cada vez mayores para satisfacer el servicio de sus deudas, dificultades que se agudizarán durante los próximos tres o cuatro años.

La situación empeorará durante los próximos tres años más o menos porque muchos de los países subdesarrollados han contraído deudas -- y debo añadir que lo han hecho alentados por muchos de sus proveedores -- que sencillamente son a un plazo demasiado corto para que puedan pagarlas sin tropiezos. Es evidente que no se debe financiar una instalación industrial de gran magnitud ni una gran planta eléctrica mediante créditos a un plazo de cinco o seis años; y esto es precisamente lo que ha sucedido. A algunos países les resultó cómodo obtener facilidades a plazos corto y mediano de proveedores o instituciones financieras. Y ahora experimentan lo que quienes se ocupan del servicio de las deudas llaman una "protuberancia en su endeudamiento". Durante los próximos tres años algunos de los países que tengo en mente tienen la perspectiva de tener que apartar aproximadamente entre el 25% y el 30% de sus ingresos en divisas para satisfacer el servicio de sus deudas.

Ciertamente, no es agradable encontrarse en una situación semejante por dos razones. Primero, porque tendrán que privarse de importaciones que son indispensables para mantener el ritmo de su proceso de desarrollo. Y, en segundo lugar, porque en esas condiciones no es aconsejable que los países contraigan nuevas deudas ni que los prestamistas les concedan préstamos en condiciones convencionales.

Todo esto significa que para que continúe el proceso de desarrollo es preciso proporcionar más capital a los países subdesarrollados en condiciones que, bondadosamente se denominan "no convencionales". Me refiero a las donaciones y a los préstamos realizados en condiciones muy generosas.

Perspectivas para el futuro

He aquí la historia del proceso de desarrollo hasta la fecha. Si me lo permiten, me referiré finalmente a cuáles son, en mi opinión, las perspectivas para el futuro. A pesar de las dificultades que he señalado y debido a los logros mencionados anteriormente, estimo que parece haber perspectivas favorables para el crecimiento constante de los países subdesarrollados. Creo que harán todo lo posible para continuar el proceso de desarrollo ya iniciado, y también considero que los países avanzados lo seguirán apoyando.

No es ciertamente una casualidad que en uno de los últimos discursos que pronunció durante la campaña electoral para la presidencia de los Estados Unidos, el Presidente Johnson declarara: que considera inconcebible que los países avanzados puedan continuar su propio proceso de crecimiento, como lo han hecho en los últimos años y por muchos decenios, mientras que los países subdesarrollados se van quedando a la zaga. A mi juicio es imposible imaginar una situación de esa naturaleza, no sólo por razones de orden moral y humano sino también por razones de orden político. Es inconcebible vivir en un mundo en el que se da la situación característica del siglo XIX en que una tercera parte de él avanzaba mientras que el resto se mantenía inmóvil. Estimo que éste es el argumento principal en pro del apoyo constante mediante la provisión de capital y asistencia técnica, de asesoramiento y orientación, a los países subdesarrollados del mundo. Los países avanzados reconocen ésto en gran medida, y ello constituye una garantía de que este proceso de desarrollo continuará.

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PLANS, PROJECTS AND PRIORITIES - SOME CRITICAL COMMENTS

Background paper for the Regional Conference of the Society for International Development, Calcutta, India, February 15-16, 1964

by J.H. Adler 1/

I.

It may be taken as an indication of the major changes in economic doctrine and economic policy which has taken place in recent years that nowadays there is no longer a controversy whether there is need for development plans or development programs to assist the development efforts of the less developed countries. The shrill voices of those condemning planning as the sure way to economic chaos and human bondage have subsided and so have the loud and persistent assertions of those who have offered planning as the panacea for economic backwardness. There is no point in reviving this controversy. Although many of the conceptual and theoretical issues involved in planning still remain to be resolved, in the real world of policy making planning has been accepted as an essential component of public policy in virtually all underdeveloped countries.

Planning has come of age - it is noncontroversial and respectable. Discussion has shifted onto a different plane. The question is no

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1/ The views expressed in this paper are those of the author and not necessarily those of the I.B.R.D. with which he is associated. The comments on an earlier draft of Mr. Shu-Chin Yang, also of the Bank staff, are gratefully acknowledged. It is a coincidence that this paper was prepared for a conference in India prior to the author's first visit to the country. It is concerned with planning "in general" - though not in the abstract - and not with the planning process in India which he has come to study.

longer whether or not to plan, but the question is one of method and extent. Unfortunately in this discussion much of the controversy has remained on the surface of the real issues and some distinctions that have been introduced are not of clear-cut practical significance.

II.

In the intellectual (and political) environment of widespread acceptance of planning as a matter of course, a significant change - which has rather far-reaching policy implications - has gone almost unnoticed. The basic argument regarding the need for planning has changed. Some 20 years ago when economic development emerged as one of the major items on the agenda of the "brave new world" the essential argument in favor of planning was the alleged failure of the price and market mechanism to assure the effective use of all resources in advanced countries and to make for the best use of available resources in underdeveloped countries. Imperfections of the price mechanism were thus blamed for the two major threats to economic welfare, unemployment and underdevelopment. More recently, the economic theorists and perhaps even more so the economic policy makers have taken a somewhat less inimical attitude toward markets and prices as instruments for allocating resources. In the industrialized countries as well as in the underdeveloped countries deviations from conditions of perfect competition have become recognized as an essential part of the innovation and capital accumulation mechanism; undistributed profits, once upon a time regarded as the ugly mark of exploitation, have become a welcome sight for those concerned with the level of savings and investment. This is not to say that economists have suddenly discovered that monopolies are good and competition reducing profits

bad. W. Arthur Lewis has been among the first to advocate planning through the use of the price mechanism and not a substitute for it. By now the literature concerned with development planning and development plans themselves are full of devices to strengthen (or modify) the price mechanism by building into it incentives, chiefly to expand the volume of investment and to change its composition.

III.

But it would be more a change in semantics and less a change in substance if we were to point out simply that the purpose of planning has changed from providing a substitution for prices and markets to a means of making them work better. In the planning exercises which many underdeveloped countries and a fair number of industrialized countries have undertaken in recent years, new functions and objectives of planning have emerged and assumed importance. As a result even those who in the past considered planning a threat to rational resource allocation have become convinced that planning can do much to help economic development.

What then are the essential functions of planning?

Leaving aside differences of method and organization, all planning activities may be said to have two component elements. One is a comprehensive stock-taking of the real and financial resources of the economy, the other an attempt to project into the future the use of these resources in such a way as to get the most development. The two key questions thus are "where are we now?" and "where shall we go from here?" If planning is looked at with these two key questions in mind many ramifications emerge. To answer the first question is but a

tedious chore; to deal with the second is a challenge to the imagination of the expert and the policymaker. No wonder then that the planners all over the world all too often do not pay enough attention to the first part of the task and concentrate on the second. The deplorable result is that planning often becomes a mechanistic exercise of projecting and of spelling out, with various degrees of detail and accuracy, and under various assumptions, which may or may not be justified, the desiderata of future accomplishments, and that the plans all but lose their relevance to the current conditions which they are to change.

To some extent departure of the plans from the setting of the current state of the economy is unavoidable, even in such short-range projections as an annual government budget. In most countries the preparations for next year's budget have to get under way at a time when last year's performance is not yet fully known; thus the point of departure of the budget "plan" is uncertain. The more the planning period extends into the unknown and the more ambitious the planners are with regard to methods and refinement, the greater the biatus between the presumed point of departure of the plan and the real position of an economy.

This problem can never be fully resolved. But there is much to be said for a much closer scrutiny of the current state of affairs than planners in many countries are likely to undertake. The cases in which development plans have become "obsolete" before they were completed are deplorably numerous. This is unavoidable when conditions beyond the control of the planners change. But in many other instances, plans become obsolete because they were not up-to-

date to begin with. The only way to remedy this deficiency is to improve on the flow of current information from the various sectors of the economy, and particularly of the various government departments to the planners. It is only on the basis of a thorough knowledge of what is going on that any meaningful determination of what is to happen can be made. Moreover, the stimulation of a constant flow of data and, beyond that, of an appraisal of the responses of the various sectors of the economy of measures already taken is bound to affect favorably the choice among alternatives and the determination of what targets are attainable.

In many countries attempts have been made to solve the problem of having a full appreciation of the current situation by making extensive use of the records of past experience. Historical series are compiled to ascertain the path of the economy in the past and trends and average values of the relevant economic variables are deduced from them. To view the future in the perspective of the past and to ascertain the basic trends of national economic history is indispensable for a proper appreciation of the various forces at work in the economy and their relative strength. But it is unfortunately not always sufficiently clear in the minds of the planners that even the most painstaking and accurate evaluation of <u>past</u> trends is not a substitute for an equally painstaking and accurate evaluation of the <u>current</u> economic scene.

IV.

The usefulness of the forward look - the glamor part of planning - depends on the extent to which two conditions are met. One is that a distinction must be made between what is likely to happen automatically, i.e. without changes in policies, and what will happen only if certain

changes are made. The second condition is the acceptance of the plan as a statement of policy on which decisions of all economic units in the economy can be based with reasonable assurance. The distinction between forecasts of what will happen in the future "automatically" and what will happen if and only if the government takes certain measures is important because it permits the planners, and through them the policymakers, to focus their attention on a limited number of issues on which decisions must be made. In recent years it has become rather fashionable to couch much of economic analysis and particularly of the analysis of economic development in terms of decision-making. The trend of the argument has been that economic development is held back by the inability or the unwillingness of decision makers, be they in the government or in the private sector, to make decisions, and much thought has been given by economists and other social scientists to means of making decision making easier. Perhaps the most important service which a planning exercise renders is the contribution to the decision making process by means of distinguishing those issues on which decisions must be made and those issues on which decisions can be delayed.

There is the understandable but nevertheless deplorable tendency among policymakers to delay decisions on basic issues and to attempt to substitute many "little decisions" for the painful big ones. In many countries plans have gone awry not because the planners were wrong, but because the decision-making authorities have shied away from making such essential but painful decisions. This is particularly true in the broad field of government finance. There is hardly any plan which does not call for "strategic" decisions to increase

revenues of the public sector and modify its compositions. More plans have failed because of the failure to act on fiscal recommendations because of attempts and to substitute half-measures and promises of future measures for them. effective action.

One of the common shortcomings of development planners is their insistence that many decisions must be made at the same time and, conversely, that there is no point to act on one policy recommendation without at the same time acting on all corollary issues. Several adherents of the "structuralist" school of Latin American economists have argued that anti-inflationary measures are useless without fiscal measures, and a thorough overhaul of land ownership, a reform of the educational system, etc. 1/

This view is mistaken in two important respects. In the first place, it fails to take account of the political mechanics of decision-making. Irrespective of the differences in political institutions, decisions inevitably involve the view of large number of persons who must be consulted and convinced, or, failing the latter, overruled and placated. In the second place, the insistence on comprehensive enactment overlooks the fact that one major policy decision is bound to change the constellation of circumstances which are to be changed by other decisions. This is not to suggest that there is some sort of forward linkage in the decision-making process, but it is important to realize that the response of many economic units to one important decision is bound to set into

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1/ This attitude has given rise to the remark that the structuralists propose to combat inflation by means of an agrarian reform, or through a literacy program.

motion new forces which may call for a different second and third decisions.

There emerges thus an important conceptual asymmetry. There is on the one hand the need to have a comprehensive view of the economy and to know where all its parts stand at present and in what direction they are to move; in that sense planning must be comprehensive. But in another sense, i.e. in the formulation of a policy strategy, it cannot and must not be comprehensive: implementation must by necessity be phased, or piecemeal.

V.

The reference to the comprehensiveness of planning leads to another aspect of the planning process which has become the subject of controversy in recent years; that is the extent and depth of planning. Another facet of planning which may deserve comment is the time horizon of a plan. As to the coverage of a plan, a distinction is commonly made between plans for the economy as a whole, plans confined to the public sector and an intermediate third possibility which involves detailed plans for the public sector and general indications of the directions in which the private sector is expected to move, with the direction of this movement determined or at least influenced by government policies.

This idea that planning can be confined to the public sector, which at first glance appears plausible, is in practice not really meaningful. The size and composition of public expenditures, the selection of public development projects and the decision to increase or decrease current expenditures for certain purposes cannot be made without having a fairly accurate notion about the direction in which

the private sector is moving and what the composition of private investment is likely to be. It would obviously make little sense to include in a development plan for the public sector outlays for a highway or a power project without ascertaining first what the demand for these additional facilities is likely to be. The decision to allocate certain amounts to expand the credit facilities for the agricultural sector cannot be taken without having some definite ideas about the prospects for certain crops. In other words, the investment decisions to be taken in and by the public sector, which inevitably form the hard core of any development plan, must be taken within a framework of reference taking account of the expected developments in the rest of the economy.

Even if the private sector and more specifically the private producer and investor is completely left free to decide what he wants to do, it still is necessary to have a reasonably accurate understanding of the forces at work in the private sector and their most likely results. Thus, all plans have to be concerned with the private sector as well as the public sector.

The confusion in the controversy about the extent of planning has arisen for two related reasons. One is the fact that in the preparation of projections the planners of many countries have failed to distinguish explicitly between those decisions regarding the allocation of resources which government itself can and must make, and those decisions which are the result of deliberations and actions of numerous components of the private sector, which can only be influenced by the actions of government through a system of incentives and disincentives. But there is a fundamental difference between that part

of the plan that is "firm", i.e. can be carried out by government decisions, and that part of the plan which is a forecast of the aggregate result of a process of dispersed decision making

This confusion has recently been made worse by the use of advanced techniques of projection making ~~by means of~~ such as input-output analyses, and linear programming ~~exercises, etc.~~ There is a place for these techniques in planning, particularly of projects. But unless a clear distinction is made between the firm parts of an overall plan, i.e. that subject to direct government decisions, and that part of a plan which is by necessity uncertain (because it is the result of actions and responses by many economic units) the new techniques may be misleading because of their spurious accuracy.

The second result of the failure to distinguish between what the government can do and what "ought to" be done by the private sector is the conclusion that government must make sure that the projections for the private sector come true, and that the "targets" must be fulfilled - presumably by direct government action if the private sector does not live up to the planners' expectations. These tendencies of making sure that the plans are fulfilled are likely to lead to an extension of direct government action beyond the original intentions of any planner, particularly in those areas in which government actions can be readily extended, i.e. in some industrial ~~sectors~~ activities. Such an extension of the government sector into activities which the private sector can perform as efficiently as government can, or better, is likely to be at the expense of the government's attention to tasks which only government can undertake, or government can discharge more effectively than the private sector. The end-result is that the overall efficiency of the economy goes down.

