ABSTRACT

of

FOREIGN AID AND THE BALANCE OF PAYMENTS:

A CASE STUDY OF PAKISTAN

Most of the developing countries have been facing the problem of persistent deficits in their balance of payments. The purpose of this study is to analyze the problem in the context of foreign-resource inflows to Pakistan. The concept of the "export-import gap" provides the basic framework for this analysis.

Foreign aid has been found to be partly a source of, and partly a solution to, the problem of external deficits in Pakistan. Debt-servicing and tied project aid contributed to the balance-of-payments strain. Commodity aid, on the other hand, brought substantial relief from these pressures.

Closing Pakistan's export-import gap poses serious difficulties. The scope for reducing non-development imports, increasing exports of primary goods, and expanding import substitution in manufacturing industries appears to be very limited. In the short run, larger, "softer" and more flexible inflows of foreign aid may well be the only route to rapid economic growth.

However, a major Pakistan objective is to reduce and eventually eliminate dependence on foreign aid by the end of the Perspective Plan (1985). The study suggests that among the most important means to this end are the following: increased exports of manufactured goods; more diversified markets for such exports; self-sufficiency in food; greater import substitution in agriculture; and expanded inflows of private foreign capital.

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by

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Chapter 1

INTRODUCTION: OBJECTIVES AND BASIC PROBLEMS OF THE STUDY

Objectives

The present study aims at an analysis of economic development of a developing economy in a setting where the high dependence on foreign aid as a way of meeting the persistent balance-of-payments deficit assumes crucial importance. Pakistan as a case study is well set for this; it is one of the largest aid-recipients in the world. Its geo-political position has been largely responsible for attracting substantial foreign aid. Several thought-provoking works in this direction assert the importance of the role of foreign aid in the development process of underdeveloped countries.[1]

Pakistan offers an excellent opportunity for this kind of analysis for the following reasons: (1) One of the principal objectives of the Third Plan of Pakistan is to "strengthen the balance of payments of the country by increasing the country's foreign exchange earnings at a rate

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[1] See I. Brecher and S.A. Abbas, Foreign Aid and Industrial Development in Pakistan (Montreal: Centre for Developing-Area Studies, December 1968). (Mimeographed.); H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development," American Economic Review, September 1966; and E.S. Mason, Economic Development in India and Pakistan (Cambridge: Harvard University Press, 1966).

faster than the G.N.P. and by driving ahead with import substitution."[2] (2) One of the "explicit" aims of the Perspective Plan of Pakistan is "the elimination of dependence on foreign assistance."[3] While these are the statements of intentions, no adequate reasons and/or well-defined ways have been suggested in the Plan to achieve these objectives. This study is an attempt to provide an insight into the problems involved in reaching the targets and an understanding towards possible solutions.

Basic Problems

Three basic problems are usually faced when an attempt is made to analyze the role of foreign aid in the process of economic development of a developing economy: (1) the identification problem in constructing foreign aid models; (2) reliability of the available data; and (3) adequacy of the length of time for the valid application of the statistical techniques of estimation.

A. The Identification Problem

All the foreign aid models so far developed to analyze the role of aid in developing countries have not

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[2]Government of Pakistan, Planning Commission, The Third Five Year Plan (Karachi: Government of Pakistan Press, July 1965), p. 50. (Henceforth "Third Plan".)

[3]Ibid., p. 17.

shown any awareness of the problem of identification.[4] It is needless to point out that no technique of estimation of parameters is as yet available in the case of non-identifiability of the model. It is interesting to note that the model-builders often find the "degree of simultaneity" exactly to the extent that it does not bar them from identifying the parameters of the model in question. However, there is hardly any reason why the degree of simultaneity should always exactly stop short of "creating the real troubles."[5] Ranis and Fei have rightly pointed out:

> While the theoretical part of the C-S [Chenery-Strout] thesis is based on somewhat indefinite behaviouristic assumptions marginal to the domain of economic theory, the empirical part is saddled with an as yet unsolved identification problem.[6] (Underlining added.)

B. Reliability of the Data

Current statistics of developing countries are notoriously unreliable and the measurement techniques of

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[4] N. Ahmad, Foreign Aid and Economic Development (a paper presented in a graduate seminar, Department of Economics, McGill University, 1967). It may be noted that this point has been taken up independently by Ranis and Fei and has been discussed in the light of the Chenery-Strout model. See J.C.H. Fei and G. Ranis, "Foreign Assistance and Economic Development: Comment," American Economic Review, September 1968, p. 910.

[5] Ta-Chung Liu, "Underidentification, Structural Estimation and Forecasting," Econometrica, October 1966, p. 856.

[6] Ranis and Fei, op. cit., p. 910.

growth and change are highly unsatisfactory. Hence there is no reasonable basis on which to draw any meaningful conclusions. Rosenstein-Rodan, in his ambitious pioneering study, admits:

> Even . . . vague estimation was not possible in case of Africa where, in spite of studies in recent years, most figures about national product (gross), investments, and savings, are more or less enlightened guess estimates.[7]

As regards Burma, he points out:

> The national accounts of Burma show consistently high investment estimates in recent years. It is difficult to believe, however, that they do not involve a considerable overestimate.[8]

As for Pakistan, the situation is not very different. Tims states:

> At the statistical side, the weakness . . . was initially a severe handicap, even more so when under the Constitution of 1962 a major part of the statistical work was transferred to Provincial Bureaus of Statistics that had hardly any capability for handling the large assignments in their area.[9]

In a predominantly agrarian economy like that of Pakistan, the bulk of national income originates in the primary sector of agriculture and allied activities. In spite of the overriding significance of this sector, the available data are

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[7] P.N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," Review of Economics and Statistics, May 1961, p. 131, Explanatory Note to Tables 3a-3c.

[8] Ibid.

[9] W. Tims, Analytical Techniques for Development Planning: A Case Study of Pakistan's Third Five-Year Plan (Karachi: Pakistan Institute of Development Economics, February 1968), p. 8.

deficient in precision, coverage and scope. The lack of basic and reliable statistics thus makes it difficult to undertake this kind of study. Fortunately, the national accounts and related statistical series of Pakistan have been improved considerably under the aegis of a National Income Commission appointed by the President of Pakistan in April 1963. The Commission submitted an Interim Report in September 1964 and the final report was issued as a Government of Pakistan publication in November 1965. The Commission noted:

> In our opinion, there is a great and immediate need for setting up an integrated system of national accounts. . . . While making this recommendation, we are conscious of the existing inadequacies of data and resources in skilled manpower. . . . Steps will have to be taken to collect basic data through special sample surveys and other means.
> .....
> Economic statistics of Pakistan do not meet the minimum requirements of a national accounts system which places rigorous demands on the quality of the basic data and on the manner in which these data are collected.[10]
> (Underlining added.)

Despite these obvious deficiencies in data, some works are better than none at all; as the works progress, more gaps in the available data will be revealed.

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[10] Government of Pakistan, National Income Commission, Interim Report of the National Income Commission (Islamabad, September 1964), p. 46. For similar criticisms regarding India and other developing countries, see P. Streeten and M. Lipton, (eds.), The Crisis of Indian Planning, Economic Policy of the 1960's (London: Oxford University Press, 1969), p. 7; and O.E.C.D., National Accounts of Less Developed Countries, 1950-1966 (Paris: O.E.C.D., July 1968), p. 144.

C. Adequacy of Time-Length and Data

Foreign aid operation, in the modern sense, is of relatively recent origin; a considerable amount of time must elapse before sufficient data are available for valid quantitative analysis. Adelman and Chenery contend:

> Tests on Greece and other less developed countries suggest that it will not be possible to secure satisfactory statistical estimates . . . until there has been a greater accumulation of data.[11]

It was noted with dissatisfaction that data for the economy of Israel were "inadequate for time-series estimation."[12]

Organization of the Study

The study has been organized as follows. Chapter 2 is intended to provide a fair idea of the major concepts and definitions used for the purpose of this study; a broad evolution of foreign aid has also been discussed. In Chapter 3, a critical review of a few selected foreign aid models has been presented; models have been classified on the basis of approaches involved; and a new approach based on

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[11] H.B. Chenery and I. Adelman, "Foreign Aid and Economic Development: The Case of Greece," Review of Economics and Statistics, February 1966, p. 2, n. 5.

[12] Ibid., p. 1, n. 2.

the CES production function has been suggested to analyze the role of foreign aid. In Chapter 4, a survey of balance-of-payments problems in Pakistan has been made with special reference to the role of foreign aid in order to provide a historical perspective. Chapter 5 deals with the problems of the burden of debt-servicing; the Hayes-Wyes-Hussain test has been applied to evaluate the debt-servicing capacity of Pakistan. Chapter 6 is devoted to the analysis of the tied aid problem and its implications for Pakistan. Chapter 7 has been designed to provide a strategy to close the export-import gap in the economy of Pakistan; the analysis closely follows the Chenery-Strout approach of "trade-limited growth" where, because of uncertain, varying flow of foreign aid, a continuous adjustment in imports and exports is required by the economy to equate the export-import gap with the savings-investment gap; simple statistical techniques have been used to support some of the contentions in this chapter. Finally, Chapter 8 has been allocated to draw the "loose strands" together by describing the limitations of the study, summarizing the major findings and making some general policy recommendations.

Chapter 2

MAJOR CONCEPTS AND DEFINITIONS

The purpose of this chapter is two-fold: (1) to explain the basic concepts and definitions involved in this study; and (2) to describe briefly the broad evolution of foreign aid.

Quite a large number of the developing countries have been experiencing persistent deficits in their balance of payments.[1] To meet this deficit most of them depend heavily on foreign aid.[2] Chenery and Strout point out:

> A crude measure of this dependence is the net flow of some $9 billion per year from advanced to less developed countries, which is equal to a quarter of their gross investment and nearly a third of their imports.[3]

It is thus understandable why development economists have given so much attention to foreign aid in recent years.

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[1] International Monetary Fund, Annual Reports (Washington, 1968), Table 46, pp. 122-123; United Nations, Economic Bulletin for Africa (New York, July 1966), E/CN.14/400, Vol. 6, No. 2, pp. 1-34.

[2] F. Ginor, "The Impact of Capital Imports on the Structure of Developing Countries," Kyklos, Fasc. 1, 1969, p. 104.

[3] H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development," American Economic Review, September 1966, p. 679.

Definitions and Concepts

The terms "developing countries", "economic development", "balance of payments" and "foreign aid" have been used above without being defined. Since no standard (widely agreed) definitions of these terms are available in the voluminous development literature, it is necessary to define them for the purpose of this study.

A. Developing Countries[4]

The developing countries are defined as those whose per capita G.N.P. falls below the world average of $200, a figure which has recently been estimated on the basis of ninety-six countries of the world.[5] One should, however, keep in mind that the low per capita income (below $200) is only one of the many vital aspects of the problem of underdevelopment. Hence, this is sufficient to realize the limitation of the above definition.[6] It is therefore

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[4] The terms such as "developing", "underdeveloped", "less developed", "backward" and "poor" have interchangeably been used in this study. The choice of the term often depends on "the sensitivity of the audience and the sensibility of the analyst."

[5] J. Bhagwati, The Economics of Underdeveloped Countries (New York: McGraw-Hill Book Company, 1966), pp. 14-15.

[6] H. Myint, The Economics of the Developing Countries (3rd ed.; London: Hutchison University Press, 1967), p. 10; C.P. Kindleberger, Economic Development (New York: McGraw-Hill Book Company, 1958), pp. 1-5.

not a surprise that Kuwait, whose per capita income is over $2000, is still considered an underdeveloped country.[7] Lack of appropriate alternative criteria has compelled most of the development economists to be contented with the per-capita-income criterion as cold comfort.[8]

B. Economic Development

It is necessary to distinguish economic development from economic growth. The former necessarily implies the latter, but not vice versa. While economic growth merely implies an increase in the G.N.P. and/or an increase in per capita income, economic development refers to a "material advance through changes in all of its ingredients, namely, resources, capital, technological advance, and social capacity."[9] (Underlining added.) The process of these "changes" is technically known in the development literature as "structural transformation."[10]

It is thus clear that any attempt to define economic

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[7] Ibid., p. 9. See also Ahmed Duaij, "Kuwait is World's Most Affluent Society," Emergent Nations, Modern Kuwait, Autumn 1965, pp. 42-44.

[8] J. Viner, "The Economics of Underdevelopment," The Economics of Development, ed. A.N. Agarwala and S.P. Singh (New York: Oxford University Press, 1963), p. 13.

[9] Kindleberger, op. cit., Chaps. 2-7.

[10] Chenery and Strout, op. cit., p. 682.

development in terms of one or some of its "ingredients" will be misleading. Harrod-Domar's emphasis on "capital formation" or Schumpeter's on "innovation" or Hagen's on "social capacity" should not lead one to identify economic development with any one of them alone. Walters cites Liberia as an example of an economy experiencing "Growth without Development." He states:

> Enormous growth in primary commodities produced by foreign concessions for export has been unaccompanied either by structural changes to induce complementary growth or by institutional changes to diffuse gains in real income among all sectors of the population [in Liberia].[11] (Underlining added.)

Kuwait also has not witnessed any significant "structural transformation" so far despite its phenomenal rise in the petroleum exports resulting in a staggering per capita income figure.

To understand the process of economic development it is very essential to realize that the underdeveloped countries are not only of different types but also are at different stages in their levels of development. Failure to recognize this vital point led many economists to make

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[11] A.A. Walters et al., Growth Without Development: an Economic Survey of Liberia (Illinois: North University Press, 1966), p. vi.

wrong generalizations and faulty policy recommendations.[12] One of the common manifestations of this sort is often found in attempts to apply theories and policies suitable for an over-populated labour-surplus economy to different types of countries which are, for example, yet to feel the heavy pressure of population. Myint has rightly and strongly emphasized the need for rejecting the idea of developing a "monolithic" theory to encompass all the developing countries and for searching "alternative theoretical models to suit different types of underdeveloped countries."[13] This brings us to the need for a classification of the developing countries on the basis of certain identifiable features. Galbraith contends that an "effective remedial action--a sound development strategy--requires a classification."[14]

Unfortunately, no satisfactory classification of the underdeveloped countries is as yet available. It will be recalled that the Rostow stage-analysis throws much light on the levels of development but fails to focus on the types

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[12] J.K. Galbraith, "Underdevelopment: An Approach to Classification," Fiscal and Monetary Problems in Developing States (Proceedings of the Third Rehovoth Conference), ed. D. Krivine (New York: Frederic A. Praeger publishers, 1967), pp. 19-45.

[13] Myint, op. cit., p. 14.

[14] Galbraith, op. cit., p. 38.

of the developing countries.[15] In the light of his analysis, the developing countries differ from each other "as a child differs from an adolescent and an adolescent differs from one on the verge of maturity."

Fortunately, Galbraith's recent classification of the developing countries, though not completely satisfactory, appears to be a significant step towards understanding the problems of underdevelopment in their proper perspective. Galbraith suggests three models of underdevelopment: (i) The Sub-Sahara African model (the identifiable feature being the absence of minimum cultural base); (ii) the Latin-American model (the distinguishing character being the presence of non-functional elite-group-biased power-structure and of an economic structure with built-in inflationary bias); and (iii) the South-Asian model (the distinctive feature being the existence of a labour-surplus capital-shortage economy with high population pressure).[16]

In this study we are concerned with Pakistan, which is a "typical case" of the "South-Asian model."[17] It is interesting to note that Kindleberger also has distinguished

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[15] See W.W. Rostow, The Stages of Economic Growth (Cambridge: Cambridge University Press, 1960).

[16] Galbraith, op. cit., p. 22.

[17] Ibid., p. 30.

two types of economy in Asia: (1) the sparsely-settled rice-exporter type economy (viz.: Burma, Thailand); and (2) the densely-populated export-oriented plantation type economy (viz.: Pakistan, India, Ceylon).[18]

Thus, the Galbraith-Kindleberger classification throws much light on the nature and types of problems one is likely to encounter in analyzing the process of economic development of countries like Pakistan, India and Ceylon. In effect, according to both Galbraith and Kindleberger, countries like Pakistan and India represent the typical Lewis-type labour-surplus economies, suffering from the heavy pressure of persistent population growth against an extremely limited natural resource base.[19] In the language of the current development literature, the economy's supply curve of labour is infinitely elastic (that is, the supply curve is parallel to the labour-axis on a labour-wage plane) at a constant level of real wages close to the subsistence level.

The crucial problem for the policy-makers in these countries is not merely to explore the ways and means to

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[18] C.P. Kindleberger, Foreign Trade and the National Economy (New Haven: Yale University Press, 1964), p. 107.

[19] According to some calculations, the value of an avoided birth in India amounts to $114. See J.L. Simon, "The Value of Avoided Births to Underdeveloped Countries," Population Studies, March 1969, p. 68.

increase per capita real income, as is generally thought, but also to find channels to plow back a large portion of the increase in per capita real income, if and when it takes place, into productive investment in order to escape the "Malthusian trap" and put the economy on the path to self-sustained growth.

For the purpose of this study it is useful to distinguish conceptually two major aspects of economic development: (i) the micro-economic development; and (ii) the macro-economic development.[20] The former relates to the general process of "raising the sectoral efficiency level" and the latter constitutes the aggregative aspect of economic development, e.g., the savings-investment, the balance of payments, etc. In this study we are concerned with one of the macro aspects of economic development--the balance of payments.

C. Balance of Payments

This is, as already noted, a macro aspect of economic development. A balance-of-payments study is not merely an anatomical study of an economic structure, it is more than that; it gives an insight and clarity which permit a

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[20] H.G. Johnson, Economic Policies towards Less Developed Countries (Washington: The Brookings Institute, 1967), p. 53.

comprehensive view of the economy. However, one can hardly avoid a sense of disappointment in this kind of study when faced with the multitude of data and the multiplicity of conceptual frameworks. The challenge has, however, been accepted by many economists and organizations. One notable example is the Balance of Payments Division in the Research and Statistics Department of the International Monetary Fund. The output of the research is being published regularly through the successive volumes of the Balance of Payments Yearbook. It is being increasingly recognized that the balance-of-payments study is essential for understanding the implications of government policies, the impact of the transmission of "development impulses" from the developed to the developing countries and so on. Isard contends that the balance-of-payments study can be of much greater value if "additional and higher quality of data are made available . . . particularly regarding capital inflows and outflows by type and source."[21] In partial fulfillment of this requirement, a balance-of-payments table for Pakistan for the period 1951-1969 has been constructed.[22]

Most of the discussions on balance of payments

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[21]Walter Isard et al., Methods of Regional Analysis: an Introduction to Regional Science (Cambridge: The M.I.T. Press, 1960), pp. 172-173.

[22]See Appendix A, Table I.

in the development literature are disappointing because of the conspicuous absence of a precise definition of "balance of payments." Failure to identify the type of balance of payments under discussion has often resulted in confusion and misleading policy recommendations.

1. Types of Balance of Payments

In order to make the balance-of-payments discussions meaningful it is necessary to distinguish between three distinct types of balance of payments: a) an accounting balance of payments; b) a programme balance of payments; and c) a market balance of payments.[23]

a) The Accounting Balance of Payments

An accounting balance of payments is defined as "a system of accounts covering a given period that is intended to record systematically (a) flows of real resources, including the services of the original factors of production, between the domestic economy and the rest of the world, (b) changes in the country's foreign assets and liabilities that arise from economic transactions, and (c) transfer payments, which are the counterpart of real resources or financial claims provided to, or received from, the rest of the world without

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[23]Fritz Machlup, International Payments, Debts, and Gold (New York: Charles Scribner's Sons, 1964), p. 69.

any quid pro quo."[24]

Since the accounting balance of payments is based on a double-entry system which provides for each debit to be matched by a credit, there can be no surplus or deficit in the balance of payments as a whole; the only possible difference between debits and credits (assuming that the donations offset the unilateral transfers) can be nothing but "errors and omissions". These are "statistical deficiencies, not economic phenomena."[25] However, some economists may choose to present the accounting balance of payments in such a way as to reflect a surplus or deficit in some meaningful sense. For instance, Høst-Madsen divides the accounting balance of payments into two segments to facilitate considerations of the "problems of the Fund"--"above the line" and "below the line". The two components add to zero reflecting the characteristics of the "necessary balance".[26]

It is worth noting that a deficit in the balance of payments on current account is the most widely used variant of the accounting balance of payments. And this corresponds to Høst-Madsen's "above the line" items reflecting negative

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[24] I.M.F., Balance of Payments Yearbook, 1962-66 (Washington, October 1967), Vol. 19, Sec. 8, p. 6.

[25] Machlup, op. cit., p. 82.

[26] P. Høst-Madsen, "Asymmetries between Balance of Payments Surpluses and Deficits," I.M.F. Staff Papers, July 1962, p. 184. See also P. Høst-Madsen, "A Deficit in the Balance of Payments," Finances and Development, September 1966, p. 171.

balance. In the accounting sense, a deficit on current account is an ex post concept and it is therefore descriptive in the sense of "historical development." In Chapter 4, the concept of the accounting balance of payments has been used in discussing the balance of payments of Pakistan in historical perspective.

b) The Programme Balance of Payments

The programme balance of payments is defined as "a statement of the sources and uses of funds, expected or planned, over a future period of one or more years, based upon the nation's capital and consumption requirements and on a programme of meeting an excess of requirements over resources by recourse to foreign finance expected or sought."[27] (Underlining added.) This concept is fundamental to the study.

It is striking that most of the development economists appear to be concerned with the capital requirements of a developing economy, while not giving adequate emphasis to its consumption requirements. It is hardly appreciated that

> on the "efficient frontier" of social choice the desire to possess more real capital assets and the desire to increase the consumption standard are conflicting social objectives. It follows that the choice of the long-run

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[27] Machlup, op. cit., p. 70.

> direction of growth (i.e., the "growth target") will depend upon the assets preference as well as the consumption preference of the economy.[28] (Underlining added.)

It is well known that the social values, the political ideology and the economic considerations would largely determine the "consumption-real assets" preference function of a country. Once a certain growth rate is selected as the target reflecting the absorptive capacity of the economy and welfare of the community, and given the capital-output ratio (assuming that it is possible to determine it with reasonable accuracy), the investment requirements are uniquely determined. A deficit will emerge if, after resisting the inevitable political pressure for an upward adjustment of the consumption standard at the subsistence level, and after meeting the existing consumption requirements, the amount of domestic resources to be channelled into investment falls short of the "investment requirements". This ex ante deficit is expected to be met "by recourse to foreign finance expected or sought." In Chapter 7, the concept of the programme balance of payments has been used in the analysis of a strategy to close the export-import gap in Pakistan.

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[28] John C.H. Fei, "Per Capita Consumption and Growth," Quarterly Journal of Economics, February 1965, pp. 53-54.

c) The Market Balance of Payments

The market balance of payments is defined as a "model of a given situation in the foreign exchange market, characterised by the effective demand and supply of foreign exchange at the given exchange rate and at alternative hypothetical rates."[29]

While the accounting balance of payments is an ex post concept, the programme balance of payments and the market balance of payments are ex ante. These three concepts are "fundamentally different" from each other.[30] In usual discussions on the balance of payments these distinctions have often been ignored, resulting in confusion and misunderstanding. For example, the Report by the Secretary General of U.N.C.T.A.D. in 1964 records:

> Implication of the 5 per cent growth target is that exports of the developing countries would also have to rise at the rate of 6 per cent per annum, in order to maintain balance of payments equilibrium.[31] (Underlining added.)

Here the term "balance of payments equilibrium" is essentially a programme balance-of-payments concept, but no definition or adequate explanation is available in the report.

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[29] Machlup, op. cit., p. 69.

[30] Ibid.

[31] United Nations, Report by the Secretary General of the United Nations Conference on Trade and Development (U.N.C.T.A.D.), Towards a New Trade Policy for Development (New York, 1964), E/CONF. 46/3, p. 40.

2. The Concept of "Deficit" in the Balance of Payments

The meaning of a "deficit" in the balance of payments depends upon which of the three concepts is being used. This is because a deficit under one concept, say, market balance of payments, may be a surplus at the same time under another concept, say, the programme balance of payments. Not only that. Even within each concept there may be "several different deficits depending on a number of arbitrary definitions, assumptions, hypotheses, judgements or objectives . . . ."[32] It is not surprising, therefore that the definition of surplus or deficit "is by far the most controversial question in the balance of payments methodology."[33] Perhaps no term has been so loosely and indiscriminately used as "balance of payments" in the current development literature. To avoid confusion and misunderstanding, it is thus suggested that an explicit definition of the type of balance of payments be made when it is used.

As already pointed out in this study, the accounting balance-of-payments concept has been used to provide a historical confirmation of the fact that Pakistan has long been facing a deficit in the accounting balance of payments

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[32] Machlup, op. cit., p. 70.

[33] P. Høst-Madsen, "A Deficit in the Balance of Payments," Finances and Development, September 1966, p. 172.

on current account and that it has been able to live partly on foreign assets and/or secure foreign loans and grants. Furthermore, the programme balance-of-payments concept has also been used, as noted earlier, to show the existence of the potential deficit which the economy of Pakistan is likely to face in the future. A deficit is said to be "persistent" if the programme of meeting the excess of investment requirements over resources by recourse to external finance is made repeatedly over a longer period of time. The use of the concept of the market balance of payments is extremely limited in the case of the developing countries like Pakistan, where a free foreign exchange market hardly exists.

D. Foreign Aid

The confusion concerning the meaning, nature and purpose of "foreign aid" is quite prevalent in the foreign aid literature. Perhaps the source of confusion originates from the "multiplicity" of motives of the donors and the uncertainty of the economic and political impact of the foreign aid on the recipients. Aid is indeed an ambiguous word. Should grants and loans be lumped together under foreign aid? Little and Clifford are of the opinion that "it is clearly misleading to lump these . . . together. . . . Money-lenders may benefit their clients, but we do not think of them as giving aid."[34]

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[34] I.M.D. Little and J.M. Clifford, International Aid (American edition; Chicago: Aldine Publishing Company, 1966), p. 13.

Apparently Little and Clifford have not attached much importance to the distinction between a loan on commercial terms and a loan on concessionary terms. In the latter case there is an element of grant involved in the loan. To the extent that the grant element is involved it must be considered as economic aid. Again, it is often suggested that "economic aid" must be distinguished from "foreign aid".[35] In theory, this is, of course, desirable but in practice it is virtually impossible. For instance, military aid is usually considered to be non-economic aid. But is it really possible to exclude defense support entirely from economic aid? The answer is no.

As is well known, defense support is often provided in the form of commodities and there is no reason why these should not be considered "investment goods" in the same or similar sense as any other net addition to domestic resources.[36]

Defense, after all, is essentially concerned with the prevention of war and survival of the free political institutions of a country. It is therefore understandable that a certain size of military establishment will always be maintained irrespective of foreign military aid. However, the size and composition of the establishment would largely

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[35] P.N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," Review of Economics and Statistics, May 1961, pp. 108-110.

[36] See G. Ranis, "International Aid for Underdeveloped Countries: A Comment," Review of Economics and Statistics, Vol. 44, 1962.

depend upon the ability of the country's economy to support it, and the nature of its security problem. For example, the hostile relationship between India and Pakistan would have compelled them to divert a substantial amount of domestic resources to the defense sector even without any military aid.

It is thus clear that a realistic assessment of the size of a military establishment in the absence of any military aid will give a fair idea of the amount of the domestic resources released due to the availability of military aid. To that extent, military aid must be considered economic aid.

All these problems and a host of others (e.g., the status of government-guaranteed private investment, short- and medium-term loans, export credits, etc.) create an insurmountable "terminological difficulty" and hence precise definition of foreign aid is hard to find. For operational purposes, this study finds the O.E.C.D. definition of foreign aid suitable. According to this definition, foreign aid constitutes: (1) cash grants and grants in kind (including technical assistance); (2) sales of commodities against local currencies; (3) government lending for periods exceeding one year (net of repayment of principal); and (4) grants and capital subscriptions to multilateral aid agencies and net loans from these agencies.[37] In short, foreign aid

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[37] Organization for Economic Co-Operation and Development (O.E.C.D.), The Flow of Financial Resources to Countries in Course of Economic Development, 1959-1961 (Paris: O.E.C.D., 1961).

comprises that part of the foreign resource inflow which has the following basic characteristics: (i) it is a function of the decisions of the governments and/or international agencies;[38] (ii) it is of a "public non-military" character;[39] and (iii) it is not dictated by "normal market incentives."[40]

Conceptually, it is useful to distinguish between two major aspects of foreign aid: the macro aspect and the micro aspect. The former deals with the application of aggregative economic analysis to the problems of determining total "aid requirements for achieving target growth goals" and the latter concerns "the assessment of aid for particular projects and programs in relation to specific objectives" and evaluation of "alternative forms of aid available for achieving these objectives."[41] (Underlining added.)

Types of Foreign Aid

Broadly speaking, foreign aid may be classified into four major categories: (1) Project Aid; (2) Programme or Commodity Aid; (3) Technical Assistance; and (4) Hybrid Aid.

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[38] See Goran Ohlin, Foreign Aid Policies Reconsidered (Paris: O.E.C.D., 1966), Chap. II, pp. 9-13.

[39] Little and Clifford, op. cit., p. 14.

[40] Rosenstein-Rodan, op. cit., p. 109.

[41] R.F. Mikesell, The Economics of Foreign Aid (Chicago: Aldine Publishing Company, 1968), p. 127. See also H.W. Singer, "External Aid: For Plans or Projects?", Economic Journal, September 1965, p. 543.

External financial aid which is explicitly linked with specific projects is called project aid; the donors examine the economic and technical feasibilities of the projects put forward by the recipients and select those feasible projects which fit in with their priorities before allocating the aid. Foreign aid which is given in general support of annual budgets or longer-term plans without reference to specific projects is known as programme or commodity aid; the recipients have a relatively greater amount of freedom to dispose of it according to their own priorities.

Of all the forms of development aid, technical assistance seems to have the most immediate appeal to the donor countries. Technical assistance refers to the transfer of skills and knowledge through the despatching of experts, consultants and teachers, the training of students, peace corps projects, etc. Apart from these three distinct forms of aid, there is a great variety of intermediate forms between project aid and programme aid. These forms of aid may be called hybrid aid.

It is indeed important to realize that different forms of foreign aid have different implications both in the sense of the net value of the total aid and the amount of freedom with which the recipient may use it. From the point of view of the donors, these different forms impose different degrees of burden on them. Some major issues concerning the

forms of financial assistance are briefly discussed along these lines: (i) Project versus Commodity or Programme Aid; (ii) Grants versus Loans; (iii) Tied versus Untied Aid; (iv) Bilateral versus Multilateral Aid.

Project versus Programme Aid

The project approach in giving aid predominated through the fifties and came under fire by 1960. One of the main criticisms is to point out that the major purpose of aid is defeated by financing the "marginal" project which the aid-recipient would have dropped anyway had he not been handed the additional resources.[42] The classical example of the Austrian Government, which secured Marshall Plan aid for building a power plant but actually financed the building of an opera house, is often cited to discredit the project approach.[43] It is gradually being realized that economic development does not depend on the soundness and implementation of a few specific projects but rather on an adequate overall investment effort, with respect to size and composition. Again, the "ill-designed" foreign exchange, monetary and fiscal policies may conspire to frustrate the success of any

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[42] Singer, op. cit., p. 539. See also R.M. Bird, "The Influence of Foreign Aid on Local Expenditures," Social and Economic Studies, Vol. 16, June 1967.

[43] Bhagwati, op. cit., p. 210.

specific project. It may be argued that the whole economic structure becomes foreign-aid-oriented through the successive undertakings of those projects with a high foreign-exchange component, and the commitment of total pooled resources of an economy to this pattern of development may inject a series of serious biases and perverse incentives into the economy. But the donors still prefer project aid to programme aid. The rationale, perhaps, lies more in politics than in economics. Project aid necessarily involves a process which leads to the "pipeline accumulation" which, in turn, creates a considerable gap of time between fresh commitment and actual disbursement. And the donors may, and often do, utilize the intervening time for exerting political pressure. For instance, the United States cancelled a $4.3 million project loan to build a new airport in Dacca, on the ground of Pakistan's increasing "normalization" of relations with China.[44]

The role of commodity aid in Pakistan as compared with project aid derives its special significance from "one of the primary objectives" of the Perspective Plan of Pakistan, which is "to distribute income equitably . . . between East and West Pakistan" and to eliminate over the next twenty years, preferably in a shorter period, "the current disparity"

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[44] The New York Times, August 31, 1963. It may be noted that the United States helped postpone a "consortium" meeting consecutively three times in 1965 on some flimsy grounds. The main cause was Pakistan's growing friendship with China; see The Dawn, July 14, 1965.

between East and West Pakistan.[45] In this context, the need to allocate an increasing share of total resources--internal and external--to East Pakistan is in order. Since project aid commitments tend to be of a long-term nature, the regional pattern of aid is thus "frozen" in the sense that it is difficult and sometimes even impossible to switch project aid from one region to another without causing a re-evaluation of the project and a consequent delay in the utilization of aid. Thus any attempt to shift the bulk of the external resources to East Pakistan under the present project-aid-dominated pattern of inflows is bound to be frustrated. The allocation of commodity aid and its switch-over from one region to another are much easier and simpler than in the case of project aid.