There is one way by which these tendencies can be curbed. If in the preparation of the projections for private sector activities the planning agencies rely on consultation and cooperation with representatives of various sectors or organizations representing them, not only are these projections likely to be more accurate but, beyond that, the chances of their being reached are enhanced. The secret of the success of "indicative planning" of the planning authorities of France and some other countries is not that these plans were "technically" better - whatever that may mean - but that the plans were formulated in close cooperation with the organizations representing the various industries of the private sector. The planning process itself in turn has helped the various parts of the private sector to formulate their own plans and to coordinate them so that they could be made to fit into a consistent pattern. "Indicative planning" is successful only when the guide lines for the private sector are prepared in cooperation with the sectors affected by them. ~~In that sense~~ "Indicative planning" is thus a two-way street. It indicates what the planners expect the private sector to do, but it also indicates to the planner what the intentions of the private sector are.

VI.

The preoccupation of planners in most countries with aggregate physical and financial outputs and inputs of a plan, has led to what nowadays is probably the most universal weakness of planning processes, i.e. the neglect of the preparation and evaluation of investment projects. Some years ago, when the methodology of planning was the subject of much concern (and little experience) in the literature on development problems, a distinction was made between

"planning from above" and "planning from below." The first term was intended to characterize an approach by which aggregate targets and projections are made first, with aggregates for sectors being determined subsequently, and so on down the line to specific investment decisions. "Planning from below" on the other hand was meant to characterize the assembling of investment projects from all sectors of the economy into sectorial investment targets, with their grand total then being related to total available financial and real resources.

When the first attempts were made to formulate development plans in various countries, plans were frequently little more than a list of projects in various stages of preparation - "shopping lists" as they were sneeringly referred to by those national and international agencies to which they were submitted. It was all too clear that this simplified version of "planning from below" had little value, for two reasons - in the first place, the projects did not "add up" to an internally consistent total and thus exceeded, or fell short of, available resources, and left the question unanswered as to how the remainder of resources should be used or, alternatively, what the priority rating of the various projects was and how their sequence in time would affect and modify them. The second and in a way more serious weakness was that all but a handful of projects were nothing but the expression of convictions that this or that investment project would be a "good thing", without any attempt having been made, even in a preliminary way, to determine its cost and relating it to the expected benefits.

It was partly as a result of growing dissatisfaction with this shopping list approach that the advocates of "planning from above" had an easy task to convince the government authorities, the public at large and, above all, each other that more attention had to be given to determining total requirements, aggregate targets, overall financial resources and global objectives. The producers' preferences of the central planners have been aided and abetted by an improvement in such methods of analysis as input-output studies and linear programming. The result has been a loosening of the relations between the planning agencies concerned with totals on the one hand and the government agencies and the units in the private sector of the economy concerned with investment projects on the other. With growing frequency the complaint has been heard that the plans were excellent but that their implementation, which was somebody else's responsibility, had been deficient.

There are undoubtedly many cases in which plans and projects have been good but that their implementation has been mismanaged. But in the majority of cases it seems that it was not the implementation that was at fault but the fact that there was little to implement: the plans were not related to specific projects which had been prepared to the point at which their cost could be determined with reasonable accuracy and related to the benefits to be derived from them. To argue that plans which are not entirely made up of a set of firm investment projects are incomplete would get us right back to the fallacy and limitations of the planning-from-below approach. As has been said before, a plan must inevitably consist of some parts which are "hard" and others that are "soft", in order to

allow for the inter-play of private dispersed decision making and uncertainty. But there is obviously a high correlation between the usefulness of a plan and the extent to which it is backed up by specific projects, with their cost and social yield fairly accurately known.

This is not a chicken-first or egg-first problem. As a plan takes shape, the needs and opportunities for investments emerge while the requirements of the projects themselves, and their interrelationships in terms of complementarity and substitutability in turn determine the shape, the size, and the dimension of the plan.

VII.

If a plan is thus viewed as a conceptual and organizational framework within which investment decisions are made and carried out, and decisions on economic policies are taken, it becomes clearer what the time dimension of a plan ought to be. Some decisions, e.g. the decision to increase or decrease the flow of some public services or to increase or decrease the production of some commodities with existing capacity, produce results immediately. Others show a yield only after a period of gestation, its duration being determined largely by technical considerations. Most major capital works have a gestation period of anywhere between one and, say, seven years. They involve an appreciation, at the planning stage, of the conditions which will prevail when the project begins to yield results. There are probably some parts in any plan which require some foresight for as much as 10 or 20 years, e.g. in the field of education and training, to meet requirements far in the future.

The implication of the varying spread between the commitment of resources and the beginning of a flow of returns is that each period in the future is in a sense a target date for various parts of a plan. The shorter the period of the plan, the more is the outcome determined by decisions taken in the past and the greater is the degree of certainty and predictability. The longer the plan, the greater the freedom of choice of the planners and decision makers (because the constraints of the effects of past decisions disappear) but the greater also the limitations of foresight.

There is thus some virtue in planning over a period in which the benefits of most investment and policy decisions will become available. What the best planning period is depends on the composition of the investment pattern which the plan envisages and which is predetermined by previous investment decisions, i.e. the capital works in hand. It is thus more than a matter of professional convention that planners have hit upon a five-year period as the best span of a plan.

The reason for mentioning this not very startling conclusion is that some confusion and controversy has arisen with regard to the duration of a plan and the commonly accepted practice of implementing it by means of annual budgets. Under ideal conditions the annual budget is but the yearly implementation of a part of the plan. Unfortunately, the experience with many plans has shown that conditions are far from ideal and that in many countries the annual budgets are related only in the vaguest possible way to the plan. To some extent the annual budgets (and the occasional modifications

in the budget in the course of a fiscal year) reflect the errors made in the forecasts which are explicit or implicit in the plan. But there is much evidence that suggests that the divergence between the recommendations of a five-year plan and the subsequent decisions taken through the annual budget and other measures simply reflect the weaknesses inherent in so many plans referred to before, i.e. the failure to relate the plan aggregates to specific projects under way or to be undertaken. The argument of those who feel that the preparation of five-year plans is a waste of time (and, it may be added, a waste of scarce technical expertise) and that a better preparation of projects in the framework of annual budgets is all that is necessary, are activated by a misconception of what the content of a plan should be. If a plan is nothing but a projection of aggregate requirements, resources, etc. and does not contain specific projects, those who consider plans and planning useless are right. But the answer to their opposition to plans is not to do away with plans but to have plans with a content that is operationally significant, i.e. that can be acted upon through an annual allocation of resources.

VIII.

So far no reference has been made to the concept of priorities, a concept that plays a major role in the literature on planning. Economists wedded to the idea that economic development depends almost entirely on the effectiveness of aggregate planning, are bound to object to the introduction of specific projects into the planning process by pointing out that projects can be selected only after their priority has been determined. This implies that

priorities can be determined in the abstract without being related to projects and their evaluation.

This is obviously not the case. On general theoretical grounds it may be argued that there is no need for a special effort of priority determination in the planning process because the yield of each project determines its priority rating. By selecting the projects with the highest yield in all sectors of the economy, the best possible resource allocation is assured. The advantage of looking at the concept of priority from this point of view is that it brings out the usefulness of the priority concept as well as its limitations. The selection of projects without reference to any priority would be adequate if three conditions were fulfilled: (a) that market prices reflected real cost to the economy; (b) that all outputs were sold in the market, and (c) that development plans, explicitly or by implication, were not concerned with the actual and the projected, or warranted, income distribution. Whenever anyone of these conditions is not fulfilled there is need to supplement the yield test of projects by some form of priority determination.

There is no need to discuss in this context the deviations of the system of market prices from the non-existent real prices (shadow prices) which reflect the relative scarcity of various factors of production to the economy. It may suffice to say that this discrepancy can be taken into account in the selection of projects by determining their yield on the basis of shadow prices. (It may be added that in some instances the use of shadow prices may lead to other complications and even diminish the rate of growth of the economy.) What is important in this connection however is to emphasize that this kind of priority

consideration can be taken into account separately for each individual project and that a special category of priorities such as a priority preference for export promotion or import substitution projects or for heavy as against light industries, or for agriculture as against industry, is not necessary and may even be misleading.

The concept of priorities comes into its own in the case of public services which are not sold at market prices (or at prices reflecting appropriate shadow prices) because a quantification of their benefits is impossible. Attempts have been made to determine the benefits of expenditures for such public services as education, public health and medical care, but the economic calculus has obviously limited application to expenditures of this sort, particularly for an evaluation of specific projects (what size school? how many hospital beds? how much police protection?) as compared with an evaluation of aggregate outlays. Thus some sort of priority rating, based on rules of thumb, political and social considerations, etc. must take the place of the yield test.

The third and in practice most important area in which priority considerations enter into the decision making process is the planners' and decision makers' unavoidable preoccupation with the present and future distribution of income. Investment in nightclubs and movie houses and lipstick factories may have the highest yield in an array of projects. Nevertheless, no planning agency would dare to recommend that public funds be invested in such undertakings or that investment be allowed for such purposes in a system of investment licensing. The argument usually advanced in the case of luxury goods and services is that ~~it~~ they would serve a small number of people and not the economy as a

whole; sometimes projects are ruled out on moral grounds (e.g. gambling casinos, liquor factories). It seems that this line of reasoning is but a disguise for the pursuit of an objective implicit in all development efforts: to bring about, in the course, and as a consequence, of development a more even distribution of income, or to put the same proposition in its most moderate (and timid) form, to prevent at least a growing unevenness of the distribution of income.

It must be realized, however, that under conditions which prevail frequently in underdeveloped countries, income distribution objectives may be in conflict with growth objectives. The sale of some goods and services at subsidized prices "so that more people can enjoy them" may lead to a misallocation of scarce resources and reduce capital formation. Moreover, the result of such policies may well be that most benefits of subsidies accrue to persons who can well afford to pay the full cost of the subsidized produce or service; if that is the case neither income distribution objectives, now growth objectives may be attained.

All this is not to suggest that priorities based on income distribution, or, more broadly, on social consideration have no place in the planning process - there is something inherently objectionable in the use of public funds for the construction of race tracks or country clubs. But it does suggest that aside from fairly obvious cases, the solution of the income distribution problem - and there is no doubt that this is a major development problem - cannot be attempted through the application of some preconceived priorities (with or without fringes of morality considerations) regarding the allocation of capital and other scarce resources but that the solution must be sought in part through expenditures aiming directly at alleviating the miseries of

the income group in acute or chronic distress, and in part through accelerating the process of economic growth by the best possible resource allocation based on economic criteria.

IX.

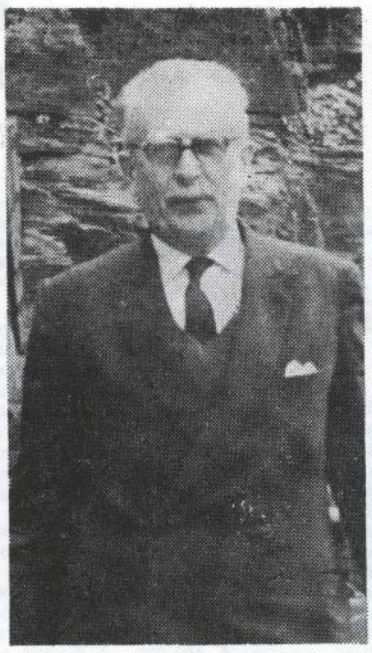
The preceding comments on planning and the role of projects and priorities in the planning process have ranged over so wide an area that it is next to impossible to pull them together into a meaningful summary. One overall conclusion may however emerge from them. The preparation of a plan that is to serve those responsible for the direction and guidance of an economy, is a difficult task which offers innumerable challenges to the intellectual acumen and integrity of the planners. It takes technical competence, resourcefulness and imagination to make a plan; to make a good plan takes all that together with the courage and humility to recognize the limitation of planning.

File - Adler speeches

ECONOMIC DEVELOPMENT INSTITUTE

Desarrollo, Madrid
April 3, 1966

Mr. H. Adler.



Don José María de Oriol y Urquijo.

Peter von Siemens.

La actualidad tiene cuatro nombres

«No vendríamos en viaje de estudio si opináramos que el Plan español es un fracaso»

(Mr. John H. Adler, director del Instituto de Desarrollo del Banco Mundial)

Don Fernando Bianchi.

Con ocasión de la visita que hicieron a Zaragoza los miembros del Instituto de Desarrollo del Banco Mundial, con sede en Nueva York, y que visitaron varias poblaciones españolas, especialmente las acogidas a los polos de promoción y desarrollo industrial, en viaje de prácticas, el jefe de la misión y director de dicho instituto, Mr. John H. Adler, celebró una conferencia de Prensa en el Gran Hotel con los periodistas locales y los corresponsales de la Prensa nacional en Zaragoza, explicándoles el significado y los objetivos de su viaje a España:

—El Instituto —nos manifestó— da seis cursos anuales. Uno de ellos es de tipo general, en idioma inglés, de seis meses de duración, y en el que se tocan todos los aspectos del desarrollo económico. Asisten al mismo altos funcionarios pertenecientes a los países miembros que se hallan en período de desarrollo. Al final del curso efectúan un viaje a otro país que, naturalmente, se encuentra en iguales circunstancias. El que ahora hemos efectuado a España es el tercero de tales viajes.

—¿Cómo ve la situación de España respecto del Banco Mundial? —le preguntamos.

—Existen relaciones muy cordiales —dijo— en la actualidad, entre el organismo financiero mundial y las autoridades españolas.

Al hablar de esto, Mr. John H. Adler aludió al informe del Banco Mundial que un grupo de expertos del mismo, comisionados a nuestro país, redactó como elemento de juicio previo para la programación y publicación del Plan Nacional de Desarrollo Económico y Social.

—No vendríamos nosotros aquí —añadió el director del Instituto— en viaje de estudios, si opináramos que el desarrollo español es un fracaso. En otros términos, tenemos una gratísima impresión acerca del progreso económico de España.

Preguntamos, luego, a Mr. John H. Adler acerca de la situación de la agricultura y de la necesidad de más regadíos, un tema que si en cualquier parte de España puede ser apasionante y de enorme interés, lo es muchísimo más para Aragón, limitándose a contestar que, hace meses, visitó España una comisión mixta del Banco Mundial y de la F. A. O., con el fin de estudiar, precisamente, la política agraria. Aún no ha sido emitido el informe y, por tanto, nada puede adelantarse sobre el particular.

—Es natural que en estos viajes —habló también Mr. H. Adler—, por ser de estudio y de prácticas, la preocupación del Instituto es llevar a sus alumnos a los lugares donde puedan aprender algo nuevo. En este sentido, todos tienen gran interés por los polos de desarrollo y por los polígonos industriales.

—¿Puede decirnos qué países de los representados en el grupo que compone la misión se hallan en una fase de desarrollo similar a la de España?

—Sin duda alguna, Israel y Yugoslavia, países que, además, tienen bastante semejanza en cuanto al clima y las condiciones físicas en general. Cierto que no quiero decir con esto que los dos países citados sean los únicos a quienes interese estudiar y ver cómo marcha el Plan de Desarrollo Económico de España. Así, por ejemplo, y de manera especial, la India se preocupa por el problema de la distribución de núcleos industriales, para el cual puede ser una respuesta el polo de promoción y desarrollo; y en lo que afecta a China, también está muy interesada en estudiar los procedimientos que emplea el Estado para la concesión de beneficios a los solicitantes.