Grants versus Loans

The recipients prefer grants to loans simply because the former are free and the latter have repayment obligations. Loans are made on widely differing terms--from soft 40 or 50-year loans at "token" interest rates with a long grace period, to export credits for 5 years carrying interest rates of 7 per cent with no grace period.

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[45] Government of Pakistan, Planning Commission, The Third Five Year Plan (Karachi: Government of Pakistan Press, July 1965), p. 28.

It is argued that loans are generally superior to grants as a form of aid because the obligation to repay may lead the recipients to make the best use of the aid.[46] Although it is partly true that repayment obligations may discourage "waste," the optimal utilization of foreign aid is surely not a function of repayment obligations but of the efficiency of the planners and of the executive body of the country.

It is also asserted that loans are preferable to grants because the latter give some sense of "inferiority and humiliation" to the recipients while the former are more "businesslike." In practice, this is not true. The recipients are just as much aware as the donors of the factors responsible for aid inflow; they know that "humanitarian" considerations (and therefore charity) do not play a major role.

Tied versus Untied Aid

At present, two-thirds of all bilateral aid to the developing countries is tied either to commodities or sources or both sources and commodities. It is needless to say that untied aid is superior to tied aid because the latter tends to distort the national "priorities." However, there is little point in comparing tied with untied aid if the recipient is

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[46] W.F. Schmidt, "The Economics of Charity: Loans versus Grants," Journal of Political Economy, August 1964, p. 386. See also R.E. Asher, Grants, Loans and Local Currencies (Washington: The Brookings Institute, 1964).

given the choice between tied aid and no aid at all. The problem of tied aid is discussed in detail in Chapter 6.

Bilateral versus Multilateral Aid

The proportion of multilateral as compared with bilateral inflow is still insignificant. Since the supply of foreign aid is strongly entrenched in the political reality rather than in economic considerations, the tendency for "bilateralism" is naturally strong. Only less than 5% of the total foreign aid consists of multilateral aid. This is shown in Figure 2.1. Most of the aid from the international agencies is given in the form of untied loans. It is again the donors who dictate the terms: either an increase in bilateral aid or no increase at all. Once again the recipients have no choice but to accept the donors' terms. Balogh points out that a "switch from bilateral foreign aid to multilateral foreign aid would lead to the decrease of total aid."[47]

A Broad Evolution of Foreign Aid

There is no general agreement that the primary objective of foreign aid is the "development" of the poor

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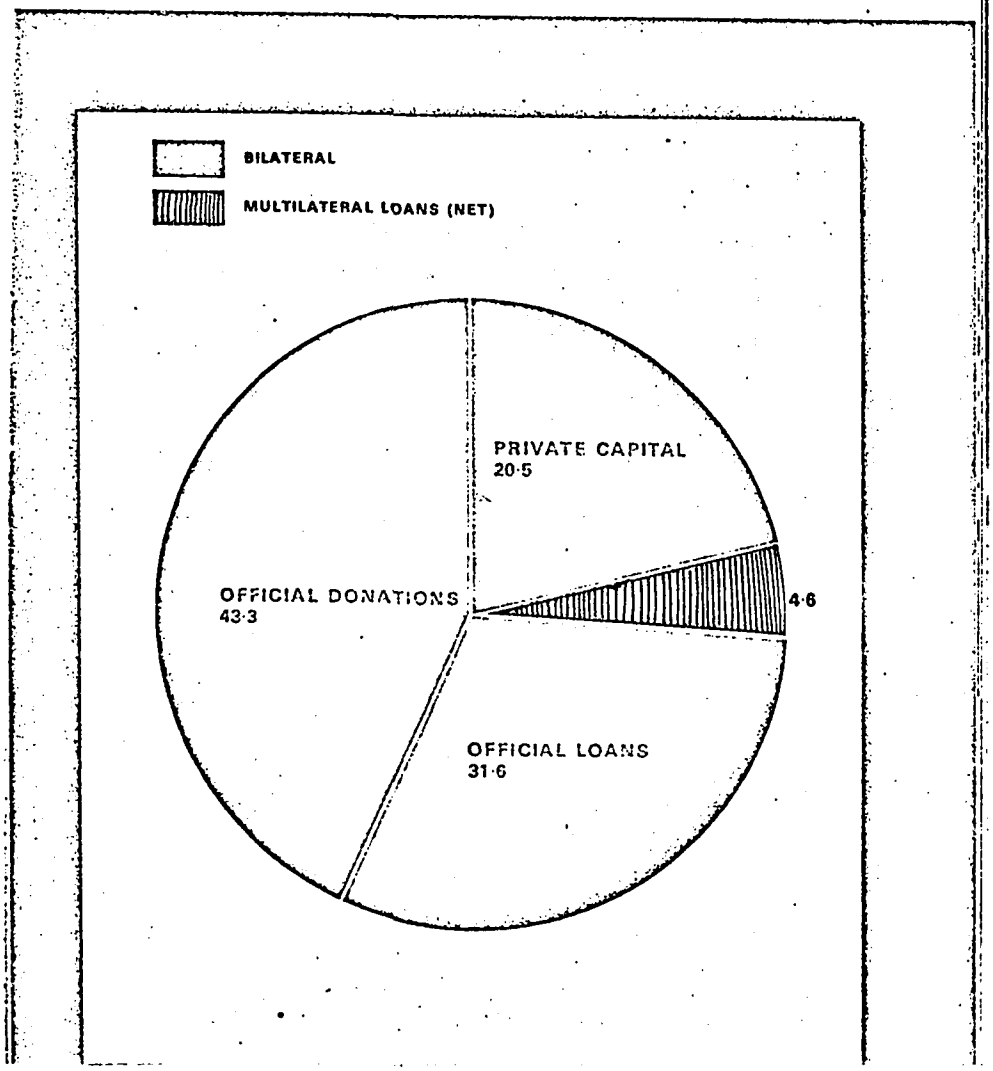
[47] T. Balogh, "Multilateral versus Bilateral Aid," Oxford Economic Papers, November 1967, p. 334. See also E.R. Asher, Multilateral vs. Bilateral Aid: An Old Controversy Revisited (Washington: The Brookings Institute, 1964).

FIGURE 2.1

Estimated net inflow of long-term capital into underdeveloped countries: percentage shares of bilateral and multilateral aid, 1951–61. The proportion of multilateral inflow is still insignificant.



Source: Jagdish Bhagwati, The Economics of Underdeveloped Countries (New York: McGraw-Hill Book Company, 1966), p. 217.

countries.[48] This is fairly obvious from the theme of the Clay Report,[49] the Jeanneny Report[50] and other studies and reports. Perhaps it is fair to say that the lack of a theory of foreign aid fails to provide standards of judgement for both the donors and the recipients regarding the foreign aid programme. Morgenthau sharply criticizes the donors for never managing to "develop an intelligible theory of foreign aid that could provide standards of judgement . . . [for] a particular measure."[51] Then why did foreign aid start in the first place? Perhaps the answer lies in the undeniable fact that it must have "appeal" to both "national and trans-national" interests. What sort of interests are they? While it is impossible to isolate a single objective, a package of objectives is often put forward as follows: (i) to strengthen political ties where an

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[48] O.D.I., Report of International Conference on Foreign Aid held in London, June 1966, Effective Aid (London, 1967), p. 101.

[49] Committee to Strengthen the Security of the Free World, Report to the President on the Scope and Distribution of the United States Military and Economic Assistance Programs (Washington, 1963).

[50] Ministère d' Etat chargé de la Réforme Administrative, La Politique de Coopération avec les Pays en Voie de Développement, Rapport de la Commission d' Etude instituée par le Décret du 12 mars 1963, remis au Gouvernement le 18 juillet 1963 (Paris, 1963).

[51] H. Morgenthau, "A Political Theory of Foreign Aid," American Political Science Review, LVII, No. 2, June 1962.

alliance already exists or to prevent a neutral country from becoming non-neutral by joining the other side of the balance of power; to moderate the criticisms of some Communist or pro-Communist countries if and where western aid is accessible; (ii) to preserve internal and external security; (iii) to explore and expand the donors' investment opportunities; to promote export expansion; to subsidize the inefficient industries of the donor countries; and (iv) to help accelerate the economic development of poor countries.[52]

The objectives are well summed up in the words of Brecher and Abbas: "Security, world economic expansion, the donor's burden of surplus resources, ideology, humanitarianism--all these make up the heart which pumps out the aid to the depressed regions of the global economic body."[53] However, the different donors attach different weights to these objectives and these weights themselves vary with time and changing circumstances.

While aid in the form of transactions between rich and poor countries with the universally announced intentions of helping the poor may appear to be of relatively recent origin, the history of using "finance" as a powerful diplomatic instrument has its roots far back in history. Liska

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[52] G. Ranis and J.M. Nelson, Measures to Ensure the Effective Use of Aid, A.I.D. Discussion, Paper 12, p. 7.

[53] I. Brecher and S.A. Abbas, Foreign Aid and Industrial Development in Pakistan (Montreal, December 1968), p. 21. (Mimeographed.)

points out bluntly that modern foreign aid does not very much differ in essence from the "bribes" employed in diplomacy, particularly before the 19th century.[54] The "climate of opinion" from which stems the obligation to assist the under-developed countries has served as a good pretext to put "the old wine in a new bottle." The Renaissance princes in Italy used the "offer of subsidies" to the weaker states as one of the most effective instruments in maintaining the balance of power. Little and Clifford comment that "this is as true of military and related economic units today as it was then."[55] However, the difference lies in the fact that under the "subsidy" system it was possible to claim repayment of already-disbursed amounts, but this is not possible now. How can the donors ask for repayment what they have offered in the form of grants and in the name of humanitarian service when their political purpose is not served? At best, they can only comment that the country is not grateful or lament in closed-door meetings that foreign aid policy needs a drastic change.

The strategic moves on the chess-board of international politics often make the donors inconsistent so far as their role in maintaining the humanitarian approach is

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[54] See G. Liska, The New Statecraft (Chicago: University of Chicago Press, 1960).

[55] Little and Clifford, op. cit., p. 22.

concerned. For example, it is inconsistent for the United States to play a military role in Vietnam and, at the same time, a humanitarian role in other Southeast Asian countries. Similarly, very few people in Pakistan and India would be prepared to believe fully in the humanitarian approach of the United Kingdom, which kept undivided India under subjugation for a century. Only those few countries which have been able to show a great degree of consistency have gained both prestige and influence. One notable example is Canada. Higgins points out: "The major motives for [Canada] seem to be a feeling that all advanced countries share the responsibility of helping the poor ones and a general desire to be 'in on the act.'"[56] Unfortunately, the contributions of these few countries do not form a significantly large portion of the total aid given to the underdeveloped countries. Two-thirds of all development assistance comes from the United States, and this forms less than 1% of that country's G.N.P. "The United States . . . spends over 10% of its gross national product on programs primarily aimed at improving our national security. Somewhat less than 1/20th of this amount, and less than 0.7% of our gross national product, goes into the mutual assistance program. . . ."[57] (Underlining added.) The Clay Report (1963)

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[56] B. Higgins, Economic Development (Rev. ed.; New York: W.W. Norton and Company, Inc., 1968), p. 578.

[57] R.A. Godwin (ed.), Why Foreign Aid? (Chicago, 1962), p. 131.

gives an explicit recognition of the fact that aid does serve the interests of the United States and maintains that the "basic" purpose is self-explanatory because of the high concentration of foreign aid to the under-developed countries along the Sino-Soviet border, which received 72% of the total military and economic assistance.

Chauvel, one of the members of the Commission of Inquiry who prepared the Jeanneny Report (1963), in a memorandum included in a separate volume of studies and reports on special aspects of foreign aid, pointed out that French foreign aid was primarily used as a "diplomatic instrument" for influence.

In short, French foreign aid has been essentially an instrument for political influence, while German, Italian and Japanese assistance has served the purpose of economic expansion.

Since 1960, the pattern of foreign aid in a global sense has changed markedly. The rise of the non-colonial donors and their overtaking of the colonial and ex-colonial donors (i.e., Belgium, France, the Netherlands and the United Kingdom), and the decline in the relative dominance of the United States in supplying aid characterize the change. From 1957-59 to 1961-63, while the total aid (net) of the colonial and ex-colonial powers grew 27%, it grew 31% for non-colonial groups (excluding the United States).[58]

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[58] Little and Clifford, op. cit., p. 50.

Chapter 3

A REVIEW OF SELECTED FOREIGN AID MODELS

Introduction

The purpose of this chapter is to review critically a few selected planning models[1] which set forth "elegant" theories of foreign aid based on any combination of the following basic approaches:

(i) the absorptive capacity approach;

(ii) the savings-investment gap (Gap I) approach;

and (iii) the export-import gap (Gap II) approach.

The planning models designed to analyze the role of foreign aid are classified in this study according to the following versions:

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[1] While a growth model, conspicuous by the usual absence of "policy variables," is essentially a closed model where only "long-run equilibrium" conditions are explored, a planning model is basically an open model incorporating "policy variables," foreign aid and trade, and focussing development over a planning period.

The Harrod-Domar Version

A. The Rosenstein-Rodan Model (May, 1961)

B. The McKinnon Model (June, 1964)

C. The Fei-Paauw Model (August, 1965)

D. The Chenery-Strout Model (September, 1968)

The Linear Programming Version

A. The Chenery-Bruno Model (March, 1962)

B. The Chenery-MacEwan Model (Summer, 1966)

The Econometric Version

The Chenery-Adelman Model (February, 1966)

The Cobb-Douglas Version

No formal model of this version has emerged as yet but some meaningful hints are available.

The Harrod-Domar Version

A. The Rosenstein-Rodan Model[2]

1. Notations[3]

V_t = G.N.P.

S_t = Gross domestic savings

I_t = Investment

K = Capital stock

F_t = Foreign capital inflow = $I_t - S_t$

A = $\sum_{t=o}^{4} F_t$ = Total amount of foreign aid required

α = $\frac{S_t}{V_t}$ = Average savings rate

α' = $\frac{\Delta S}{\Delta V}$ = Marginal savings rate

r = Target growth rate of G.N.P. = $\frac{\Delta V}{V}$

k = $\frac{K}{V}$ = Capital-output ratio

t = Time period (zero suffix denotes the initial period)

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[2]P.N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," The Review of Economics and Statistics, May 1961, Explanatory Notes for Tables 4-A and 4-B.

[3]Symbols are slightly altered from Rosenstein-Rodan's original model.

2. The Model

$$S_t = -\gamma + \alpha' V_t \quad \ldots(1)$$

$$I_t = krV_t \quad \ldots(2)$$

$$F_t = I_t - S_t \quad \ldots(3)$$

$$\sum_{t=0}^{4} V_t = V_o \frac{(1+r)^5 - 1}{r} \quad \ldots(4)$$

$$k = \frac{K}{V} = \frac{\Delta K}{\Delta V}$$

$$\Delta K = k \Delta V$$

$$\text{or } I = krV$$

$$\text{where } r = \frac{\Delta V}{V}$$

3. Assumptions of the Model

a) Savings and investment functions are linear.

b) Capital-output ratio and growth rate of G.N.P. are assumed to be constant and known over a planning period.

c) Five years have been assumed to be the length of the planning period.

d) There exists a minimum level of consumption and hence a certain level of income at or below which savings would be zero or negative respectively.

e) The savings gap is the only constraint on economic growth.

4. Solution of the Model

Substitutiong (1) and (2) into (3), we get:

$$F_t = I_t - S_t$$

$$= krV_t - \alpha' V_t + \gamma$$

$$= (kr - \alpha')V_t + \gamma$$

Now summing over the planning period:

$$A = \sum_{t=0}^{4} F_t$$

$$= \sum_{t=0}^{4} \gamma + (kr - \alpha') \sum_{t=0}^{4} V_t$$

$$= 5V_0(\alpha' - \frac{S_0}{V_0}) + (kr - \alpha')V_0 \left[\frac{(1+r)^5 - 1}{r}\right]$$

$$= 5(\alpha' - \alpha)V_0 + (kr - \alpha')V_0 \left[\frac{(1+r)^5 - 1}{r}\right] \quad \ldots\ldots (5)$$

$\because$ at $t = 0$

$S_0 = -\gamma + \alpha' V_0$

or $\gamma = \alpha' V_0 - S_0$

$= \left[\alpha' - \frac{S_0}{V_0}\right]V_0$

$= (\alpha' - \alpha)V_0$

$\therefore \sum_{t=0}^{4} \gamma = 5(\alpha' - \alpha)V_0$

Given α, α', k and r, the total required foreign aid for an economy can be uniquely determined.

Sensitivity of F to changes in the parameters is obtained by partially differentiating Equation (5) with respect to the parameters, k, α and α':

$$\text{(i)} \quad \frac{\partial A}{\partial k} = rV_o \left[\frac{(1+r)^5 - 1}{r}\right]$$

$$\text{(ii)} \quad \frac{\partial A}{\partial \alpha} = -5V_o$$

$$\text{(iii)} \quad \frac{\partial A}{\partial \alpha'} = 5V_o - V_o \left[\frac{(1+r)^5 - 1}{r}\right]$$

Total foreign capital inflow, therefore, is more sensitive to changes in the capital-output ratio and in the average savings rate than to changes in the marginal savings rate.

5. Critique

Although several studies[4] prior to 1961 are available regarding the estimation of external capital requirements of the underdeveloped countries, perhaps the most ambitious attempt is that of P.N. Rosenstein-Rodan.[5]

He has built up a simple model of the Harrod-Domar type, in which he assumes that the only constraint to growth is savings. He has completely ignored the aspect of the foreign exchange constraint on economic development.

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[4] See United Nations, Measures for the Economic Development of Underdeveloped Countries (Report by a group of Experts appointed by the Secretary General, New York: United Nations, 1951); W.W. Rostow and Max Millikan, A Proposal: Key to an Effective Foreign Policy (New York: Harper & Brothers, 1957).

[5] Raymond F. Mikesell, The Economics of Foreign Aid (Chicago: Aldine Publishing Company, 1968), p. 79.

His assumption that the capital-output ratio (k = 3.1) remains constant over the planning period is highly questionable. He has argued that the target growth rate (r) reflects the "absorptive capacity" of the economy but no clear-cut method of measurement of the absorptive capacity has been given or suggested. Because of these and many other limitations, his empirical conclusions appear to be far from satisfactory. His comments--"India seems to be in a 'take-off' stage. . . . Pakistan's tempo of development appears to be somewhat lower, but it is promising. . . . Indonesia is an example of limited absorptive capacity. . . . In the Middle East . . . there are symptoms of developmental vigour which may show some results in five years' time"--are too general to be acceptable as the outcome of a serious study.[6]

Rosenstein-Rodan's model yields the solution that foreign capital inflow is highly sensitive to changes in the capital-output ratio. He estimates that, given a 4% growth rate, a fall of the capital-output ratio from 3 to 2.7 (that is, roughly a 10% reduction) would imply a 21% reduction of foreign capital requirements.[7] Since the measurement of the capital-output ratio is hardly accurate, any analysis solely based on it may result in misleading policy recommendations.

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[6] Rosenstein-Rodan, op. cit., p. 113.

[7] Ibid., p. 117.

The central message of his model is that the savings function has to be convex with respect to the income-axis, i.e., the marginal savings rate should be higher than the average savings rate. "A marginal savings rate considerably higher than the average is the main lever of economic development of underdeveloped countries."[8] However, he believes that once the economy attains self-sustained growth with an average savings rate of 12-15%, the marginal savings rate need not be higher than the average savings rate. The Rosenstein-Rodan model appears to be useful as a stepping-stone towards comprehensive analysis of foreign aid.

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[8] Ibid.

B. The McKinnon Model[9]

1. Notations[10]

P_o = Rudimentary starting point for the economy

P = Potential domestic output capacity of the economy

V = Domestically generated income resulting from the use of domestic output capacity, P (for planning purposes, V = P by assumption, and also $\frac{dV}{dt} = \frac{dP}{dt}$)

M = Current foreign materials requirements (maintenance imports)

K_d = Domestically produced capital goods[11]

K_f = Foreign-produced capital goods

$K_f + M$ = Total imports

Max S_t = Maximum potential domestic savings

S_t = Domestic savings

Max E_t = Maximum potential export earnings

E = Exports[12]

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[9] R.I. McKinnon, "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation," Economic Journal, June 1964, pp. 388-409.

[10] Symbols are slightly changed from the original model.

[11] Units for K_d and K_f are chosen such that one unit of output P can be used to construct one unit of K_d or buy one unit of K_f at the fixed current terms of trade.

[12] Exports (E) are measured in the same units as K_d , K_f and P.

E' = Exports net of "current needs"

F_t = Foreign capital transfers

A = Total amount of aid required

$I_t = S_t + F_t$ = Total amount of investment

$I_{ft} = \dot{K}_{ft}$ = Level of investment in foreign capital goods

ϵ = Marginal export rate

ϵ' = Proportion of current output in excess of current materials needs, which can be exported to obtain foreign capital goods

α = Average savings rate

α' = Marginal savings rate

σ = Aggregate output-capital ratio $= \dfrac{1}{\frac{1}{\beta_1} + \frac{1}{\beta_2}} = \dfrac{1}{k_d + k_f} = \dfrac{1}{k}$

k = Aggregate capital-output ratio

r = Target growth rate

$\bar{t}$ = Date of aid-termination

k_d = Domestic capital-output ratio $= \dfrac{1}{\beta_1}$

β_1 = Domestic output-capital ratio $= \dfrac{1}{k_d}$

k_f = Foreign capital-output ratio $= \dfrac{1}{\beta_2}$

β_2 = Foreign output-capital ratio $= \dfrac{1}{k_f}$

2. The Models

Model I
(Savings Constraint Case)

$$\text{Max } S_t = \alpha'\left[V_t - V_o\right] \quad \ldots (1)$$

where $0<\alpha'<1$ and $V_t > V_o$

$$P_t - P_o = \min\left[\beta_1 K_d, \beta_2 K_f, \beta_3 M\right] \quad \ldots (2)$$

where $\beta_1>0$, $\beta_2>0$, $\beta_3>1$ and $P_t > P_o$

$$F_t = I_t - S_t \quad \ldots (3)$$

$$\left.\begin{aligned} P_t &= P_o\, e^{rt} \\ V_t &= V_o\, e^{rt} \end{aligned}\right\} \quad \ldots (4)$$

where $P_t = V_t$

$$I_t = F_o\, e^{rt} \quad \ldots (5)$$ [14]

Model II
(Trade Constraint Case)

$$\text{Max } S_t = \alpha V_t \quad \ldots (1)$$

where $0<\alpha<1$

$$P_t - P_o = \min\left[\beta_1 K_d, \beta_2 K_f, \beta_3 M\right] \quad \ldots (2)$$ [13]

where $\beta_1>0$, $\beta_2>0$, $\beta_3>1$ and $P_t > P_o$

$$\text{Max } E_t = \epsilon\left[P_t - P_o\right] \quad \ldots (3)$$

where $\epsilon>0$ and $P_t > P_o$

$$F_t = I_{ft} - E'_t \quad \ldots (4)$$

where $I_{ft} = \frac{\sigma\alpha}{\beta_2} P_t = \frac{\sigma\alpha}{\beta_2} P_o\, e^{rt}$

and $E'_t = \left(\epsilon - \frac{1}{\beta_3}\right)\left[P_t - P_o\right]$

$= \epsilon'\left[P_t - P_o\right]$

3. Assumptions of the Models

Model I

a) Exports are adequate to purchase foreign capital goods and cover maintenance imports as required by the domestic production function

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[13] Production function for new output above P_o.

[14] Where r is chosen to be the maximum growth rate consistent with development possibilities and is determined outside the system. However, $r < \sigma\alpha'$ where $\sigma = \frac{1}{k_d + k_f}$ or $\sigma = 1/\left(\frac{1}{\beta_1} + \frac{1}{\beta_2}\right)$ and $r < \sigma\alpha'$ is the "necessary" condition, according to McKinnon, for reaching self-sustained growth at r. See McKinnon, on. cit., p. 396.

$$P_t - P_o = \min \left[\beta_1 K_d, \quad \beta_2 K_f, \quad \beta_3 M \right]$$

where $\beta_1 > 0$, $\beta_2 > 0$ $\beta_3 > 1$ and $P_t > P_o$

$\beta_3 > 1$ implies that the value of output in the economy exceeds the value of inputs from foreign sources.

b) The economy starts with no savings and no new capital formation since the population lives at subsistence level.

c) There exists an initial output capacity of the economy--a starting point from which industrial growth can begin--and a stationary level of income (V_o).

d) Aid is offered on the assumption that the capital inflow will have a "pump-priming" effect so as to eliminate the economy's dependence on foreign aid over a period of time.

e) Consistent with development possibilities in view of the expected external capital inflow, a maximum growth rate is chosen as a target (r).

f) Average savings rate and average export rate are assumed to be rising.

Model II

a) Assumption (a) of Model I is relaxed and it is assumed that there exists a constraint on export possibilities and hence available domestic savings cannot be fully utilized.

b) All other Assumptions of Model I are retained.

General Assumptions for Both Models

a) The structure of international prices is exogenously determined.

b) A fixed coefficient production function is assumed.

c) Foreign capital inflow enters as a "separate" input in the domestic production function.

d) Labour supply is unlimited.

e) No substitutional possibility (i.e., use of import substitution as an alternative to export expansion, or relaxation of the assumption of fixed coefficient production function, and/or introduction of more factors of production) is incorporated in the model.

4. Solutions of Models

Solution of Model I:

From (3), (4) and (5), the time-path of foreign-capital inflow is determined:

$$F_t = I_t - S_t$$

$$= F_0 e^{rt} - \alpha' V_0 e^{rt} + \alpha' V_0 \qquad \because\ I_t = I_0 e^{rt} = F_0 e^{rt}$$

$$= \left[F_0 - \alpha' V_0\right] e^{rt} + \alpha' V_0 \quad \ldots\ (6) \qquad \text{and } S_t = \alpha'[V_t - V_0] = \alpha' V_t - \alpha' V_0 = \alpha' V_0 e^{rt} - \alpha' V_0$$

$$\therefore\ A = \int_0^{\bar{t}} \left[F_t\right] dt \quad \ldots\ (7)$$

where $\bar{t} = \frac{k}{\alpha} \log_e \left[\frac{\alpha'}{\alpha' - \alpha}\right]$

The condition for the foreign aid to decline over time is that the first term in the right-hand side of Equation (6) must be negative

i.e., $F_0 - \alpha' V_0 < 0$

or $F_0 < \alpha' V_0$

Since $F_0 = \frac{r}{\sigma} V_0$, this condition implies

$$\frac{r}{\sigma} V_0 < \alpha' V_0$$

Or $r < \sigma\alpha'$

or $\frac{r}{\sigma} < \alpha'$

or $\alpha < \alpha'$

$$\because \frac{I_t}{V_t} = \frac{\Delta K}{V_t} = \frac{\Delta V}{V_t} \cdot \frac{\Delta K}{\Delta V} = \frac{\frac{\Delta V}{V_t}}{1/\frac{\Delta K}{\Delta V}}$$

$$= \frac{\frac{\Delta V}{V_t}}{\frac{\Delta V}{\Delta K}} = \frac{r}{\sigma}$$

at $t = 0$, $I_0 = F_0$

$$\therefore \frac{I_0}{V_0} = \frac{F_0}{V_0} = \frac{r}{\sigma} \quad \text{or } F_0 = \frac{r}{\sigma} V_0$$

also

$$\frac{r}{\sigma} = \frac{\frac{\Delta V}{V_t}}{\frac{\Delta V}{\Delta K}} = \frac{\Delta K}{V_t} = \frac{I_t}{V_t} = \frac{S_t}{V_t} = \alpha$$

Given a growth rate (r) and a capital coefficient (σ), the marginal savings rate (α') must exceed the average savings rate (α) in order that foreign aid (F_t) may decline over a period of time. The more α' exceeds α, the more quickly the economy would generate enough savings and the smaller the time interval for eliminating dependence on foreign aid.

Solution of Model II:

Making use of (1), (2), (3) in (4), we get:

$$\frac{F_t}{V_0} = \frac{I_{ft}}{V_0} - \frac{E'_t}{V_0} \qquad \text{where } V_0 \equiv P_0$$

$$= \frac{1}{V_0}\left[I_{ft} - E'_t\right]$$

$$= \frac{1}{V_0}\left[\frac{\sigma\alpha}{\beta_2}P_t - (\epsilon - \frac{1}{\beta_3})P_t + (\epsilon - \frac{1}{\beta_3})P_0\right] \qquad \text{Let } \epsilon' = \epsilon - \frac{1}{\beta_3}$$

$$= \frac{1}{V_0}\left[\frac{\sigma\alpha}{\beta_2}P_t - \epsilon' P_t + \epsilon' P_0\right]$$

$$= \frac{1}{V_0}\left[(\frac{\sigma\alpha}{\beta_2} - \epsilon')P_0 e^{rt} + \epsilon' P_0\right]$$

$$= \frac{1}{V_0}\left[\left\{(\frac{\sigma\alpha}{\beta_2} - \epsilon')e^{rt} + \epsilon'\right\}P_0\right] \qquad \because V_e \equiv P_e$$

$$= \frac{1}{V_0}\left[(\frac{\sigma\alpha}{\beta_2} - \epsilon')e^{rt} + \epsilon'\right]V_0$$

$$= (\frac{\sigma\alpha}{\beta_2} - \epsilon')e^{rt} + \epsilon' \quad \ldots\ldots (5)$$

In order for F_t to decline, the first term of the right-hand side of Equation (5) has to be increasingly negative as time progresses. The condition for this is:

$$\frac{\sigma\alpha}{\beta_2} - \epsilon' < 0$$

$$\text{or} \quad \frac{\sigma\alpha}{\beta_2} < \epsilon'$$

$$\text{or} \quad \sigma\alpha < \beta_2\epsilon'$$

Total aid required (A) to reach self-sustained growth is:

$$\frac{A}{V_0} = \int_0^{\bar{t} = \frac{1}{r}\log_e\left[\frac{\epsilon'}{\epsilon' - \frac{r}{\beta_2}}\right]} \left[\left(\frac{\sigma\alpha}{\beta_2} - \epsilon'\right)e^{rt} + \epsilon'\right] dt \quad \ldots\ldots\ldots (6)$$

where $\bar{t}$ is obtained as follows:

$$\because \frac{F_t}{V_0} = \left(\frac{\sigma\alpha}{\beta_2} - \epsilon'\right)e^{rt} + \epsilon'$$

at $t = \bar{t}$ we have $F_t = 0$

$$\therefore 0 = \left(\frac{\sigma\alpha}{\beta_2} - \epsilon'\right)e^{r\bar{t}} + \epsilon'$$

$$\text{or } e^{r\bar{t}} = -\frac{\epsilon'}{\frac{\sigma\alpha}{\beta_2} - \epsilon'} = \frac{\epsilon'}{\epsilon' - \frac{\sigma\alpha}{\beta_2}}$$

$$= \frac{\epsilon'}{\epsilon' - \frac{r}{\beta_2}} \qquad \because r = \sigma\alpha$$

Taking the log on both sides, we get

$$\log_e e^{r\bar{t}} = \log_e\left[\frac{\epsilon'}{\epsilon' - \frac{r}{\beta_2}}\right]$$

$$\text{or} \qquad r\bar{t} = \log_e\left[\frac{\epsilon'}{\epsilon' - \frac{r}{\beta_2}}\right]$$

$$\text{or} \qquad \bar{t} = \frac{1}{r}\log_e\left[\frac{\epsilon'}{\epsilon' - \frac{r}{\beta_2}}\right] \quad \ldots\ldots (7)$$

where $\bar{t}$ is the point of termination of foreign capital inflow.

Examining (5) and (7), it becomes clear that the larger ϵ' ($= \epsilon - \frac{1}{\beta_3}$), i.e., the larger the proportion of current output in excess of current materials needs, which can be exported to obtain foreign capital goods, the smaller will be the time interval for aid termination ($\bar{t}$) and capital transfer ($\frac{A}{V_o}$).

The findings of McKinnon are summarized below (by integrating his Table I and Table II):

TABLE 3.1 a/

AID-TERMINATION DATE, MARGINAL SAVINGS AND EXPORTS RATES

$\bar{t}$ (no. of years) (1)	$\frac{A}{V_o}$ (2)	α' (3)	$\frac{A}{V_o}$ (4)	ϵ' (5)
27	3.3	0.25	.94	.06
18	2.2	0.30	.65	.08
11	1.3	0.40	.28	.10
4	.4	1.00	.13	.20

a/ The following are the values of the parameters: $\sigma = 0.30$; $\alpha' = 0.20$; $r = 0.06$; $\min C_a$ (Minimum Imports of capital goods) = 25% of total capital goods.