S. GONZALEZ Y GOMEZ

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REMARKS PREPARED FOR PANEL DISCUSSION

ON

INTERNATIONAL MONETARY REFORM AND DEVELOPMENT

of the

STANFORD LAW SCHOOL SYMPOSIUM ON

DEVELOPMENT: INTERNATIONAL LAW AND ECONOMICS

March 2-3, 1967 - John Adler

When I received the invitation to take part in this panel I pointed out that on institutional and professional grounds I felt that I would not be competent to make a significant contribution to the discussion of the relation between international monetary reform, or reforms, and development. But since I did not want to miss the opportunity of visiting Stanford, I suggested to Professor Gantz and Professor Meier that I should like to direct my remarks to a corollary set of issues which by their nature frequently fall between the two stools, or academic chairs, of foreign aid on the one hand, and international monetary problems on the other. It may be useful (1) to throw some light on the grey zone between long-term aid and capital movements, and monetary reforms, and (2) to bring into the discussion the institutional changes in the credit structure of developing countries.

As to the first item on my agenda, I think I am on safe grounds if I start with the assertion that an improvement in the functioning of the international monetary system is a matter of major interest to the developing countries. Most economists will agree, I suggest, with the proposition that attempts to stimulate economic growth by public policy are bound to run up against the constraints of balance of payments rigidities both on the export and on the import side. (One might even go so far as to assert that a

developing country which is not up against balance of payments constraints is not doing enough for its own development.)

Many developing countries derive an uncomfortably large proportion of their export earnings from the sale of one or two or a few primary commodities, the demand for which does not respond readily to price changes. Moreover, even if the physical volume of exports of these commodities expands in response to the growth of income in export markets, export earnings are likely to fluctuate widely as a result of violent and rapid price changes. Although I believe some descriptions and analyses of The Commodity Problem may have overstated the depth and the range of the problem and, as a result, have come to erroneous conclusions regarding the export prospects problems for a number of countries, the problem does exist and requires, at least in the case of some commodities, international attention and action. And the problem is only mitigated but by no means eliminated by export diversification which, as the recent experience of a number of countries has shown, offers distinct possibilities.

On the import side, the implementation of any development program, however flexible and "realistic", does imply a certain level of import requirements, not only of capital goods, but also of other inputs such as fuels, fertilizers, raw materials and spare parts. It is obvious that in view of the uncertainties besetting export earnings and the cost of import requirements, developing countries need international reserves to overcome unexpected, and frequently unforeseeable, changes in their balance of payments position. It is in this connection that the changes in the policies of the International Monetary Fund to provide easier access of developing countries

to its resources under the Compensatory Finance Scheme is of major relevance. The Supplementary Finance Scheme which has been the subject of a study which the World Bank has undertaken at the request of the United Nations Conference on Trade and Development goes beyond the objectives of the Fund's Compensatory Finance Scheme. Its objective is not only to mitigate short-term fluctuations in export earnings of countries adversely affected by a decline in export earnings, but also to permit the maintenance of the flow of imports essential for the implementation of a development plan agreed upon, and vetted if you like, by the agency which is to administer the Scheme. In some sense the Supplementary Finance Scheme is supplementary both to the export earnings of a developing country and to the resources made available to it under the Fund's Compensatory Finance arrangements.

In order for the Compensatory Finance Scheme to become fully effective, it is essential that a growing volume of long-term development assistance in the form of hard and soft loans and grants be assured. It is in this connection that the uncertainties regarding international monetary arrangements assume added significance. Some of the major donor and creditor countries contributing to the flow of financial resources to developing countries, including the United States and the United Kingdom, are concerned lest foreign aid aggravates their balance of payments difficulties. Rightly or wrongly, they take the position that their development assistance from public sources and capital movements from private sources to developing countries must not threaten their balance of payments position. While maintaining their commitment to assist the developing countries they find it necessary to "defend" their balance of payments by

limiting the amount of aid and capital transfers from private sources and by insisting on tying loans and grants to procurement from national sources. The limitation on the volume of aid and the tying of aid adversely affects the flow of resources available to developing countries.

Although it may be misleading to confuse balance of payments difficulties of a particular country or group of countries with the broader issues of changing international monetary arrangements, it is clear that any modification in these arrangements designed to permit wider and longer swings in the balance of payments would go a long way toward eliminating or, at least, mitigating the constraints on the flow of capital from public and private sources to developing countries.

* * * * * * * * *

The efficiency and effectiveness of international monetary arrangements depends to a considerable extent on the efficiency and effectiveness of the financial institutions and of the structure of the capital markets and the inter-action of capital markets with fiscal and monetary policies pursued by public authorities. Partly as a result of the development efforts of the poor countries, and partly in connection with the flow of external assistance, the system of financial institutions in many underdeveloped countries have undergone significant changes. These changes have been, by and large, gradual and piecemeal and, therefore, have gone virtually unnoticed.

Ten years ago, Professor Shaw and Professor Gurley, two economists who now make Stanford their base of operation, called attention to the proliferation of various types of financial institutions which have changed

the American credit structure fundamentally in the last 50 years and have had profound effects on the working of the monetary mechanism in this country. The changes which in recent years have taken place in the institutional framework of the money and capital markets of many developing countries may be compared with these changes in American institutions or, at least, they may be considered as a beginning of an evolution in the same direction.

Some 10 or 15 years ago the network of financial institutions in most underdeveloped countries was made up entirely of commercial banks. In many of them the credit operations of these banks were confined largely to the financing of international trade transactions, frequently in cooperation with correspondent banks in the financial centers of the world. Because of the nature of their operations, many banks performed essentially a service function for the foreign trade sector and were engaged in the business of credit creation to a limited extent only. Changes in the structure of production and particularly the reorientation of production toward domestic markets rather than foreign markets have brought important changes in the operations of commercial banks.

But much more important than this development, which in itself is significant, has been the creation of new institutions, both in the public and the private sector, which specialized in the provision of long-term credit for industry, of short- and medium-term credit in agriculture, and in some countries of such activities as mining and tourism. In the case of financial institutions specializing in industrial credit and investment in industrial enterprises, and to a lesser extent in the case of agricultural credit institutions, the new institutions have become an important device for channeling foreign capital and foreign aid into industry and agriculture.

In passing it may be of some interest to note that the first development banks in the public sector were established in Latin America with the help of long-term loans from the Export-Import Bank. In the period since the end of the war these long-term credit institutions have gone a long way to supplement the system of commercial banks. According to one informed observer there are now at least 300 of these institutions in developing countries and their number is growing constantly. An indication of the importance of the financing which these institutions provide may be gained from some figures pertaining to 19 development banks or development finance companies which received financial support and a great deal of technical assistance from the World Bank and its affiliate, the International Finance Corporation.

At the end of last year the Bank and IFC had made loans amounting to $528 million to these institutions and they in turn had lent to industrial enterprises and invested in them the equivalent of $1,250 million. On the basis of this admittedly biased sample and allowing for the operation of institutions in the public sector which finance industrial enterprises both in the public and private sector, one may guess that the annual flow of funds of this new type of financial intermediaries may be somewhere between $1 billion and $1-1/2 billion. If this estimate is half-way correct, it means that these new institutions account for approximately one-third of total investment in the industrial sectors of developing countries.

In the context of a discussion of international monetary arrangements and development there is no room for a discussion of the contribution which the operations of development banks and development finance companies

make to the development efforts of poor countries. But it may be useful to point out the broader and more long-run implications of this important addition to financial institutions to the mobilization of domestic savings, to the development of national capital markets and, because of their frequent use as a channel for foreign capital, to the international transfer of capital.

If development banks and development finance companies continue to obtain support through foreign aid and private capital, either in the form of loans or equity investments, they not only constitute an important element of diversification and sophistication of the institutional credit structure, but they also have important effects on the external relations of any national monetary system. The existence of specialized long-term credit institutions may help to make monetary policies more effective and permit monetary authorities greater flexibility to adjust their policies to variations in the balance of payments without interfering with long-term investment.

The lines of external credit and the institutional relations which development banks and development finance companies maintain with foreign institutions may be considered in a very general way as a secondary international reserve and thus help to overcome intermittent foreign exchange stringencies. It goes without saying, however, that the promising development of long-term financial institutions, particularly for the industrial sector, does not eliminate the need for other measures, including the Compensatory Finance Scheme of the IMF, the proposed scheme of Supplementary Finance and, above all, an expanding flow of development assistance.

John H. Adler
International Bank for
Reconstruction and Development
March 1, 1967

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for

AGENCY FOR INTERNATIONAL DEVELOPMENT
DEPARTMENT OF STATE
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WHAT HAVE WE LEARNED ABOUT DEVELOPMENT?

John H. Adler

[Public policy can stimulate and sustain economic growth. Crucial areas are: capital formation, balance of payments, public management, private entrepreneurship, education, and population. Project planning and modernizing agriculture have proved to be particularly difficult; many questions about education policy remain.]

The tenth anniversary of the foundation of the Economic Development Institute has been an occasion for reflection on whether, in the last ten, fifteen, or twenty years—since the advancement of the less developed areas of the world has become a matter of major concern for the world as a whole—we have learned something about the development process that we did not know or were less sure about then. Since my professional background is that of an economist, my subject is perhaps best confined to: What Economists Have Learned About Development. However, I would not expect everybody to agree with my list of the major pieces of knowledge which economists claim in the field of development economics.

Underdevelopment, the poverty of nations, is not preordained and immutable. Economic development can be stimulated and sustained by deliberate action. We may still argue about the superiority of one set of measures to promote development over another set, but economists as a group have

John H. Adler is Director of the Economic Development Institute, established by the International Bank for Reconstruction and Development to make specialized training in planning and development available to specialists from less developed countries.

learned that there is always something that can be done to foster and promote and cajole economic growth.

There is a negative and sobering corollary to this activist view: that the process of development is complicated and fraught with uncertainties. But in spite of these and the feelings of frustration which plague their efforts, economists have enough of the courage of their convictions about economic development to come up with a series of assertions which they find generally valid and useful in their application.

Capital Formation

The first one, which the experience of the last twenty years has proved over and over, is that capital formation is an indispensable ingredient of economic development. It is, of course, incontrovertible that the creation of productive facilities is one measure, one means, of stimulating economic growth. Some would go so far as to say it is economic development.

The rate of capital formation seems to be paramount because something can be done about it—which is not true of many other ingredients of the development process. The emphasis on capital formation provides not only a convenient point of departure for an analysis of the process of development, but also give us a useful starting point for development policies. There is much that policymakers can do to stimulate savings and to allocate investment in a rational fashion.

Balance of Payments

The second thing that we have learned about development is that the balance of payments is a matter of major concern. International trade and capital movements, foreign investments, and the availability of foreign aid are important ingredients of the development process. The greater a country's export earnings and the smaller its dependence on imports for consumption, the better are its prospects for development. It is quite clear that the size of the export earnings of a country, together with the size of the debt-service obligations prevailing at any given time, are important factors governing the pace of development. Constant vigilance and concern about the external balance of an economy are essential if the development process is to go forward at optimum speed.

There is something very special about the international transactions of any country, particularly of a developing country. It is erroneous to measure the contribution of foreign capital, or foreign investment, or foreign aid, simply in terms of the addition which

these make to the total of available resources. The contributions that foreign resources make to a development process are disproportionately important because they permit some leeway to policy-makers and to the anonymous forces at work in the economy. They make it possible to forget about the production of some things which a country cannot produce except at exorbitant cost, and to obtain from abroad things that the economy really wants and needs for less effort than it would have cost to produce them.

Planning

The third lesson of experience is that planning and, more generally, good and intelligent economic management can improve the performance of an economy, particularly with respect to capital formation and to the balance of payments. I believe that nowadays most economists would agree that planning is essential in making a development effort fully effective. Planning involves some stock-taking, to see where an economy stands, what resources are readily available, and what resources are likely to be available in the future. It also involves a deliberate attempt to explore systematically what is likely to constitute the most efficient and effective use of those resources. All these things have come to be accepted as ingredients of the planning process, as a task of any responsible government, irrespective of the government's or the country's political orientation.

Much progress has been made in recent years in aggregative planning (i.e., planning for a country as a whole). By contrast, the identification and selection of specific development projects, and their subsequent preparation and economic evaluation, are subjects in which, unfortunately, progress has not been widespread. The limit on the effectiveness of aggregative planning is generally determined by the degree of the planners' familiarity with the techniques of project evaluation.

Agriculture

Contrary to expectations fifteen or twenty years ago, it has turned out that industrial development is much easier than the expansion of agricultural production. The countries which have made most progress in development in all the continents have made this progress largely in industry, while agricultural production has lagged.

I am not suggesting that agriculture should have increased as much as industrial production; because of the changes in the structure of demand and supply associated with the development process, one would expect a lower rate of growth. But it is a sad fact that

today the most serious limitation on human welfare the world over is that, for a variety of reasons, agricultural production has not risen as much as had been expected and hoped for.

The importance of agricultural production is further enhanced by the fact that most developing countries are now coping with unprecedented rates of population growth. In the last few years, many countries have become aware that they have a major agricultural problem on their hands.

One of the reasons for the neglect of agriculture, and of misunderstanding of the role which agricultural production must play in the development process, is that the leaders of many underdeveloped countries underestimated the importance of agriculture and therefore tended to misunderstand the emphasis placed on it by development experts from advanced countries. Some people in developing countries seemed even to resent this emphasis as forming some sort of a conspiracy to keep the underdeveloped countries tied to their farms and plantations, leaving industrial production to the more advanced countries. This is nonsense, just as it is nonsense to think of economic development simply as a process of industrialization. One of the lessons of the events of the last ten or twenty years is that economic development does not mean industrialization alone, but demands an expansion of agricultural production (any many other things) as well.

The Role of Government

Another matter on which our understanding has deepened and widened is the role of government in the development process. This inevitably results in the government's taking responsibility for the creation of such economic infrastructure as power and transportation (including port installations); the government is also bound to take responsibility for social infrastructure, particularly in connection with rapid urbanization. Schools, hospitals, sewers, and water supplies are facilities which government must provide if the transition of society from that of an essentially primary-producing economy to a more advanced economy is to take place smoothly. Government also has to make a contribution to capital formation by increasing public savings and stimulating private savings. It does not follow from this that the government must emerge as an all-powerful authority. But government certainly has to assume many new tasks—tasks which go much beyond the maintenance of law and order.

* * *

The five points that I have mentioned—the role of capital formation, the importance of the balance of payments, the significance of

the planning process, the re-emerging emphasis on agriculture, and, finally, the enhanced role of government—are the things that I think most economists would point out as those factors which, in the last decade or two, have emerged as being prime determinants in the development process. But I think economists have also learned that there are certain factors which go beyond their customary field of professional competence but must nevertheless be reckoned with if their advice and guidance are to be accepted.

Population Growth

One is the importance of population growth. Recently I spent some time at the Second World Population Conference, from which there emerged broad agreement—with a surprisingly small number of dissenters—on four issues.