Source: R.I. McKinnon, "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation," Economic Journal, June 1964, Table I, p. 399 and Table II, p. 402.

Results:

a) $\frac{A}{V_o}$ is inversely related to α'

b) $\frac{A}{V_o}$ is <u>strongly</u> inversely related to ϵ'

c) Comparing Column (2) and Column (4), it is evident that a lesser amount of foreign aid is required to maintain a 6% growth rate of the G.N.P. when trade constraint rather than savings constraint is binding.

5. Critique

The McKinnon model belongs to the Harrod-Domar family.[15] Being divorced from "behavioural" equations, it reflects only the "potentialities" of the economy. One of the major contributions of McKinnon is the explicit recognition that "'foreign goods' enter as an input into the domestic production function."[16] The productivity and allocation of this input provide "one of the central problems for a modern theory of development."[17]

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[15]The model is a "growth model of the Harrod-Domar type which incorporates in a crude way the effects of international trade on the growth of newly developing countries." See McKinnon, <u>op. cit.</u>, p. 389.

[16]<u>Ibid.</u>

[17]Chenery and Strout, <u>op. cit.</u>, p. 679.

The McKinnon model incorporates all the three constraints--savings-investment, foreign exchange and absorptive capacity. The model suggests that the foreign capital inflow must fill the dominating gap in order to inject a "pump-priming" effect. His mechanism of equating the two ex ante gaps (savings gap and export-import gap) is based on the arbitrary assumption that all marginal rates (except marginal savings rate and marginal export rate) are constants. No argument is given as to why these two exceptions should necessarily perform the ex ante gap-equating task.

In the case of discrepancy between Gap I and Gap II, the McKinnon model suggests that either exports would fall below their maximum potential level (when Gap I > Gap II) or savings would fall below their maximum potential level (when Gap II > Gap I), but he does not see the other possibilities; for instance, increase in "maintenance imports" or decrease in investment requirements may be recommended when Gap I exceeds Gap II, and increase in import substitution and/or export promotion may be suggested when Gap II exceeds Gap I.

However, it must be admitted that McKinnon has brought out quite clearly the fundamentals of the "dual gap" problems.

C. The Fei-Paauw Model[18]

1. Notations[19]

V = G.N.P.; $V^* = \frac{V}{P}$ = Per capita G.N.P.

I = Investment; $I^* = \frac{I}{P}$ = Per capita I

S = Savings; $S^* = \frac{S}{P}$ = Per capita S

F = Foreign capital inflow; $F^* = \frac{F}{P}$ = Per capita F

k = Capital-output ratio = $\frac{K}{V}$

σ = Output-capital ratio = $\frac{1}{k}$

$u = \frac{\dot{S}^*}{\dot{V}^*} = \frac{dS^*/dt}{dV^*/dt} =$ Per capita marginal savings rate

α_o = Initial average savings rate

α = Average savings rate = $\frac{S}{V}$

g_p = p (Rate of growth of population)[20]

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[18] J.C.H. Fei and D.S. Paauw, "Foreign Assistance and Self-Help," Review of Economics and Statistics, August 1965, pp. 251-267.

[19] Symbols are slightly altered from the original model.

[20] $g_x = \psi$ denotes that the rate of growth of any variable x is ψ ; and g_x is defined as $\frac{1}{x}\frac{dx}{dt}$ or $\frac{1}{x}\dot{x}$ or $X_t = X_o e^{g_x t} = X_o e^{\psi t}$

g_v = r (Rate of growth of per capita G.N.P.)

g_K = $\frac{I}{K}$ (Rate of growth of capital)

g_o = $\frac{\alpha_o}{k}$ (Initial growth rate of G.N.P. and capital)

g_u = $\frac{u}{k}$ (Long-run growth rate of G.N.P. and capital)

P = Population

r = Target growth rate

p = Population growth rate

2. The Model

$$F_t = I_t - S_t \quad \ldots (1)$$

$$k = \frac{K}{V} \quad \ldots (2)$$

$$g_K = \frac{1}{K}\dot{K} = \frac{I}{K} \quad \ldots (3) \quad \text{or} \quad K = K_o e^{g_K t}$$

$$g_p = p \quad \ldots (4) \quad \text{or} \quad P = P_o e^{pt}$$

$$g_{V^*} = r \quad \ldots (5) \quad \text{or} \quad V^* = V^*_o e^{rt}$$

$$\left.\begin{aligned} S_o &= \alpha_o V_o \\ \dot{S}^* &= u\dot{V}^* \end{aligned}\right\} \quad \ldots (6)$$

where $u > \alpha_o > 0$

3. Assumptions of the Model

a) Exports are adequate to purchase foreign capital goods and foreign current materials. In other words, exports are not a constraint on growth.

b) The only constraint on economic growth is the savings constraint.

c) r and p are constant.

d) The assumption that $u > \alpha_o > 0$ ensures that α increases through time.[21]

4. Solutions of the Model

a) Savings Time-Path

Integrating Equation (6), we have:

$$S_t^* = u V_t^* + \theta \qquad \because \theta = S_t^* - u V_t^*$$

at $t = 0$

$$\theta = S_o^* - u V_o^*$$

$$= \left[\frac{S_o^*}{V_o^*} - u\right] V_o^*$$

$$= (\alpha_o - u) V_o^*$$

Or

$$S_t^* = u V_t^* + (\alpha_o - u) V_o^*$$

$$= \left[u + \frac{\alpha_o - u}{e^{rt}}\right] V_o^* e^{rt}$$

$$= \left[u - \frac{u - \alpha_o}{e^{rt}}\right] V_t^*$$

$$\therefore \frac{S_t^*}{V_t^*} = u - \frac{u - \alpha_o}{e^{rt}}$$

Or

$$\alpha = u - \frac{u - \alpha_o}{e^{rt}} \qquad \ldots\ldots\ldots (7)$$

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[21] See also McKinnon, op. cit., p. 395.

b) Time-Path of Foreign Aid

Dividing both sides of Equation (1) by V_t ,

we get:

$$\frac{F_t}{V_t} = \frac{I_t}{V_t} - \frac{S_t}{V_t}$$

$$= \frac{I_t}{V_t} - \alpha$$

$$= k(r+p) - \alpha \qquad \because I_t = \frac{dK}{dt} = k\frac{dV}{dt} = k\frac{d\left[V_0 e^{(r+p)t}\right]}{dt}$$

$$= k(r+p) - \left[u - \frac{u-\alpha_0}{e^{rt}}\right] \qquad = k(r+p)V_t \qquad \because V_t = V_0 e^{(r+p)t}$$

$$\therefore \frac{I_t}{V_t} = k(r+p)$$

$$\therefore F_t = \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{rt}}\right)\right] V_t \qquad \ldots\ldots\ldots (8)$$

c) Determination of Aid Termination Date

At $t = \bar{t}$, by definition, $F = 0$

The left-hand side of Equation (8) becomes zero:

$$\text{i.e.,} \quad 0 = \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{r\bar{t}}}\right)\right] V_{\bar{t}}$$

$$\text{or} \quad k(r+p) - \left(u - \frac{u-\alpha_0}{e^{r\bar{t}}}\right) = 0 \qquad \because V_{\bar{t}} \neq 0$$

$$\text{or} \quad \frac{k(r+p)e^{r\bar{t}} - ue^{r\bar{t}} + (u-\alpha_0)}{e^{r\bar{t}}} = 0$$

Or $k(r+p)\,e^{r\bar{t}} - u\,e^{r\bar{t}} + (u-\alpha_0) = 0 \qquad \because e^{r\bar{t}} \neq 0$

Or $\left[k(r+p) - u\right] e^{r\bar{t}} = \alpha_0 - u$

or $$e^{r\bar{t}} = \frac{\alpha_0 - u}{k(r+p) - u}$$

$$= \frac{u - \alpha_0}{u - k(r+p)}$$

$$= \frac{\frac{u}{k} - \frac{\alpha_0}{k}}{\frac{u}{k} - (r+p)}$$

Let $\hat{\alpha} = \frac{u}{k} - \frac{\alpha_0}{k} = g_u - g_0$ and $\hat{\beta} = \frac{u}{k} - (r+p) = g_u - (r+p)$

then, $$e^{r\bar{t}} = \frac{\hat{\alpha}}{\hat{\beta}}$$

Taking the log on both sides:

$$\log_e e^{r\bar{t}} = \log_e\left(\frac{\hat{\alpha}}{\hat{\beta}}\right)$$

$$\text{or } \log_e e^{r\bar{t}} = \log_e\left[\frac{\frac{u}{k} - \frac{\alpha_0}{k}}{\frac{u}{k} - (r+p)}\right]$$

$$\text{or } r\bar{t} = \log_e\left[\frac{\frac{u}{k} - \frac{\alpha_0}{k}}{\frac{u}{k} - (r+p)}\right]$$

$$\text{or } \bar{t} = \frac{1}{r}\log_e\left[\frac{\frac{u}{k} - \frac{\alpha_0}{k}}{\frac{u}{k} - (r+p)}\right] \cdots\cdots (9)$$

d) Total Aid Requirements

$$A = \int_0^{\bar{t}} \left[F_t \right] dt$$

$$= \int_0^{\bar{t}} \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{rt}}\right) \right] V_t \, dt$$

$$= \int_0^{\bar{t}} \left[\left\{ (r+p) - \frac{u}{k} \right\} + \left\{ \frac{u}{k} - \frac{\alpha_0}{k} \right\} e^{-rt} \right] K_0 e^{(r+p)t} \, dt$$

$$= \int_0^{\bar{t}} \left[\hat{\alpha} e^{-rt} - \hat{\beta} \right] K_0 e^{(r+p)t} \, dt$$

$$= \hat{\alpha} K_0 \int_0^{\frac{1}{r}\log_e\left(\frac{\hat{\alpha}}{\hat{\beta}}\right)} e^{pt} \, dt \; - \; \hat{\beta} K_0 \int_0^{\frac{1}{r}\log_e\left(\frac{\hat{\alpha}}{\hat{\beta}}\right)} e^{(r+p)t} \, dt$$

$$= \frac{\hat{\alpha}}{p(r+p)} \left[\left(\frac{\hat{\alpha}}{\hat{\beta}}\right)^{-1} \left\{ p + r \left(\frac{\hat{\alpha}}{\hat{\beta}}\right)^{1+\frac{r}{p}} \right\} - (r+p) \right] \quad \ldots\ldots (10)$$

Complete derivation of this Equation (10) has been provided in Appendix B in order to have a clearer grasp of Fei and Paauw's celebrated Equation (24).[22]

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[22] See Fei and Paauw, op. cit., p. 258.

5. Critique

While the McKinnon model deals mainly with Gap II, the Fei-Paauw model deals exclusively with Gap I. The latter model puts emphasis on concepts implicit in the "self-help" problem. The analysis follows:

> i) The interaction between foreign aid and domestic austerity efforts;
> ii) assurance that a reasonable termination date be built into the assistance program;
> iii) the prospect that foreign aid will achieve its primary economic objectives of providing an adequate rate of growth of per capita income and consumption; and
> iv) confidence that the accumulated volume and annual flow of foreign aid to satisfy these conditions will be within reason.[23] (Underlining added.)

Fei-Paauw claim that by emphasizing these elements their analysis is capable of yielding both quantitative and qualitative results. In the context of their analysis, it has been shown that the usual Harrod-Domar model yields "the conclusion that the direction of capital movement will continue for ever. . . ."[24] Then Fei and Paauw have modified the model in such a way as to yield the point of termination of capital movement.

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[23] Fei and Paauw, op. cit., p. 251.

[24] Ibid., p. 255.

The Fei-Paauw model, like the Rosenstein-Rodan model, attempts to explain the savings gap. The major difference between the two is that Fei and Paauw have dynamized the Keynesian type aggregate savings function, while Rosenstein-Rodan has used it without any change. Equation (6) is the fundamental equation in the Fei-Paauw model; it assumes that the incremental per capita savings ($\dot{S}^*$) is a constant fraction (u) of the increment in per capita income ($\dot{V}^*$), i.e., $\dot{S}^* = u\dot{V}^*$. The beauty of the Fei-Paauw model lies in its ability to distinguish three distinct types of underdeveloped countries: (1) the unfavourable case [See Figure 3.1(a)] : countries which would require foreign aid for an indefinite period; (2) the intermediate case [See Figure 3.1(b)] : countries which would require foreign aid for a certain finite period of time; and (3) the favourable case [See Figure 3.1(c)] : countries which would not require any foreign aid.[25] Fei and Paauw further distinguish two sub-cases in the intermediate case: (i) where foreign aid first rises, reaches a "peak" and then declines (the "hump-scale" case); and (ii) where foreign aid declines from the outset continuously (the "glide-path" case).

Conditions for identifying the above three major cases are given by:

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[25] Fei and Paauw state that their model "brings out a significant distinction between the intermediate and unfavourable cases" while in the Harrod-Domar closed-economy model, "these two cases remain undifferentiated." See Fei and Paauw, on. cit., p. 254.

FIGURE 3.1(a)

CASE I: PERPETUAL EXISTENCE OF GAP I
(UNFAVOURABLE CASE)

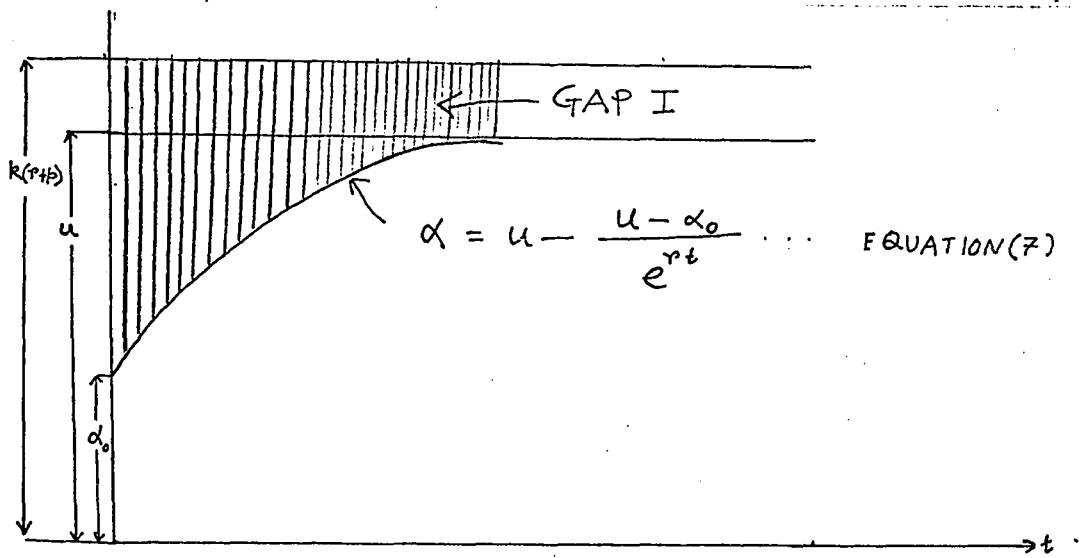
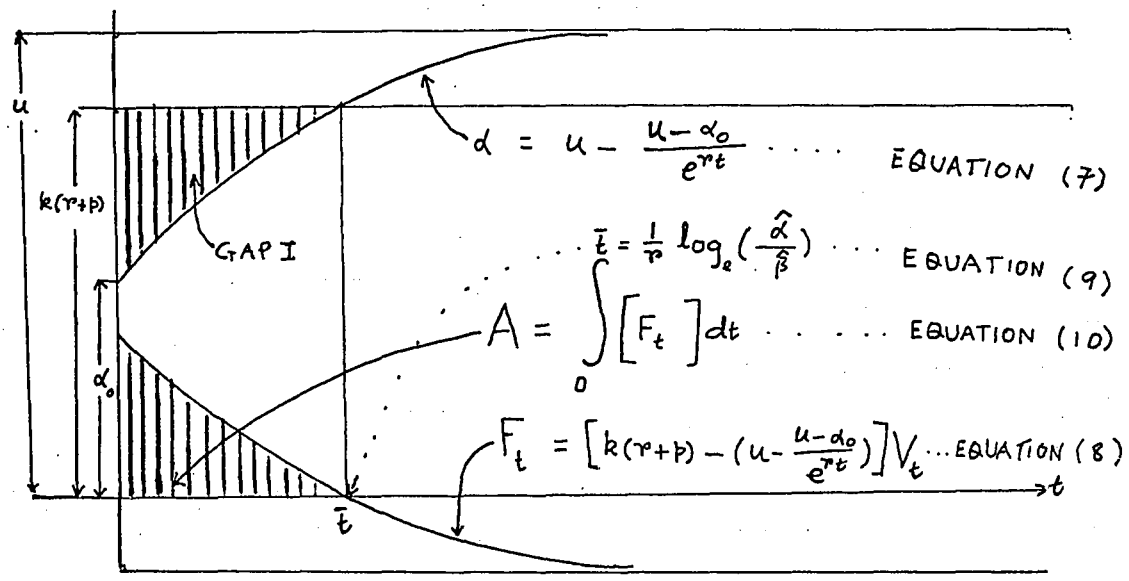


FIGURE 3.1(b)

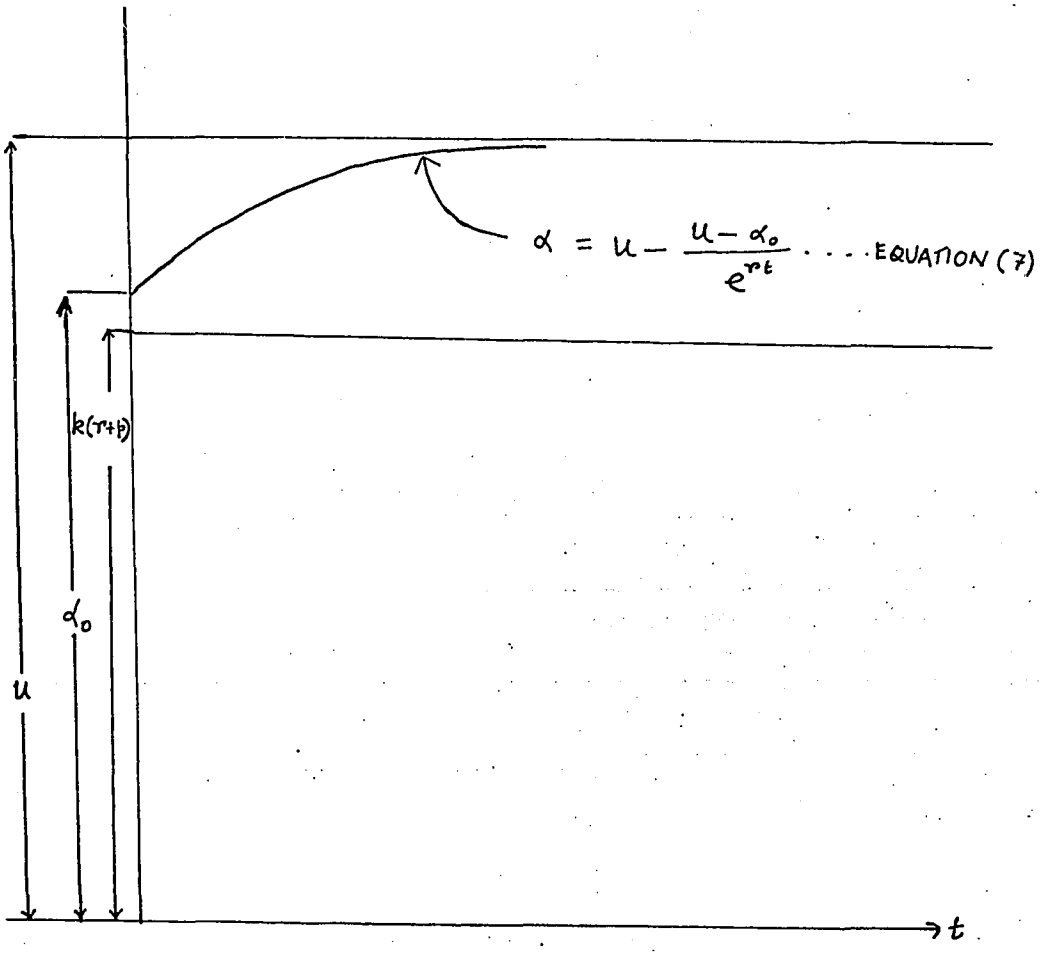
CASE II: EXISTENCE OF GAP I FOR FINITE TIME PERIOD
(INTERMEDIATE CASE)



Source: J.C.H. Fei and D.S. Paauw, "Foreign Assistence and Self-Help: A Reappraisal of Development Finance," Review of Economics and Statistics, August 1965, pp. 255 and 256.

FIGURE 3.1(c)

CASE III: NON-EXISTENCE OF GAP I
(FAVOURABLE CASE)



Source: J.C.H. Fei and D.S. Paauw, "Foreign Assistance and Self-Help: A Reappraisal of Development Finance," Review of Economics and Statistics, August 1965, p. 256.

(1) $p+r > g_u(=\frac{u}{k})$, the unfavourable case;

(2) $g_o < p+r < g_u(=\frac{u}{k})$, the intermediate case where $g_o = \frac{\alpha_o}{k}$; and

(3) $p+r < g_o(=\frac{\alpha_o}{k})$, the favourable case.[26] where $g_V = p+r$ i.e., $V_t = V_o e^{(p+r)t}$

Fei and Paauw find that countries in case (1) must raise the per capita marginal savings rate with "greater self-help efforts" if they want to achieve a constant growth rate with a terminal date for foreign aid; the aid must produce "leverage effects" on the domestic savings rate. In case (2) foreign aid acts as "complementary" to the country's own self-help efforts.[27] In subcase (i) of case (2), a period of time must elapse before Gap I can be narrowed because the domestic savings rate has to reach a certain minimum level. In subcase (ii) of case (2), the domestic savings rate is high enough to reduce dependence on foreign aid at once.

It may be noted that neither the Rosenstein-Rodan model nor the McKinnon model brings the "population factor" into the analysis. The explicit inclusion of this factor in the Fei-Paauw model makes it more realistic. The exclusion of the population factor, particularly in dealing with the South Asian countries where population pressure is very high, is likely to make any such approach only partially effective. Fei and Paauw give an explicit recognition of this factor.

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[26] Ibid., p. 256.

[27] Ibid., p. 258.

They make two most important observations:

a) Within a certain range of variation, an increased rate of population growth of 0.5% will cost a country a reduction in its target rate of growth of per capita G.N.P. of 0.5% as well as a postponement in its aid termination date of roughly four to five years.

b) Holding population constant, successive increases in targets of one-half of one per cent will lengthen termination dates by approximately seven to nine years. On the other hand, holding targets constant, population rate increases of one-half of one per cent will raise termination dates by about 12 to 15 years.[28] (See Table 3.2.)

From this analysis it becomes quite evident that the population growth rate has a greater influence on the length of the "termination period" than the per capita target growth rate.

Fei and Paauw have applied their model to 31 countries. The results are summarized as follows:

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[28] Ibid., p. 261.

TABLE 3.2

AID TERMINATION DATES ($\bar{t}$) FOR "GLIDE PATH" CASE IN CASE (2)[a/]

POPULATION GROWTH RATE (p)	TARGET GROWTH RATE (r)								
	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
1.5	0	0	0	8	15	23	30	42	100
2.0	0	0	12	20	27	35	48	100	-
2.5	0	17	26	33	42	65	∞	∞	-

a/ Given $\alpha_o = .10$, $u = .20$ and $k = 3.3$

Equation (9), namely, $\bar{t} = \frac{1}{r} \log_e \left[\frac{\frac{u}{k} - \frac{\alpha_o}{k}}{\frac{u}{k} - (r+p)} \right]$ is solved and tabulated for different values of r and p.

Source: J.C.H. Fei and D.S. Paauw, "Foreign Assistance and Self-Help," Review of Economics and Statistics, August 1965, p. 260, Table 1.

a) The unfavourable case (where the aid termination date is infinity): 22 out of 31 countries fall into this class. This is a very pessimistic picture.

b) The intermediate case (with a finite termination date):

(1) The hump-scaling case: Taiwan.

(2) The glide-path case: Pakistan, Colombia, Greece, Mexico, Philippines, Thailand and Tunisia.

c) The favourable case (which requires no foreign aid): Yugoslavia.[29]

The main conclusion of the Fei-Paauw study may be summed up in their own words: "We tentatively conclude . . . that while there is a margin of doubt as to whether additional domestic austerity (raising of u) is crucial for the 20 per cent savers, there is no doubt that it is an indispensable adjustment for the other 'unsuccessful' countries."[30]

The foreign exchange aspect is conspicuous by its absence from their analysis, and most disappointingly, they nowhere show an awareness of the existence of a foreign exchange constraint on growth. The Fei-Paauw study deserves appreciation for a comprehensive analysis of developing countries faced with the problem of savings as a binding constraint on growth, of population pressure, and of the need to eliminate dependence on foreign aid.

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[29] Ibid., pp. 263-264.

[30] Ibid.

D. The Chenery-Strout Model[31]

An economy with "limited structural flexibility"[32] is characterized by the fact that the following factor supplies represent separate constraints on economic growth at any given point of time: (a) the supply of skills; (b) the supply of domestic savings; and (c) the supply of imported goods and services.[33]

Chenery and Strout have developed three distinct models based on the above three distinct constraints; these models are regarded as three "growth regimes" appearing in some "definite" sequential order giving rise to the "three-phased thesis." We shall discuss briefly the three models.

1. Notations[34]

V_t = G.N.P.

I_t = Gross investment

S_t = Gross domestic savings

$\bar{S}_t$ = Potential gross domestic savings

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[31] H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development," American Economic Review, September 1966, pp. 679-733.

[32] Ibid., p. 682.

[33] Ibid., p. 681.

[34] Symbols are slightly altered from the original model.

M_t = Imports of goods and services

$\bar{M}_t$ = Required minimum import of goods and services

E_t = Exports of goods and services

F_t = Net inflow of foreign capital

C_t = Consumption

r_t = Rate of growth of G.N.P. in year t

$\bar{r}$ = Target rate of growth of G.N.P.

$\alpha_t = \frac{S_t}{V_t}$ = Average savings rate in year t

$\alpha'_t = \frac{\Delta \bar{S}}{\Delta V}$ = Marginal savings rate

$\mu_t = \frac{M_t}{V_t}$ = Average import rate in year t

$\mu'_t = \frac{\Delta M}{\Delta V}$ = Marginal import rate

ϵ = Rate of growth of exports

$k = \frac{\Delta K}{\Delta V} = \frac{I}{\Delta V}$ = ICOR (Incremental gross capital-output ratio)

β = Maximum rate of growth of investment (the parameter β is referred to in the model as the "skill limit" reflecting "the skill information required of managers, skilled labour, and civil servants in order to increase productive investment.")[35]

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[35] Chenery and Strout, op. cit., p. 686.

2. The Models

Model I (represents skill-limited phase)	Model II (represents savings-limited phase)	Model III (represents trade-limited phase)
$V_t = S_t + C_t \cdots (1)$	$V_t = S_t + C_t \cdots (1)$	$V_t = C_t + S_t \cdots (1)$
$S_t = I_t - F_t \cdots (2)$	$S_t = I_t - F_t \cdots (2)$	$S_t = I_t - F_t \cdots (2)$
$V_t \leq V_o + \frac{1}{k}\hat{I} \cdots (3)$	$V_t = V_o + \frac{1}{k}\hat{I} \cdots (3)$	$V_t = V_o + \frac{1}{k}\hat{I} \cdots (3)$
$I_t \leq (1+\beta) I_{t-1} \cdots (4)$	$V_t \leq (1+\bar{r}) V_{t-1} \cdots (5)$	$V_t = (1+\bar{r}) V_{t-1} \cdots (5)$
$S_t \leq \bar{S} = S_o + \alpha'(V_t - V_o) \cdots (6)$	$S_t = \bar{S} = S_o + \alpha'(V_t - V_o) \cdots (6)$	$F_t \geq \bar{M}_t - E_t \cdots (7)$

where

$$\hat{I} = \sum_{T=0}^{T=t-1} I_T$$

$$k = \frac{I_{t-1}}{V_t - V_{t-1}}$$

$$E_t = E_o (1+\epsilon)^t$$

$$\bar{M}_t = M_o + \mu'(V_t - V_o)$$

$$\bar{M}_t \leq M_t$$

3. Assumptions of the Models

Model I

a) No inducement exists to build up "excess capacity."

b) No incentive exists to increase aid by reducing savings.

c) The "ability to invest" is the dominant constraint on the increase in G.N.P.

d) The adjustment process of the economy does not affect the magnitude of aid requirements or the growth path; this adjustment takes place either through the market mechanism or through government control.

Model II

a) Assumption (d) of Model I.

b) The target growth rate becomes the dominant constraint replacing the "ability to invest" or the "absorptive capacity" constraint.

c) Re-allocation of investible resources would eliminate any discrepancy between the ex ante savings gap and the export-import gap over a given period of time.

Model III

a) There exists a minimum import level required to sustain a given level of G.N.P. at time t

$$\text{i.e.,} \quad M_t \geqslant \bar{M}_t$$

b) Demand for a large proportion of manufactured goods--particularly capital goods and intermediate goods--

is relatively inelastic because of the lack of substitutable domestic resources.

General Assumptions (applicable to all three Models)

a) Foreign aid enters as a separate and distinct input in the domestic production function of an underdeveloped economy.[36]

b) The availability of foreign aid is not unlimited. Foreign aid is not likely to be available to finance a growth rate much above 6 to 7%, even if the economy is capable of reaching this goal.

c) No aid is available only to increase consumption without securing some rise in the G.N.P.

d) The required amount of foreign aid is at all times determined by the larger of the two gaps:

$$F = \max \left[\text{Gap I, Gap II} \right] \quad \text{for all time.}$$

4. Solutions of the Models

Model I (Phase I)[37] yields:

$$\text{Gap I} = F_o + (\beta k - \alpha')(V_t - V_o)$$

where $F_o = I_o - S_o$ and $I_t = I_o + \beta k (V_t - V_o)$

[36] Ibid., p. 679. See also McKinnon, op. cit., p. 389.

[37] Phase I ends in year m when investment reaches a level sufficient to support the target growth rate: $I_m = k\bar{r}V_m$. See Chenery and Strout, op. cit., p. 686.

Model II (Phase II) gives the result:

$$\text{Gap I} = (kr - \alpha')V_o e^{rt} - (\alpha_o - \alpha')V_o$$

$$= (\alpha' - \alpha_o)V_o + (kr - \alpha')V_o e^{rt}$$

$$= (\alpha' - \alpha_o)V_o + (kr - \alpha')V_t$$

Model III (Phase III) gives:

$$\text{Gap II} = \bar{M}_t - E_t$$

$$= \bar{M}_o + \mu'(V_t - V_o) - E_o(1+\epsilon)^t$$

5. Critique

As already noted, Chenery and Strout's three models correspond to three distinct phases of growth: (i) the skill-limited phase; (ii) the savings-limited phase[38]; and (iii) the trade-limited phase. They propose that "with fixed parameters, the commonest sequence . . . is from Phase I to either Phase II or Phase III."[39] Chenery and

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[38] Fei and Paauw have adapted the Rosenstein-Rodan model by assuming that per capita saving is a constant fraction of the increase in per capita income. Both the Fei-Paauw model and the Rosenstein-Rodan model correspond to the Chenery-Strout model II (Phase II), where investment resources provide a limit to growth. See Chenery and Strout, op. cit., p. 686, n. 13.

[39] Ibid., p. 690, n. 23.

Strout's three-phased thesis represents a "normal metamorphosis" of the less developed countries based on highly questionable and arbitrary assumptions "which are not deduced from accepted hypotheses in economics."[40] The Chenery-Strout concept of "phase" has evoked severe criticisms.[41] They have defended their three-phase thesis by saying that it is more "a planning device rather than a basis for historical analysis."[42] The central message of the Chenery-Strout analysis lies not in "the sequence in which the savings constraint and the trade constraint become binding," but in the fact that there does not exist any built-in mechanism "to equate the two gaps in the short-run."[43]

One of the fundamental defects of almost all two-gap models is that they do not contain formal criteria for

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[40] G. Ranis and J.C.H. Fei, "Foreign Assistance and Economic Development: Comment," American Economic Review, September 1968, p. 907.

[41] J.H. Adler and P.W. Kuznets (eds.), Capital Movements and Economic Development (New York: St. Martin's Press, 1967), p. 299.

[42] H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development: Reply," American Economic Review, September 1968, p. 914. For further criticisms and comments of the Chenery and Strout model see Henry J. Bruton, "The Two Gap Approach to Aid and Development: Comment," American Economic Review, June 1969, pp. 439-446. and Hollis B. Chenery, "The Two Gap Approach to Aid and Development: A Reply to Bruton," American Economic Review, June 1969, pp. 446-449.