First, the importance of slowing down the growth of populations arises not so much from the fear of famine as from the need, when population is rising rapidly, to devote a larger proportion of resources to consumption and to allocate a large share of investable resources to what economists call the widening of productive facilities. If there are more children, the community needs more schools, larger houses, more factories to produce clothing for them, and so on. This leaves less capital for "deepening" productive facilities—to install more machines per worker or, more generally, to have more productive facilities per capita.

Second, means for family planning are now available at a cost which even the poorest can afford.

Third, there remains, nevertheless, a major, not to say overwhelming, organizational problem: how to bring these technical improvements in family planning to the large masses of population at all social levels and in all parts of a country, particularly in rural areas.

Fourth, perhaps the most important and most difficult aspect of the population problem is to convince people of the wisdom of family planning and to persuade them to have smaller families.

Enterprise and Management

The next point is the importance of enterprise and management skill in the private sector and the need for improved competence of administration in the public sector of developing economies. Many economic historians have emphasized the importance of entrepreneurship—the willingness and the ability to seek out investment opportunities and to run an enterprise successfully—in the development

process. Even if one does not accept the argument that entrepreneurship is more fundamental than capital because capital formation is the result of entrepreneurial activity, one must recognize that entrepreneurship is of prime importance. Equally important, on the public side, is the competence of civil servants and the managers of state enterprises.

Good public administration is essential for bringing about smoothly the many structural changes which are an integral part of the development process. Moreover, the competent management of state enterprises, quite aside from its implications for allocation of resources to their most effective uses, may set an important example to the private sector. In practice, it is often the other way around—it is the private sector which has to set the example of good administration to the entrepreneurial activities in the public sector.

Education

My last point likewise goes beyond the narrow framework of economics, but I would think most economists would readily accept it as one of the major lessons of the experience in countries all over the world: education and the provision of new skills, or perhaps a new mix of skills, is indispensable for development. The problem is actually deeper than this. In many developing countries, the kind of education now given may only impart traditional concepts unrelated, or even inimical, to a country's development needs. It may, for example, make its recipients feel that the work most needing to be done is beneath them.

Unfortunately, we still do not know much about the relation of education to economic growth and have not yet come to grips with the practical problems of education and educational planning. How many people have to be educated? For what skills? What should be the proper content of education? What is the best mixture of general knowledge and specific knowledge? All these are important questions in the field of education for which answers still have to be sought. There is, moreover, the very important and very vexing problem of the high cost of education in terms of financial resources and in terms of competent manpower.

This, I believe, exhausts my list of what economists have learned about economic development. The list is not long, but with good reason: there is no country with a development problem, but only countries with a great variety of development problems. It is this diversity that makes development, and particularly the practical problems of development, so challenging and stimulating. An understanding of development does not come easily—either to the analyst or to the practitioner of what some are daring enough to call the

science of development, although others call it an art. Whatever it is, it is boring only to those who are afraid of change.

[Excerpted from The Fund and Bank Review: Finance and Development, International Monetary Fund and International Bank for Reconstruction and Development, Washington, D. C., Volume III, Number 3, September 1966, no charge, pp. 159-164.]

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Mr. Eliason
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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

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September 8, 1967

Mr. Adrian Prodan
SCINTEIA
Sectia Scrisori
Bucharest, Romania

Dear Mr. Prodan:

I refer to my letter of August 9 and enclose, with my compliments, a paper on The Gap Between Poor and Rich Nations. I realize to my regret that the paper has grown much longer than I originally intended it to be, but I hope you will find it possible to publish it as it is, if necessary in two or three parts. If you find it difficult to publish Tables 1 and 2, I suggest that you list only the names of the countries included in the various groups.

If you cannot use the paper in its present form, I could try to prepare a shorter version; in that case I would appreciate an indication of the length of the paper which you have in mind. But since I will be away from my desk for the next four weeks, I will not be able to send you such a shorter version before October 15. I must ask you, however, not to shorten my paper yourself.

Sincerely yours,

John H. Adler
Senior Adviser

Enclosure

JHA/mwm

Cleared in substance with and cc: Mr. Lind

(Updated) Transcription of talk at Seminar for Brazilian Professors of Economics, Rio de Janeiro 18-22 Sept 1967

Speech A

ALLOCATION OF INVESTMENT

John H. Adler
Associate Director
Programming and Budgeting Department

Three Problems

My subject is the allocation of investment. To set the framework for my topic, let me distinguish three problems of investment allocation. These will help relate my topic to the broad macro-economic or social-science approach developed by Mr. Kamarck.

The first one is purely a matter of macro-economic analysis. What proportion of the gross national product is to be invested? This obviously depends on the flows of domestic savings and foreign savings. Some people, especially "pure" macro-economic planners, assume that the prime determinant of the rate of growth is the rate of investment and thus, the determination of the rate of investment exhausts their interest in the subject. I do not have to repeat Mr. Kamarck's remarks that this is not necessarily so. The "translation" of investment rates into growth rates involves the other two problems also.

The second problem is the allocation of total investment resources by sector. This is as much a political and social decision as it is economic -- not only because governments allocate resources to various departments or ministries through their budget procedures, but also because a country, as in the case of Brazil, may have special regional growth problems. Therefore the slicing up of total investment into sectors is not only, perhaps not even prevalently, an economic policy decision but has to be based also on other, non-economic, factors.

The solution of these two sets of problems -- of determining total investment and of allocating investment resources to the various sectors of the economy -- form what has been called a country's development strategy, which frequently is expressed in the form of a development program. In essence a program consists of two parts: a reasonably exact quantitative plan of public expenditures and revenues, and perhaps more importantly, a framework of fiscal, monetary and commercial policies for the operation of the private sector and for investment decisions within the private sector. The formulation of these policies requires the application of macro-economic concepts. I shall not deal with these two subjects here.

The Economic Analysis of Projects

The third subject, related to investment allocation, which is my topic, is closely related to the first two but is conceptually and operationally different. It deals with the composition or the pattern of investments and the efficiency or the rationality of resource allocation. For this purpose the analysis is essentially micro-economic, concerned with individual economic units, individual enterprises, and specific projects. The recognition of the interdependence of projects and their coordination plays,

From "Some Aspects of Economic Philosophy" World Bank "Sept 1965

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or at least should play, a major role in project planning. Thus, an essential link is formed between macro- and micro-economic analysis.

The subject of project analysis is timely and important, especially for Latin America. Thanks to the efforts of economists from Santiago to Mexico, aggregate planning has progressed substantially in the last fifteen or twenty years. But despite the existence of development plans and the major efforts at program-making in Latin America, very few of the programs have been carried out effectively, and inevitably great gaps have developed between what the economy does and what the economy has been expected to do. One of the reasons for this failure, though not the only reason, has been inadequate attention to economic criteria in allocating investment, namely, the failure to select those projects which give the highest social return. It is always annoying to read that a program was good but its implementation bad. Frequently this is a piece of social-science fiction. What has usually happened is that the macro-economic framework was rather good, but there was very little to implement because very few projects had been fully developed and appraised, or the wrong projects had been chosen.

No plan is better than its building blocks, the projects which make up an essential part of any plan. The preparation of a plan, as distinct from a pure aggregate planning exercise, is what operation analysts call an operation with a heavy feedback. On the one hand the size of and the direction of aggregates such as public expenditure, monetary policy and fiscal policy, have a direct bearing on the formulation and evaluation of specific projects. On the other hand the selection and evaluation of specific projects determine the size and composition of public and private investment expenditures.

Methodology

The methods used for the evaluation of investment projects are simple and straightforward. Their application, however, is complicated, difficult and uncertain. The most useful methods have been cost-benefit analysis and especially discounted cash flow analysis, of which a more recent variant is present value analysis. Without going into a technical discussion of these techniques and the differences between them, it may be sufficient to point out that a discounted cash flow analysis averages cost-benefits ratios over time, taking account of the true pattern of the flows of costs and benefits. The advantage of the discounted cash flow method is simply that there is no bias from the choice of a discount rate, because the rate of return or, more exactly, the internal rate of return is, so to speak, the end product of the analysis. The rate tells us whether a project is "good" or "bad". However, once we say "good" or "bad" we imply some kind of cutoff rate and so introduce the notion of a minimum satisfactory rate of return through the rear window.

The internal rate of return is based on the simple notion of time preference. Early returns are better than late returns, not only because they increase the flow of total goods sooner, but also because -- and this is important from a fiscal point of view -- they are likely to enhance the flow of investable resources in the future, if the return is positive and

high. Investment in projects with a high rate of return thus becomes a self-feeding, self-reinforcing process.

At this point is may be worthwhile to bring out one difference between social return and private return. The difference is fairly simple; from the point of view of the economy as a whole one must be concerned with the return on capital, and not merely on equity capital. Private investment decisions are obviously based on the expected rate of return on equity because this is what matters from the point of view of the private entrepreneur, or investor. From the point of view of the economy as a whole there is no loan capital; all capital is equity in the sense that it is a part of the total available resources. Projects in both the public and the private sector absorb the "equity resources" of the economy as a whole.

Another point to remember when discussing project evaluation methods is that total capital includes working capital, because it is absorbed in the production process.

The Rate of Return

Turning now to the elusive question as to what should be considered an adequate rate of return we enter into either a grey zone of knowledge, or an area of preconceived notions. There has been much discussion in the literature, and in the Bank, as to whether one should expect the social rate of return on capital in the less developed countries to be higher than that in the advanced countries. It has always been argued that capital is scarcer in the less developed countries and that therefore capital flows from the rich to the poor countries. Obviously, this is an over-simplification because what matters is not the absolute scarcity of capital but the scarcity of capital relative to the supply of all other factors of production. Therefore one can also argue that the rate of return may be lower in a developing country than in the advanced countries because the supply of all other factors of production is also limited and perhaps even more limited than that of capital.

On this issue the Bank has steered a sensible middle course. By and large, it has not insisted that the rates of return on Bank financed projects be significantly higher than those in the advanced countries; but it has insisted that rates of return be high enough to cover the financial costs of capital and, if at all possible, leave a margin. For example, the Bank likes to see returns on the order of 8 per cent or 10 per cent for investments in utilities where risks are smaller than in most other industries, or agriculture. Some of our colleagues think these rates are too low, while others consider them too high.

The position which one should take on the question of the right rate of return depends in the first place very much on what kind of animal, what kind of economy, you are dealing with. One of our colleagues who has spent a good deal of time in Africa, argued in his rather interesting book, "Planning without Facts", that in planning Nigeria's development program he was willing to accept any project with a positive rate of return; as long as it was not a losing proposition he was happy with it. For my own liking he has gone a bit too far with this assertion. I think the decision as to

whether the rate of return should be high or low, depends on one's view of the ability to mobilize and to organize the cooperant factors. And I was pleased to find so much support in his book for the idea that the supply of cooperant factors also should be encouraged and fostered. Not necessarily on a national scale, but certainly on a specific project scale, it always should be possible to increase the supply of the cooperant factor in order to achieve a respectable, not to say high, rate of return.

What to Include in Costs and Benefits

Experience shows that fundamentally, it is fairly easy, or relatively easy, to estimate costs, not only capital costs, but also recurrent costs, assuming a fair degree of monetary stability. However, even inflation does not bother me in this connection as long as there is no discrepancy between the effects of inflation on costs and those on benefits. If these grow the same way, the problem becomes simple. The real difficulties of applying methods of project analysis arise on the benefit side. In the case of commodities and certain services, a good deal of the problem can be overcome by thorough, intelligent and technically competent market studies. In the Bank we have a commodity division which tries to give the project analyst informed estimates -- some may call them guesses -- of the future trend in commodities.

But you still do not have a well-appraised project if you just have a good market study. Many other aspects enter into project appraisal, largely as a result of inevitable technical uncertainties. Any economist, or for that matter, a member of any other profession, who claims that he is an expert in project analysis, should be fired immediately. Project analysis takes a good deal of field work and a good deal of reliance on the technical competence and the imagination of other disciplines, frequently the natural sciences as well as the social sciences.

Two other questions are: (1) what to include in the benefits, and (2) how to establish a closer connection between a given investment activity and a flow of benefits. Let me take them one at a time. First of all, where do you draw the line in defining a project? This is relevant for the definition of benefits. I ran into this problem for the first time some ten years ago when the Economic Commission for Latin America produced a text on project evaluation. One of the authors insisted on including everything from the original development of the raw material base to the final consumer product in the definition of benefits. In my opinion this goes much too far because it excludes the idea that you operate in a market system. You purchase certain inputs in a market, not only raw materials but also labor, and you sell the output as your product. If you then attribute the total increase of the national product to the flow of benefits, from the ingot to the razor blade, you obviously are prone to engage in some sort of double counting because you do not take account of the costs which are involved. Therefore, I suggest a general rule of thumb which, I am afraid, works to nobody's satisfaction but my own. The rule is: you analyze benefits from market to market, from the input market to the output market. You do not necessarily focus on a single output, but you trace the final benefits from the sale forward until you hit a market. This is simple for the case of a cement factory where clearly the final product is a bag of

cement. It is much more difficult for certain economic overhead projects, for instance, irrigation. The actual output of irrigation is the water supply, but the water supply itself does not have a free market. You do not sell the water in a free market, although you may try to approximate its free market price when stipulating certain water rates. Therefore when estimating the benefits, you take the increase in the output of the agricultural commodity which stems from an increase in the input of water as an indication of benefits. However, you then must also include in your cost all the improvements made on the farm and the increased cost of labor, and the cost of any other increased input which enters into the production process between the flow of water and the increased output.

Many people have made much about the inclusion of so-called secondary benefits. The distinction between primary and secondary benefits is not, I think, very useful. All benefits which can be clearly identified are part of the flow of benefits, irrespective of who obtains them, whether it be the enterprise itself or, say, a farmer in the case of irrigation, must be included. In some circumstances it does make a considerable difference whether you include only the benefits accruing to the enterprise itself or whether you also include the benefits accruing to the users of the goods and services produced by the enterprise. This is, of course, one of the major differences between the social return and the financial return analyses. The financial returns are only those which accrue to the enterprise itself.

Frequently one cannot determine adequately the benefits from only one particular project. In today's complicated world we are often dealing with joint projects and therefore we have a coordinated set of projects rather than a simple well-defined project itself. The Bank has financed farm-to-market roads in many parts of the world, particularly in Latin America. These roads have certain costs and certain benefits, and although there is no direct financial return, a cost-benefit analysis or a discounted cash flow analysis can be made. But whether this is a good project or not depends on the response of the farmers to the availability of the new roads. Here, to use the technical term, the supply elasticities are relevant. If by chance the farmers are prepared to increase production or to change over to more valuable crops just because the farm-to-market road becomes available, that is fine. But in most instances it does not happen that way. As a consequence the rate of return on the farm-to-market road will be very poor. In order to make sure that farmers respond to the new roads, you have to supplement the farm-to-market projects with a regional or local agricultural development project. Then it becomes a question of not just analyzing one project but considering it as a part of a joint project, taking into account not only the increased flow of benefits but also the increased flow of cost.