[43] H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development," American Economic Review, September 1966, p. 715.

identification. Chenery and Strout have swallowed the bitter pill of this limitation. Ranis and Fei have rightly pointed out that Chenery and Strout not only failed to face the identification problem, but made an abortive attempt to escape it through the assumptions which virtually wiped out "an essential aspect of their very thesis--i.e., the existence of a gap between the two gaps. . . ."[44] These assumptions are as follows:

a) $S = \max S$)
$M = \max M$) In Phase I

This permits us to estimate the export growth rate (ϵ), i.e., ϵ is identified.

b) Savings gap = Trade gap.

This assumption allows us to estimate the import coefficient μ ; i.e., μ is identified.[45]

Another major limitation of the Chenery-Strout model is the fact that it has completely ignored the supply side of foreign aid, and it has not attached any importance to the "reverse flow" aspect of the economy.

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[44] Ranis and Fei, on. cit., p. 910.

[45] H.B. Chenery and A.M. Strout, "Foreign Assistance and Economic Development," American Economic Review, September 1966, p. 694, Footnotes to Table 4.

Despite the limitations, perhaps it would not be unfair to say that the Chenery-Strout study is the only systematic analysis of foreign aid that is available so far in the development literature.

The Linear Programming Version

Of all the planning models, the linear programming model is by far the most operational, the most complex and the most elegant. "Essentially, linear programming is a mode of expressing the problem of allocating scarce resources that has the peculiar virtue of lending itself to statistical estimation and numerical solution."[46] In an ordinary linear programming model, an economy is usually assumed to have a limited number of activities,[47] given a limited number of available resources. The problem is how to allocate the scarce resources optimally[48] among this limited number of activities. Linear programming is one of the most powerful optimizing techniques and hence it is often used to tackle this kind of problem.[49]

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[46] See Robert Dorfman, "Operations Research", Survey of Economic Theory (New York: St. Martin's Press, 1967), Vol. III, pp. 29-74.

[47] Each "choice" variable is assumed to indicate the level of some operation, known as an "activity" or "process."

[48] Optimizing is a catch-call term for maximizing, minimizing or finding a saddle point. See K. Lancaster, Mathematical Economics (New York: The Macmillan Company, 1968), p. 91.

[49] H.B. Chenery and K.S. Kretschmer, "Resource Allocation for Economic Development," Econometrica, October 1956. See also H.B. Chenery and M. Bruno, "Development Alternatives in an Open Economy: the Case of Israel," Economic Journal, March 1962; H.B. Chenery and A. MacEwan, "Optimal Pattern of Growth and Aid: the Case of Pakistan," Pakistan Development Review, Summer 1966, pp. 209-242; M. Bruno, "Optimal Patterns of Trade and Development," Review of Economics and Statistics, November 1967, pp. 545-554; M. Bruno, "A Programming Model for Israel," in I. Adelman and E. Thorbecke (eds.), The Theory and Design of Economic Development (Baltimore: The Johns Hopkins Press, 1966); I. Adelman and F.T. Sparrow, "Experiments with Linear and Piecewise Linear Dynamic Programming Models," in I. Adelman and E. Thorbecke (eds.), The Theory and Design of Economic Development (Baltimore: The Johns Hopkins Press, 1966).

A linear programming model of a standard variety has two parts: (a) the linear objective function; and (b) the linear constraints, which are again subdivided into two parts: (i) the direct constraints, and (ii) the non-negativity constraints.

We "search" for the values of the decision variables that maximize (or minimize, as the case may be) the value of the objective function while satisfying the constraints. It should always be kept in mind that the programming, linear or non-linear, is nothing more than a mathematical technique in the same sense as calculus or any branch of mathematics. Therefore it has no economic content[50]; any problem which is expressible in terms of linear equations and inequalities is capable of being handled by linear programming. It is the responsibility of the economists who want to apply linear programming to be aware of the relevance of the implications of such an application.

Various types of objective functions have been used in formulating the linear programming model for the analysis of foreign aid. A sample of them is given below:

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[50] W.J. Baumol, Economic Theory and Operations Analysis (New Jersey: Prentice-Hall, Inc., Englewood, 1965), p. 70.

A. The Chenery-Bruno Model[51]

Maximize $W = W(C, G, F, K)$ . . . (1)

subject to

1. a) the labour productivity constraints;
   b) the balance-of-payments constraints;
   c) the savings constraint; and
   d) the foreign capital inflow constraint.

2. Non-negativity constraints

where C = Private consumption expenditure

G = Government consumption expenditure

F = Foreign capital inflow

K = Capital stock

W = Welfare variable

B. The Chenery-MacEwan Model[52]

Maximize $W = A + B - C$ . . . (2)

subject to

1. a) the definitional constraints;
   b) the behavioural constraints; and
   c) the policy constraints.

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[51] Chenery and Bruno, op. cit., pp. 79-103.

[52] Chenery and MacEwan, op. cit., pp. 209-242.

2. Non-negativity constraints

where A = Discounted sum of consumption (prior to the terminal year of plan)

B = Discounted sum of consumption (for all post-plan years)

C = Discounted sum of foreign capital inflow

W = Welfare variable

The functions (1) and (2) are called the objective functions. Chenery and Bruno maximized Equation (1) in the case of Israel and Chenery and MacEwan maximized Equation (2) in the case of Pakistan. Both case studies have yielded reasonable results.

In some cases we may choose to minimize the objective function as in the case of the discounted sum of net foreign capital inflows or the average unemployment level.

However, the real problem does not lie so much in picking up an objective function consistent with a development policy as in combining the various objectives of a plan (often these are conflicting) into a single objective function in order to maximize or minimize it, as the case may be. More fundamental than this is the problem

of distinguishing an objective from a constraint. As a matter of fact, these are essentially indistinguishable and we only separate them to suit our purpose. Dorfman confesses, "In principle, I suppose it [distinguishing one from the other] cannot be done."[53] Despite this limitation, linear programming models have been built up on the assumption that the objective function is separable from the constraint, and have been used with some usefulness.

We shall discuss Chenery and Bruno's graphical representation of their linear programming model which has been used in the case of Israel.

The horizontal axis of Figure 3.2 represents the G.N.P. (V) and the vertical axis represents Foreign Capital Inflow (F). In search of feasible solutions, it is often the standard practice of the linear programmer to impose upper and/or lower bounds on the optimal values of the decision variables.

Each of the four structural constraints--labour productivity (ℓ) constraint, savings (s) constraint, balance of payments (E) constraint and foreign capital inflow (F) constraint--is assumed to have an upper limit

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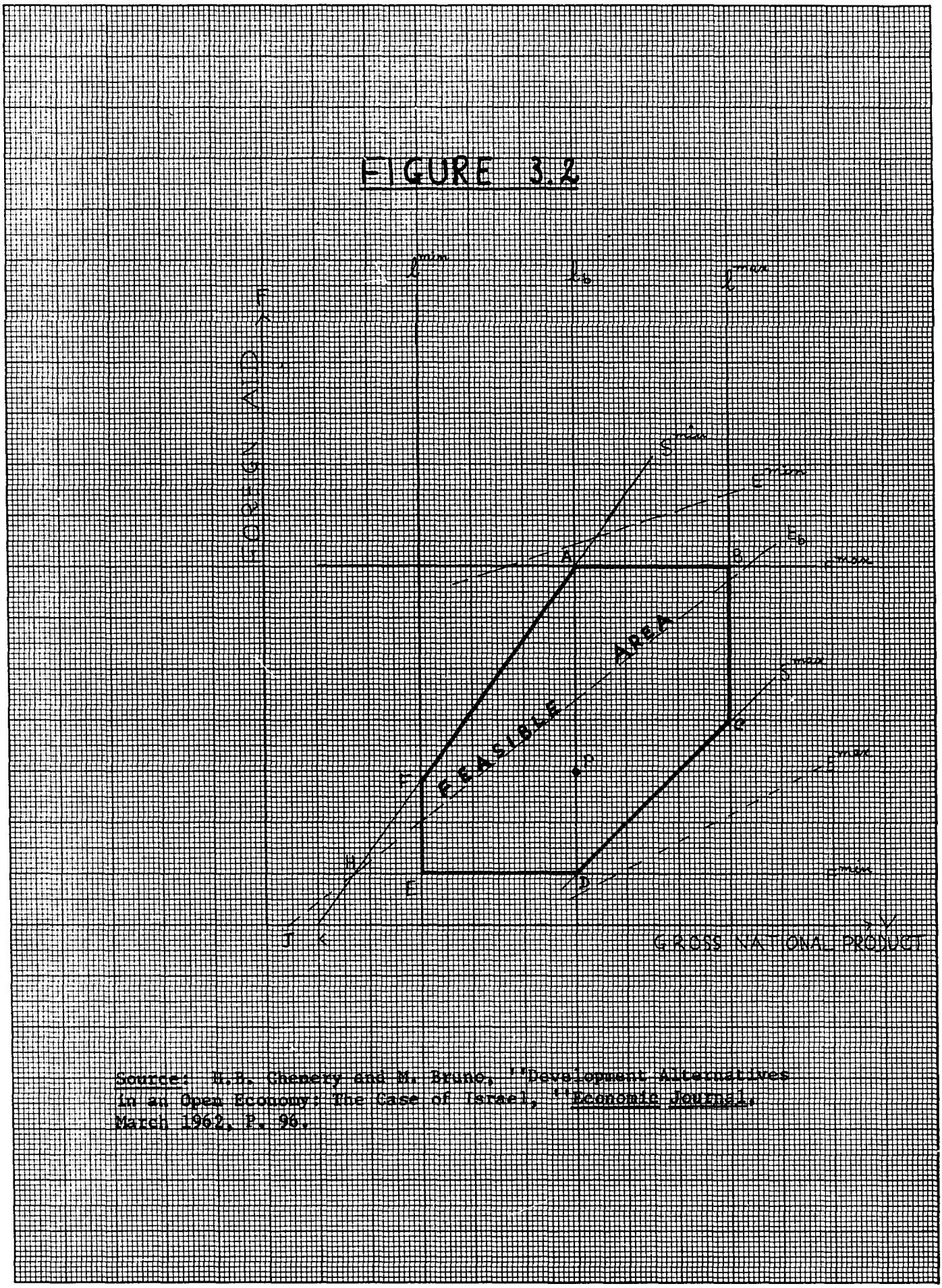
[53] Dorfman, op. cit., p. 61.

FIGURE 3.2



Source: H.B. Chenery and M. Bruno, "Development Alternatives in an Open Economy: The Case of Israel," Economic Journal, March 1962, P. 96.

and a lower limit.[54] These four linear constraints with their upper and lower limits give the shaded closed feasible set ABCDEF[55] (see Figure 3.2). The points A, B, C, D, E and F are the extreme points (or corners); none of these points lies on any line joining two points within the feasible set and every other boundary point is on a line joining the extreme points and every interior point is on a line joining boundary points. Once the feasible set is obtained, the optimal solution[56] is obtained as follows: the objective function is evaluated at each of the above six extreme points and then the optimal one is chosen, i.e.,

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[54] The following notations are used to indicate the lower and upper limit: the superscripts "min" and "max" represent minimum and maximum level respectively and the subscript "b" represents the average or intermediate level. Viz.: F^{max} implies maximum F level; ℓ_b represents average labour productivity level, S^{min} indicates minimum savings level, etc.

[55] ABCDEF is called a closed feasible set because every point such as P which lies within or on its boundary represents a combination of values which does not violate the constraints, i.e., any such combination lies within the attainable capacity of the economy.

[56] Any point on or within a feasible region ABCDEF is a feasible solution. Any feasible solution is a basic solution if the point occurs at a corner; and any basic solution is an optimal solution if it maximizes (or minimizes, as the case may be) the objective function subject to the set of linear constraints, provided it is a "non-degenerate" case. "Degeneracy" occurs when more than two constraints pass through any of the six corners--more generally, if more than n-constraint hyperplanes coincide at a point in the n-ordinary variable case. In a degenerate case, the problem becomes complicated. See any standard textbook on linear programming, preferably R. Dorfman, P.A. Samuelson and R.M. Solow, Linear Programming and Economic Analysis (New York: McGraw-Hill Book Company, 1958).

an optimal solution occurs at any corner of the feasible set ABCDEF.

Suppose the economy starts at point J where no foreign aid is available. If the export level is maintained constant at an average level (i.e., if the economy moves along the path E_b) and if foreign aid is allowed to flow in, the point (H)--an intersection of F^{min} and S^{min} -- is hit. After this point, the savings constraint is dominant. It is quite evident from the Figure that the economy would require more foreign aid if it follows the minimum savings path (S^{min}) than if it follows the average export path (E_b) to maintain the same level of G.N.P.

As the economy hits A, it arrives at the stage of maximum attainable G.N.P. with the minimum possible savings (S^{min}), the maximum possible foreign capital inflow (F^{max}) and the average level of productivity (ℓ_b). The boundary ABC shows the <u>effect</u> on the G.N.P. (V) of a shift in savings from their minimum path (S^{min}) to their maximum path (S^{max}). It is clear from the Figure that as the economy meets B, the labour productivity reaches its maximum (ℓ^{max}) and no further increase in G.N.P. is possible. Any increase in savings beyond B would have the effect of reducing F for the same level of G.N.P.

As the economy hits C,"the process stops" because

this is the maximum savings boundary (S^{max}). Under different hypotheses as to the properties of the social welfare function, the optimum solution lies between B and C for the "optimistic productivity assumption" or between A and D for the "intermediate assumption."[57]

C. Critique

Although the linear programming approach has an irresistible charm of its own in the operational sense, some of its shaky assumptions betray its elegance. The weakest point in the linear programming model is its "linearity." The linearity assumption in the production function of the Leontief variety is often made in the linear programming model. This assumption not only rules out the possibility of substitution between alternative factors of production, but eliminates the external and internal economies of scale so fundamental in the development process.

Again, in the linear programming model price level is assumed to be constant over the entire range of production. This assumption implies that no changes in the "marginal and social utility of various products" take place.[58] But this is a very unrealistic assumption in the development context.

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[57] Chenery and Bruno, op. cit., pp. 95-96.

[58] Adelman and Sparrow, op. cit., p. 309.

Another significant limitation of the ordinary linear programming model is the assumption that there is no uncertainty element.[59] But it may be recalled that both the scale and continuity of foreign aid are essentially functions of non-economic factors which, by their nature, involve uncertainty.

As already mentioned, the distinction between an objective function and a constraint is arbitrary. And it is often argued that the optimal strategy of an economy is highly sensitive to the nature of the arbitrary assumptions of the objective functions. The Sparrow-Adelman study confirms this. They have found that "both the nature of the goals the economy is assumed to pursue and the shape of the objective function postulated exert significant influences upon the optimal results."[60]

It is suggested that extreme care has to be taken in considering the assumptions relating to the objective function before the application of the linear programming technique.

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[59] Stochastic linear programming has emerged to tackle the problem of uncertainty and risk.

[60] Adelman and Sparrow, op. cit., p. 312.

The Econometric Version

The first econometric study of foreign aid and economic development has been done by H.B. Chenery and I. Adelman.[61] The study is an econometric analysis of (1) the effects of aid on growth, and (2) the policy problems presented by dependence on external assistance in Greece. Their model consists of 29 equations in 33 variables and applied ordinary least squares, two stage least squares and limited information methods for estimation with a sample size of 11. Their model consists of a set of disaggregated functions in the following sectors: (1) consumption by households and government; (2) private and public gross capital formation; (3) imports of goods and services; and (4) exports of goods and services. They claim that the "main virtue" of this econometric model lies in its ability to make "consistent" projections of the various performances of assumptions. It is not clear how Chenery and Adelman have tackled the traditional "culprits" in econometric analysis: "multicollinearity" and "serial correlation". They seem to have assumed that the Durbin-Watson statistic is the infallible detector of serial correlation. Recent studies show that the Durbin-Watson

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[61] H.B. Chenery and Irma Adelman, "Foreign Aid and Economic Development: The Case of Greece," Review of Economics and Statistics, February 1966, pp. 1-19.

statistic in some circumstances is "useless".[62]

In Equation (7) of the Chenery-Adelman model, gross domestic investment in non-residential and other constructions (I_c) has appeared as a dependent variable and its lagged I_{c-1} has also appeared in the same equation as an explanatory variable.[63] Chenery and Adelman have obtained d (Durbin-Watson statistic) = 2.44, implying the absence of serial correlation. It has been shown that when lagged endogenous variables are included in an equation estimated by ordinary least squares, the Durbin-Watson statistic is asymptotically biased towards 2.[64]

Again, the Chenery-Adelman model does not incorporate population and labour supply explicitly. This is an unfortunate limitation of the model. In constructing an econometric model for a developing economy, Klein suggests, "there must be an explicit set of equations on population and labour supply. These may be complicated

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[62] See L.D. Taylor and T.A. Wilson, "Three Pass Least Squares: A Method of Estimating Models with Lagged Dependent Variables," Review of Economics and Statistics, November 1964, pp. 329-346; K.F. Wallis, "Lagged Dependent Variables and Serially Correlated Errors: a Reappraisal of the Three Pass Least Squares," Review of Economics and Statistics, November 1967, pp. 555-567.

[63] Chenery and Adelman, op. cit., p. 6.

[64] M. Nerlove and K.F. Wallis, "Use of the Durbin-Watson Statistic in Inappropriate Situations," Econometrica, January 1966, p. 235.

and difficult to construct but they are essential."[65] (Underlining added.)

Very recently Adelman and Morris have made an econometric investigation into the socio-economic and political changes in the underdeveloped countries.[66] Their model consists of 14 equations in 19 unknowns with a sample size of 6. By evaluating multipliers of the 19 variables in 74 underdeveloped countries, they have found that of 19 variables, 10 are quantitatively significant in determining the development prospects of the less developed countries. Out of these ten variables, six are non-economic: (i) modernization of outlook; (ii) decrease in dualism; (iii) increase in the size of the indigenous middle class; (iv) (a) levels of secondary and higher education, (b) literacy; (v) social mobility; and (vi) the extent of leadership commitment to economic development.

At the very least, the Adelman-Morris study gives some useful insights regarding the frequently-suggested hypothesis that economic development does not depend on

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[65] L.R. Klein, "What Kind of Macroeconometric Model for Developing Economies?", Econometric Annual of the Indian Economic Journal, Vol. 13, No. (3), 1965, p. 324.

[66] I. Adelman and C.T. Morris, "An Econometric Study of Socio-Economic and Political Change in Underdeveloped Countries," American Economic Review, December 1968, pp. 1185-1218. For discussions on this study, see also American Economic Review, Papers and Proceedings, May 1969, pp. 427-434.

economic forces alone. Adelman and Morris state:

> The model suggests that . . . the creation of a stable political environment, the transformation of attitudes in a direction favourable to modernization and a fundamental change in the power elite are the forces which, in combination, are most likely to produce more effective national efforts to achieve economic progress.[67]

It remains to be seen how useful the Adelman-Morris model would be if it were to include foreign aid as an explanatory variable.

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[67] Ibid., pp. 1191-1192.

The Cobb-Douglas Version

No formal foreign aid model of this version has yet emerged. Some fragmentary meaningful hints are available.[68] It has been suggested that a production function of the Cobb-Douglas type incorporating foreign capital inflow as a "separate input" may yield a meaningful measure of marginal contribution of foreign aid in a developing economy.

This approach is, however, operational, provided "the assumptions underlying the production function are tolerable."[69] The two fundamental assumptions underlying the Cobb-Douglas production function are: (i) constant returns to scale, i.e., linear homogeneous production function, and (ii) unit elasticity of substitution. It is doubtful whether these two assumptions could be maintained strictly in any realistic analysis.[70]

Here we shall suggest that the CES production function may do a better job where the Cobb-Douglas function

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[68] Chenery and Strout, op. cit., p. 685. See also I. Brecher and S.A. Abbas, Foreign Aid and Industrial Development in Pakistan (Montreal: Centre for Developing Area Studies, December 1968). (Mimeographed.)

[69] Brecher and Abbas, op. cit., p. 37.

[70] Klein comments: "For Indian manufacturing corporations, a Cobb-Douglas production function seems to fit the data well. It is less obvious that an aggregative production function covering the whole economy . . . will fit as well, showing significant effects of both labour and capital." Klein, op. cit., p. 324.

is assumed to be meaningful in analyzing the contribution of foreign capital, as a separate input, to economic development.

Let V = Output

K_d = Domestic capital

K_f = Foreign capital

and labour is assumed to be a free good. These two inputs, K_d and K_f, are assumed to be adequate to produce a good. These variables are measured in index terms with a common base period. Then the CES production function is given by

$$V = \gamma \left[\delta K_d^{-\alpha} + (1-\delta) K_f^{-\alpha} \right]^{-\frac{\nu}{\alpha}}$$

where parameters are the following:

γ = Scale parameter indicating the efficiency of technology

δ = Input-intensity parameter, which is defined in the interval $0 \leq \delta < 1$

σ = Elasticity of substitution of K_f for K_d

$$= \frac{\frac{du}{u}}{\frac{dR}{R}} \quad \text{where} \quad u = \frac{K_d}{K_f} \quad R = \frac{\frac{\partial V}{\partial K_d}}{\frac{\partial V}{\partial K_f}}$$

$$= \frac{1}{1+\alpha}$$

ν = Homogeneity parameter

It is interesting to note that both the CES production function and the Cobb-Douglas production function (and also the Leontief production function) assume constant elasticity of substitution. The only difference lies in the value of that constant, viz.:

(i)	for the Cobb-Douglas production function	$\sigma = 1$
(ii)	for the Leontief production function	$\sigma = 0$
(iii)	for the CES production function	$\sigma =$ Any constant value

However, there are four limitations of the empirical application of the CES production function: (i) the CES production function is not easily amenable to data for fitting purposes; (ii) the homogeneity parameter (v) is difficult to interpret because two forces--economies of scale given a fixed technology, or technological change, given a fixed scale of operation--may affect v such that the two forces become inseparable.[71] In the Cobb-Douglas production function the situation is more unmanageable; (iii) elasticity of substitution between K_d and K_f is, by assumption, invariant with respect to the relative factor inputs; and (iv) it is difficult to generalize to n-factors.[72]

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[71] Murray Brown, On the Theory and Measurement of Technological Change (Cambridge: Cambridge University Press, 1966), p. 60.

[72] Some attempts have been made to generalize it. See H. Uzawa, "Production Functions with Constant Elasticities of Substitution," Review of Economic Studies, October 1962, pp. 291-299.

The Arrow-Chenery-Minhas-Solow[73] CES production function is homogeneous of degree one, i.e., it assumes constant returns to scale, and so does the Cobb-Douglas production function. But right from Smith and Ricardo down to the modern economists, everyone has recognized the existence of increasing and decreasing returns to scale along with constant returns to scale. Brown and Popkin[74] and A. A. Walters[75] have attempted to modify the production function in order to incorporate all three returns to scale.

The best comparison between the CES and the Cobb-Douglas production functions may be summed up in the words of Murray Brown: "The use of the CES production function . . . is more general than that obtained by using the Cobb-Douglas function, for it can represent all technological characteristics of the Cobb-Douglas as well as measure the change in the elasticity of substitution--something that the Cobb-Douglas cannot do. The cost of its generality is the burden of fitting it."[76] (Underlining added.)

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[73] K. Arrow, H.B. Chenery, B. Minhas and R. Solow, "Capital-Labour Substitution and Economic Efficiency," Review of Economics and Statistics, August 1961, pp. 225-250.

[74] M. Brown and J. Popkin, "A Measure of Technological Change and Returns to Scale," Review of Economics and Statistics, Vol. XLIV, 1962, pp. 402-411.

[75] A.A. Walters, "A Note on Economies of Scale," Review of Economics and Statistics, Vol. XLV, 1963, pp. 425-427.

[76] Murray Brown, op. cit., p. 140. See also Richard R. Nelson, The CES Production Function and Economic Growth Projections (Santa Monica, California: The Rand Corporation, July 1964).

The above review of the selected foreign aid models throws much light on the various implications of the current treatment of the two-gap analysis. It will be recalled that while Rosenstein-Rodan, and Fei and Paauw discussed only the savings gap model, McKinnon stressed mainly the export-import gap. It was in the hands of Chenery and Strout that both the gaps--the savings gap and the export-import gap--received a fairly comprehensive treatment. Chenery and Strout suggest that when a growth is constrained by a bottleneck, there is under-utilization of some factors. For example, if foreign exchange is a binding constraint, unless the bottleneck is broken, potential savings and possibly skill will go unutilized. Chenery and Strout show that aid helps remove the constraint and makes fuller utilization of all resources possible. The dominant gap, therefore, must be filled if the target growth rate is to be reached; the evidence suggests that in most of the developing countries the export-import gap dominates the savings gap.[77] McKinnon, and Chenery and Strout have pointed out that foreign aid seems to be more effective when the export-import gap, rather than the savings gap, is a binding constraint on economic growth.

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[77] United Nations, Report by the Secretary General of the United Nations Conference on Trade and Development (U.N.C.T.A.D.), Trade Prospects and Capital Needs of Developing Countries, (New York, 1967), TD/34/Supp. 1/ Add1. 1, Annex IV, pp. 1-43.

The economy of Pakistan, with a substantially over-valued exchange rate, stringent exchange control and high excess capacity in manufacturing industries,[78] has long been facing the export-import gap as a binding constraint. In the next chapter we shall discuss how this problem has been tackled so far and in Chapter 7 we shall formulate strategy to bridge the export-import gap in the future.

At this point it is interesting to note that recently some economists have cast serious doubt on the very validity of using the "two-gap" model of the Chenery-Strout variety.[79] Perhaps the best way out of this dilemma can be found in the words of Chenery himself:

> Although the two gap disequilibrium seems in theory to be no more inevitable than Keynesian unemployment, it remains to be seen whether economists will have greater success in helping governments to avoid it. Up to now the record is not impressive. My own guess is that the exchange rate alone will prove as inadequate as the interest rate has been in the Keynesian situation, and that more comprehensive policy packages will be needed to secure the needed redirection of resources. Until this triumph of economic science takes place, there will be some use for two-gap thinking.[80] (Underlining added.)

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[78] Islam's study reveals that the majority of industries in Pakistan are working "below 40 per cent of their installed capacity." See N. Islam, "Comparative Costs, Factor Proportions and Industrial Efficiency in Pakistan," Pakistan Development Review, Summer 1967, p. 230.

[79] Ranis and Fei, op. cit.; see also Bruton, op. cit.

[80] H.B. Chenery, "The Two-Gap Approach to Aid and Development: A Reply to Bruton," American Economic Review, June 1969, pp. 446-449.

PART II: POLICY IMPLICATIONS FOR PAKISTAN

Chapter 4

A SURVEY OF BALANCE-OF-PAYMENTS PROBLEMS IN PAKISTAN

Introduction

On August 14, 1947, the British-occupied India was liberated and divided into two sovereign states--Pakistan and India. The former consists of two provinces--East and West Pakistan--separated from each other by over one thousand miles of Indian territory. The Partition of the British-held Indian subcontinent was preceded, accompanied and followed by widespread bloody communal riots with consequent heavy damage to life and property. The mass influx of refugees from India posed a huge task of rehabilitation and the large exodus of non-Muslims from Pakistan drained most of the available technical and professional manpower creating an acute shortage of skilled labour.[1] Wilcox rightly points out: "The creation of Pakistan implied not only the drawing of administrative lines but also the largest population transfer in modern history . . . . Somehow, six and a half million people

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[1] G.F. Papanek, Pakistan's Development: Social Goals and Private Incentives (Cambridge: Harvard University Press, 1967), Chapter 1. See also T.M. Khan, "Pakistan's Experience of a Decade of Planning," Planning in Pakistan, Review by a Panel of Economists (Karachi: Government of Pakistan, 1965), p. 42.

arrived and subsisted in their new territory."[2] Pakistan, as a developing country, shares the usual fate of such countries--a balance-of-payments problem.[3] Pakistan's balance-of-payments problem has been one of chronic deficit on current account.[4] A deficit on current account is financed by private capital inflow or by borrowing abroad or by foreign aid. The "residual" deficit or surplus is reflected in movements of the country's gold and foreign exchange reserves. One of the basic problems in tackling the balance-of-payments pressure lies in avoiding the running down of gold and foreign exchange reserves to such an extent as to undermine national and international "confidence", and yet the government must pursue a policy of attaining a socially-acceptable growth rate. It is quite evident from the plans and other government documents of Pakistan that the policy-makers are constantly struggling

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[2] W.A. Wilcox, Pakistan, the Consolidation of a Nation (New York: Columbia University Press, paperback ed., 1966), pp. 53 and 55. For political background of Pakistan, see also J.B. Das Gupta, Indo-Pakistan Relations, 1947-1955 (Amsterdam, Djambatan, 1958); C.R. Attlee, As It Happened (London: W. Heinemann, 1954); Winston Churchill, "The Hinge of Fate," Vol. IV of The Second World War (Boston: Houghton Mifflin, 1950).

[3] For the definition and concept of the term "balance of payments", see Chapter 2.

[4] This deficit is an accounting balance-of-payments deficit. The distinction between an accounting balance of payments and a market, or programme, balance of payments should always be kept in mind.

with the problem of persistent deficit in the balance of payments.

Table 4.1 shows an "unbroken" record of Pakistan's balance-of-payments deficit on current account since 1951-52. The purpose of this chapter is to make a survey of balance-of-payments problems in Pakistan with special reference to the role of foreign aid.

For convenience, we distinguish between the following phases of the country's economic development: (i) the Pre-Plan period, 1948-1954; (ii) the First Plan period, 1955-1960; (iii) the Second Plan period, 1960-1965; and (iv) the Third Plan period, 1965-1970.

The Pre-Plan Period[5]

The "Partition" distorted the economic structures of both India and Pakistan.[6] In the undivided India, East Bengal (now East Pakistan) was, for example, a raw-materials supplier to West Bengal (now a province of India) where all the jute-factories and other factories were located. The immediate effect of the Partition was that it paralyzed

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[5] Unless otherwise noted, all the figures in this chapter are from the various issues of the Statistical Bulletin (Government of Pakistan, Central Statistical Office).

[6] G. Myrdal, Asian Drama: An Enquiry into the Poverty of Nations (Vols. I-III; New York: Twentieth Century Fund, 1968), Vol. I, Chap. 8, p. 305.

TABLE 4.1

PAKISTAN'S BALANCE-OF-PAYMENTS DEFICIT/SURPLUS ON CURRENT ACCOUNT a/
1947-1969

(Millions of Rupees/Current Prices)

YEAR (July-June)	EXPORTS (X)	IMPORTS (M)	DEFICIT/SURPLUS (-)	(+)	EXPORTS AS A % OF IMPORTS
1947-48	717	269	(+)	448	267
1948-49	1870	1487	(+)	383	126
1949-50	949	1284	(-)	335	74
1950-51	2554	1620	(+)	934	157
1951-52	2368	2789	(-)	421	85
1952-53	1490	2032	(-)	542	73
1953-54	1396	1594	(-)	198	88
1954-55	1318	1357	(-)	39	97
1955-56	2047	2067	(-)	20	99
1956-57	1883	2890	(-)	1007	65
1957-58	1672	3244	(-)	3572	51
1958-59	1787	2453	(-)	666	73
1959-60	2128	3038	(-)	910	70
1960-61	2286	3859	(-)	1573	59
1961-62	2384	4059	(-)	1675	58
1962-63	2748	4295	(-)	1547	64
1963-64	2785	5933	(-)	3148	47
1964-65	3015	6543	(-)	3528	46
1965-66	3394	6112	(-)	2718	56
1966-67	3580	7423	(-)	3843	48
1967-68	3750	7550	(-)	3800	50
1968-69	4150	8320	(-)	4170	49

a/ Export-import figures include private unilateral transfers and donations; Imports Data include Indus Basin Aid and PL-480 Aid since 1960-61.

Source: Derived from Appendix A, Table 1.

virtually all factories in West Bengal and damaged the largest raw-materials market for Pakistan because of the strained political relationship over a number of issues such as the Kashmir problem, the Hydrabad-Junagarh-Manavadar problem, the Refugee Property problem, the Canal Waters problem. In effect Pakistan was more severely affected because the relatively advanced regions were allocated to India.

Table 4.2 shows that gold, dollar and sterling reserves (henceforth "reserves") held on June 30, 1948 totalled only Rs. 518 million; by June 30, 1949 they had risen to Rs. 1.7 billion. During July 1949-June 1950, the balance of payments registered a deficit of Rs. 335 million.[7] The "reserves" fell to Rs. 958 million indicating a decrease of Rs. 697 million. The deficit was, however, partly offset by the surplus with India under the special Indo-Pakistan Payments Agreements.[8] A substantial part of the surplus still remains blocked because of strained political relationships.

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[7] See Table 4.1.

[8] Shortly after the "Partition", Pakistan and India came to an agreement to buy and sell each other's currency freely with the help of the Bank of England. This agreement was reached because bank-notes of both countries were circulating freely and no records of movements in the accounts of Pakistani residents with banks in India and vice versa were maintained; there was no exchange control between the two countries. For detailed discussion, see J.R. Andrus and A.F. Mohammed, Trade, Finance and Development in Pakistan (Stanford: Stanford University Press, 1966), p. 55.