The second problem in determining benefits is the question of attribution. Let me give you a practical example. The Bank was the Executing Agency for the United Nations Development Programme in a major transportation study in Argentina some years ago. As Executing Agency the Bank hired some consulting firms. They reported that in order to improve its network of railways Argentina would have to invest several hundred million dollars, to lay off some uneconomic lines, to replace the present unsatisfactory

management of the railways, and to fire approximately one-fifth of the total labor force working for the railways. If all these proposals were fulfilled, the rate of return on the new investment together with a substantial increase in freight and passenger rates would amount to something on the order of 5 per cent to 6 per cent. One of our colleagues who was asked to comment on the report proposed an alternative way of developing the railways. What would happen, he asked, if you laid off the uneconomic lines, fired that part of the management which was inefficient, and laid off the redundant workers? If you did that you would end up with zero investment and therefore an infinite return. I still do not know, (and, as far as I know, nobody else does) whether the consulting firms or our colleague were right. The consulting firms were right if the proposed reorganization of the railways could not have been undertaken without the investment; our colleague was correct if the reorganization could be undertaken without the investment, or a smaller amount of investment than that proposed by the consulting firms.

The example of the Argentine railways, inconclusive though it is, is an extreme example of the problem of attribution. More frequently the problem arises in a somewhat different form, i.e. in the determination of the optimum size of investment. Some years ago, the Bank was asked to make a loan for a major project to improve port facilities in Ecuador. Our technical experts and economists looked at it and discussed it with the people there and concluded that they did not need 14 million dollars to build a new port. All they needed was 2 million dollars to buy some new port equipment, a complete overhaul of the administrative structure of the port and an increase in port charges. With these improvements, they could handle the cargo expected in the next few years. The saving on capital expenditures was very substantial, and certainly the rate of return was much higher. If all these improvements could be obtained by investing $2 million rather than $14 million, the $12 million "saved" could be put to better use elsewhere in the economy.

Financial Benefits

Social returns pertain not only to the benefits which accrue to the owners or operators of a specific project but also to the benefits which accrue to the users, or as you might call them, the secondary beneficiaries. They are the most important determinants in the allocation of investment. Nevertheless, financial returns are also a matter of major importance and of major concern. They are of particular importance for projects in the public sector and for projects in the private sector which derive special benefits from public policy, for example, in the form of subsidies, low interest loans and special import licenses. The problem of aiming at a high financial return does not arise when total return -- social returns -- are high. In those cases the government or the government agency responsible for a public investment project should be able to cover all its costs and still leave the users a substantial free benefit. For example, the social return on quite a number of Bank financed irrigation projects -- I am thinking particularly of one irrigation project in Mexico -- has been as much as 20 per cent or 27 per cent, depending on how the farmer's time and the cost of farm labor were valued. In that case the government has no difficulty in recovering its costs through water charges and increased collection of export taxes.

The situation is difficult, however, when you are talking about a lower rate of return. Under some circumstances it is difficult for a government to recover cost fully and still leave a margin necessary to induce the effective use of the services it provides. A few months ago the Bank published a book written by one of our colleagues, Mr. John de Wilde, on African agriculture. I think it is a very import and useful book. One of his findings is that, given a choice between a marginal increase in income and more liesure, the peasantry in many parts of Africa favors more leisure. In order to induce an African farmer to make effective use, say, of an addition to the water supply or of an improvement in the organization of agriculture and in order to have a high rate of return on a project it is necessary to leave the farmer a very substantial financial margin. In that case the government clearly cannot collect the financial benefits directly from the farmer, though it may be able to do so indirectly.

This is a case in which a redistribution of income leads to an increase in total output quite different from the more frequently discussed situation in which a redistribution of income is posed as an alternative to an increase in total output. Thus it is important to keep in mind that there are conditions and circumstances in which the government should promote a redistribution of income because giving someone something for nothing leads to an increase in total output and therefore benefits the economy as a whole.

Arguments for Full Cost Pricing

Aside from these cases, of which there are unfortunately very few, practical consideration favors a policy of full cost pricing: i.e. the policy of the agency financing an investment should be that the consumer cover all the costs. If a government or a government agency does not recover full cost then an investment decision problem becomes a fiscal problem or a financial problem. Moreover, whenever an investment does not pay for itself, we are likely to encounter adverse repercussions on the functioning of the economy as a whole, and we may end up with less investment rather than with a constant growth in total investment. The main argument for full cost pricing is that full cost pricing by its very nature leads to the optimum allocation of resources. While subsidized pricing, or pricing at less than full cost, induces the additional use of public services and of commodities produced in the public sector, this does not make for a flexible economy in which the allocation of total resources is at least approximately at optimum.

The problem of financial returns arises again when a government decides to give special benefits to private investors in order to encourage new investment activities, particularly the setting up of new enterprises. As a result of such special favors as subsidies and tax exemptions, these investments are likely to have a high rate of private return. Against these high private returns must be set the negative return which accrues to the public lending agency. One case in point, which is encountered commonly and frequently in Latin America, including if I may say so, Brazil, is that a public lending agency provides long-term fixed capital or working capital, at a rate which, because of inflation, ends up to be negative. Clearly, under these conditions, a redistribution of income takes place -- resulting

in some form of "subsidized capitalism". This is a transfer of resources from a poor taxpayer or consumer to an investor who is usually a man or a group of men of means.

One must be aware of this whenever the social return is significantly lower than the private return. This does not mean that arrangements of this sort are generally without value; you still might end up with a substantial total social return, in which case this kind of policy might be perfectly rational or reasonable. But I wonder whether this kind of subsidization through a fixed rate of interest (even if it is high), over a long period of inflation does not lead to a substantially less than optimum allocation of resources. Certainly in some Latin American countries industries have been developed which do not really belong there because of the combination of their factors or the size of their market. They are profitable only because there is a very substantial redistribution of income from another sector of the economy to the industrial sector.

Shadow Prices

I now come to the last point. It is about time to relax the assumption that existing prices reflect with reasonable accuracy the real scarcity or the opportunity cost of the factors of production. It is generally argued that the less developed a country, the less developed is its market, and therefore the less accurate are the price signals in such a market. Economic theory states that if prices do not reflect relative scarcities or opportunity cost one must simply adopt a shadow price or an accounting price. Of course, no one has ever figured out exactly what an appropriate shadow price should be for anything. Some years ago there was an interesting controversy between Professor Tinbergen, who was one of the intellectual fathers of the notion of shadow prices, and Ragner Frisch, the eminent Norwegian economist, who pointed out that if you change one price in an equilibrium system you have to change all the others as well. This is undoubtedly correct; the trouble is that this is not easy.

What does the use of shadow prices really come down to? Three categories of shadow prices are relevant in this discussion but only one has major operational significance. These three categories of prices are the cost of capital, the cost of foreign exchange, and the cost of labor. I have already dealt with the cost of capital. One does not really have to determine what the appropriate return on capital ought to be as long as one has a general notion of what the cutoff rate should be. The cutoff rate should be reasonably high, certainly substantially above the rate at which international loans are made and, more generally, the higher the better.

The problem of shadow prices versus market prices arises again for the cost of foreign exchange. For a variety of reasons countries frequently have an exchange rate which does not reflect the relative scarcity of foreign exchange. I believe that although it may be very difficult or look impossible to determine an equilibrium exchange rate, a consensus can be reached fairly easily when the prevailing exchange rate in a country is out of line and when therefore the import content of capital and the export content of output should not be valued according to the prevailing exchange rate. I

know of one project in India, which has not led to a loan, where Bank engineers and economists evaluated the rate of return on a fertilizer project. Since this involved imported material on the one hand and was an import-saving project on the other hand, the question of the right exchange rate came up. Their computation showed that if you assumed that sooner or later the exchange rate would have to be devalued you would have a good project, while if the exchange rate were unchanged the project would be at best a marginal one. India has since devalued. In the light of these events the project now looks good -- and so do our engineers and economists.

Michael Bruno, an Israeli economist, has developed a fairly simple scheme for looking at a project. First you have to stipulate a cutoff rate of return, then you determine at what exchange rate a project becomes viable. This is simple for some projects while for others it involves reference to a fairly complex input-output table, because the exchange rates are reflected not only in the output and direct inputs but also in the intermediate inputs. To put the same proposition in somewhat different terms: in the case of an import substitution project you try to determine the minimum degree of protection necessary to make it viable while in the case of an export project, the objective of shadow pricing is to determine the minimum degree of subsidy necessary to make it viable. Given a certain amount of investable resources, you then allocate the resources to those projects for which the deviation of the shadow exchange rate from the market rate can be kept to a minimum, and you determine the cutoff rate in such a way as to absorb all the investable resources. This is obviously an oversimplified explanation of a more complex scheme. But it indicates the line of reasoning one should apply in practical situations.

The last application of the notion of shadow prices is to wages. A number of economists have suggested that since unemployment or underemployment is widespread in developing countries, the marginal productivity of the unemployed is zero. If you then attribute an opportunity cost of zero, you find that a very large number of projects become attractive in terms of social return -- and so in effect this is not much help to you. But, I am not sure that the formulation of investment projects is the cheapest and the most efficient way of dealing with the problem of unemployment. As Mr. Friedman pointed out, you may have to choose between full employment and maximum growth. If you focus just on the unemployment problem itself it may be better to pay unemployment insurance. You may get away cheaper, since a dole may cut into investable resources less than the development of industries which by their very nature are likely to be unprofitable for a long period of time.

One additional point is that shadow prices could be used for other purposes, mainly for reflecting certain non-economic preferences. For instance, a government investment bank might be more lenient in interest charges or in project evaluation for industries established in one particular region. This is a perfectly legitimate way of taking account of priorities. The problem of priorities is always how you put them in a balance sheet, how you quantify them. But irrespective of how this is done, one should not lose sight of the fact that by giving some sort of priority rating to some investment the second best solution rather than the optimum solution is being

sought. One cannot really determine an economic basis for regional preferences. But one can show the cost of the non-economic second best project by comparing it with the same kind of a project which has not a non-economic priority.

Social Benefits

I have not spoken about the special problems which arise in the evaluation of education and health projects. Here the difficulty is how to determine what the output is. Even if a man learns how to read and write he may not contribute to economic development; but he may enjoy greater welfare. In other words, so much of education really is a final good and not an input. If you consider education, all education, as an input, you may as well pursue this line further and argue that an increase in the food supply, in caloric intake is an important input of the labor force. This is undoubtedly so; there are many cases where an improvement in diet can make a major contribution to economic development. But I shudder at the idea that we would be short-circuiting the whole reasoning of economics by taking this line of argument. Since I am here among economists I can say that economics has made more progress than sociology and social anthropology and for a very simple reason. We have adopted a double entry system; we have supply and demand, cost and benefit, and production and consumption. Once you say, well, after all consumption is an essential of production, you destroy the whole fabric of economic reasoning. And this, as a man conceited enough to like my profession, would not suit me at all.

But far be it from me to argue that education is unimportant, or that the Bank should not finance educational projects. Quite to the contrary; there is no need to offer statistical proof that education is an essential ingredient of all sustained development. I say "sustained" advisedly because the returns are usually quite slow. What I am really concerned with is the technique of analysis to evaluate education projects. There are essentially two techniques now in use. One, developed at Princeton and at the United Nations, is based on projection of manpower requirements. If for example the rate of industrial growth is 8 per cent or 10 per cent per annum, the demand for foremen, or for workers who are able to read blueprints or to carry out written instructions, will be of the order of 12 per cent. This percentage is used to find out how many people will be needed in skilled occupations over the next 15 or 20 years and how many people will need training for them. This kind of demographic approach has severe limitations, (a) because of the uncertainty of the underlying assumptions and (b) because specialized skills, such as those of blueprint readers and perhaps even those of nuclear physicists, can be learned on the job. In the United States where conditions are clearly different from those in most Latin American countries, 90 per cent of the industrial labor force is trained on the job and the question of highly specialized education does not arise. This does not necessarily mean that there is no need for specialized education in developing countries, where conditions are different and the industrial base necessary for training, which is simply built into the industrial sector of the United States, does not exist. There are good reasons for trying to measure the actual and potential demand for higher skills and for paying close attention to secondary and vocational education.

The second technique, which may be called the University of Chicago approach, evaluates education projects according to the differences in incomes for different levels of education. Professor Schultz used this argument in his book on investment in human capita. Professor Harberger is now one of the main proponents of this technique. Some useful work has been done with it, particularly in Chile. The difference between the present and the projected earning powers of the people who will benefit from certain additional educational expenditures is considered as a benefit. Perhaps this is as intelligent a way as you can find to go about it. But I doubt whether it really gives you the right answer. In the first place, the demand for skills may be quite different in the future. As long as certain skills are scarce, they are likely to be at a premium. If their supply increases because of more and better education, the benefits of education, measured as the difference in income between different levels of education, may become much smaller. But my real objection to this way of looking at education and investment in education is twofold. In the first place, I found it difficult to concede that education should be considered an input rather than an output. I would rather stick to the non-economic, philosophical concept that education is a final good in itself. Education does not necessarily have to contribute to an increase in output; if it does, all the better for the people enjoying the benefits of education and for the economy.

Professor Sir Arthur Lewis, now at Princeton, concluded in a seminar that the "development demand" for secondary education in Africa and in the Caribbean was not larger than 3 per cent of the total labor force. He had fairly good statistical evidence for this because in countries, such as those in Africa, where the level of secondary education has reached 3 per cent of the labor force, imported labor, e.g. European foremen, are no longer needed, and local labor is sufficient. Anything over 3 per cent is "consumption" and does not directly contribute to development. But if you get more than 3 per cent, education is still a very good thing, even though its contribution to development may decline. But this does not mean that education is something which one can neglect.

My second objection to the economic benefit and manpower projection approaches is that both focus on easily identifiable quantities to the neglect of that which is presumably the most important aspect of education, namely its content. What kind of curriculum is most valuable to developing countries? What sciences should be taught? What is the contribution of liberal arts, natural sciences and social sciences that is most conducive to the development process? What curriculum, what teaching methods, what structure of the educational system, will produce minds which are open to change and prone to exploit the opportunities which a dynamic society offers? These are the really hard questions to which not enough attention has so far been paid.

(Updated) Transcription of talk at Seminar for Brazilian Professors of Economics, Rio de Janeiro 18-22 Sept 1967

Speech A.

ALLOCATION OF INVESTMENT

John H. Adler
Associate Director
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Three Problems

My subject is the allocation of investment. To set the framework for my topic, let me distinguish three problems of investment allocation. These will help relate my topic to the broad macro-economic or social-science approach developed by Mr. Kamarck.

The first one is purely a matter of macro-economic analysis. What proportion of the gross national product is to be invested? This obviously depends on the flows of domestic savings and foreign savings. Some people, especially "pure" macro-economic planners, assume that the prime determinant of the rate of growth is the rate of investment and thus, the determination of the rate of investment exhausts their interest in the subject. I do not have to repeat Mr. Kamarck's remarks that this is not necessarily so. The "translation" of investment rates into growth rates involves the other two problems also.

The second problem is the allocation of total investment resources by sector. This is as much a political and social decision as it is economic -- not only because governments allocate resources to various departments or ministries through their budget procedures, but also because a country, as in the case of Brazil, may have special regional growth problems. Therefore the slicing up of total investment into sectors is not only, perhaps not even prevalently, an economic policy decision but has to be based also on other, non-economic, factors.

The solution of these two sets of problems -- of determining total investment and of allocating investment resources to the various sectors of the economy -- form what has been called a country's development strategy, which frequently is expressed in the form of a development program. In essence a program consists of two parts: a reasonably exact quantitative plan of public expenditures and revenues, and perhaps more importantly, a framework of fiscal, monetary and commercial policies for the operation of the private sector and for investment decisions within the private sector. The formulation of these policies requires the application of macro-economic concepts. I shall not deal with these two subjects here.

The Economic Analysis of Projects

The third subject, related to investment allocation, which is my topic, is closely related to the first two but is conceptually and operationally different. It deals with the composition or the pattern of investments and the efficiency or the rationality of resource allocation. For this purpose the analysis is essentially micro-economic, concerned with individual economic units, individual enterprises, and specific projects. The recognition of the interdependence of projects and their coordination plays,

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BBC Lecture
Third Programme
Sunday, March 10, 9:15 p.m.

POVERTY AMIDST WEALTH: TRENDS IN THE WORLD'S ECONOMY

The daily headlines about the balance of payments problems of the United Kingdom and the United States, the occasional news about one developing country or another, and, more recently, the reports from the Second United Nations Conference on Trade and Development in New Delhi, form a thoroughly inadequate basis for trying to present an objective view on the growth of the world economy over the last 15 or 20 years. To be sure, it is only natural that close attention is paid to the day-to-day movements and the swift changes in the international scene because it is essential to react to them quickly and effectively. But there is much to be said for taking time out from the preoccupation with day-to-day events and to sit back and try to assess the accomplishments and the failures of the world economy over the last two decades and to grope, however tentatively, for the lessons which emerge from such an assessment.

The two most important findings that emerge from a study which some of my colleagues at the World Bank and I have started are: first, in the 15 years from 1950 to 1965 the world economy grew at an unprecedented rate. World production just about doubled and per capita income increased by more than 50 percent. Second, all parts of the world took part in this growth. By far the more significant finding is the second, because, as far as we know from the record of the 19th and of the first half of the 20th century, it is the first time that economic growth was not confined to some countries, or to one area, but was truly world-wide. Despite the uncertainty of the

data and estimates on which this conclusion is based, this finding should go a long way to put to rest the contention that the economic development efforts of the poor countries, and with it development aid, have failed.

Our study also reveals however that the gains in production and income have been distributed rather unevenly among countries and regions. It is disturbing, though not surprising, that the poorest countries in the world, those with an annual per capita income of £125 or less, have not done well and that the countries in the lower half of this income bracket show a growth record which is substantially worse than that of the rest. Included in this group are, of course, most of the countries of Africa and South Asia, countries which started poor and, with all their accomplishments, are still poor by any standards.

On the other hand, countries in the middle income group, with a per capita income from £125 to 500, have done remarkably well. The average income has increased at a rate of 7% per year, or almost tripled. The record of this group, which include such diverse economies as those of Japan, several countries on the Mediterranean, several behind the Iron Curtain and a few in Latin America, is thus much better than that of the rich countries of Europe and North America.

The picture is getting considerably worse, and gloomier, if, instead of comparing the rise in total production and income, we focus on income per head. The most disconcerting aspect of the record of the world economy since 1950 has been the high, and rising, rate of population growth. This is not, of course, a new discovery; the alarm about the population explosion was sounded some years ago and thoughtful demographers worried and warned about it for at least 20 years. But what is new in the picture is the heavy

concentration of high rates of population growth in the poorest countries in the world. The current rate of population growth of 2-1/2% per year, which the poor countries of the world have experienced in the last five years, implies that their population, now close to 1,500 million people, will increase to over 3,000 million before the end of the century. Incidentally, these figures do not include estimates for Mainland China because for that country we have nothing but vague guesses for both present population and population growth; according to some estimates the 700 million people of Mainland China will increase to 2,000 million by the year 2000 if the basic estimate is correct and if the growth rates of recent years continue.

These growth rates are alarming, not so much because of the Malthusian threats of mass starvation and epidemics which they evoke, but because of the limitations which they impose on economic advancement. If we compare the growth of population income in the poor countries with that of the middle income countries, we find that there is an inverse relation between population growth and growth in total as well as per capita income. This, I suggest, is prima facie evidence that income growth in the poor countries would not be adversely affected and, to the contrary, may be enhanced by a decline in population growth. To put the same proposition in the form of a numerical example: a reduction in population growth rates in the poor countries by 1/10 of 1% is equivalent to an increase in capital formation--or foreign aid --of £250 million per annum. So when we speak about the burden which high rates of population growth impose on the poor countries, we are not just talking about marginal adjustments, but about a major factor which bears directly on their growth prospects.

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The growth data and other indicators of economic performance which cover some 75 countries provide us also with some rather conclusive indications of the essential characteristics of the process of economic growth. Although countries which show the widest possible differences in culture, social arrangements, political institutions and natural endowment are included in the study, certain broad conclusions emerge.

The first is this: The rate of capital formation is an important determinant of the rate of growth: the higher the rate of investment that is, the better the prospects for economic advancement. I am not saying that investment is the sole determinant of economic growth. We know by now only too well that it takes much more than investment to accelerate growth. But there is clear evidence that those countries which somehow, by their own savings, or through development support from abroad, manage a high rate of investment also seem to achieve a high rate of growth.

Another conclusion: Countries which by luck, or by wise policies, or by a combination of the two, manage to increase their exports also manage to have a high rate of growth.

Third, contrary to expectations, industrial development has turned out to be relatively easy, and agricultural development the more difficult. This is an important part of the explanation for the slow economic growth in the poor countries and the fast growth in the middle income countries. The economic advance of the latter was largely based on rapid industrialization, to which the social and institutional framework was readily adapted. In the poor countries industrial development also proceeded at a rapid pace, but, starting in many countries with an insignificantly small base, it could not

move the rest of the economy. This was so because agriculture, which in most of the poor countries accounts for 1/2 of total production and provides a livelihood for as much as two-thirds of the population, expanded at a slow pace and remained susceptible to the vagaries of climatic conditions.

A fourth conclusion is that the path of economic growth over time is not straight, but winds unevenly and haltingly through ups and downs; several years of acceleration are usually followed by years of slow growth or stagnation--until growth picks up again. There is no evidence that the developing countries as a rule move easily from a slow start into a period of self-sustaining growth; I am sorry to say there is nothing in the record to support the so-called theory of the take-off.

It is not too difficult to discover specific reasons why the growth performance of virtually all countries is so uneven over time. Sooner or later economic advancement runs up against constraints either within the economic system itself, or in the broader social and political setting. A typical example of economic factors limiting growth are the constraints imposed by the flow of export earnings. Breakdowns of law and order, and civil strife frequently halt, or even reverse, economic advancement and so do military ventures. One cannot simply assume <u>away</u> these constraints as the builders of economic growth models are prone to do.

Finally and more generally, the experience of the post-war period shows the complexity and many-sidedness of the process of economic development on the one hand, and how little we know and how much we still have to learn about it, on the other. This becomes embarrassingly clear if we get away from the neat and simple averages which the various groups of countries reveal, and try to explain why some countries have overcome the limitations

and handicaps of their own poverty and moved ahead faster than the rest. It is obviously not enough to explain the success stories of development experience of the last 15 or 20 years in economic terms and on the basis of readily quantifiable information. We must look to the social structure and to cultural traits to find even the beginnings of an explanation as to why some countries, with the same economic features as others, have moved ahead. There is no point in hiding our ignorance by inventing new terms such as the "propensity to develop" and to pretend that we can explain what remains essentially unexplained and baffling. And it would be foolhardy to insist that the development of all countries can be accelerated because some countries have set good examples which can be readily followed by others. But it would be equally wrong to assert that the experience of the last 15 years shows that any and all attempts to speed the process of growth are bound to fail. There is no question that some policies and some development strategies--to use a fashionable term--are more conducive to growth than others and that improvements in policy formulation and performance are possible.

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What then does the future hold for the poor countries of the world? On the basis of the conclusions which we have just drawn, it would be rash indeed to make any predictions. Instead, it may be more useful to enumerate and evaluate some of the factors which bear directly on the prospects of development and which have changed and are likely to change.

We can list at least three positive factors. The first is the increase in the rates of investment and capital formation which has occurred in the poor countries as well as in the countries in the middle income group.

To repeat: a rising rate of investment alone does not assure a rising rate of growth. But it may be argued with a good deal of justification that we may look at the rate of investment not so much as a prime mover of growth, but as a leading indicator and a measure of the absorptive capacity of a country for domestic savings and foreign capital. If this is so--and I believe it is--we may expect that the growth of the poor countries may be somewhat faster than it has been until now.

The second factor on the positive side is the increasing awareness, in the poor countries themselves, of the importance of agricultural development in the growth process. The days when development and industrialization were considered synonyms are over; the political leaders of the poor countries no longer frown when it is suggested to them that they should pay more attention to their agriculture. Moreover, as developments in the last two or three years in Pakistan, in Turkey, in Taiwan, and, more recently, in India indicate, the agricultural revolution which went hand-in-hand with industrial revolution in Europe and North America, is finally coming to the poor countries of the world. It is coming in the form of improved seeds, through the rapidly expanding use of fertilizers and insecticides and in the gradual but perceptible changes in techniques of agricultural production. The expectations of some observers may be too sanguine when they predict that in the next few years a number of countries who now rely heavily on food aid will produce exportable surpluses. But even a modest and gradual acceleration in the growth of agricultural production will go a long way toward speeding the pace of development.

The third positive factor is the possibility that population growth is slowing down. Some demographers are hopeful that the rate of population

growth in the poor countries has reached its crest and that the prospects for a gradual decline in population growth are good. Again it would be wrong to expect a sudden and precipitous decline in birth rates. But, as I indicated before, even a moderate downturn could set free sizable resources and thus make for faster growth.

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A final word about the implications of all this for the cooperation of the rich countries with the poor. In recent years the flow of development aid and technical assistance from the rich countries of Europe, North America and elsewhere has amounted to $2,500 million net of repayment and another $1,600 or 1,700 million has come to them in the form of private investment. There is ample evidence that these flows have materially contributed to the development of the poor countries. Data which we have assembled at the World Bank indicate that in the last five years about one-fifth of all investment in the poor countries has been financed by resources obtained from abroad. If it had not been for foreign aid and flows of private capital, income growth would have been substantially smaller and balance of payments difficulties much more severe. If effectiveness is a valid argument in favor of continuing foreign aid, the rich countries of the world have every reason to continue and even increase it.

But one must also realize that even with sustained development aid and technical assistance, the problems of the Poverty of Nations will be with us for a very long time. There is little to be gained from pretending otherwise.

John H. Adler
World Bank
March 4, 1968

Though the prosperous nations have been implicated in the problem of the third world for a number of years, India's plight has scarcely been alleviated. John H. Adler, Senior Adviser of the World Bank, discusses what can still be achieved.

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India's agony must be ended

After twenty years of independence, fifteen years of economic planning and billions of dollars in foreign aid, India is still an underdeveloped country on the brink of famine. Some have called it a desperate case. Do you share this opinion?

In India and tropical Africa progress has been less marked than elsewhere because these countries started off at a much lower level than the Latin American or Mediterranean countries. It must not be forgotten, either, in the case of India, that the very size of the country and its vast population create problems of an altogether different scale from those in other developing countries: the only other country at all comparable is China.

A few figures will make this clearer: India now has a population of nearly 500,000,000, and this total is growing by some 10,000,000 every year. There are 500,000 villages. This means that if the same methods of agricultural modernization are to be employed here as in other underdeveloped countries, 500,000 rural leaders have got to be trained. This gives some idea of the scale of the problems. Another point that is often overlooked is that the economic aid given India is modest indeed compared to what most other developing countries have received: India's average receipts of foreign aid amount to no more than $1.50 a year per capita.

It is no use pretending that economic development is something that happens overnight. People had far too many illusions about underdevelopment when the question first became acute after the war. Even today, many people still do not understand that there is no short-term solution, that one just cannot obtain immediate and spectacular results like those of the Marshall Plan, operated as it was in a Europe which, though shattered, still had all the infrastructure essential for rapid reconstruction. Five-year and ten-year plans are too short to mark the stages of the third world's economic growth; it can really only be measured in generations. In the advanced countries several generations were needed to reach a satisfactory standard of living. The rate of progress will be slightly faster for the developing countries now because we have a better understanding of economic phenomena, and in particular we are able to avoid, or at any rate to circumscribe, world crises, which formerly halted development completely for years at a time. But still, we must get rid of the idea that development can ever be a rapid process.

Do you think that India is doing everything she can to speed up progress?

I remember that just after the war, when we were beginning to concern ourselves with these questions, my colleagues and I used to say: "Southeast Asia—in particular, India and Pakistan—are not likely to present any grave problems. They inherited a highly competent, experienced administration from the British Civil Service." We imagined that, because of this, economic problems would be solved more easily and more quickly in India than in other countries. But we failed to take into account the size of the problems or the importance of time. We came to realize that a good administration was not enough to create a modern state.

Situations like this cannot be judged on superficial impressions. In a few years' time, when India's progress will be more evident, people will be saying: "If only the other developing countries had such a good administration as India." Fashions change fast.

The situation in Pakistan really was desperate after independence. For ten years the country lived almost entirely from foreign aid, and there seemed very little prospect of the situation improving. Today Pakistan's economy is on the move, and there no longer appear to be any insuperable problems. India, on the other hand, got off to a fairly brilliant start. In spite of considerable political difficulties, the survival of feudal princes and the existence of seventeen official languages, the country made remarkable progress.

Then came the wars with China and Pakistan, which largely disorganized the economy; and—for the first time in a century—drought struck for two successive years, which meant that the country's agricultural production was completely wiped out in 1965 and 1966. This has led to the present situation: a state of famine, and a drop, for the first time in fifteen years, in the national income.

The present situation is thus the result of a conjunction of unfortunate events; it is certainly not something which would have happened in the normal course of things. And, so long as there are no further wars or droughts, India will forge ahead again next year. Indian economists reckon that the national income should increase by 20 to 25 per cent over the next five years, and, personally, I consider this estimate reasonable.

What do you think India should do to ensure this rate of growth and to prevent so many people dying of hunger in the next drought?

India must do three things. She must brake the population growth rate, modernize agriculture, and orient her industries more to export. The population is increasing at the moment at a rate of 2.5 to 3 per cent per year. (In 1950 the growth rate was 2 per cent.) Population growth must first be stabilized at the present rate, then reduced. This, too, will require time; how much time, no one can forecast. For, till now, there has been no measurable success in population control. The major problem of the

continued

next fifteen years will be to absorb another 10,000,000 to 20,000,000 persons into the economy every year.