TABLE 4.2

GOLD, DOLLAR AND STERLING RESERVES (RESERVES) HELD AND CONTROLLED BY THE STATE BANK OF PAKISTAN (IN MILLION RUPEES)

YEAR	MONTH	DATE	RESERVES	CHANGE IN RESERVES [a]	
1948	JUNE	30	518	. . .	
1949	JUNE	30	1655	(-) 1137	
1950	JUNE	30	958	(+) 697	
1951	JUNE	30	1513	(-) 555	
1952	JUNE	30	1046	(+) 467	
1953	JUNE	30	669	(+) 377	
1954	JUNE	30	631	(+) 38	
1955	JUNE	30	696	(-) 65	
1956	JUNE	30	1395	(-) 699	(-371) [b]
1957	JUNE	30	1200	(+) 195	
1958	JUNE	30	881	(+) 319	
1959	JUNE	30	1043	(-) 162	
1960	JUNE	30	1169	(-) 126	
1961	JUNE	30	1225	(-) 56	
1962	JUNE	30	1128	(+) 97	
1963	JUNE	30	1436	(-) 308	
1964	JUNE	30	1235	(+) 201	
1965	JUNE	30	952	(+) 283	
1966	JUNE	30	1263	(-) 311	
1967	JUNE	30	793	(+) 470	
1968	MARCH	31	816	(-) 23	

a/ (-) indicates increase and (+) decrease in Gold, Dollar and Sterling Reserves.

b/ Figures in brackets take account of the 1955-devaluation effect.

Source: Calculated from Government of Pakistan, Ministry of Finance, Pakistan Economic Survey, 1967-68.

Two interesting features of the Pre-Plan period were: (1) the heavy dependence of Pakistan's foreign exchange earnings on a single commodity, jute, to a single country, India; and (2) the historic decision not to devalue Pakistan's rupee in September 1949 when the pound sterling was devalued. These two features are interesting in the sense that they explain greatly the subsequent development of the balance-of-payments position during the Pre-Plan period.

After the pound sterling was devalued in September 1949, India followed suit with a 30.5% devaluation. To the surprise of many people, Pakistan did not. Arguments in favour of this historic decision may be put forward along several lines: (1) During 1948-49, Pakistan's reserves showed an increase of Rs. 1.1 billion[9], which might have instilled confidence in the decision-making body to take such a bold stand. (2) In the judgment of the planners, any significant improvement through devaluation or any major deterioration without devaluation was perhaps considered unlikely.[10] (3) The domestic price level was expected

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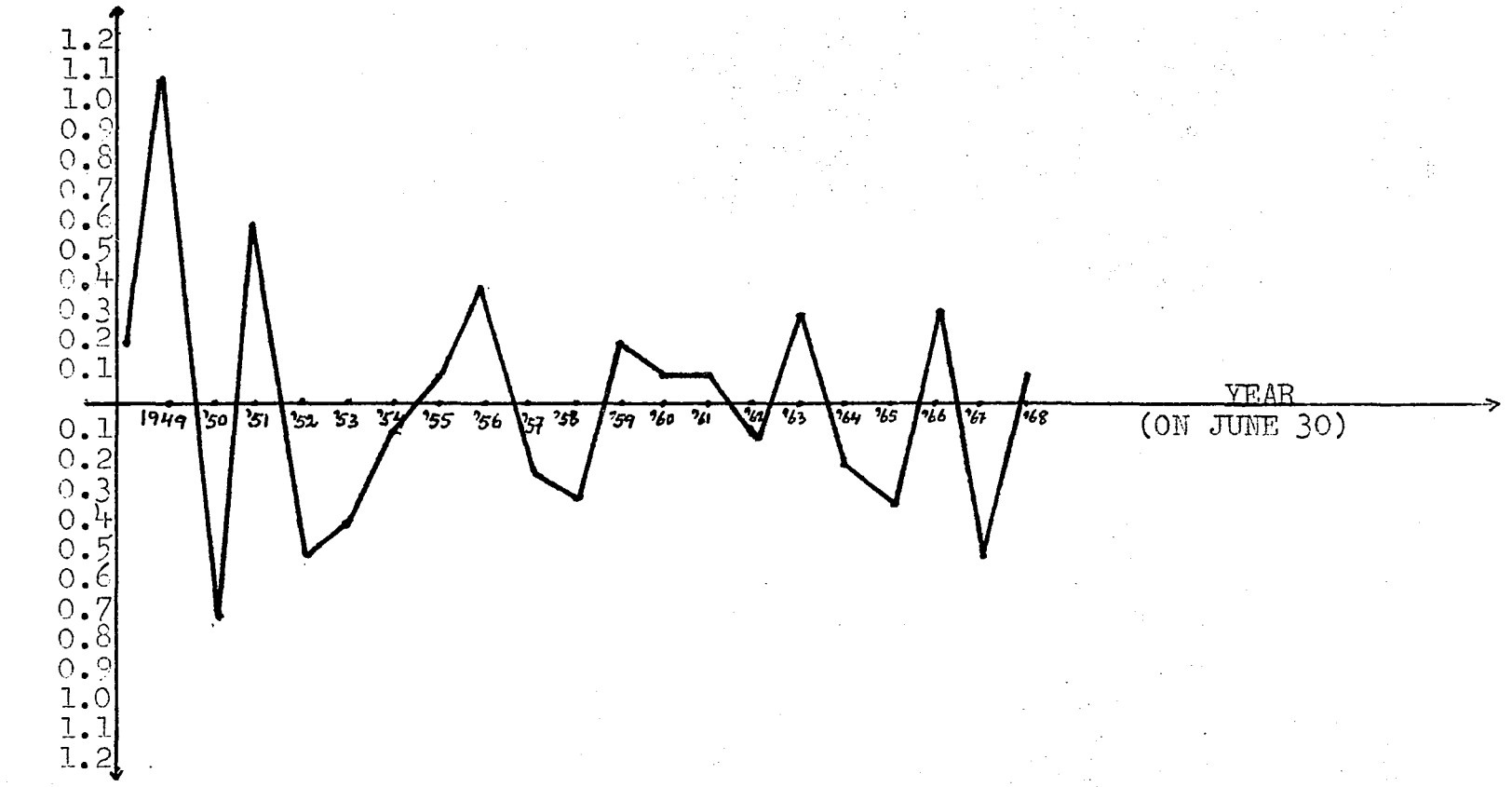
[9] See Figure 4.1.

[10] One of the standard methods for working out the possibility of achieving significant improvement in the balance-of-payments position of any economy through devaluation is to find out whether the sum of the elasticities of domestic demand for imports and external demand for its exports exceeds unity. If it does not, there is hardly a chance for improvement through devaluation. For an excellent review of this "test", see G. Harberler, A Survey of International Trade Theory (Princeton, 1961).

FIGURE 4.1

FLUCTUATIONS OF GOLD, DOLLAR AND STERLING RESERVES HELD AND CONTROLLED BY THE STATE BANK OF PAKISTAN



Source: Based on Table 4.2.

to show a declining trend along with import costs.

The consequences of non-devaluation were far-reaching. India reacted sharply; she refused to accept the new exchange rate with Pakistan and, as a measure against this policy, she promptly initiated a self-sufficiency drive in the production of raw jute and issued an ordinance fixing maximum prices (in terms of Indian rupees) for raw jute, which were deliberately set at lower levels than jute prices in Pakistan. Indian jute-buyers were thereby driven away from the Pakistani market. This led Pakistan to support the jute-growers by setting minimum prices for the jute at 25% below the pre-devaluation level. Nevertheless, jute exports to India experienced a sharp and lasting decline. Table 4.1 shows that export earnings dropped from Rs. 1870 million in 1948-49 to Rs. 949 million in 1949-50, registering a sharp decline.

A. The Korean Boom

Some economists argue that since India would have started its "self-sufficiency" drive in raw jute anyway, there is no reason to blame the "non-devaluation" decision.[11] But this is not entirely true. It can hardly

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[11] See Parvez Hasan, "Balance of Payments Problems of Pakistan," Pakistan Development Review, Vol. I, No. 2.

be denied that Pakistan's "decision" forced India to work hard to eliminate her dependency on Pakistan. It seems doubtful whether India would have really started this "drive" at all or at least so early.

Indian measures dealt a severe blow to the jute-growers and the jute-businessmen of East Pakistan. The jute exports to India dropped from 4133 thousands of bales in 1948-49 to 1654 thousands of bales in the following fiscal year and by 1958-59 it stood at only 170 thousands of bales. Within a decade, Pakistan lost her biggest market for raw jute because of the wrong decision of the policy-makers.

At a time when India's "self-sufficiency" drive in raw jute production brought a sense of pessimism and frustration to Pakistan's planners, the Korean War came, in this sense, as a blessing in disguise. Pakistan's balance of payments started to regain its strength. The balance-of-payments surplus on current account registered an all-time record level of Rs. 934 million in 1950-51.[12] Under the stimulus of incomes swollen by the Korean Boom, imports nearly doubled (Rs. 2789 million) in 1951-52 from an average level of Rs. 1400 million during the past three years. It is interesting to note that nearly 69% of the import payments

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[12] See Table 4.1.

was made for non-developmental imports.[13] This appears to be a rather unwise utilization of precious foreign exchange earnings. However, given the fact that the development planning of Pakistan was in its embryonic stage, the situation was not unexpected. While imports doubled in 1951-52, export earnings slightly declined from the 1950-51 level and as a result a deficit of Rs. 421 million emerged. In the next year, while the imports level remained relatively stable, export earnings declined by nearly 40% and the deficit grew larger (Rs. 542 million).[14] Strangely enough, the non-development imports still contributed roughly 66% of the total imports.[15]

In 1949, the introduction of the Open General License (O.G.L.) Scheme substantially liberalized import policy. The O.G.L. was twice amended (February and July) in 1951 for further liberalization; one of the most significant additions under the O.G.L. was cotton textiles of the value of less than Rs. 1.50 per yard.

Doubts developed in the minds of businessmen as to the possibility of a continuing liberal import policy and consequently a significant portion of imports (during 1951-52)

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[13] See Appendix A, Table 5. See also M. Habibullah, "Export Promotion in Relation to Pakistan's Balance of Payments Difficulties," Pakistan Economic Journal, June 1961, p. 39.

[14] See Table 4.1.

[15] See Appendix A, Table 5.

went into the "building up of stocks." The drain on reserves became quite heavy during July 1951-June 1952 and the O.G.L. was drastically curtailed. In November 1952, the O.G.L. was totally abolished.

The economy was, so to speak, in a trance during the Korean Boom. But soon the dream was over. By 1953-54, exports earnings had declined by about 43% from their 1950-51 level.[16] Reserves began running down and reached an all-time low-level in 1954 (Rs. 631 million).[17] This was not even sufficient to cover three months of import payment at current prices. Confidence started eroding; further running down of reserves was considered undesirable. Steps were taken to ensure that no further depletion would take place, that is, to bring foreign exchange expenditures into line with estimated earnings. Import restrictions were increased, and this in turn gave a tremendous boost to the cotton textile industry during the period 1953-54.

B. Other Developments

Two other major developments during the Pre-Plan period that deserve attention are: (1) a sharp fall in export earnings; and (2) a serious food shortage due to

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[16] See Table 4.1.

[17] See Table 4.2.

harvest failure. The decline in export prices resulted mainly from falling prices. In 1952-53, the harvest failure aggravated the already precarious position of the balance of payments. Large food-grain imports (over Rs. 458 million) followed and 56% of these import payments had to be met from domestic resources.

These unforeseen developments forced a drastic cut in imports. There would have been serious adverse effects had there not been a large expansion in domestic consumer goods production during 1953-54 and 1954-55.

The First Plan

Failure to devalue with England and India in 1949 resulted subsequently in a substantial over-valuation of currency.[18] As a result, domestic prices of manufactured goods were higher than the free international trade prices. Export earnings were increasingly becoming inadequate to meet growing import requirements. On August 1, 1955 Pakistan devalued its currency by 30.5% to meet the balance-of-payments crisis.

The devaluation showed initial favourable results. Export earnings increased by nearly 10% in terms of foreign

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[18] According to some calculations, the over-valuation of the rupee reached nearly 33 per cent.

currencies during 1955-56 as compared with the previous year. But the effectiveness of the devaluation was short-lived. While the export-import gap virtually disappeared during 1955-56, once again a serious food shortage brought it back, causing a severe strain on the balance of payments.

A careful look at the period from mid-1956 to mid-1958 reveals that Pakistan's balance of payments was passing through a very crucial phase. "Monetary imbalance" appears to have been one of the major causes of strain on the balance of payments.[19] The deficit financing contributed heavily to the "imbalance" by producing a 35% expansion in the money-supply over those years.[20] The consequences were quite severe. Industrial expansion, as reflected by the manufacturing production index, showed a very striking contrast between 1952-55 and 1955-58: in the former period production doubled while in the latter it rose by only 30%. Agricultural production remained more or less constant. As a consequence, an inflationary situation emerged; this led, in turn, to a sharp decline in export earnings between 1955-56 and 1957-58.

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[19] In this connection, see S.R. Lewis, "Implicit Exchange Rates, Relative Prices and the Efficiency of Industrial Growth in Pakistan," C.D.E. William College, August 1966. (Mimeographed.)

[20] R. Soligo, Monetary Problems of Pakistan, Center Paper No. 111 (Yale University Economic Growth Center, 1967), p. 639.

A. Import Substitution

It is ironic that import substitution gave so much strength to the balance of payments in 1952-55 and yet turned out to be a threat to the payments position in 1955-58. The latter result came from the aggravation of internal inflationary pressure. The terms of trade played a strong negative role. This is shown in Figure 4.2. The terms of trade steadily deteriorated from 1950-51 to 1959-60 with the solitary exception of the year 1954-55, in which period the effect of devaluation improved the situation slightly.[21]

Devaluation in 1955 does not seem to have been a significant factor in the deterioration of the terms of trade, for the reduction in export prices was not sharp as compared with the rise in import prices. But it is to be kept in mind that unless appropriate weights are given to "structural" changes in exports and imports, no meaningful conclusion can be drawn as to the balance-of-payments position.[22]

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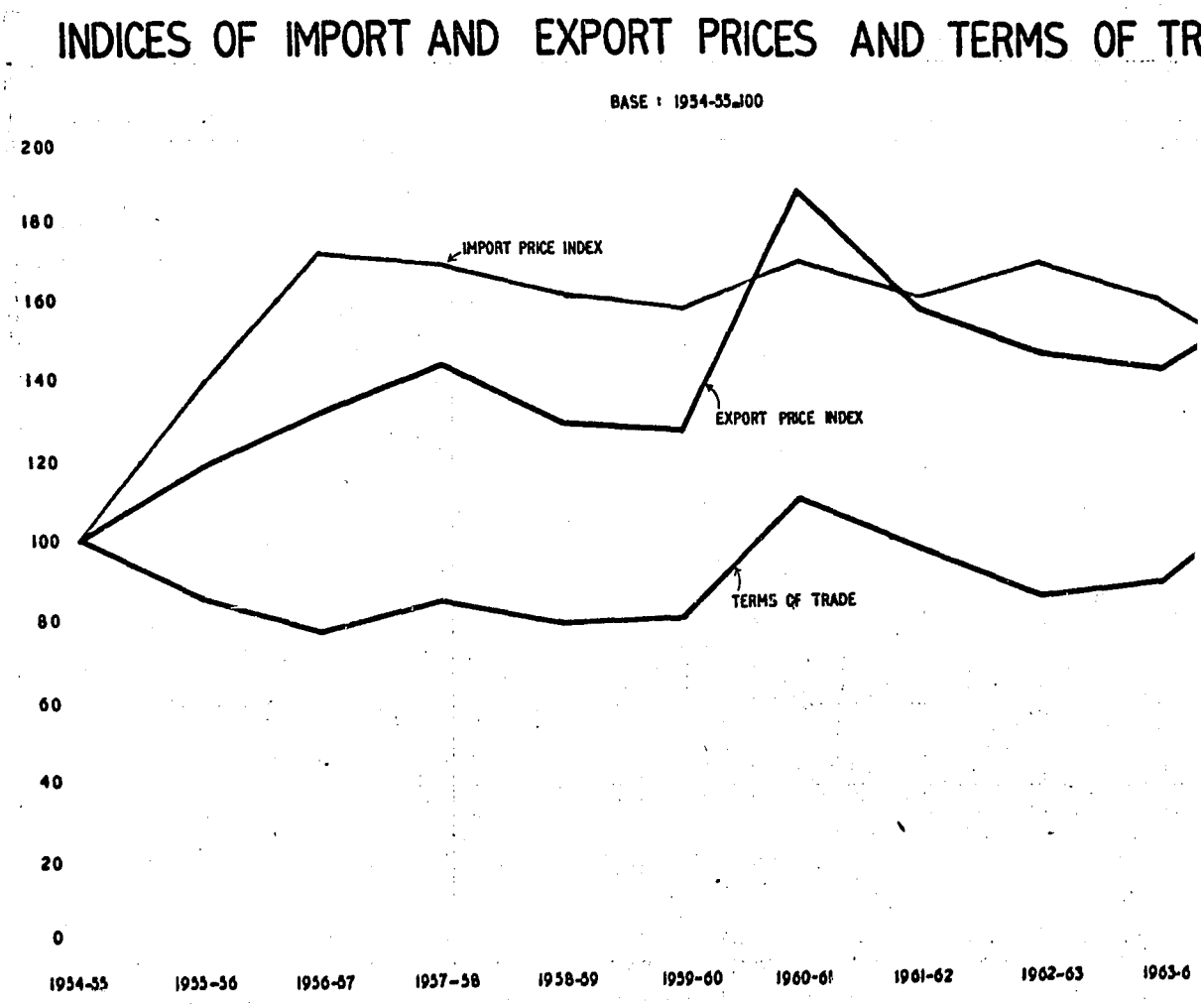
[21] See Table 4.3.

[22] The standard criticism against the validity of historical terms of trade (viz., that a different base tells a different tale, and that the quality of products, introduction of new products, etc., are not taken into account in calculating the terms of trade) may be invoked.

FIGURE 4.2



Source: Government of Pakistan, State Bank of Pakistan, Annual Report, 1965-66, pp. 24-25.

TABLE 4.3

INDICES OF UNIT VALUE OF IMPORTS AND EXPORTS AND TERMS OF TRADE
1948-1949 = 100

YEAR (July-June)	FOOD, DRINK & TOBACCO	RAW MATER-IALS	MANU-FAC-TURES	TOTAL IM-PORTS	JUTE	COT-TON	WOOL	TEA	HIDES & SKINS	TOTAL EX-PORTS	TERMS OF TRADE
1949-50	79	78	78	78	84	102	96	104	74	89	111
1950-51	80	78	76	84	80	162	167	112	93	106	124
1951-52	110	97	88	93	94	144	117	83	97	111	118
1952-53	91	105	74	77	50	101	151	84	92	66	84
1953-54	107	77	82	85	51	89	160	92	94	64	75
1954-55	121	72	73	81	55	88	149	144	86	67	82
1955-56	179	93	112	120	69	101	187	158	97	82	67
1956-57	173	98	144	143	80	108	222	135	101	91	63
1957-58	176	99	192	153	81	102	179	151	108	90	59
1958-59	185	103	167	154	75	85	160	171	112	83	53
1959-60	167	101	163	156	69	87	183	147	166	82	52
1960-61	168	107	171	163	142	98	181	154	190	135	83
1961-62	180	89	166	159	101	96	181	122	267	107	68
1962-63	190	85	165	170	86	89	186	199	248	95	60
1963-64	192	94	169	164	83	87	220	179	237	94	58

Source: Derived from Government of Pakistan, Central Statistical Office, 20 Years of Pakistan in Statistics, 1947-1967, (Karachi, March 1968), pp. 36-101.

B. A Turning Point

Table 4.2 shows that by 1958 the gold, dollar and sterling reserves reached a very low level of Rs. 881 million. The foreign exchange crisis, combined with political instability, had thrown the whole system into chaos. At this juncture, in October 1958, there was a military coup. The new regime made an attempt to overcome the crisis along the following lines: (1) Smuggling was stopped and hoarders and black-marketeers of foreign exchange were asked to declare their possessions. Some Rs. 83 million were declared. (2) Credit operations in the government sector were drastically curtailed, and "ad hoc" borrowing from the State Bank of Pakistan was discontinued. (3) The Export Bonus Scheme (EBS) was introduced in January 1959. Under the EBS, exporters were permitted to import goods against bonus licences. Manufactured goods were allowed a 30% bonus, and items like sugar, ricemilling and jute textiles, 20%. The main purpose of the scheme was to provide a substantial incentive for expanding Pakistan's exports. In effect, the scheme was an implicit partial devaluation of the currency. It also gave rise to a de facto system of multiple exchange rates. By this method, the new regime was successful in avoiding the usual political reaction that follows an explicit devaluation.

These measures adopted by the new regime were

quite effective. One notable result was a much slower rate of growth in the money-supply: it rose by 9% during the three years 1958-61, as compared with 38% during 1955-58.[23] Then too, manufacturing increased by more than 25% during 1959 and 1960 as against a rise of 13% in the preceding two years and the agricultural production index averaged 114 during 1958-61, as compared with 107 in 1955-58.[24]

Prior to mid-1957, shortages of imported raw materials and spare parts remained serious, and industrial capacity could not be fully utilized. A policy of progressive import liberalization was introduced at that time, and automatic-licensing in mid-1960. These steps were partially successful in overcoming the import bottlenecks. Under the new import policy, it became possible, to some extent, to reduce "excess capacity" in the manufacturing sector and to make the external sector much more responsive to market opportunities.

The Second Plan

"In the Second Plan, as in the First, improvement in the balance of payments position remains an essential

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[23] Soligo, op. cit., p. 639.

[24] Government of Pakistan, Ministry of Finance, Pakistan Economic Indicators, 1967-68, (Islamabad, May 1968), Graph 3 and Graph 6.

objective."[25] After the Second Plan period, the Planning Commission noted that the objective was attained: "One of the outstanding features of the Second Plan has been its success in stabilizing and improving the balance of payments situation in the country."[26] This conclusion was drawn because in most cases the Second Plan targets were either reached or surpassed. While the Second Plan had estimated that foreign exchange earnings would rise at a rate of 3% per annum from Rs. 2.1 billion during 1959-60 to Rs. 2.5 billion during 1964-65, the export earnings actually registered an increase of 44%; as a result, the economy was able to exceed the investment targets without relying as much on foreign aid as had been anticipated.

The question arises as to the validity of the planners' optimism. Some economists have cast doubt on the achievement.[27] However, in general, the economists tend to believe that Pakistan's Second Plan has been a success. We shall now examine the balance of payments position and the rate of external assistance during the Second Plan period.

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[25] Government of Pakistan, Planning Commission, The Second Five Year Plan, 1960-65 (Islamabad, June 1960), p. 81.

[26] Government of Pakistan, Planning Commission, The Third Five Year Plan, 1965-70 (Islamabad, May 1965), p. 79.

[27] B. Glassburner, "The Balance of Payments and External Resources in Pakistan's Third Five Year Plan," Pakistan Development Review, Autumn 1965, p. 497. He thinks that the Second Plan targets are "extremely modest" and hence "improvement" becomes a questionable proposition.

During the Second Plan, export earnings increased, particularly from cotton, fish, rice and manufactured goods. Exports of raw cotton totalled Rs. 1.6 billion (as against the Plan target of Rs. 1.5 billion), while export earnings of "invisibles" rose to Rs. 2.5 billion (as against the Plan target of only Rs. 1.4 billion).[28] Indeed there is good reason to believe that Pakistan surpassed the Second Plan target growth rate largely because (1) gross earnings from invisibles increased considerably;[29] and (2) raw cotton production and cotton manufactures increased markedly during the middle of the Plan period. But the earnings from merchandise exports do not provide a sound base from which to project, as the policy-makers of Pakistan have done, with reasonable confidence and accuracy. Appendix A, Table 1, illustrates the point very clearly. In 1960-61, the merchandise export earnings fell short of the over-all Plan period average; in 1962-63 and in 1964-65 they exceeded the target rate. There had been four basic factors which led to the expansion of these exports: larger production of cotton, rice and miscellaneous primary commodities; a

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[28] Government of Pakistan, Planning Commission, Evaluation of the Second Five Year Plan, 1960-65, (henceforth "Evaluation II"), (Islamabad, May 1966), pp. 25-35.

[29] See Appendix A, Table 4. Notice that invisible export earnings rose from only Rs. 79 million in 1949-50 to as high as Rs. 742 million in 1964-65. The item, "private remittances and migrants' transfers," registered a sharp increase, rising from zero level to a level of Rs. 129 million.

vigorous "export incentives" policy (particularly the Export Bonus Scheme); fiscal and monetary measures designed to curb consumption and divert a high proportion of increased production to the export market; and substantial diversification of export markets (with exports to developed countries undergoing a 6% increase, exports to developing countries 85%, and exports to socialist countries 70%).[30] The result was an increase in export earnings large enough to help reduce the required foreign aid from the projected 50% to 36% of the projected balance-of-payments deficit.

A. Imports

"The policy of increasing exports and imports rapidly coupled with policies that maintained a bias in favour of the imports of development goods was an important element in the strategy of the plan for the stimulation of savings and investment."[31]

Prior to 1961, the dominant feature of Pakistan's import structure was that almost all imports were subject to licensing. Strict import restrictions and foreign exchange control created a substantial "excess capacity" in the private sector and the Government's resort to inflationary finance depressed the savings potential

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[30] Evaluation II, op. cit., p. 22.

[31] Ibid., p. 23.

of this sector. During 1963-64 tariffs began rising quite steadily; the tariff for consumer luxuries was 142%, while the tariff for machinery and equipment was 17%.[32] As a result, the attention of the business class turned from the external trade sector to the domestic manufacturing industry. The tariff policy gave an incentive to produce consumer goods (particularly luxury goods), which were highly protected. High profits were assured even after covering all landed costs including import duties and sales taxes. The Licensing Authorities tended to encourage indirectly the consumer-goods industries. The bias did have some positive effects: intermediate and capital-goods industries were stimulated by "backward linkage."[33] But the most notable effect of the licensing system was to create a "price-cost-profit incentive structure" which encouraged consumer-goods industries and discouraged investment in producer goods, since the latter could be imported at very low duties. The composition of imports throws much light on the impact of the import policy pursued by the Government of Pakistan over the Pre-Plan, the First Plan and the Second Plan periods.

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[32] See Table 4.4.

[33] For definition and concept, see A.O. Hirschman, The Strategy of Economic Development (Yale: Yale University Press, 1958), pp. 100-112.

TABLE 4.4

AVERAGE RATE OF DUTY ON IMPORTED GOODS BY TYPES OF COMMODITY

(In Percentage)

Description	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65
Consumption Goods										
a) Essentials	35	35	35	35	35	55	55	55	56	56
b) Semi-Luxuries	54	54	54	54	54	111	111	111	116	118
c) Luxuries	99	99	99	99	99	140	140	140	142	144
Raw Materials for Consumption Goods										
a) Unprocessed	26	26	26	26	26	27	27	27	30	31
b) Processed	43	43	43	43	43	50	50	48	51	65
Raw Materials for Capital Goods										
a) Unprocessed	23	23	23	23	23	28	28	28	31	32
b) Processed	38	38	38	38	38	40	40	39	42	55
Capital Goods										
a) Consumer durables	71	71	71	71	81	85	85	85	89	91
b) Machinery and Equipment	14	14	14	14	14	17	17	17	17	22

Source: Based on Ghulam Mohammed Radhu, "The Rate Structure of Indirect Taxes in Pakistan," Pakistan Development Review, Autumn 1964, Table VI.

Imports of consumer goods declined sharply in the Second Plan period, while imports of raw materials remained fairly stable.[34] On the other hand, imports of capital goods showed a distinct rising trend during the same period.

Islam's import functions for major categories of goods explain the relative growth rates.[35] He found that consumer goods recorded the lowest growth rate (2%) and capital goods the highest rate (7%). It is interesting to observe that while the growth rate of raw materials for consumer goods is higher than that of consumer goods, the reverse is true in the case of capital goods and raw materials for capital goods. This reflects the greater incentive to build up consumer goods industries as well as the greater concern over the excess capacity in the capital goods

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[34] See Appendix A, Table 5.

[35] $\log C_o = 8.84 + 0.023t$

$\log R_{co} = 8.54 + 0.039t$

$\log R_{ca} = 8.46 + 0.054t$

$\log C_a = 8.90 + 0.071t$

where C_o, R_{co}, R_{ca} and C_a denote imports of consumer goods, raw materials for consumer goods, raw materials for capital goods and capital goods respectively.

industries. Islam has rightly pointed out that "the desire to avoid a considerable underutilization of installed capacity imposes a restraint on the Government's ability to adjust imports to variations in the availability of foreign exchange."[36]

The export-import gap in 1960-61 was Rs. 1.56 billion and external resources (including private foreign investment) totalled Rs. 1.59 billion; that is, the gap was over-filled. Reserves rose to Rs. 1.22 from 1.17 billion. But by 1964-65, the gap had widened by roughly 125%. It is also worth noting that in 1960-61 capital goods constituted 68.5% of the development imports, while in 1964-65 they rose to 81%; and that consumer goods imports fell from 67.4% in 1960-61 to 63.2% in 1964-65.[37] This bears out the proposition that during rapid-growth periods a proportionally larger increase takes place in the import of capital goods and raw materials for capital goods while in times of stringency (viz., the Indo-Pakistani War in 1965), the category of consumer goods is selected for compressibility.

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[36] K. Islam, Imports of Pakistan: Growth and Structure (Karachi: Pakistan Institute of Development Economics, September 1967), p. 5.

[37] See Appendix A, Table 5.

Vanek's "hard gap" remains when the export-import gap cannot be any further narrowed through compressed imports or expanded exports.[38]

B. Foreign Capital Inflow

In the First Plan, foreign aid, though only 4% of the G.N.P., financed one third of Pakistan's imports. External resources in the Second Plan totalled Rs. 10 billion, of which foreign exchange resources (project loans and grants, commodity aid, technical assistance and private foreign investment) made up Rs. 8 billion and PL-480 counterpart funds Rs. 2 billion. The total Plan expenditure (including the Works Programme) was Rs. 26.3 billion. Thus external resources accounted for some 38% of the total Second Plan outlays.

The average annual import payments bill was Rs. 5.0 billion, almost double the annual average foreign exchange earnings. These figures include the Indus Basin aid.[39] It has been argued that since the Indus Basin

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[38] "Hard gap" refers to the foreign exchange "gap" that cannot be further compressed "without serious political or social repercussions." See J. Vanek, Estimating Foreign Resource Needs for Economic Development (New York: McGraw-Hill Inc., 1967), p. 107.

[39] E.S. Mason, Economic Development in India and Pakistan (Center for International Affairs, Harvard University, 1966), p. 18.

project is essentially a replacement work, it should not be considered developmental.[40] As for PL-480 imports, in part they have been retained as "emergency stock"; this is, in fact, a way of accumulating foreign exchange reserves. PL-480 has also been used to finance rural works projects. Beringer points out that, on the one hand, PL-480 checked potentially dangerous inflationary trends in food prices, and, on the other hand, effectively relieved the balance-of-payments pressure.[41] Mason, however, argues that the ready availability of PL-480 food shipments postponed serious attention to the question of improving the agricultural productivity.[42] There is some evidence that the massive PL-480 imports, though they have relieved substantially the balance-of-payments pressure in the short-run, have tended to impair the proper incentive needed for an adequate increase in agricultural productivity.

The Third Plan

Table 4.5 reflects marked variations between the original and the revised balance-of-payments projections. The latter import estimates are around 8% lower,

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[40] Andrus and Mohammed, op. cit., p. 65. To the extent that the aid exceeds the need for replacement work, it is certainly developmental.

[41] C. Beringer, The Use of Agricultural Surplus Commodities for Economic Development (Pakistan Institute of Development Economics, January 1964), Monograph 12, p. 57. See also J. Pincus, Trade, Aid and Development (New York: McGraw-Hill Inc., 1967).

[42] Mason, op. cit., p. 23.

TABLE 4.5

BALANCE OF PAYMENTS
DURING THE FIRST THREE YEARS OF THE THIRD PLAN

(Rupees in Millions)

(1)	Plan projection (Rs.) (2)	Current estimates (Rs.) (3)	% (Col. 3 of Col. 2)
Total imports	19,650	18,192	92
Total exports	10,800	10,824	100
Changes in reserves and other short-term movements	-	(-)134	-
FOREIGN-EXCHANGE GAP	8,850	7,234	-

Source: Government of Pakistan, Planning Commission, The Mid-Plan Review of the Third Five Year Plan, (1965-70) (Islamabad, April 1968), p. 25.

and the export estimates slightly higher. As a result, the projected foreign exchange gap for the first three years of the Plan fell from Rs. 8.9 billion to Rs. 7.2 billion.