The agricultural problem is now being looked at with a fresh eye. Experts have gradually come to realize that, contrary to expectations, development was proving far easier in industry than in agriculture. I remember that as recently as fifteen years ago one was always seeing articles describing the difficulties of setting up a factory in a developing country—of recruiting labour and training management. In fact, it has proved to be much easier than had been expected, particularly in the case of India, where there has been a certain amount of industry for over seventy years.

It is the development of agriculture which has proved the most problematical. Agricultural modernization consists essentially in transforming the independent marginal subsistence farmer into a kind of farm manager who will buy good quality seed, fertilizer, raw materials and machines, and transform them into agricultural produce. This technical outlook so necessary to modern agriculture is signally lacking in India. But in any process of economic development, it is inevitable that there should be certain sectors which lag behind, that the makeup of the international income should be modified, that certain regions should be more favoured than others.

It has long been thought that economic development means first and foremost industrial development, and that growth takes place in the towns. Today in New Delhi you can see an industrial zone which did not exist twenty years ago. And there has been remarkable industrial progress in Bombay, Bangalore, Poona, and in a couple of dozen other towns.

But it has also become clear that the increase in national income produced by the industrial sector does not necessarily lead to similar progress in the agricultural sector. Although this problem has been recognized in India for some time, all efforts to solve it have been unsatisfactory, and it is now being tackled with renewed vigour.

India's industries must be reoriented towards the export market and this for two reasons: firstly to attract convertible currency, vital for development. Funds flowing into India as foreign aid are not sufficient; the Indians must try to earn more convertible currency by their own devices, which would at the same time make them slightly less dependent on the vagaries of aid. Second, it is now a commonplace that overseas trade is a very effective instrument for making an economy more efficient and competitive. A study we have just completed shows that economic growth has always been more rapid in countries that have made the greatest efforts to boost exports.

If India perseveres in these three main directions you have mentioned—population control, agriculture and exports—how long do you think it will be before inhabitants can hope to have a decent standard of living?

It is no use deceiving ourselves about this. For many decades to come India will remain a very poor country. At the moment the annual per capita income is about $90 or £33. If an annual economic growth rate of 5 per cent can be attained, and if the population growth rate can be stabilized at around 2.5 per cent, the increase in per capita income will be of the order of 2.5 per cent per year. Thus it will take twenty-eight years to double the income of each Indian and so bring it to $180 per year by 1995. One can assume that the next generation will again double this figure, thus bringing the annual per capita income up to $360 around the year 2025.

Do you think the Indians—and the other underdeveloped peoples in a similar position—will be prepared to wait and to accept the idea that, in fifty years' time, their standard of living will hardly have reached a fifth of the present level in the industrialized countries of the world?

But what other alternative do they have? One often hears it said that the most serious problem in the world today is the gulf between the developed and underdeveloped countries. Personally, this seems to me a purely intellectual argument put forward by people used to seeing problems through statistics. The real problem is the possible rate of growth of a given economy: what is important for the average Indian, the average Egyptian or the average African is for him to have the feeling that his condition is improving. If the per capita income is successfully doubled in a generation, children will have a standard of living twice as high as their parents had, people will notice that things are getting better. Of course, certain precautions must be taken, for instance, to ensure that there are not too many inequalities within any one country. The people of the third world will attach far less importance to the difference between their income and that of rich countries than to the steady improvement of their own individual standard of living.

Do you think that India can ever achieve the status of a modern industrial country without accomplishing a profound change in the Indian mentality and the social structure of the country?

I know that people often try to explain the slow development of certain countries by their supposed innate incapacity to adapt to modern techniques. But when you actually visit factories in developing countries, as I have often done, you come away amazed by the speed at which people with no training or experience of handling modern tools develop the necessary technical mentality. How many European farmers understand the exact effect of the artificial fertilizers they use? Usually all they know is that you have to put so many hundredweight of fertilizer on a field to improve the crop yield.

If one can succeed in convincing the Indian or the African farmer that he ought to put fertilizer on his land and that his crops will be better, that is all that is needed. Of course, technical education is very important for the progress of a country, but it is not true to say that it is an indispensable condition for development. In the last century, when the Western countries carried out their industrial revolutions, most of the workers could neither read nor write and had had no kind of technical training.

As far as social structure is concerned, I must say, as an economist, that our sociologist colleagues have so far not been much help. The point is always made that social structures must change, but no one has explained to us how it is to be done. I believe myself that social structures change as a consequence of economic development, and that this change cannot be made into a condition for economic development. This has, in fact, been proved by the evolution of the industrialized countries over the last century.

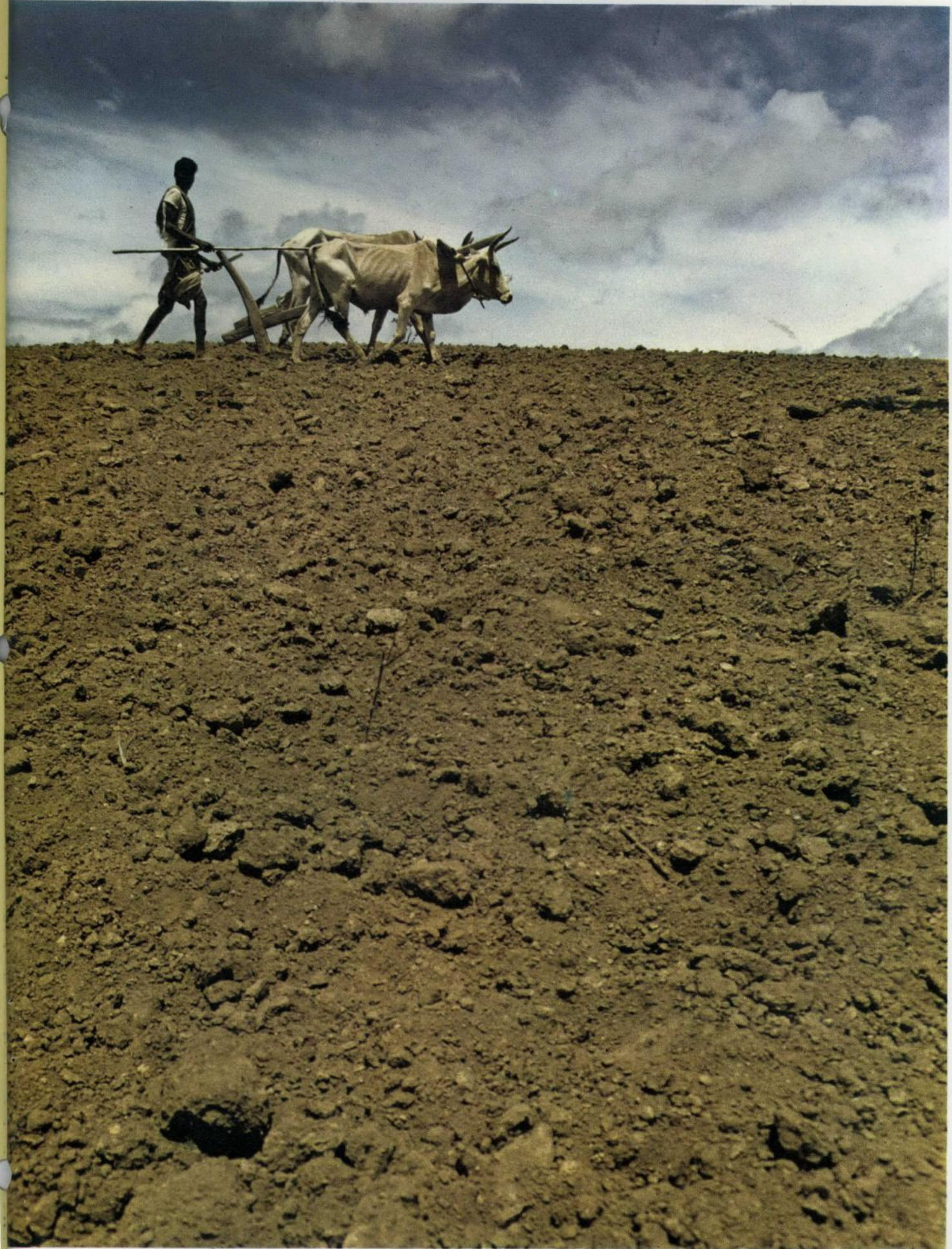
Do you think that a socialist government with authoritarian state planning would be better for India's economic development than the present Congress Party government?

No, I don't think so. Japan has emerged brilliantly from underdevelopment with a liberal economy. Israel, South Korea, Pakistan, Puerto Rico, Jamaica and Ivory Coast have all recently achieved notable economic successes without detailed state planning.

What can the rich countries do now to help India?

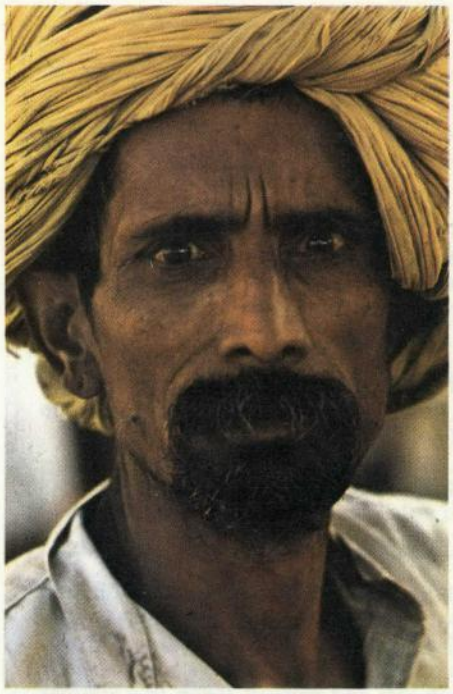
Continue to send aid. First, technical assistance must be increased to support the Indians' own efforts in the struggle for population control and the modernization of agriculture. Next, food should immediately be sent every time a disastrous drought threatens to cause a famine.

continued on page 86



A lonely labourer, the Indian farmer must accomplish a spectacular increase in crop production to overcome the famine. According to John Adler, this should be possible: with new seeds, hydraulic pumps, special fertilizers and tractors.

A pathetic legacy of famine, the child above is one of hundreds in the Bihar region suffering from the effects of the two years' catastrophic drought. Along with agricultural reform, the government is trying to control the population explosion.



Lastly, and above all, financial aid must be increased. Aid from the rich countries to the third world is at present passing through a difficult stage: the ending of the cold war has made aid less of a paying proposition from the political point of view; ill-informed public opinion in the donor countries has started to show impatience at the apparently meagre results of aid; and, finally, a number of industrial countries, notably the US and Great Britain, have been having difficulties with their balance of payments. Whereas, for fifteen consecutive years, the volume of aid increased regularly, it has now levelled out, and, in proportion to the income of the wealthy countries, it is even tending to diminish.

In this situation, it is important for India to know what share of available world aid she can hope to receive. The Indian Aid Consortium, which was founded in 1960 on the initiative of the World Bank to coordinate the financing of the Third Indian Plan and in which ten industrial countries participate (the US, Great Britain, France, West Germany, Japan, Canada, Italy, Austria, Belgium and the Netherlands), fixed the volume of aid to India for 1967-68 at $900,000,000, the same level as last year. To this sum must be added $380,000,000 worth of food aid—the cost of wheat shipments, which the United States has insisted be shared equitably among the ten members of the consortium.

It is impossible to calculate the exact amount of aid which India will need in the years to come, or to say for how long the country will be dependent on foreign aid for its economic development. But it is estimated that to maintain the country on its present course, the rich nations will have to grant it a minimum of $20,000,000,000 over the next fifteen years. This gives some idea of the effort that remains to be made. END

F Adler speeches 3/10/68

3/19/68 AJF replied & enc'd Atlas; said "Mr. Adler has provided part of the preliminary draft of the study on indices of economic development he mentioned in the BBC broadcast. As this study is still in preparation, would you please note that the draft enclosed herewith is not for attribution."

University College London
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International Bank for Reconstruction
and Development
Publications Department
1818 H Street
N W
Washington D C
20433 U S A

11 March 1968

Dear Sirs

I would be eager to obtain two of your documents. The first one is a World Atlas of Economic Development issued a couple of years ago and giving population and per capita income of all countries. The second is a recent study on indices of economic development since 1950 which was referred to by Mr J H Adler, Senior Economic Adviser to the World Bank in a talk broadcast by the BBC Third Programme on Sunday 10 March.

Yours faithfully

D A Turin

D A Turin

PRELIMINARY DRAFT
Not to be Quoted

WORLD ECONOMIC GROWTH, 1950-1965 - SELECTED INDICATORS

1950 GNP Per Capita: 1/	Group I -$100				Group II $101-200				Group III $201-400				Group IV $401-800				Group V $801-1,600				Group VI $1,601-				Total			
	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65
1. Number of countries in sample				15				22				12				12				13				1				75
2. Total number of countries				47				41				31				18				18				2				157
Coverage of sample: 2/																												
3. - percent of population				82.0				88.6				79.2				98.6				99.8				99.8				88.8
4. - percent of GNP				82.7				88.9				79.0				98.6				99.8				99.8				97.0
Growth rates																												
5. GNP	3.8	4.0	3.6	3.8	6.0	6.1	5.9	6.0	6.8	7.0	7.8	7.2	7.5	7.3	5.1	6.6	3.8	3.6	4.6	4.0	4.4	2.2	4.8	3.8	5.1	4.3	5.1	4.8
6. Population	1.9	2.2	2.4	2.2	2.5	2.5	2.7	2.6	1.7	1.6	1.6	1.6	1.4	1.4	1.3	1.4	0.9	1.1	1.2	1.1	1.7	1.7	1.5	1.7	1.8	1.9	2.0	1.9
7. GNP per capita	1.9	1.7	1.2	1.6	3.4	3.5	3.1	3.3	5.0	5.3	6.1	5.5	6.0	5.9	3.8	5.2	2.8	2.5	3.4	2.9	2.6	0.5	3.3	2.1	3.3	2.4	3.1	2.9
8. Exports 3/	2.8	1.9	4.5	3.0	3.7	5.6	7.2	5.5	10.3	7.9	12.1	10.1	12.5	10.7	8.9	10.7	8.4	5.6	8.0	7.3	8.6	5.8	6.0	6.8	8.6	6.8	8.0	7.8
9. Gross investment as % of GDP	9.5	12.3	13.9	11.9	18.0	18.7	20.1	18.9	21.0	24.6	30.5	25.4	21.3	23.9	25.8	23.7	18.5	20.6	22.0	20.4	17.8	18.4	17.4	17.9	18.5	20.5	21.6	20.2
10. Capital/output ratio (line 9 ÷ line 5)	2.5	3.1	3.9	3.1	3.0	3.1	3.4	3.2	3.1	3.5	3.9	3.5	2.8	3.3	5.1	3.6	4.9	5.7	4.8	5.1	4.0	8.4	3.6	4.7	3.6	4.8	4.2	4.2
11. Gross savings as % of GDP	9.1	9.8	11.2	10.0	16.8	17.8	20.2	18.2	21.0	23.4	29.6	24.7	21.7	25.8	26.8	24.8	18.7	20.3	21.6	20.2	17.9	18.5	17.8	18.1	18.5	20.7	21.7	20.3
12. Savings "gap" = resources supplied from abroad as % of GDP	0.4	2.5	2.7	1.9	1.2	0.9	-0.1	0.7	-0.0	1.2	0.9	0.7	-0.4	-1.9	-1.0	-1.1	-0.2	0.3	0.4	0.2	-0.1	-0.1	-0.4	-0.2	-0.0	-0.2	-0.1	-0.1
13. Foreign resources as % of gross investment	4.2	20.3	19.4	16.0	6.7	4.8	-0.5	3.7	-0.0	4.9	3.0	2.8	-1.9	-7.9	-3.9	-4.6	-1.1	1.5	1.8	1.0	-0.6	-0.5	-2.3	-1.1	-0.0	-1.0	-0.5	-0.5
14. Public foreign debt outstanding (1965) - $ million			11,140				8,440				6,950				5,630				11,390				..				43,550	
Debt service as % of exports (1965)			11.3				12.0				7.2				6.4				2.0				..				5.3	

1/ 1950 per capita GNP at 1965 prices in US$. IBRD data.

2/ Since 1950 data are available only for countries included in the sample, the coverage was determined on the basis of 1965 data, with limits of groups shifted as follows:

	Per capita income, in $ 1950	1965
Group I	-100	-150
Group II	101-200	151-300
Group III	201-400	301-600
Group IV	401-800	601-1,200
Group V	801-1,600	1,201-2,400
Group VI (U.S.)	1,601-	2,401-

The 50% increase corresponds roughly to the annual average increase of 2.9% for the entire sample - (15-year growth: 53.5%).

3/ In current (undeflated) US$. Exports of sample countries represent approximately 90% of total world exports.

JHAdler/PStreng
February 20, 1968

PRELIMINARY DRAFT
Not to be Quoted

WORLD ECONOMIC GROWTH, 1950-1965 - SELECTED INDICATORS

(Excluding Socialist Countries)

1950 GNP Per Capita: 1/	Group I -$100				Group II $101-200				Group III $201-400				Group IV $401-800				Group V $801-1,600				Group VI $1,601-				Total			
	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65	1950-55	1955-60	1960-65	1950-65
1. Number of countries in sample				15				20				11				8				13				1				68
2. Total number of countries				47				41				31				18				18				2				157
Coverage of sample: 2/																												
3. - percent of population				82.0				88.6				66.4				39.4				93.3				99.8				76.1
4. - percent of GNP				82.7				88.9				66.5				36.1				94.8				99.8				79.4
Growth rates																												
5. GNP	3.8	4.0	3.6	3.8	5.3	5.8	5.5	5.5	6.4	7.0	8.2	7.2	6.9	5.6	4.8	5.8	3.8	3.6	4.6	4.0	4.4	2.2	4.8	3.8	4.7	3.5	5.0	4.4
6. Population	1.9	2.2	2.4	2.2	2.7	2.7	2.9	2.8	1.7	1.5	1.7	1.6	1.2	1.2	1.3	1.2	0.9	1.1	1.2	1.1	1.7	1.7	1.5	1.7	1.8	2.0	2.1	2.0
7. GNP per capita	1.9	1.7	1.2	1.6	2.5	3.1	2.5	2.7	4.6	5.3	6.4	5.5	5.7	4.3	3.5	4.5	2.8	2.5	3.4	2.9	2.6	0.5	3.3	2.1	2.8	1.6	2.9	2.4
8. Exports 3/	2.8	1.9	4.5	3.0	3.3	4.3	6.3	4.7	11.5	7.9	12.3	10.5	14.3	11.1	9.4	11.6	8.4	5.6	8.0	7.3	8.6	5.8	6.0	6.8	8.5	6.4	7.9	7.6
9. Gross investment as % of GDP	9.5	12.3	13.9	11.9	17.4	18.4	19.2	18.3	21.0	24.1	30.6	25.2	20.9	22.9	24.8	22.9	18.5	20.6	22.0	20.4	17.8	18.4	17.4	17.9	18.0	19.6	20.5	19.4
10. Capital/output ratio (line 9 ÷ line 5)	2.5	3.1	3.9	3.1	3.3	3.2	3.5	3.3	3.3	3.4	3.7	3.5	3.0	4.1	5.2	3.9	4.9	5.7	4.8	5.1	4.0	8.4	3.6	4.7	3.8	5.6	4.1	4.4
11. Gross savings as % of GDP	9.1	9.8	11.2	10.0	16.2	17.3	19.4	17.6	21.0	23.3	29.3	24.5	21.2	24.4	25.6	23.8	18.7	20.3	21.6	20.2	17.9	18.5	17.8	18.1	18.0	19.6	20.5	19.4
12. Savings "gap" = resources supplied from abroad as % of GDP	0.4	2.5	2.7	1.9	1.2	1.1	-0.2	0.7	-0.0	0.8	1.3	0.7	-0.3	-1.5	-0.8	-0.9	-0.2	0.3	0.4	0.2	-0.1	-0.1	-0.4	-0.2	-0.0	0.0	0.0	0.0
13. Foreign resources as % of gross investment	4.2	20.3	19.4	16.0	6.9	6.0	-1.0	3.8	-0.0	3.3	4.2	2.8	-1.4	-6.6	-3.2	-3.9	-1.1	1.5	1.8	1.0	-0.6	-0.5	-2.3	-1.1	-0.0	0.0	0.0	0.0
14. Public foreign debt outstanding (1965) - $ million		11,140				8,440				6,950				5,630				11,390				..				43,550		
Debt service as % of exports (1965)		11.3				12.0				7.2				6.4				2.0				..				5.3		

1/ 1950 per capita GNP at 1965 prices in US$. IBRD data.

2/ Since 1950 data are available only for countries included in the sample, the coverage was determined on the basis of 1965 data, with limits of groups shifted as follows:

	Per capita income, in $ 1950	1965
Group I	-100	-150
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Group III	201-400	301-600
Group IV	401-800	601-1,200
Group V	801-1,600	1,201-2,400
Group VI (U.S.)	1,601-	2,401-

The 50% increase corresponds roughly to the annual average increase of 2.4% for the entire sample (15-year growth: 42.8%).

3/ In current (undeflated) US$. Exports of sample countries represent approximately 80% of total world exports.

JHAdler/PStreng
February 23, 1968

Table 1

GNP, POPULATION AND GNP PER CAPITA 1965

	1965 GNP per capita ($)	1965 GNP ($ million)	1965 Population (million)
GROUP I			
GNP per capita up to $150:			
*Malawi	40	156	3.94
Burundi	47	151	3.21
Rwanda	49	152	3.11
Upper Volta	52	253	4.86
Ethiopia	54	1,214	22.60
Lesotho	54	45	0.84
Somalia	54	135	2.50
Botswana	57	32	0.56
Mali	61	279	4.58
Dahomey	62	147	2.36
*Burma	64	1,586	24.73
Laos	64	169	2.63
*Congo, Dem. Rep. of	65	1,010	15.63
Afghanistan	66	1,034	15.65
Chad	66	218	3.31
Nepal	66	667	10.10
Mozambique	67	463	6.96
Comoro Islands	68	15	0.22
*Tanzania	68	713	10.51
*Haiti	70	306	4.40
Niger	71	236	3.33
Guinea	73	257	3.50
Gambia	76	25	0.33
Central African Rep.	77	104	1.35
*Nigeria	78	4,512	57.50
Malagasy Rep.	79	508	6.42
*Indonesia	85	8,884	104.50
*Kenya	85	800	9.36
*Pakistan	85	9,709	113.87
*India	88	43,000	486.81
Yemen	88	440	5.00
Viet-Nam (North)	90	1,711	19.00
Angola	91	470	5.15
Togo	93	153	1.64
Sudan	95	1,290	13.54
*Uganda	101	756	7.55
Cameroon	106	554	5.23
Viet-Nam (South)	108	1,748	16.12
Congo (Brazza.)	116	97	0.84
*Thailand	117	3,594	30.59

Table 1 (Continued)

	1965 GNP per capita ($)	1965 GNP ($ million)	1965 Population (million)
GROUP I (Continued)			
*Cambodia	119	728	6.11
Korea (South)	121	3,447	28.38
Papua & New Guinea	128	276	2.15
Sierra Leone	137	324	2.37
**Ceylon	140	1,569	11.23
**Philippines	146	4,718	32.34
Bolivia	148	547	3.70
Total 47 countries and territories	89	99,262 (5.6%)	1,120.61 (43.2%)
(Mainland China)	(86)	(60,537)	(700.00)

* Included in sample in Group I
** Included in sample in Group II

GROUP II			
GNP per capita $151-300:			
Mauritania	151	159	1.05
**U.A.R.	151	4,457	29.60
Senegal	168	588	3.49
*Morocco	179	2,379	13.32
St. Lucia	184	19	0.10
Liberia	185	198	1.07
*Ecuador	188	970	5.15
Korea (North)	191	2,310	12.10
*Syria	191	1,013	5.30
*Zambia	198	735	3.71
*Honduras	201	458	2.28
*Paraguay	201	409	2.03
*Tunisia	201	888	4.41
**China, Rep. of	203	2,520	12.43
Saudi Arabia	207	1,397	6.75
***Algeria	211	2,500	11.87
Ivory Coast	212	814	3.83
*Jordan	218	430	1.98
St. Vincent	218	19	0.09
Grenada	219	21	0.10
French Guiana	220	8	0.04
*Rhodesia	221	940	4.26
*Iraq	223	1,828	8.18
*Brazil	224	18,388	82.22
Mauritius	225	167	0.74
*Ghana	226	1,752	7.74
*Iran	226	5,594	24.80
Dominica	231	15	0.07

Table 1 (Continued)

	1965 GNP per capita ($)	1965 GNP ($ million)	1965 Population (million)
GROUP II (Continued)			
*Dominican Rep.	234	847	3.62
*Turkey	234	7,276	31.15
Swaziland	235	88	0.37
El Salvador	249	730	2.93
St. Kitts-Nevis-Anguilla	250	15	0.06
Gabon	253	117	0.46
Trust Territory of the Pacif.	254	23	0.09
Fiji Islands	260	121	0.46
***Colombia	262	4,734	18.07
*Malaysia	262	2,467	9.40
Guyana	279	180	0.65
Antigua	283	17	0.06
Albania	293	547	1.86
Total 41 countries and territories	214	68,138 (3.9%)	317.89 (12.3%)

* Included in sample in Group II
** Included in sample in Group I
*** Included in sample in Group III

GROUP III

GNP per capita $301-600:

*Guatemala	301	1,336	4.44
**Peru	305	3,549	11.65
*Nicaragua	317	525	1.65
Cuba	329	2,511	7.63
British Honduras	333	35	0.11
Surinam	341	114	0.33
*Portugal	367	3,379	9.20
Barbados	373	91	0.24
*Costa Rica	387	544	1.43
Mongolia	388	428	1.10
French Somaliland	406	33	0.08
Ryukyu Islands	410	382	0.93
Guadeloupe	420	133	0.32
*Mexico	434	18,521	42.69
Martinique	436	140	0.32
**Romania	436	8,296	19.03
Lebanon	447	1,076	2.40
Singapore	447	833	1.86
Malta	451	144	0.32
*Panama	461	575	1.25

Table 1 (Continued)

	1965 GNP per Capita ($)	1965 GNP ($ million)	1965 Population (million)
GROUP III (Continued)			
Jamaica	464	829	1.79
**Yugoslavia	468	9,135	19.51
**Bulgaria	478	3,923	8.20
***Chile	484	4,159	8.59
Libya	489	791	1.62
Hong Kong	497	1,835	3.69
South Africa/1	523	9,636	18.44
Uruguay	549	1,491	2.71
American Samoa	560	14	0.02
*Spain	575	18,181	31.60
*Greece	597	5,104	8.55
Total 31 countries and territories	462	97,743 (5.5%)	211.70 (8.2%)

* Included in sample in Group III
** Included in sample in Group II
*** Included in sample in Group IV

/1 Including South West Africa

GROUP IV			
GNP per capita $601-1,200:			
Trinidad & Tobago	616	600	0.97
*Cyprus	638	379	0.59
*Argentina	764	17,084	22.35
**Japan	765	74,981	97.96
**Poland	793	24,979	31.50
*Venezuela	828	7,225	8.72
Ireland	830	2,386	2.87
*Hungary	869	8,822	10.15
French Polynesia	898	79	0.09
*Czechoslovakia	905	12,810	14.16
*Italy	962	49,618	51.58
Puerto Rico	987	2,598	2.63
*U.S.S.R.	1,000	230,700	230.60
Netherlands Antilles	1,063	221	0.21
*Austria	1,076	7,808	7.25
Brunei	1,079	109	0.10
Guam	1,124	86	0.08
*Israel	1,129	2,894	2.56
Total 18 countries and territories	915	443,379 (25.0%)	484.37 (18.7%)

* Included in sample in Group IV
** Included in sample in Group III

Table 1 (Continued)

	1965 GNP per Capita ($)	1965 GNP ($ million)	1965 Population (million)
GROUP V			
GNP per capita $1,201-2,400:			
New Caledonia	1,220	111	0.09
**Germany, Dem. Rep. of	1,255	21,365	17.03
*Netherlands	1,360	16,721	12.29
*Belgium	1,536	14,539	9.46
*Finland	1,548	7,139	4.61
*United Kingdom	1,550	84,642	54.59
*France	1,615	78,999	48.92
*Norway	1,618	6,025	3.72
**Germany, Fed. Rep. of	1,625	95,971	59.04
*Iceland	1,630	313	0.19
*Denmark	1,735	8,254	4.76
*Australia	1,754	19,925	11.36
*New Zealand	1,794	4,737	2.64
Luxemburg	1,819	602	0.33
Virgin Islands (U.S.)	2,093	90	0.04
*Canada	2,100	41,171	19.60
*Sweden	2,127	16,449	7.73
*Switzerland	2,150	12,781	5.94
Total 18 countries and territories	1,638	429,834 (24.3%)	262.34 (10.1%)

* Included in sample in Group V
** Included in sample in Group IV

GROUP VI			
GNP per capita $2,401 and over:			
*U.S.A.	3,240	630,457	194.57
Kuwait	3,272	1,554	0.47
Total 2 countries	3,241	632,011 (35.7%)	195.04 (7.5%)

*U.S.A. constitutes sample in Group VI

GRAND TOTAL		1,770,307 (100%)	2,591.95 (100%)

Source: International Bank for Reconstruction and Development. Based on data obtained from various public and private national and international sources. The estimates are for gross national product at factor cost (excluding indirect taxes net of subsidies). They were originally computed for 1964 and converted into U.S. dollars at 1964 exchange rates, adjusted where appropriate for major under- and over-valuations. The 1965 estimates were obtained by applying to the 1964 estimates the estimated real growth rates for 1964/65 and by adjusting the results by the U.S. implicit GNP price index.