A. Exports

Foreign exchange earnings came close to the projected annual increase of 9.5% per annum between 1964-65 and 1966-67. Raw jute exports averaged Rs. 938 million and raw cotton Rs. 298 million. Rice exports also showed a distinct rising trend. For hides and skins, raw wool and fish, on the other hand, the trend was downwards. In terms of manufactures, jute was the highest-earning item. Along with cotton, it showed a rising trend. Paper and newsprint, by contrast, were relatively stable.

The fact is that the major primary and manufactured exports did not change in accordance with the Third Plan expectations and total foreign exchange earnings from the export of primary commodities recorded an annual increase of 1.5% after 1964-65, as opposed to the Plan target of 4.5% per annum. Leather and textile industries had sprung up and started using hide and skins, raw wool and raw cotton as inputs; this was partly the cause for the weak export trend and the slow rate of increase in foreign exchange earnings.[43]

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[43] See Appendix A, Table 1.

But the sharp increase in the export of manufactured products may well have opened a new chapter in the trade history of Pakistan. The Planning Commission calls it the "most remarkable" achievement during the first half of the Third Plan.[44] This increase does, indeed, carry the potentiality for a considerable easing of future strains in the country's balance of payments.

B. Imports

In 1965-66 foreign assistance to Pakistan declined, and the economy absorbed a substantial amount of resources for defense and food imports.[45] These developments dealt a blow to the policy of import liberalization. Nevertheless, imports increased by approximately 28% in 1966-67, as against a fall of 3% in 1965-66. The result was a serious drawing-down of the foreign exchange reserves: from Rs. 1.3 billion on June 30, 1966 to Rs. 793 million in 1967.[46]

In July 1967, the "cash-cum-bonus" list was introduced to adjust the prices of imports, because the total import demand was substantially higher than the

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[44] Government of Pakistan, Planning Commission, The Mid-Plan Review of the Third Five Year Plan, (1965-70) (Islamabad, April 1968), p. 26. (Henceforth "Mid-Plan III.")

[45] War broke out between India and Pakistan in September 1965. The war was short but intense. The suspension of "defense support" by the United States following the war has created a new problem: the domestic resources released by such support are being denied to the economy.

[46] See Table 4.2.

available resources would permit.[47] In effect, this scheme meant a surcharge of 80-85% on imports, with a bonus premium of 160-170%.

C. Foreign Capital Inflow

Pakistan submitted a request for $500 million to the Pakistan Consortium for 1965-66. With the outbreak of the war between India and Pakistan, the United States influenced the postponement of the Consortium meeting.[48] Pakistan managed to get a commitment for only $250 million, and then only on a temporary basis. For 1966-67 Pakistan requested $ 530 million, but obtained only $ 335 million.

Table 4.6 illustrates the problem in greater detail. It can be seen that the shortfall in non-project (commodity) aid was highest (44%) in 1965-66, and the shortfall in project aid highest (26%) in 1966-67.

In truth, the foreign assistance picture is not a very bright one for Pakistan. Both pledges and disbursements seem to be considerably below the estimated needs.

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[47] Mid-Plan III, op. cit., p. 28.

[48] The motive behind the postponement was discussed in Chapter 2.

TABLE 4.6

AID DISBURSEMENT
1965-67

(Million Dollars)

	Plan Projections	Actuals	Percentage Shortfall
A. Project Aid			
1965-66	340	265	22
1966-67	353	259	26
Subtotal (A)	693	524	24
B. Commodity Aid (Non-Project)			
1965-66	210	117	44
1966-67	221	193	13
Subtotal (B)	431	310	28
TOTAL (A+B)	1,124	834	26

Source: Government of Pakistan, Planning Commission, The Mid-Plan Review of the Third Five Year Plan, (1965-70) (Islamabad, April 1968), p. 30.

It is clear that the shortfall will have an impact on imports and investments, and that the task of mobilizing internal resources will become increasingly difficult.

It is evident from this balance-of-payments survey that the policy-makers in Pakistan have essentially been engaged in finding solutions to the balance-of-payments problems generated by the import bottleneck and sustained by the attempts to achieve the ambitious target growth rate which cannot normally be supported by the available domestic resources. Pakistan, as can be seen from Table 4.1, Table 4.2 and Figure 4.1, was not exposed to the balance-of-payments crisis until the end of the 1950-51 period; it had a rising export trend, relatively smaller foreign exchange requirements and adequate foreign exchange reserves to fall back upon. With the beginning of the period 1951-52, the balance-of-payments crisis loomed on the horizon. During the First Plan period, the deficit on current account averaged Rs. 1.2 billion; it rose to Rs. 2.3 billion during the Second and Rs. 3.6 billion in the Third Plan period so far covered. Although the crisis started in 1951, foreign aid did not make any significant contribution to relieve the balance-of-payments strain until 1955. It was after 1955 that a massive flow of foreign resources began to come in, particularly from the United States. While foreign aid financed only less

than 14% of the total investment in 1954-55, it covered 46% in 1959-60. Although the First Plan was not considered successful in terms of achieving its targets, it certainly laid down the foundation--through the building of an adequate infra-structure and the creation of a "growth perspective"--without which the "successful" completion of the Second Plan would not have been possible.

Dependence on foreign aid was significantly lower than forecast in the Second Plan period. Over 10 billion rupees out of the total plan outlay of Rs. 26.3 billion came from external sources. That is, 38%, as opposed to the expected 50%, of total expenditure was financed by foreign aid. During the Third Plan period, foreign aid has been estimated to constitute about 32% of the total development expenditure.

It seems reasonable to conclude that without the massive flow of foreign aid, particularly during the Second Plan period, Pakistan could not perhaps have shown a better performance. But foreign aid has not been an unmixed blessing. The character of foreign aid took a drastic turn after 1960, giving rise to a new problem for Pakistan--the problem of debt-servicing liability. During 1959-60, the debt-servicing liability emerged only to the extent of around Rs. 80 million, but within five years it rose to Rs. 300 million. No doubt this increase is alarming. We now turn to the next chapter to discuss this problem.

Chapter 5

EXTERNAL DEBT-SERVICING AND PAKISTAN'S BALANCE OF PAYMENTS

External debt-servicing means repayment of loans --amortization and interest--to the foreign countries and/ or international agencies according to the terms and conditions mutually agreed upon. Why does a developing economy need to borrow from abroad? The answer is simple. A developing economy seeks a certain socially-acceptable minimum growth rate; given the stage of development and current domestic savings rate, it is not possible for the economy to achieve the target. If it has to invest more than it can save in order to reach the target, it must import more than it can export. Precisely at this point, balance-of-payments problems arise. To meet the payments gap, foreign resources have to be obtained. The foreign resource inflows--the bulk of them constitute official resources--take a variety of forms, ranging from grants and free provision for technical assistance on the "soft" end to loans with high interest rates and other stringent terms on the "hard" end. One may legitimately ask why there should be any problem of repayment as long as there is an adequate flow of fresh grants and soft loans. What is not always realized is the fact that it is not so much the

amount as the type of foreign aid that creates the problem. The bulk of recent foreign assistance constitutes loans and credits repayable in foreign exchange. Most grants are not usually given in the form of convertible currency and most loans are not free from being tied. As a result, there exists a very slim possibility of paying off the past debts from grants and new loans. Naturally, the burden shifts onto the export earnings. And this imposes a serious strain on the balance-of-payments of an economy. The "gravity" of the debt-servicing problem has been explicitly recognized in a number of recent studies.[1] In 1962, the Development Assistance Committee (DAC) of the O.E.C.D. established a Working Party to look into the problems of debt-servicing. In April 1963 and July 1965 two DAC resolutions explicitly recognized "the gravity of the growing debt-servicing problem."[2] The U.N.C.T.A.D. Committee on Invisibles and Financing related to Trade also expressed its great concern

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[1] D. Avramovic et al., Economic Growth and External Debt (Baltimore: The Johns Hopkins Press, 1964). See also U.S.A.I.D., A Study on Loans, Terms, Debt Burden and Development (Washington, April 1965); Goran Ohlin, Aid and Indebtedness (Paris: O.E.C.D., December 1966); United Nations, U.N.C.T.A.D., The Outlook for Debt Service, U.N.C.T.A.D. II Conference, New Delhi, February 1968, TD/2/Supp. 5; and United Nations, Note by U.N.C.T.A.D. Secretariat, The Terms of Financial Flows and Problems of Debt Servicing, U.N.C.T.A.D. II Conference, New Delhi, February 1968, TD/7/Supp. 3.

[2] The O.E.C.D. Observer, September 1966, pp. 14-20.

over the "mounting" debt-service obligations which threaten to curtail drastically the net transfer of resources.[3] Eugene Black, in his presidential address to the World Bank in 1961, gave a warning that "the machinery of economic development could be over-loaded with foreign debt until it sputtered to a halt amid half-built projects and mountains of discarded plans."[4]

It is important for a developing economy to enjoy and maintain the "confidence" of the major international centres of finance and commerce. And confidence is directly associated with "solvency" or the "creditworthiness" of an economy. It is very difficult to build confidence but very easy to undermine it. Confidence once destroyed, particularly through default, is hard to restore. One of the traditional ways to maintain "confidence" is to see that old loans are repaid on time and in full. Paradoxically, the less a country is able to repay, the more it may stand in need.

But increased debt-servicing is in itself not the real problem. The real question is whether an economy is able to bear the "pressure." A dollar paid in debt service implies that the economy is denied a dollar's worth

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[3]United Nations, U.N.C.T.A.D., The Report of the Committee on Invisibles and Financing related to Trade (New York, February 1968), TD/B/119.

[4]International News Survey, September 29, 1961.

of purchasing power for consumption and/or investment. The problem, therefore, is one of striking a balance between these two competing claims on available resources.

In this context, the crucial relationship is the proportion between debt service and per capita income. The smaller the proportion, the greater the strength of the economy and vice versa. Only when the increase in debt service equals or exceeds the increase in per capita income is there no possibility of any rise in investment and/or consumption. Then the "liquidity" crisis begins; and so does pressure on standards of living and the employment level.[5] Thus the acid test of an economy's long-run debt-servicing capacity is "the continuing growth of per capita production" and the underlying capital formation.[6]

It is well known that since interest and amortization on external debt are contractually fixed, the debtor country is obligated to pay off, no matter what happens to the economy. Amortization and interest are, therefore, the most inflexible elements in the balance of payments of an economy.

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[5] International liquidity is "a broader and vaguer concept, encompassing not only international reserves but also ready access by monetary authorities to acceptable means of international settlement." See R.N. Cooper, "The Relevance of International Liquidity to Developed Countries," American Economic Review, May 1968, p. 625, n. 1.

[6] Avramovic et al., op. cit., Chapter 2.

An economy facing a "liquidity" crisis is often bound or tempted to default. Creditors hesitate to reschedule the debt at a time when they must because of a liquidity crisis, which causes the debtor to delay payment, which in turn is responsible for the creditor's hesitation. This is the "vicious circle" of debt-service and its existence is a constant source of strain on the balance of payments of a debtor economy.

The developing countries have started feeling the pinch of debt-servicing. By and large, the donor countries are becoming more and more stringent in their terms of assistance.[7] Table 5.1 and Table 5.2 summarize the picture for the Development Assistance Committee of the O.E.C.D. (DAC).[8]

Table 5.2 shows that, during 1966, interest and amortization payment reduced the gross flow of official bilateral lending to the developing countries by 45%. If the cost of tied loans is taken into consideration, more than half the gross flow returns to the donors.[9]

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[7] H.W. Singer, Some Practical Issues of International Economics, September 20, 1966, p. 6. (Mimeographed.)

[8] The following are members of the DAC: Australia, Austria, Belgium, Canada, Denmark, Federal Republic of Germany, France, Italy, Japan, the Netherlands, Norway, Portugal, Sweden, the U.K. and the U.S.

[9] Chapter 6 discusses the problem of tied aid in detail.

TABLE 5.1

GRANTS AND GRANT-LIKE CONTRIBUTIONS IN RELATION TO GROSS OFFICIAL DISBURSEMENTS OF DAC MEMBER COUNTRIES 1956-66

(Billion US $)

		1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
I.	Total Official Gross Disbursements (including Bonds Transactions, Loans and Participation on a Net Basis)	3.5	4.3	4.7	4.8	5.3	6.5	6.4	6.6	6.6	7.0	7.3
II.	Total Official Net Disbursements	3.3	3.9	4.4	4.4	4.9	6.1	6.0	6.1	5.9	6.2	6.9
	Repayment	0.2	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.7	0.8	0.4
III.	Grants and Grant-Like Contributions	2.8	3.2	3.5	3.5	4.3	4.6	4.7	4.4	4.3	4.2	4.2
(a)	as % of Gross Official Disbursements	80	75	74	72	80	70	73	67	65	61	58
(b)	as % of Net Official Disbursements	85	83	79	78	87	76	78	73	73	68	61

Source: United Nations, Report of the U.N.C.T.A.D. Secretariat, (New York, October 1967), TD/7/Supp. 3, p. 12.

TABLE 5.2

OFFICIAL BILATERAL LOAN DISBURSEMENTS, AMORTIZATION AND INTEREST RECEIVED BY DAC MEMBER COUNTRIES
1962-66
(Million US $)

	1962	1963	1964	1965	1966
GROSS LOAN DISBURSEMENTS	1723	2143	2273	2718	2958
LESS: AMORTIZATION RECEIVED	423	466	694	759	823
LOANS, NET OF AMORTIZATION RECEIVED	1300	1677	1579	1959	2135
LESS: INTEREST RECEIVED	294	316	421	450	494
LOANS, NET OF AMORTIZATION AND INTEREST	1006	1361	1158	1509	1641
INTEREST AND AMORTIZATION AS % OF LOAN DISBURSEMENTS	42	36	49	45	45

Source: United Nations, Report of the U.N.C.T.A.D. Secretariat, (New York, October 1967) TD/7/Supp. 3, p. 11.

In addition, there will be the debt-servicing burden arising from private capital--equity and loans--which has flowed into the developing countries. In Pakistan, it has flowed at an average rate of Rs. 208 million a year (see Appendix A, Table 1). Interest and dividend payments on private foreign investment--expressed as a ratio of export earnings in 49 countries--rose from an average of 9.4% in 1951-55 to 11.6% in 1956-59 and 12.5% in 1960-62.[10]

Between 1955 and 1962, the volume of public and public-guaranteed debt trebled, reaching about $20 billion; the outstanding debt averaged $2.5 billion a year.[11] The dimensions of the repayment liabilities assumed a serious proportion as external debt outstanding (disbursed and undisbursed) rose from nearly $10 billion in 1956 to $39.2 billion in 1965.[12] It is estimated that if unreported "supplier's credits" are taken into consideration, the figure $39.2 will become $45 billion. An equally staggering figure is the rate of increase in the payment of interest and amortization. It rose from $800 million in 1956 to

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[10] In this connection, see United Nations, International Flow of Long-Term Capital and Official Donations, 1951-59; 1959-61; 1960-62.

[11] United Nations, International Flow of Long-Term Capital and Official Donations, 1961-65 (New York: U.N., 1966), pp. 43 and 44.

[12] United Nations, U.N.C.T.A.D. Report, II Conference, New Delhi, February 1968, TD/7/Supp. 3, pp. 10-14.

$3.6 billion in 1965.[13]

Table 5.3 illustrates the problem more clearly. It is quite evident from the Table that the debt-servicing charges have risen both in absolute and relative terms from 1955 to 1964. The debt-service ratio (DSR), as a rough indicator of the pressure of debt burden on the balance of payments, clearly shows the "severity" of the burden; the DSR has nearly tripled by rising from 3.4% in 1955 to 9.7% in 1964. The faster the build-up of interest and amortization, the lesser the ability to release foreign exchange to meet these obligations.

A projection of the heavy financial burden to be borne by the aid-receivers is given in Table 5.4. By 1975, developing countries in Asia and the Middle East will receive only approximately half the total resource inflows while Latin American countries will surrender roughly 80% of the gross inflow. Table 5.4 further suggests that if the annual export growth rate is assumed to be 4%, the DSR in the Asian and Middle East countries will reach 14% in 1975 as compared to 9% in 1966. In Africa, the situation is alarming. By 1975 the DSR will rise from 10% in 1966 to 22% in 1975.

Since grants and grant-like contributions declined

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[13] Ibid.

TABLE 5.3

DEBT-SERVICE CHARGES ON PUBLIC AND PUBLICLY-GUARANTEED DEBT 1955-64 (Million US $)

For All Developing Countries a/	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
1. Debt-Service Charges	851	900	1119	1434	1686	2224	2283	2605	3100	3500
2. Total Exports	24718	26345	26877	28516	28208	30669	30950	30383	33117	36098
3. Debt Service Ratio	3.44	3.42	4.16	5.03	5.98	7.25	7.38	8.57	9.36	9.70

a/ as classified by I.B.R.D.

Source: D.R. Khatkhate, "Debt-Servicing as an Aid to Promotion of Trade of Developing Countries," Oxford Economic Papers, July 1966, p. 225.

TABLE 5.4

DEBT-SERVICE AS PERCENTAGE OF GROSS INFLOW AND MERCHANDISE EXPORTS, f.o.b., 1966-75

	Asia and Middle East			Latin America			Africa			Total		
	1966	1970	1975	1966	1970	1975	1966	1970	1975	1966	1970	1975
1. Debt-Service as per cent of gross inflow	29	41	48	75	77	81	26	43	53	42	42	60
2. Debt-Service as per cent of exports, assuming that exports grow at an annual rate of												
(a) 4 per cent	9	13	14	19	17	18	10	18	22	13	16	18
(b) 5 per cent	9	13	13	19	17	17	10	17	20	13	16	17

Source: U.N.C.T.A.D. Secretariat estimates, and I.M.F., International Financial Statistics, July 1967.

sharply from 80% of gross official disbursement in 1960 to 58% in 1966, payments by developing countries on account of interest and amortization absorbed 42% of total gross inflow and 45% of official bilateral lending in the same period. It is predicted that if gross inflows and average terms and conditions are maintained at the 1965 level, loans net of amortization and interest will become negative by 1970 and thus start to offset the grant flow.[14] Furthermore, "if the lender's prices for tied aid averaged 15 per cent more than world prices, then the effective interest rate in 1964 would have been about 50% higher than contractual rates."[15]

On the one hand, the recipients, being under severe pressure of debt-servicing, are struggling hard to withstand it. On the other hand, the lenders are not only reluctant to give grants but also are making the terms of loan more and more stringent. For example, the official attitude of the great major donor country--the United States--which has long been dominating the scene of external assistance in the post-Second World War period, is best reflected

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[14] United Nations, U.N.C.T.A.D. Report, The Outlook for Debt-Service, II Conference, New Delhi, February 1968, TD/2/Supp. 5, p. iv.

[15] J. Pincus, Cost and Benefits of Aid: An Empirical Analysis, U.N.C.T.A.D. II Conference, New Delhi, February 1968, TD/7/Supp. 10, pp. iv-v.

in the U.S. Foreign Assistance Act of 1966. The Act reads:

> No assistance shall be furnished under this Act to any country which is in default, during a period in excess of six calendar months, in payment to the United States of principal or interest on any loan made to such country under this Act. . . .
>
> No recipient of a loan made under the authority of this Act, any part of which is outstanding on or after the date of enactment of this subsection, shall be relieved of the liability for the repayment of any part of the principal or interest on such loans.[16] (Underlining added.)

The recipients have indeed no alternative but to accept it as a reality.

Pakistan

The debt-servicing problem in Pakistan is a relatively recent phenomenon. Gradually the composition of foreign resource inflow has shown a marked shift from grants to loans and from untied to tied loans. Table 5.5 illustrates this trend. Despite the consistent recommendation of the World Bank for a proportion of 20% hard loans and 80% soft for Pakistan, the donors have been maintaining 48:52 since 1960, and thus the problem of debt-servicing has been getting increasingly pronounced.

Until 1963, the burden of debt-servicing was, however, not so heavy because the greater proportion of foreign aid came in the form of grants and quite a high

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[16] U.S., Public Law 89-583, 89th Congress, H.R. 15750, September 19, 1966.

TABLE 5.5

COMPOSITION OF FOREIGN AID
1950-1967
(In Percentage)

Period	Grants	Loans	Total
The Pre-Plan 1950-55	67	33	100
The First Plan 1955-60	60	40	100
The Second Plan 1960-65	14	86	100
The Third Plan (Currently in its fourth year)	6	94	100

Source: Derived from Government of Pakistan, Ministry of Finance, The Budget in Brief, 1968-69 (Islamabad: Government of Pakistan, June 1968), p. 50.

proportion of the loans were repayable in rupees.[17] Table 5.6 shows that 38% of total interest payments and nearly one-fourth of total loans contracted up to December 1963 were repayable in Pakistani currency.

After 1963, not only did the grants decline drastically, but also almost all the loans (except under PL-480) were repayable in convertible foreign currency.[18]

A. Debt-Structure

Table 5.7 reveals the debt structure in Pakistan as on December 31, 1967. Of $2.6 billion in loans disbursed, $2.3 billion (roughly 97% of the total) are in the form of loans repayable in foreign exchange. Perhaps the most striking difference between the debt structure as in December 1963 and as in December 1967 lies in the drastic reduction of the loans repayable in Pakistan currency in the latter year. Only 3% of the total loans disbursed up to 1967 as against nearly 25% in 1963 were repayable in Pakistani currencies.[19] (See Table 5.8 and compare it with Table 5.6.)

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[17] Government of Pakistan, Planning Commission, The Third Five Year Plan, 1965-70 (henceforth "Third Plan"), June 1965, p. 8.

[18] Ibid.

[19] Government of Pakistan, State Bank of Pakistan, External Liability on Foreign Loans and Credits (Karachi, December 1963), p. xii. See also Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), pp. v-xii.

TABLE 5.6

PERCENTAGE DISTRIBUTION OF REPAYMENT OF LOANS
(CONTRACTED UP TO DECEMBER 1963)
BETWEEN LOANS REPAYABLE IN FOREIGN EXCHANGE
AND LOANS REPAYABLE IN RUPEES

	Principal	Interest
Loans Repayable in Foreign Exchange	76	62
Loans Repayable in Rupees	24	38
Total	100	100

Source: Derived from Government of Pakistan, State Bank of Pakistan, External Liability on Foreign Loans and Credits, (Islamabad, December 1963), p. XII.

TABLE 5.7
DEBT-STRUCTURE IN PAKISTAN
(AS ON DECEMBER 31, 1967)

I. LOANS REPAYABLE IN FOREIGN EXCHANGE
(IN $ MILLION)

	Loans Contracted	Loans Disbursed	Loans Undisbursed	Loans Repaid	Interest Paid	Loans Outstanding
Capital Aid	2713	1862	851	195	155	1646
Export Credits	660	462	198	225	35	235
Total	3373	2324	1049	420	190	1881

II. LOANS REPAYABLE IN PAKISTANI CURRENCIES
(IN $ MILLION; $1 = Rs. 4.762)

	Loans Contracted	Loans Disbursed	Loans Undisbursed	Loans Repaid	Interest Paid	Loans Outstanding
US-EXIMBANK	88	88	-	6	27	82
US/DLF	216	216	-	48	37	168
TOTAL	304	304	-	54	64	250

Source: Derived from Government of Pakistan, Ministry of Finance, The Budget in Brief, 1968-69 (Islamabad, June 1968), pp. 63-65.

TABLE 5.8

PERCENTAGE DISTRIBUTION OF REPAYMENT OF LOANS
(CONTRACTED UP TO DECEMBER 31, 1967)
BETWEEN LOANS REPAYABLE IN FOREIGN EXCHANGE
AND LOANS REPAYABLE IN RUPEES

	Principal	Interest
Loans Repayable in Foreign Exchange	97	93
Loans Repayable in Rupees	3	7

Source: Derived from Government of Pakistan, Ministry of Finance, The Budget in Brief, 1968-69, (Islamabad., June 1968), pp. 63-65.

Nearly 80% of the loans repayable in foreign exchange are in the form of capital aid and 20% in the form of export credits. Of $2.3 billion in loans, only $400 million have been repaid and the outstanding loans repayable in foreign currency amount to nearly $1.9 billion.

Table 5.9, Table 5.10 and Table 5.11 show the frequency distribution of 209 loans contracted up to July 1965 with respect to the repayment period, the grace period and the rate of interest respectively. The majority of the projects (118 out of 209) have a repayment period of between 5 and 20 years, a grace period of between 5 and 15 years, and a rate of interest of between 4.5 and 6%.

Table 5.12 shows that out of 15 donor agencies, only 3 have offered 56 soft loans out of 209 loans. All soft loans are, however, tied by source. The United States has provided 39 out of 49, the I.D.A. 17 out of 17 and Germany 5 out of 45 as soft loans to Pakistan. But the bulk of foreign loans (153 out of 209) are in the form of hard loans.

When the loans are soft, they are normally tied and when loans are hard, they are either tied or untied. Until 1965, there was not a single case in Pakistan where commodity loans were both soft and untied.

B. Debt-Service Ratio (DSR)

The DSR is service payments expressed as a percentage of export earnings. In other words, it is the

TABLE 5.9

FREQUENCY DISTRIBUTION OF 209 PROJECTS
WITH RESPECT TO THE REPAYMENT PERIOD

Maturity or Repayment Period (in No. of Half Years)	Number of Projects
0	-
1-9	4
10-19	25
20-29	8
30-39	85
40-49	38
50-59	3
60-69	1
70-79	38
80-89	17

Source: Calculated from Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability, (Karachi, June 1965), pp. 43-47.

TABLE 5.10

FREQUENCY DISTRIBUTION OF 209 PROJECTS
WITH RESPECT TO GRACE PERIOD

Grace Period (In No. of Half Years)	Number of Projects
0	70
1-9	35
10-19	47
20-29	56
30-39	1

Source: Calculated from Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), pp. 43-47.

TABLE 5.11

FREQUENCY DISTRIBUTION OF 209 PROJECTS
WITH RESPECT TO THE RATE OF INTEREST

Rate of Interest (In Percentage Per Annum)	Number of Projects
0	1
.5-1	39
1.5-2	18
2.5-3	24
3.5-4	4
4.5-5	44
5.5-6	71
6.5-7	3
7.5-8	5

Source: Calculated from Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), pp. 43-47.

TABLE 5.12

FREQUENCY DISTRIBUTION OF SOFT LOANS AND HARD LOANS

Donor/Agency	Soft Loan[a]	Hard Loan	Total
1. U.S.	39[b]	10	49
2. U.K.		14	14
3. Netherlands		7	7
4. I.B.R.D.		19	19
5. I.F.C.		6	6
6. Canada		2	2
7. Germany	5[c]	40	45
8. Japan		9	9
9. Italy		1	1
10. Denmark		2	2
11. France		26	26
12. I.D.A.	17[d]	-	17
13. U.S.S.R.		2	2
14. Yugoslavia		9	9
15. China		1	1
	56	153	209

(continued)

TABLE 5.12 - (continued)

a/ Soft Loan is defined here as a loan with rate of interest and repayment period below 3.3476% and on or above 36 half-years respectively. (See State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), p. x.)

b/
Rate of Interest	=	between .75% and 2.5%
Grace Period	=	between 20 and 29 half-years
Repayment Period	=	between 59 and 61 half-years

c/
Rate of Interest	=	3%
Grace Period	=	14 half-years
Repayment Period	=	36 half-years

d/
Rate of Interest	=	.75%
Grace Period	=	between 19 and 21 half-years
Repayment Period	=	80 half-years

Source: Derived from Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), pp. 43-56.

proportion of export earnings absorbed by external debt-service. The DSR is a fairly adequate indicator of the pressure the debt-servicing imposes on the balance of payments.

Table 5.13 shows the movement of debt service ratios of a few selected developing countries between 1956 and 1963. The DSR has increased between 1956 and 1963 in almost all the developing countries, the notable exceptions being Israel, Yugoslavia, Paraguay and Nicaragua. The most significant decline took place in Israel: from 51 to 34. India's DSR increased 14 times between 1956 and 1963 and perhaps it is the greatest rise among all the developing nations. Pakistan's DSR increased from 6.0 in 1956 to 13.9 in 1963.

The Government of Pakistan has been aware of the possibility of being faced with a heavy debt-service burden in the future. A Balance-of-Payments Committee was formed by the Government of Pakistan in order to prepare a study in the field of planning and co-ordination of foreign assistance, along with such other fields as imports and imports policy, exports and exports policy and mobilization of additional public-sector savings. The Committee suggested keeping Pakistan's DSR between 20 and 25 per cent.[20]

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[20] I.B.R.D. and I.D.A., Current Economic Position and Prospects of Pakistan (Washington, April 1968), p. 125.

TABLE 5.13

DEBT-SERVICE RATIO FOR A FEW SELECTED COUNTRIES
1956 and 1963

	1956	1963
Bolivia	4	23
Brazil	12	23
Colombia	6	23
Ecuador	6	13.6
India	0.9	14.5
Israel	51	34
Mexico	11	30
Nicaragua	7	5
Pakistan	6	13.9
Paraguay	14	8
Yugoslavia	17	17

Source: D. Avramovic et al., Economic Growth and External Debt (Baltimore: The Johns Hopkins Press, 1964), p. 348.

The movement of the DSR in Pakistan between 1960 and 1968 is shown in Table 5.14. In 1960-61, debt service payment absorbed only 3.6% of foreign exchange earnings. Within four years, the DSR tripled and within six years it quadrupled. This trend of the DSR has caused great concern among the policy-makers of Pakistan.

C. The Hayes-Wyes-Hussain Test

The discussion above suggests that Pakistan may be approaching a position of unmanageable debt in the near future. It is to be noted that the debt-service burden by itself does not become a problem so long as an economy has the ability and willingness to pay it off. But the moment it goes beyond the capacity of the economy to meet the repayment obligations, the problem becomes acute and unmanageable. Hence, it is useful to know if there exists any way to detect the economy's position with respect to its capacity to repay the debt. Hayes, Wyes and Hussain have developed a formula that provides the necessary, though not sufficient, condition which has to be fulfilled if the economy is to avoid an unmanageable debt situation.[21] The condition is:

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[21] D. Avramovic et al., op. cit., p. 171.

TABLE 5.14

DEBT-SERVICE CHARGES FOR EXTERNAL DEBT CONTRACTED UP TO JUNE 30, 1967 AS RATIO TO PAKISTAN'S EARNINGS OF FOREIGN EXCHANGE ($ MILLION)

Years	Foreign Exchange Earnings	External Debt Service	DSR (%)
1960-61	476	17	3.6
1961-62	497	31	6.2
1962-63	577	48	8.2
1963-64	576	62	10.7
1964-65	629	62	9.9
1965-66	687	74	10.7
1966-67	730	96	13.1
1967-68	801	103	13.0

Source: Government of Pakistan, Ministry of Finance, Pakistan Economic Survey, 1967-68 (Islamabad, 1968), p. 176.

$$i^* = \frac{r(s_o - s')}{s_o - kr}$$ [22]

where i^* = critical interest rate

r = rate of growth of GDP (i.e. $Y_n = Y_o (1+r)^{n+1}$ where Y_o = GDP at base year

s_o = average savings rate (i.e. Gross Domestic Savings as a percentage of GDP in base year)

s' = marginal gross domestic savings rate

k = gross ICOR = $\frac{K_t - K_{t-1}}{Q_t - Q_{t-1}} = \frac{\Delta K}{\Delta Q} = \frac{I_t}{\Delta Q}$

where Q = Output

K = Capital Stock

I = Investment

If the average interest rate on existing loans exceeds the critical interest rate i^*, a "viciously cumulative" debt burden would emerge; so long as it is below the critical interest rate, the situation is said to be "manageable."

Given the following structural parameters for Pakistan:[23] $s_o = 7\%$; $s' = 18\%$, $k = 2.4$, $r = 4.5\%$, the critical interest rate (i^*) for Pakistan is:

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[22] Notations are slightly altered from the original formula.

[23] United Nations, U.N.C.T.A.D. Secretariat Report, II Conference, New Delhi, February 1968, TD/34/Supp. 1/ Add1. 1, Annex IV, p. 24.

$$i^* = \frac{r(s_o - s')}{s_o - kr}$$

$$= \frac{4.5\ (7 - 18)}{7 - 4.5\ (2.40)} = \frac{-49.50}{-3.80}$$

$$= 13.02632\%$$

The average rate of interest in Pakistan is 6%, which is far below the critical interest rate (13.02632%) and, therefore, it may be concluded that the debt-servicing situation in Pakistan is well within the "manageable" limit.

The critical interest rate (i^*) varies inversely with the capital-output ratio (k), given r, s_o and s', and it varies directly with the marginal savings rate (s'), given k, r and s_o. For example, given s_o = 5%, s' = 20%, r = 5% if k falls from 3:1 to 2:1, the critical rate of interest rises from 7.5% to 15.0%.

If the marginal savings rate declines from 25% to 12%, given k = 3, r = 5%, s_o = 5%, the critical interest rate drops from 10% to 4.5%. This shows that the critical interest rate is highly sensitive to changes in the marginal savings rate. If Pakistan is to prevent the economy from running into an "unmanageable debt" situation, the marginal savings rate has to be kept high.

It may be mentioned here that if the marginal savings rate (s') is equal to the required investment rate (kr),

then no domestic savings will be generated to meet the interest charges, and the condition $i^* = \frac{r(s_o - s')}{s_o - kr}$ reduces to $i^* = r$. In the case of Pakistan, the rate of growth of the GDP (r) must be 6% if $k = 3$ and $s' = 18\%$. Thus, in the long run, the critical rate of interest (i^*) would be 6%, which is equal to the rate of growth of the GDP (r), and the debt would increase at the same rate as the GDP.

If we assume that $k = 3$, the rate of growth of the GDP = 6% and the initial savings rate is 7%, then Pakistan must achieve a marginal savings rate of at least 18% in order to avoid the problem of "viciously cumulative" interest burden. All these conclusions follow from the simple manipulation of Hayes, Wyes and Hussain's formula for detecting the "manageable limit" of the debt-servicing burden.

D. Pakistan's Debt-Cycle

When discussing the debt-servicing problem, it is interesting to keep in mind the concept of the Avramovic-type debt-cycle.[24] Avramovic and his collaborators show that, given the following assumptions:

1) Rate of Growth of GDP (r) = 5% per annum (p.a.);

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[24] Avramovic et al., op. cit. See also Goran Ohlin, Aid and Indebtedness (Paris: O.E.C.D., 1966).

2) Initial Average Savings Rate (s_o) = 10%;

3) Marginal Savings Rate (s') = 20%;

4) k = ICOR = (Incremental Capital Output Ratio) = 3:1;

5) Rate of Interest (i) = 6% p.a.;

6) Rate of Amortization = 6.6% p.a. of outstanding debt;

7) Average Period of Maturity = 15 years;

8) Gross Investment Rate = 15%;

9) Foreign Aid initially finances 1/3 of Gross Investment; and

10) The economy starts with zero debt,

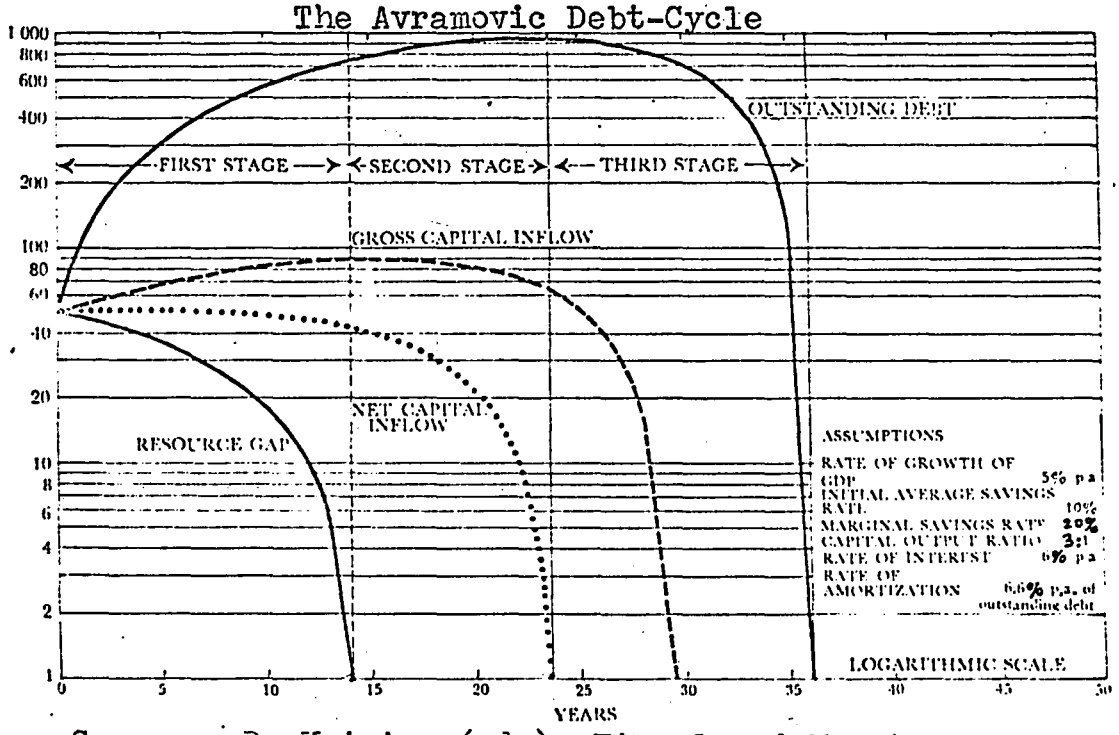
the debt-cycle lasts 36 years, with the first 24 years as a rising phase in which indebtedness increases to a peak, and the next 12 years as a declining phase in which indebtedness declines to zero. Figure 5.1 shows the Avramovic debt-cycle.

The validity of the debt-cycle depends on the validity of the assumptions made. However, if the return on capital is lower than implied by an ICOR of 3:1, s_o is below 10% and s' is less than 20%, then the "debt-cycle" is likely to last longer than 36 years, and conversely, the debt-cycle would be shorter than 36 years if the return on capital is higher than implied by an ICOR of 3:1, $s_o > 10\%$ and $s' > 20\%$.

We shall examine the structural parameters of Pakistan to see how far they conform to Avramovic's assumptions with respect to the debt-cycle model. The

FIGURE 5.1

Relative Movement of Resource Gap, Net Capital Inflow and Gross Capital Inflow—The "Model" Case



Source: D. Krivine (ed.), Fiscal and Monetary Problems in Developing States (New York: F.A. Praeger, 1967), p. 331.

following have been suggested as the values of the relevant structural parameters of Pakistan:

(i) Rate of Growth of GDP = 4.5%;

(ii) Initial Average Savings Rate = 7% (assuming initial period 1957-63);

(iii) Marginal Savings Rate = 18%; and

(iv) Incremental Capital-Output Ratio = 3:1.[25]

Comparing these values with those of Avramovic, the debt-cycle of Pakistan appears to be lasting longer than 36 years--a conclusion which seems to be borne out by the actual state of affairs in Pakistan.

E. Cash-Squeeze Problem

One of the fundamental causes of a liquidity crisis is the "bunching of maturities" in a short period. This is often called the "cash squeeze" problem. The liquidity crisis becomes acute when foreign exchange reserves are inadequate to meet the debt and creditors are reluctant to roll over old debts and extend new credits. The debt-structure further worsens when the economy is forced to take short-term credits with exorbitant interest rates to meet the old debts. Often the only way left to tackle the problem is to cut down imports.

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[25] United Nations, U.N.C.T.A.D. Report, II Conference, New Delhi, February 1968, TD/34/Supp. 1/Add. 1, Annex IV, p. 24.

So far as Pakistan's economy is concerned, the "cash squeeze" problem does not appear to exist as yet. This is because of its late start as a debtor economy. As already pointed out, Pakistan, prior to 1960, received 60% of its foreign capital as grants and 40% in loans repayable in rupees. However, from Table 5.9, it is clear that the maturity periods of over 76% of the total loans cluster between 5 and 20 years. That is, during the period 1970-1975 the "cash squeeze" problem may become a reality for Pakistan if the economy fails to accumulate adequate foreign exchange reserves for the retirement of the debt.

Proposals for Solving the Debt-Servicing Burden in Pakistan

Two different types of proposals are put forward here: (i) those that relate to the attitude and policy of the donors and creditors; and (ii) those that are based on the debtor's efforts and policies.

In the former category, the most optimistic and therefore the least promising proposal would be that the creditor countries should forthwith write off all the existing debts and should continue to provide sufficient funds in a form and at a time such that Pakistan can pay off all future debts on time and in full.

Needless to say, any donor/creditor country is unlikely to agree with such a proposal; particularly, the

United States Foreign Act of 1967--and the United States is the largest donor/creditor in Pakistan--rules out such a possibility.

It is therefore more realistic to consider the possibility of an approach that would help reduce the burden rather than eliminate it. The donors should be persuaded to blend hard and soft loans in such a proportion as to minimize the burden of debt servicing. As already noted, I.B.R.D. has recommended that 80% of loans be soft and 20% hard. This "mix" would enable Pakistan to keep the DSR below 20% throughout the entire repayment period. But to get the "optimal mix" of hard and soft loans, Pakistan should try to diversify the sources of its loans.

As to the second category, Pakistan would do well if she realizes that the permanent solution for withstanding the burden of debt servicing does not lie with the donors but in herself. The loans must be made with considerable caution and the programme for development must not be over-ambitious.

Given the trend of aid-flows in Pakistan and assuming that no major favourable change is expected in the near future, the burden of debt-servicing rests largely on the capacity of the economy to earn and/or save substantial foreign exchange earnings. Increase in the earnings in foreign exchange is a matter of export promotion

and savings a matter of import-substitution. Further discussion of this point is postponed to Chapter 7.

The possibility of promoting Pakistan's exports by linking its repayment liabilities with its exports may be explored. Khatkhate has shown that such a policy would expand trade in a direction where it "has potentiality to grow and in a manner which would adjust composition of export trade to the structural changes" of the economy.[26]

It is clear from the debt-servicing situation in Pakistan that the economy will soon generate serious balance-of-payments strains unless forestalling measures are taken in time. The "strain" on the balance of payments becomes much more serious and threatening if the loans are tied. Experience suggests that most of the loans given to the developing countries are in fact tied. The next chapter discusses this problem in detail.

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[26] D.R. Khatkhate, "Debt-Servicing as an Aid to Promotion of Trade of Developing Countries," Oxford Economic Papers, July 1966, p. 225.

Chapter 6

TIED AID AND ITS IMPLICATIONS FOR PAKISTAN

The gravity of the problems raised by the tying of aid by source or by source and commodity is being increasingly recognized by the economists. The trend towards increased tying of aid can readily be seen from the fact that, during 1961-1963, nearly 66% of gross bilateral aid was contractually tied or otherwise limited.[1] Several resolutions of the United Nations General Assembly, U.N.C.T.A.D. and the Development Assistance Committee of the O.E.C.D. have noted this with great concern.

The following excerpts from these resolutions on the flow of external resources to the developing countries throw much light on the present situation. The relevant part of Resolution 2170 (XXI) adopted by the United Nations General Assembly reads as follows:

> Noting further with concern that in some cases tied aid has had, as practical consequences, the adoption of projects, sometimes unrelated to, or with a much lower priority in, national development plans, and the tying of aid to the procurement of goods from the home markets of developed countries which has often resulted in an inefficient use of resources in recipient countries and

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[1] O.E.C.D., Development Assistance Efforts and Policies (Paris: O.E.C.D., 1965), p. 20. See also I. Brecher and S.A. Abbas, Foreign Aid and Industrial Development in Pakistan (Montreal: Centre for Developing-Area Studies, December 1968). (Mimeographed.)

in the supply of goods and services at higher than world competitive prices.[2]

These conditions, as recorded in the above resolution, along with other difficulties generally experienced in the present arrangements of inter-governmental transfer of resources, "can produce a serious strain on the balance of payments of developing countries."[3] (Underlining added.) The problem of aid-tying should therefore be recognized as "a significant one."[4] Needless to say, this problem in its own right deserves thorough consideration.

Definition

Aid-tying may be defined as measures taken by the donors to curb the recipients' freedom of using aid by choosing freely the most appropriate commodities from the most suitable sources of supply on the international market. In other words, aid is said to be tied when the recipient country is formally or informally bound to spend the funds to the satisfaction of the aid-giving country or countries.

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[2]United Nations, General Assembly, Resolution 2170(XXI) at the 1485th Plenary Meeting, December 6, 1966.

[3]United Nations, U.N.C.T.A.D., Final Act, Annex A.IV.1 and Final Act, Annex A.IV.4 (New York, 1966).

[4]O.E.C.D., Development Assistance Committee, Recommendations on Financial Terms and Conditions adopted by the DAC at its 58th Session on July 22 and 23, 1965.

Types and Methods of Aid-Tying

There are usually two types of aid-tying: (1) aid tied by source alone; and (2) aid tied by source and commodity. In the former case, the recipient must spend the aid in the designated source(s) but has, however, the freedom to choose a wide range of commodities at a price determined by the donor(s). In the latter case, the recipient has virtually no choice but to buy the specified commodities at specified prices from the specified source(s).

There are five methods by which aid is usually tied: (i) formal restrictions; (ii) informal restrictions; (iii) indirect restrictions; (iv) export and import credits; and (v) aid directly in the form of goods and services.[5]

A. Formal and Informal Restrictions

The method of "formal restrictions" requires that the aid-recipient must be formally and contractually bound to spend the aid funds for importing specific goods and services or any goods and services only from the designated source(s). On the other hand, if the aid is tied through "informal means" (such as the traditional trade ties, cultural ties, etc.), the aid-recipients, though not

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[5] J. Bhagwati, The Tying of Aid, U.N.C.T.A.D. Conference, II Session, TD/7/Supp. 4, November 1967, p. 4.

formally and contractually bound, do spend the funds almost in the same way as under the formal restrictions.

B. Indirect Restrictions

Bhagwati points out that "the most subtle form in source restrictions [or source and commodity restrictions] is neither formal nor informal but what might most aptly be described as 'indirect'."[6] This method is usually applied in any one of, or any combination of, the three following ways: (i) to treat the aid flow as "part of an over-all trade arrangement"; (ii) to couple the aid flow with "provisions under which the aid is to be spent" on the donor's goods and services, while the donor in turn purchases from the recipient "on a preferential basis"; (iii) to agree to finance only those commodities and/or projects where the donor has "decided" advantage in the international market.

C. Export and Import Credits

This is one of the most familiar forms of aid-tying. These credits are either private export credits

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[6] Ibid., p. 6.

(known as "suppliers' credits") or public export/import credits. The former "are guaranteed partly or wholly by institutions whose financial support for such activities is directly or indirectly to be traced to official policy" and the latter are "directly given in the importing country on a long term basis."[7] The role of suppliers' credits can be well appreciated from the fact that suppliers' credits increased by more than 75% between 1960 and 1965.[8] EXIMBANK of the United States, MEDICREDITO of Italy, KW of Germany and other similar institutions have extended a substantial amount of "public export/import credits" to the developing countries in recent years.

D. Aid Directly in the Form of Goods and Services

Last, but by no means least, is the aid directly in the form of goods and technical services. On the average, the sums involved in this kind of transfer amounted to nearly 38% of the total bilateral net aid flow during 1963-1965.[9] Of the total aid-in-kind from the developed

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[7] Ibid., p. 7.

[8] In this connection, see I.B.R.D., Suppliers' Credits from Industrialized to Developing Countries (Washington, April 1967).

[9] O.E.C.D., Development Assistance Efforts and Policies (Paris: O.E.C.D., 1966), Tables 5-7.

countries, almost 99% came from the United States through the PL-480 programme during 1963-65. Canada may be mentioned as one of the occasional suppliers of food aid.

Causes of Tying Aid

The following reasons usually play a major role in tying aid: (i) balance-of-payments grounds; (ii) unwillingness on the part of a donor to offer either benefit or credit to the "third party"; (iii) tying by one leads to tying by many; (iv) prestige and publicity value associated with conspicuous projects; and (v) commercial reasons, including export promotion.

The emergence and persistence of an unfavourable balance-of-payments situation in some of the major donor countries have led them to take measures to ease the strain. Since the foreign aid programme is one of the major contributors to the drain on foreign exchange reserves in the donor countries, ways and means are being explored to reduce "leakage from this outlet." For example, in November 1959 the United States, because of the persistent pressure on its balance of payments, changed the procurement policy governing the DLF (Development Loan Fund) from world-wide competitive bidding to primary emphasis on the export of their own goods; in December 1960 the United States forbade

the use of its fund for the procurement of goods from nineteen "reserve accumulating" countries, particularly in Western Europe; in 1962 rules and regulations were imposed to ensure that the aid dollars given in cash were spent on "directly identifiable" imports of United States origin;[10] and by 1966 all aid from the United States was "virtually tied to the U.S."[11]

It is worth observing that both surplus and deficit countries cite the "balance of payments" as justification for tying aid. "In a fundamental sense, the balance of payments ground for tying aid is an argument for avoiding the loss of real income" which would follow if the recipient's demand for imports did not match the quantity of aid-transfer.[12] The developed countries with either excess productive capacity or surplus stock become very concerned to tie the aid in order to minimize, if not eliminate, the loss of real income. Hicks, however, shows that "even if the foreign exchange cost of tied aid is zero, the improvement in the balance of payments [of the donor country] is generally significantly less than the amount

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[10]The United States, 87th Congress, 2nd Session (1962), Subcommittee on International Exchange and Payments of the Joint Economic Committee of Congress, "Outlook for the United States Balance of Payments," Hearings Pursuant to Sec. 5(a) of Public Law 304 (79th Cong.). Statement of Frank C. Coffin, Acting Administrator of the Agency for International Development, p. 62.

[11]Bhagwati, op. cit., p. 10.

[12]Ibid., pp. 17-18.

of aid."[13] Another important factor behind tying aid is the "unwillingness" of the donor to provide the benefit to the "third party." As already noted, the United States declared in December 1960 that it would no longer finance the procurement of goods from the reserve-accumulating countries. It will be recalled that when the United States tied its aid, there was an immediate fall in German's share of orders financed from the United States' Development Loan Fund; Germany also lost quite a number of established markets (Turkey, for example). Again, one of the main reasons for the donor countries' interest in offering tied aid is that it carries a "propaganda" value; everyone talks about the foreign builder of a large-scale project in a developing country. Then too, commercial reasons provide a great incentive for tying aid. Hicks rightly points out:

> Such tying arrangements may also promote the creation of lasting commercial ties which once established would not depend on restrictive arrangements for their existence.[14]

Bhagwati puts the issue in the following terms:

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[13] W. Whitney Hicks, "Estimating the Foreign Exchange Cost of Untied Aid," Southern Economic Journal, October 1963, pp. 168-174.

[14] Ibid., p. 173.

> It is legitimate to ask whether these official credits [tied] are, after all, not attempts to support export levels and improve export performance . . . and whether it is not correct to regard the flows of funds implicit in such credits as ways in which effective export prices of exports from the "lending" countries are reduced in order to compete for markets abroad.[15]

If Hicks and Bhagwati are correct--and there is sufficient ground to substantiate their views--it is not surprising that most of the donor countries are rapidly increasing the proportion of the tied aid to the developing countries.

Implications of Aid-Tying for Pakistan

Turning our attention to Pakistan from the developing countries as a whole, we are faced with the issues of how far Pakistan is affected by aid-tying, and whether aid-tying is significant enough to justify attempts to explore ways and means for the untying of aid.

Answers to these questions are obviously not easy. In this chapter an attempt is made to examine the various implications involved in the aid-tying problem in the case of Pakistan; a proposal for untying aid and/or for reducing the effect of tying aid if it has the tendency for persistency is also given.

The recent trend of aid flow in Pakistan is

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[15] Bhagwati, op. cit., p. 8, n. 1.

anything but encouraging. In a Memorandum for the Pakistan Consortium, 1968-69, the Planning Commission of Pakistan records:

> Despite some welcome improvement in the terms of credit from a few Consortium members, the average interest rate on loans has gone up, the average repayment period has shrunk, the proportion of tied credits has increased and the grant element in foreign assistance has virtually disappeared.[16] (Underlining added.)

There can be no mistaking that this trend has a definite implication for an economy like Pakistan, where nearly 50% of the development imports are financed by tied aid, 20% by untied aid and the rest from its own cash resources.[17]

By June 1965 Pakistan obtained 167 loans/credits from fifteen countries, namely, the United States (49), Germany (6), Japan (45), the United Kingdom (9), the U.S.S.R. (14), France (26), Yugoslavia (9), the Netherlands (7), Canada (2), Denmark (2), Italy (1) and China (1); it obtained 42 loans from three international agencies, namely, I.B.R.D. (19), I.D.A. (17) and I.F.C. (6). This is shown in Table 5.12.

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[16] Government of Pakistan, Planning Commission, Memorandum for the Pakistan Consortium, 1968-69 (Islamabad, April 1968), p. 32.

[17] M. Haq, "Tied Credits--A Quantitative Analysis," Capital Movements and Economic Development, ed. J. Adler et al., Proceedings of a Conference held by the International Economic Association (New York: St. Martin's Press, 1967), p. 334.

Out of 49 loans, the United States offered 6 tied, soft commodity loans, 23 tied, soft project loans and 10 tied, hard project loans; only 7 out of 49 loans were given to the private sector and 5 loans were allocated to the agricultural sector. This is shown in Appendix A, Tables 9 and 10.

Of 45 loans, Germany provided 5 untied, soft project loans, 15 untied hard project loans, 4 untied hard commodity loans and 21 tied, hard project loans; only 5 loans went to the private sector and 8 loans to the agricultural sector. (See Appendix A, Table 11.)

France, Italy, Japan and the Netherlands, the "worst offenders", according to Haq, in the field of tying, gave 43 loans and all but one were tied, hard project loans. Except for 5 loans from Japan and 2 from the Netherlands, all the loans were given either to the private or semi-government sector; virtually no loans were offered to the agricultural sector. Appendix A, Tables 12, 13 and 14 bear ample testimony to Haq's comment.

The United Kingdom, Canada, Denmark, China, the U.S.S.R. and Yugoslavia gave 30 loans/credits of which 2 were tied, hard commodity loans and the rest tied, hard project loans; no loans from the United Kingdom, Canada, Denmark, China or the U.S.S.R. went to the private sector; only 4 out of 30 loans were meant for the agricultural sector. This is illustrated in Appendix A, Tables 15 and 16.

I.B.R.D. gave all its 19 loans in the form of untied hard project loans; I.F.C. did the same for all of its 6 loans; I.D.A. offered all its 10 loans in untied soft project loans. While all loans from I.D.A. went to the Government, all loans from I.F.C. were to the private sector; I.B.R.D. offered 10 out of 19 loans to the private sector; 7 loans out of a total of 42 loans from the multilateral sources went to the agricultural sector. Appendix A, Tables 17, 18 and 19 clearly show that all the multilateral inflows into Pakistan are untied as opposed to the bilateral inflows, most of which are tied. It is therefore not surprising that developing countries like Pakistan favour multilateral aid.

From such distribution of loans in Pakistan, it is clear that the donors/creditors are strongly in favour of offering tied, hard project loans. When loans were soft, they were almost invariably tied.

Only 12 out of 209 loans were in the form of commodity aid--4 from Germany, 6 from the United States, one from the United Kingdom and one from China. As already noted, none of the commodity loans were both untied and soft; and only 67 out of 209 were untied loans.

Thus, it seems reasonable to conclude that this loan-pattern is one of the major sources of serious strain on Pakistan's balance of payments.

Haq's Quantitative Appraisal

Haq's analysis is the first generally available quantitative appraisal of the effects of tied loans on a developing economy.[18] Haq, being primarily concerned with aid tied by source, advises the developing countries to learn "to live with tied credits for a long time to come."[19] Bhagwati asserts: "The tying of aid by source . . . imposes in practice (and not in theory alone) costs that are significant enough to justify attempts at promoting measures for the untying of aid."[20] (Underlining added.)

In his pioneering quantitative analysis, Haq reaches a startling conclusion: "The tying up of foreign credits raises the average price of procurement for Pakistan by 12 per cent."[21] If all aid were completely untied, by now Pakistan, according to Haq's findings, could have saved roughly 2 billion rupees (approximately $400 million).[22] That is to say, out of every $1 billion of foreign assistance, Pakistan may be able to save $120 million if all of it is untied. Tables 6.1 and 6.2 illustrate this point more clearly

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[18] Haq, op. cit., pp. 326-351.

[19] Ibid., p. 326.

[20] Bhagwati, op. cit., p. 36.

[21] Haq, op. cit., p. 331.

[22] Calculated from Appendix A, Table 1, assuming that the average price of procurement was 12% higher throughout the whole planning period.

TABLE 6.1

INSTANCES OF HIGHER PRICES UNDER TIED CREDITS (IN CASE OF PROJECT AID)

Serial No.	Name of the Project	Lowest Quotation from Tied Source	Lowest Quotation in International Bidding	Percentage Difference between Tied Source and International Bidding $\frac{(3)-(4)}{(4)} \times 100$	Nature of Equipment
(1)	(2)	(3)	(4)	(5)	(6)
1.	Dacca Beverage Plant	U.S.	Germany	15	Complete Plant
2.	MAKK Beverages	Japan	U.K.	25	Complete Plant
3.	R & K Sugar Mills	U.K.	Czechoslovakia	26	Complete Plant
4.	J & D Sugar Mills	Netherlands	Czechoslovakia	32	Complete Plant
5.	Ctg. Sulphuric Acid & Super-phosphate Plant	France	U.S.	45	Complete Plant
6.	Khanpur Sugar Mills	France	U.K.	61	Complete Plant
7.	Nylon Twine Plant	U.S.	Germany	61	Complete Plant

TABLE 6.1 - (continued)

8.	Table Salt Manufacture Plant	France	U.K., Germany	71	Complete Plant
9.	Hard Board Industries	Japan	Germany	123	Complete Plant
10.	Atlas Plastic & Rubber Industries	Japan	Germany	25	90 mm. Plastic Extender
11.	Bengal Steel Works	Japan	Germany	25	Wire-Drawing Plant (2000-ton Capacity)
12.	Karachi Port Trust	U.K.	Netherlands	33	Twin-Screw Bucket Dredgers
13.	Karachi Port Trust	Japan	Netherlands	39	60-Ton Self-Propelled Floating Crane
14.	Nawab Brothers Steel Plant	Japan	Germany	39	Plant for Manufacturing Steel Hose
15.	Telegraph and Telephone Dept.	Japan	Formosa, Greece	39	Insulated and Sheathed Cable, Self-Supporting Aerial Cable
16.	Karachi Shipyard & Engineering Works	U.K.	Germany	57	Propeller Plant, Pipeline Fittings, Engine Lubricating Pump

TABLE 6.1 - (continued)

17.	Village Electrification & Power Distribution	Italy	Belgium, Germany, Japan, Yugoslavia, Sweden	63	Steel Poles, Aluminum Conductors, Wire, Insulators, Hydraulic Compressors, Grid Stations
18.	Eastern Chemical Plant	Japan	U.K.	73	Urea Formaldehyde Package Boiler
19.	Baluchistan Collieries	France	Germany, Japan, U.K., Czechoslovakia, Denmark	87	Centrifugal Pumps, Shovel Loaders, Underground Locomotives, Haulage Engines, Rails, Ventilation Tubes, Air Compressors
20.	Khulna Rice Mill	Japan	Germany	120	Rice Milling Machinery
			Weighted Average for the Above Projects	51	

Source: Capital Movements and Economic Development, ed. J.H. Adler and P.W. Kuznets (New York: St. Martin's, 1967), p. 328, Table 1.

TABLE 6.2

INSTANCES OF HIGHER PRICES UNDER TIED CREDITS (IN CASE OF COMMODITY AID)

SERIAL NO.	DESCRIPTION OF ITEMS	LOWEST QUOTATION FROM TIED SOURCE U.S.	LOWEST QUOTATION FROM OTHER SOURCES	PERCENTAGE DIFFERENCE $\frac{(3)-(4)}{(4)} \times 100$
(1)	(2)	(3)	(4)	(5)
1.	Corrugated Iron Sheets	Rs. 1132.88	Rs. 868.49 (Japan)	30
2.	Angles (Unequal)	$ 164.70	$ 119.42 (U.K.)	38
3.	Sheets	$ 161.99	$ 113.50 (Japan)	43
4.	Plates	$ 154.71	$ 102.34 (Japan)	51
5.	Galvanized Iron Pipes ($1\frac{1}{2}$" Diameter per 100 Running Feet)	Rs. 147.28	Rs. 94.91 (Germany)	55
6.	Channels	$ 172.60	$ 106.73 (Japan)	62
7.	Tees	$ 207.35	$ 121.15 (U.K.)	71
8.	Angles (Equal)	$ 171.51	$ 96.06 (Japan)	79
9.	Billets	$ 172.22	$ 91.98 (Sweden)	87
10.	Wheel & Axle Assemblies (per Assembly)	$ 794.10	$ 308.70 (Japan)	157

Source: Capital Movements and Economic Development, ed. J.H. Adler and P.W. Kuznets (New York: St. Martin's, 1967), p. 329.

by revealing striking differences between tied aid quotations and international bids. One notable example of such a difference is the higher "freight charges" imposed on Pakistan by the United States.

The shipping industry is the least efficient industry in the United States and it appears that the United States' charges are highest where the industry is least efficient.[23] As can be seen from Table 6.3, in some cases the United States has charged as high as 113% more than the international freight charges. For example, in the case of "Freight on 22 Locomotives (large)", the U.S. EXIMBANK charged Pakistan $14,500 per locomotive, while Norway was willing to charge only $6,800. This may rightly be called an export subsidy to the least efficient shipping industries. The United States in some cases paid the "difference" to some developing countries, but it qualified it as "aid disbursed" rather than as an "export subsidy" in the budgetary accounts.[24]

In any event, the variation of price ranges from 15% to as high as 123% in a sample of 20 projects in Pakistan. In the majority of tied projects, the percentage difference between tied source and international bids ranges from 20% to 40%. This is shown in Table 6.4.

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[23] J.H. Adler, "Comments on Dr. Haq's Paper," Capital Movements and Economic Development, ed. J.H. Adler and P.W. Kuznets (New York: St. Martin's, 1967), p. 354.

[24] Bhagwati, op. cit., p. 30, n. 1.

TABLE 6.3

INSTANCES OF HIGHER FREIGHT CHARGES UNDER TIED CREDITS

SERIAL NO.	DESCRIPTION OF ITEMS	LOWEST QUOTATION FROM TIED SOURCE	LOWEST QUOTATION FROM INTERNATIONAL BIDDING	PERCENTAGE DIFFERENCE $\frac{(3)-(4)}{(4)} \times 100$
(1)	(2)	(3)	(4)	(5)
1.	Freight on 30 Board Gauge, Diesel Engine Locomotives	$ 8,380 per Locomotive (DLF) U.S.	$ 5,850 per Locomotive (Norway)	43
2.	Meter Gauge Locomotives	$11,500 per Locomotive (EXIMBANK) U.S.	$ 7,500 per Locomotive (Norway)	53
3.	Freight on 22 Locomotives (Small)	$ 9,500 per Locomotive (EXIMBANK) U.S.	$ 5,850 per Locomotive (Norway)	62
4.	Freight on 20 Locomotives (Small)	$ 9,500 per Locomotive (AID) U.S.	$ 5,850 per Locomotive (Norway)	62
5.	Freight on 18 Locomotives (Large)	$14,500 per Locomotive (AID) U.S.	$ 6,800 per Locomotive (Norway)	113
6.	Freight on 22 Locomotives (Large)	$14,500 per Locomotive (EXIMBANK) U.S.	$ 6,800 per Locomotive (Norway)	113

Source: Capital Movements and Economic Development, ed. J.H. Adler and P.W. Kuznets (New York: St. Martin's, 1967), p. 330.

TABLE 6.4

FREQUENCY DISTRIBUTION OF COMPLETE PLANT PROJECTS AND SELECTED EQUIPMENT PROJECTS REGARDING PERCENTAGE DIFFERENCE BETWEEN TIED SOURCE AND INTERNATIONAL BIDS

Percentage Difference Between Tied Source and International Bid	Projects	
	Complete Plant	Selected Equipment
Below 20	1	-
20-40	3	7
40-60	1	-
60-80	2	3
80-100	-	1
100-120	-	1
Over 120	1	-

Source: Calculated from Table 6.1.

On the average, the United States and the United Kingdom charged 38%, Japan 54%, Italy 63% and France 66% more than the prices established through international bidding in the above sample of 20 projects. Since the United States is the major donor in the case of Pakistan, its behaviour pattern in tying aid has a particular significance. The United States has charged Pakistan roughly 74% more than international bids in the case of "freight charges", 67% more in the case of tied commodity aid, and 38% more in the case of project aid.

It is worth observing that, while the United Kingdom offered prices 61% less than the tied source in an international bidding for a sugar mill project, it charged 26% higher than international bidding on another sugar mill when the latter project was approved on a tied-loan basis. (See Table 6.1.) Thus, it is clear that the "monopolistic" pricing is inevitably associated with tied aid. Haq points out:

> The quotations offered by the suppliers are often higher if the suppliers know that it is a tied credit and come down considerably once it is made clear that the supplies will be financed against cash or untied credits. . . . One of the amusing examples in the recent experience of Pakistan was that of Atlas Copco type compressors under French credit. The French suppliers offered certain quotations which, when checked against the quotations received from Karachi-based agents for Atlas Copco, were found to be 33 per cent to 47 per cent higher for various items![25]

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[25] Haq, op. cit., pp. 335-336.

Despite various limitations, Pakistan had some leeway in transferring projects to cheaper sources: the Khanpur Sugar Mill Project from France to the United Kingdom, and the Hard-Board Industries Project from Japan to West Germany.[26]

A Critique of Haq's Study

As a pioneering study, Haq's attempt deserves appreciation. However, a careful examination of the assumptions behind his study unfolds its weaknesses.

Any valid comparison of prices between two sources of a single commodity must assume that the commodities are identical in all respects, including design, quality, capacity and specifications. Haq, being aware of this weakness, points out that "care has been taken to compare only such items of equipment as have similar specifications, capacity and quality."[27] (Underlining added.) But he contradicts himself in his Statistical Appendix when he concedes: "The differences in designs and specifications make comparisons difficult."[28] Even if it were possible to find commodities which are identical in capacity and specification, it is indeed impossible to find identical "quality", for

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[26] Ibid., p. 332.

[27] Ibid., p. 327.

[28] Ibid., p. 338.

this involves to a large extent a value judgment. Each country has developed, through traditional trade patterns and cultural ties, a kind of "norm" for judging the qualities of goods and services. For example, in Pakistan goods from the United Kingdom would be much preferred to goods from Japan, even though the goods were virtually identical in all respects.

Apart from this, Haq has practically ignored the possibility of "shifts in priority" if and when procurement from a tied source becomes very difficult. Furthermore, Bhagwati, utilizing Samuelson's well-known "over-compensation theorem", shows that Haq's method of measuring the cost of aid-tying "may not fully measure the cost in the strict economic sense of the term."[29] (Underlining added.)

Again, Chenery, in connection with the discussions on Haq's study, expressed his view that if Haq were to take account of "the diversion of administrative talents" to untie the tied aid and "distortions of priority", the estimate of 12% may be considered to be an underestimation.[30]

However, even if an accurate comparison between two sources and precise estimate of the cost of tying aid may not be possible, a rough assessment should be adequate as a guide to the second-best allocation of foreign exchange resources.

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[29] Bhagwati, op. cit., p. 35, n. 2.

[30] J.H. Adler, "Comments on Dr. Haq's Paper," in J.H. Adler and P.W. Kuznets (eds.), Capital Movements and Economic Development (New York: St. Martin's, 1967), p. 358.

Proposal for Untying Aid

There is hardly any room for doubt about the urgency and complexity of the tied aid problem. Some feasible and sensible measures for tackling this problem are in order.

Perhaps the basic issue lies in the fact that, while the aid-recipients are eager to use aid-resources with the same freedom as they use their own resources, the donors, for varying reasons, are quite reluctant to give that degree of freedom. Given an amount of aid-resources, the question is how much the donor is willing to sacrifice. If all aid were untied and were in the form of grants, the first-round effect would be that the loss of real income would equal the full amount of aid transferred.

As the proportion of untied grants declines, the proportion of loss of real income also declines. On the other hand, if the donors give loans at an international commercial rate, there is no loss of real income; on the contrary, there is some element of "profit" involved. Therefore, it is entirely up to the donors to decide at what point they are willing to compromise. The very fact that the developing countries are unable to borrow money from the international capital market on commercial terms leads them to appeal for grants and/or loans with "soft" terms in order to maintain a "socially-acceptable" minimum growth-rate.

In the absence of economic incentives, "persuasion" essentially implies a "diplomatic" effort to obtain aid. And this is clearly outside the scope of the present economic analysis. The reasons for tying aid have been discussed earlier. What has not been discussed is what happens if all the donor countries agree to untie all aid. Bhagwati shows that the United States would suffer a loss of real income while the other donors would gain from it.[31] Clearly, the United States--the major donor in the world--would be quite reluctant to do that. If the United States does not untie, as already noted, the others would also refrain from doing so. It seems unlikely that the donors, who have a varying capacity for sustaining losses, conflicting economic interests and political motives, would ever unite to untie the aid in the near future.

It would be wise for the recipients to accept this as a "fact" and attempt to minimize the effect of tying. A few proposals are made here for untying aid:

(1) Foreign policy and foreign economic policy of Pakistan should be well integrated so as to provide maximum diplomatic pressure for minimizing the amount as well as the effect of aid-tying.

(2) If it were possible to have an international tender before any donor country is selected for a project,

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[31] Bhagwati, op. cit., p. 48.

an optimal allocation of resources would be achieved by transferring the project from an expensive to a relatively cheap source of supply. Hence, Pakistan should attempt to diversify the sources of its aid. For, the greater the diversification, the greater the leeway in transferring projects to cheaper sources.

(3) Pakistan should attempt to persuade the donors to compensate for the difference between the tied source price and the international price. This would, however, eliminate the extra repayment of loans, but would not eliminate the extra payment of interest. The donor should incorporate this "compensation" in its balance of payments as an export subsidy to its less efficient industries. This would eliminate the recipient's repayment obligations and at the same time, ease the anxiety of tax-payers of the donor country. Then too, inefficient industries which might not otherwise have survived in international competition would now do so under the national programme of direct subsidy and not under the guise of tied aid.

(4) If the attempts outlined in (3) fail, Pakistan should exert efforts to convince the donor to tie the repayment obligations to the recipient's exports. This would greatly reduce the pressure on the balance of payments.

In short, from the recipient's point of view, a grant is the best form of aid, and the next best form is the untied non-project loan with the softest terms. However, donors are quite reluctant to make grants, and as already noted, the proportion of grants in recent years has sharply declined. If the terms are softer than the conventional terms, the loans are usually tied; if the loans are untied, they are nearly always hard.

In conclusion, it is perhaps wise for the donors to keep in mind that "it is unfair to expect a poor country [Pakistan] to give away $60 million each year as a subsidy to the exporters of certain developed countries and then to have to repay this amount with interest in later years."[32] (Underlining added.)

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[32] Haq, on. cit., p. 332.

Chapter 7

A STRATEGY TO CLOSE THE EXPORT-IMPORT GAP

Discussions in Chapter 3 show clearly that foreign-aid models are essentially attempts to analyze the problem of the "dual gap" in the process of economic development. As already noted, these two gaps are: the savings gap (Gap I), defined as the excess of investment requirements over domestic savings at the indicated growth rate; and the export-import gap (Gap II), defined as the excess of projected imports of goods and services over the corresponding projection of export earnings. These two gaps are identical in the "ex post" sense. This may simply be shown as follows: Let Y = G.N.P., C = Consumption, S = Gross Domestic Savings, I = Gross Domestic Investment, M = Imports and X = Exports. Then we may write:

$$Y = C + I + X - M \qquad \text{Accounting Identity}$$

$$\text{or} \quad Y - C - I = X - M$$

$$\text{or} \quad S - I = X - M$$

$$\text{or} \quad I - S = M - X$$

$$\text{i.e.,} \quad \text{Gap I} = \text{Gap II}$$

But in the "ex ante" sense, there is no reason why the two gaps should necessarily be equal. Vanek points out:

> The reason why the two-gap evaluations cannot be taken merely as two different estimates of the same statistic is that the actual foreign resource gap, as it eventually will be in reality, is determined by both short and long-run forces, whereas the gap estimates depend only on long-run forces. There is no reason why the many different long-run determinants should work out exactly into an equality of the two statistics.[1]

It has been estimated that in most of the developing countries the export-import gap dominates the savings gap.[2] In order to determine the "minimum consistent" amount of foreign aid necessary to bridge the dominant gap, the structure of the economy under study has to be evaluated in detail. There must be "an appropriate commercial policy without serious political and social repercussions."[3] Diagrammatically this may be represented as follows:

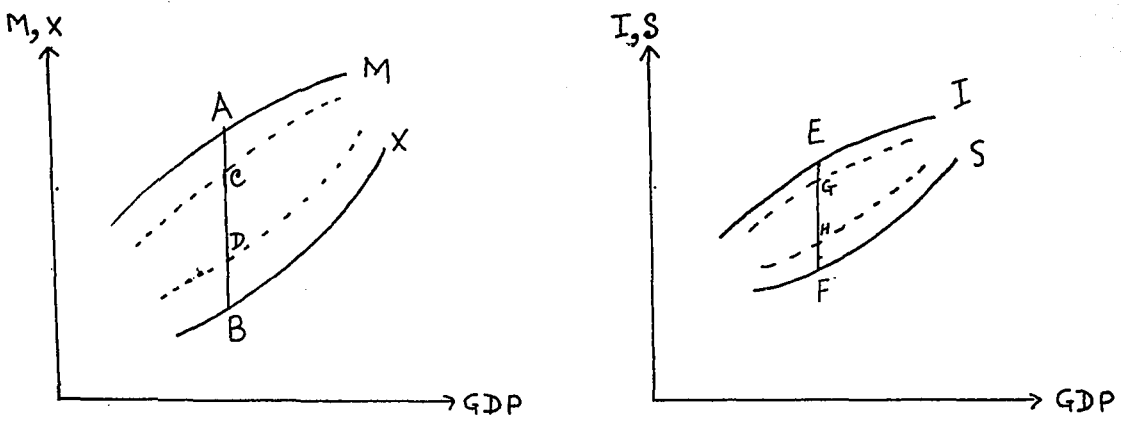

FIGURE 7.1. HANDICAP AND DOMINANCE OF THE GAP. Here Hard Gap II (CJ) is greater than Hard Gap I (GH).

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[1] J. Vanek, Estimating Foreign Resource Needs for Economic Development (New York: McGraw-Hill Book Company, 1967), p. 106.

[2] United Nations, U.N.C.T.A.D., Trade Prospects and Capital Needs of Developing Countries (New York, 1968), TD/34/Supp. 1/Add1. 1, Annex IV, pp. 1-43.

[3] Vanek, op. cit., p. 107.

AB represents the dominant export-import gap anticipated in a projected year. If it is possible to compress M and/or increase X, the gap decreases. If no further compression of M or increase of X is possible, we encounter the hard gap (here CD). This dominant hard gap is the estimate of the minimum consistent external-resource requirements. It must be kept in mind that the target growth rate can be realized if and only if the hard dominant gap is filled. Failure to do so might frustrate the development efforts as the target growth rate will not be achieved.

Prima facie, one gap may be dominant over the other but judged from the point of view of "hardness" or "compressibility", the dominance may be lost. Thus it is reasonable to expect that any attempt to close Gap II should be preceded by an attempt to compress it in order to determine the minimum required amount of external resources consistent with the attainment of the target growth rate. It may be noted that, given the development structure postulated for the projection period and the target growth rate, imports of capital and intermediate goods and services are more or less fixed. The compressible, gap-determining variables are: exports of consumer goods, imports of consumer goods, and savings. Changes in these variables may be accompanied by social, political or institutional conflicts.

We shall see how far the possibility of

"compressibility" exists in the case of Pakistan. Table 7.1 clearly illustrates the dominance of Gap II over Gap I in 1975 in the "ex ante" sense. Furthermore, the dominance is more pronounced under the low projection than under the high one.

The sensitivity of both the gaps, ceteris paribus, to the variation of the growth rate of the GDP is quite significant. Gap II is, however, less sensitive than Gap I; for the difference of one percentage point in the target growth rate, the latter differs by $47 million, while the former differs by only $34 million. This explains that the economy is in a much better position to attain a higher growth rate when Gap II, rather than Gap I, is a binding constraint.[4]

In Table 7.1, we see a range within which Gap II would lie. That is to say, if the target growth rate, given the development structure, lies between 5% and 5.7%, then the external-resource requirements are estimated to be lying between $1.2 billion and $1.5 billion by 1975. Now the problem is: how do we bridge the gap? Since external-

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[4] A. Manne, "Key Sectors of the Mexican Economy, 1960-70," Studies in Process Analysis (ed. Alan S. Manne and Harry M. Markowitz), Monograph #18, Cowles Foundations for Research in Economics at Yale University (New York, 1963). In the case of Mexico, Manne also found that optimal use of a relatively small increase ($75 million) in foreign exchange would increase the annual growth of the industrial sector from 5% to 8% in a situation when the export-import gap is dominant over the savings gap.

TABLE 7.1

TWO-GAP PROJECTIONS FOR PAKISTAN

(Billions of Dollars at 1960 Prices)[a]

	Historical Coefficient[b]	1963	Projections for 1975 based on following assumptions regarding rate of growth of G.D.P. (%)	
			Low (5.0)	High (5.7)
1. Gross domestic savings (S)		.74	2.24	2.52
2. Gross domestic investment (I)		1.29	2.33	2.94
3. Savings gap (Gap I = I - S)		.55	.09	.42
4. Imports of goods and services (M)	14.9[c]	.91	2.38	2.63
5. Exports of goods and services (X)	7.1[c]	.53	1.17	1.17
6. Export-Import gap[d] (Gap II = M - X)		.38	1.21	1.46
7. Factor income payments (net)		.17		
8. Trade gap (6+7)		.55		

TABLE 7.1 - (continued)

a/ Exchange rate: $1 = Rs. 4.75.

b/ Data based on experience from 1957 to 1963.

c/ Annual average compound growth rate (%).

d/ Notice the distinction between the "Export-Import gap" and the "trade gap."

Source: United Nations, U.N.C.T.A.D., Trade Prospects and Capital Needs of Developing Countries (New York, October 1967), TD/34/Supp. 1/Add.1, p. 24.

resource inflows (F) do not always necessarily equal Gap II, either M has to decrease (assuming that X remains constant) or X has to increase (keeping M constant), or the rate of increase of X must exceed the rate of increase in M in order to close the gap. Alternatively, to the extent that we fail to close the gap by manipulating X and/or M, we should see that F performs the gap-equating task. Thus we have four groups of policies by which attempts could be made to bridge Gap II: policies to increase external aid; policies to increase private foreign investments; policies to accelerate exports; and policies to reduce imports.

Policies to Increase Foreign Aid

The absence of a general theory of economic development has long been creating a feeling of uneasiness in the minds of those who are actively engaged in development studies, empirical and theoretical. Bruton states: "In the absence of a general framework--a model--within which to examine the problems of the underdeveloped country, much of the discussion has taken place in a virtual theoretical vacuum and consequently is often unsatisfactory both logically and practically."[5] This absence is unfortunate but not

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[5] H.J. Bruton, "Growth Models and Underdeveloped Economies," in A.N. Agarwala and S.P. Singh (eds.), The Economics of Underdevelopment (New York, 1963), p. 219.

unexpected. Any search for a general theory of development is seriously handicapped by the "heterogeneity" in initial resource endowment, in cultural background, and in institutional framework among the countries loosely bearing the "underdeveloped" label.[6] The feeling of uneasiness equally pervades the field of foreign aid. The theory of foreign aid is as much in its embryonic stage as the theory of economic development itself. Chenery and Adelman state:

> Although advanced countries are now providing public grants and loans to less developed countries at a rate in excess of six billion dollars per year, there is as yet no scientific basis for determining the effects of this resource transfer on the recipient's economic development. In the absence of a valid quantitative analysis, intuitive judgements are made as to the importance of foreign aid, ranging from "vital" to "negligible."[7]

A few theoretical attempts accompanied by empirical support have been made. A review of the selected models has been presented in Chapter 3. The most noteworthy efforts have been made by Fei and Paauw and Chenery and Strout. A careful comparative analysis of these two attempts reveals their weaknesses. While the Fei-Paauw study finds Colombia

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[6] G. Ranis, Economic Growth: Theory (New Haven: Yale University Economic Growth Center, 1968), Center Paper No. 115, p. 416.

[7] H.B. Chenery and I. Adelman, "Foreign Aid and Economic Development: The Case of Greece," Review of Economics and Statistics, February 1966, p. 1.

to be a "successful" country in the sense of approaching the stage of self-sustained growth, Chenery and Strout put it in the category of "hopeless" countries. Again, while the Chenery-Strout study finds Israel in the category of successful countries, Fei and Paauw brand it as an unsuccessful one, because its aid termination date is found to be infinity.

An attempt to increase foreign aid presupposes a positive role in accelerating the rate of economic development. It is argued that the aid not only removes strategic scarcities in imported goods but also augments the resources available from domestic savings.[8] Opinion about the latter role of foreign aid is divided. Friedman, disagreeing with most development economists, points out:

> The domestic scarcity of capital results from the lack of environment favourable to private property and enterprise. By reducing the pressure on governments to create such an environment, the final result of government to government grants is likely to be a reduction in the amount of capital available from domestic and other external resources.[9]

Haavelmo agrees with Friedman on this negative

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[8] R.I. McKinnon, "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation," The Economic Journal, June 1964, p. 388.

[9] M. Friedman, "Foreign Economic Aid: Means and Objectives," The Yale Review, Vol. 47, 1957-58.

role of foreign aid.[10] Rahman has made a statistical attempt to test the Haavelmo hypothesis; his results support the hypothesis by showing that foreign capital inflow is inversely correlated with the domestic savings.[11] This is shown in Figure 7.2. Landau has independently come to the same conclusion.[12]

Does this mean that foreign-capital inflow should be discouraged? Firstly, the relevance of Least Square assumptions in testing the Haavelmo hypothesis is open to question.[13] Secondly, in the absence of a sound "monolithic" theoretical framework for all developing countries, any such generalization may be misleading. Thirdly, there are many goods and services which have "strategic" importance in efficient industrial growth but cannot be produced domestically, given

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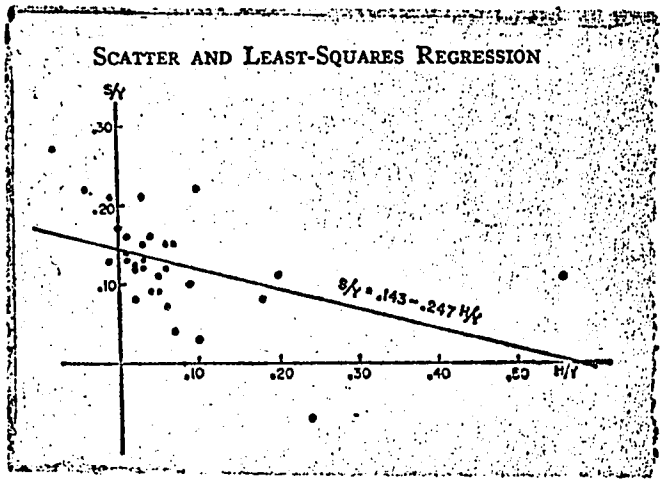
[10] T. Haavelmo: Comment on Leontief, Wassily, "The Rates of Long-Run Economic Growth and Capital Transfer from Developed to Underdeveloped Areas," Study Week on the Econometric Approach to Development Planning (October 7-13, 1963), Pontificiae Academiae Scientiarum Scripts Varia (Amsterdam: North-Holland Publishing Company, 1965).

[11] M.A. Rahman, "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data," Review of Economics and Statistics, February 1968, pp. 137-138.

[12] L. Landau, Determinants of Savings in Latin America, Memo. No. 13 (Center for International Affairs, Harvard University), pp. 19-20.

[13] For advantages and disadvantages of the Least Square estimation method, see C.F. Christ, Econometric Models and Methods (New York: John Wiley & Sons, Inc., 1966), pp. 453-481.

FIGURE 7.2



Source: M. A. Rahman, "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data," Review of Economics and Statistics, February 1968, p. 137.

the level of development. These goods must be imported and if foreign-exchange earnings are not adequate to cover the entire import requirements consistent with the target growth rate, foreign resources become a necessity.

The danger of drawing conclusions from an aggregate approach is great. Our regression analysis reveals that the correlation between domestic savings and the foreign capital inflow in Pakistan is positive and high ($R^2 = 0.519$; it is significant at the 1% significance level). This is shown in Figure 7.3.

However, given these findings and other available studies[14] regarding Pakistan, it seems reasonable to assume that foreign aid did and would play a positive role there; and that ways and means should, therefore, be explored to increase it. But it is no secret that the supply of foreign aid is based mainly on political considerations.[15] One of the best examples is Pakistan itself. Pakistan came under heavy attack during the hearings on the 1964 Foreign Aid Bill in the United States Senate Appropriations Committee.

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[14] See I. Brecher and S.A. Abbas, Foreign Aid and Industrial Development in Pakistan (Montreal: Centre for Developing-Area Studies, December 1968). (Mimeographed.); H.B. Chenery and A. MacEwan, "Optimal Patterns of Growth and Aid: The Case of Pakistan," The Theory and Design of Economic Development, ed. I. Adelman and E. Thorbecke (Baltimore: Johns Hopkins University Press, 1966).

[15] At least, this is applicable to some major donors of the world, namely the United States, the United Kingdom and France.

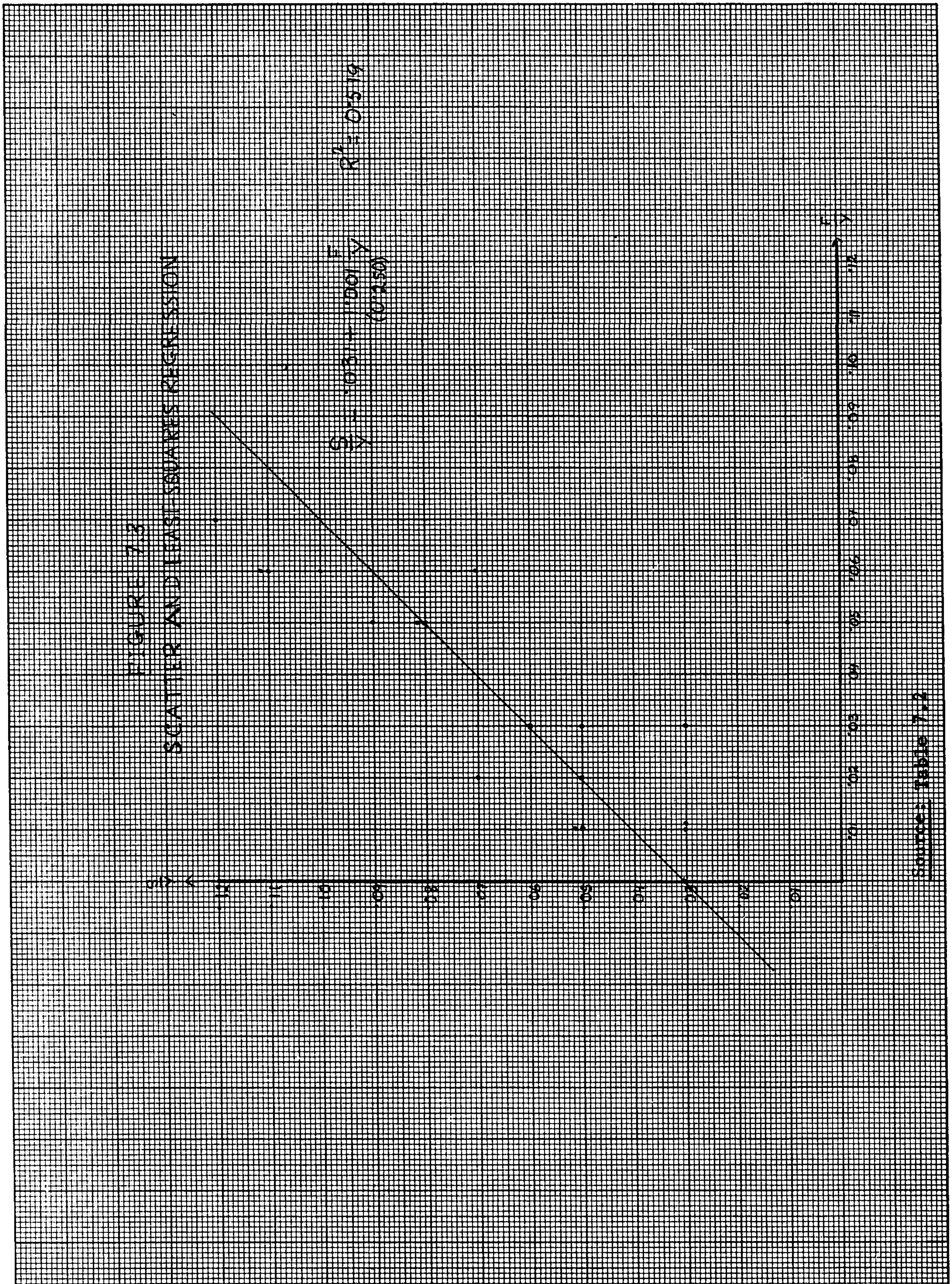
FIGURE 7.3
SCATTER AND LEAST-SQUARES REGRESSION
S/Y = -.031 + 1.001 F/Y
(0.250)
R² = 0.519
S/Y
F/Y
.01 .02 .03 .04 .05 .06 .07 .08 .09 .10 .11 .12
Source: Table 7.2

TABLE 7.2

SAVINGS AND FOREIGN AID AS A PROPORTION OF GNP

YEAR (JULY-JUNE)	$\frac{S}{Y}$ [a]	$\frac{F}{Y}$ [b]
1951-52	.030	.007
1952-53	.031	.008
1953-54	.050	.009
1954-55	.051	.010
1955-56	.070	.020
1956-57	.030	.029
1957-58	.010	.050
1958-59	.050	.030
1959-60	.060	.029
1960-61	.080	.050
1961-62	.090	.049
1962-63	.110	.060
1963-64	.080	.050
1964-65	.120	.070
1965-66	.070	.060
1966-67	.100	.059
1967-68	.110	.061

a/ S = Domestic Savings
Y = G.N.P.

b/ F = Foreign Capital Inflow

Source: Derived from the sources as cited in Appendix A, Table 1.

Senator John O. Pastore of Rhode Island, while questioning the Assistant Secretary of State for Near East and South Asian Affairs, Phillips Talbot, declared:

> Here we are dumping a lot of money into Pakistan and we are doing it only for the obvious purpose that we don't want the Chinese to infiltrate. Then these very same people go ahead and they make . . . economic agreements and other agreements, with the very people whom we are afraid might take them over.[16]

His criticism did not go in vain. The Johnson Administration followed a "get tough" policy with Pakistan in 1965--at the very time when U.S. officials were citing Pakistan as an "example in Asia of what a developing country can do with wise planning and foreign assistance."[17] In July 1965, while the Johnson Administration had already pledged funds to India through the Aid-to-India Club for the next year without prior congressional approval or appropriation, it requested a two-month postponement of the Pakistan Consortium Meeting on the ground that Congressional authorization had not taken place and thus the

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[16] Quoted from M. Ayoob, "U.S. Economic Assistance to Pakistan, 1954-65," Indian Quarterly, April-June 1967, p. 137.

[17] Dawn, April 2, 1965. See also The New York Times, August 30, 1965, where it is noted that the tough American attitude toward Pakistan originates "from the Administration's calculated desire to prove to other nations that they must not take American aid for granted and that even commendable economic performance will be insufficient if it is accompanied by significant political opposition."

Administration was not in a position to pledge funds to Pakistan for the first year of its Third Plan, despite the fact that Pakistan's performance was by far the best of the South-Asian developing countries. In September 1965, the Indo-Pakistan War broke out and the Johnson Administration quickly seized the opportunity to suspend all aid to Pakistan.

Since the foreign policy of a developing country cannot always be dictated by economic considerations alone, the supply of foreign aid cannot be taken for granted. The desire for ultimate independence from aid originates in large part from its political implications, but also from the problem of non-optimal economic choices. Most of the aid-giving agencies insist on project-type assistance. This often gives rise to sharp conflict between donors' and recipients' views on national priorities. Donors tend to look for projects that have high publicity value--projects of gigantic size, like hydroelectric schemes. For comprehensive and coherent planning, these are no more relevant than items like fertilizers and improved seeds. Again, the donors themselves differ widely on formulating priorities. The danger is that the project ultimately selected may not fit into the planning framework. "One may . . . doubt the sanctity of

national planning when the country is itself in no position to protect the relative priorities of its plan and when foreign assistance is given on a [project-by-project] appraisal by technical teams of foreign consultants who may have no idea of the broad priorities of the country."[18]

As already noted, foreign official loans show a rising trend while grants show a declining one. During the Pre-Plan period, grants constituted nearly 67% of total aid given to Pakistan. The proportion fell slightly to 60% during the First Plan period. But the drastic fall occurred during the Second Plan period, when the percentage figure stood at only 14%. The Third Plan is currently in its fourth year. So far grants have comprised only 6% of total aid. Pakistan received an average of Rs. 714 million as project aid and Rs. 617 million as commodity aid during the Second Plan period. Over the four years of the Third Plan period, project aid (Rs. 1445 million) was nearly double commodity aid (Rs. 782 million).[19]

An unpublished report of the Committee on Foreign Aid Utilization reveals the disadvantages of project-type aid:

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[18] M. Haq, "Problems of Formulating a Development Strategy in Pakistan," in O.E.C.D., Development Plans and Programmes (Paris, 1964), p. 120.

[19] See Appendix A, Table 1.

> As the Plan depends for foreign exchange . . . on aid . . . , the investment target can be met only if the aid-giving agencies accept all the plan schemes exactly at the same time that we want to commence work on them. Experience has shown that a large number of schemes listed in the Plan are not acceptable to the aid-giving agencies while others are accepted only after a long delay.[20]

Apart from this, it is worth noting that a significant proportion of foreign aid consists of technical assistance. It is hardly realized that the foreign-exchange component of this type of assistance is very small, except for local expenditures of the technical experts. There is some evidence that the experts often save the money for vacationing or other purposes, rather than spending it in the developing country. The discrepancy between the nominal value of technical assistance and the actual value (in terms of foreign exchange) has been estimated as at least $1 billion in 1963 for the developing countries as a whole.[21]

While policy-makers in Pakistan are accordingly thinking of ways and means to reduce its dependence on foreign aid, the idea of formulating a policy to increase

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[20] Government of Pakistan, Economic Affairs Division, President's Secretariat, Report of the Committee on Foreign Aid Utilization, October 1962, p. 5. (Unpublished.)

[21] See A. Maddison, "The Balance of Payments of Developing Countries," Banca Nazionale del Lavoro Quarterly Review, No. 77, 1966.

it may appear rather contradictory. In any event, it is clear from the past record and present intentions of the donors that there is little possibility of a spectacular increase in the quantity of foreign aid in the foreseeable future.[22]

Against this background, the best strategy for Pakistan would be to seek an improvement in the quality rather than an increase in the quantity of foreign aid. The quality of aid is reflected in its composition and terms of availability. Since a considerable amount of recent bilateral aid is tied, the real value of total aid can be considerably increased if the effect of tying could be significantly reduced. It will be recalled that in the case of Pakistan the effect of tying reduced the real value of total aid by 12% and this amounted to 20% of the nominal value of tied aid itself.[23]

As things stand, the high proportion of tied project loans has not only put heavy pressure on the balance of payments through the ever-increasing burden

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[22] I.T. Wang, New Proposals for the International Finance of Development (Princeton: Princeton University Press, 1967), Essays in International Finance, No. 59, p. 2.

[23] Haq, op. cit.

of debt service, but has also distorted national priorities for sound development.[24]

But it is seldom understood by the recipients that the developed countries too have their problems. Foreign assistance is not only in competition with the donors' domestic expenditures--in which welfare and national security are high in priority--but also with programmes of tax reduction, which have considerable public appeal. In many developed countries, aid to relatively depressed areas or disadvantageous groups is viewed as no less important than aid to the developing countries. Nor does it require much imagination to realize why the donor ties its aid when it is beset with the balance-of-payments difficulties, or distributes food freely when it is burdened with surpluses resulting from domestic agricultural policies. But it does require imagination to probe alternative channels when the existing channels for a smooth and steady flow of aid are blocked.

If wise foreign policy can bring a larger amount of foreign resources, then economic policy and foreign policy should be well integrated. The attempt to reduce dependence on foreign aid should not be interpreted as substituting efforts to increase domestic resources for

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[24]Haq, op. cit., p. 12.

efforts to increase foreign resources. The crucial problem lies in formulating a plan flexible enough to cope with the uncertainties involved in getting the right amount and the right kind of aid at the right time. The risk could, however, be reduced if dependence on foreign aid were spread more widely over donor countries, so that large individual donors would have less influence on development policy in the recipient country.

Policies to Increase Private Foreign Investment

The fundamental distinction between the inflow of public and private capital lies in the fact that while the latter is mainly dictated by the market mechanism, the former is not. Although in developing countries the proportion of private capital-inflow in comparison to public capital is small, the evidence of an upward (downward) trend would reflect over-all strength (weakness) in the receiving economy. Since the primary motive of foreign private investment is profit, it seeks outlets where the rate of return on capital is expected to be maximum, that is to say, where profit is maximized. Net private investments flowing from developed to developing countries do in fact show an upward trend over the period 1960-66.[25]

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[25] United Nations, U.N.C.T.A.D., Trade Prospects and Capital Needs of Developing Countries (New York, 1968), TD/34/Rev. 1, p. 48.

Turning to Pakistan, the main problem in tapping foreign private capital lies in providing the appropriate amount of incentive and security. Too much incentive may attract large private inflows, but the reverse flow of dividends and profits may outstrip the new investments. On the other hand, too little incentive may mean practically no new private capital; indeed, it may drive away existing capital.

On April 2, 1948, the Government of Pakistan announced that it "would always be prepared to give favourable measure of protection to industries established in Pakistan. . . . Pakistan would welcome foreign capital seeking investment from a purely industrial and economic objective and not claiming any special privileges. . . . foreign capital will be welcome so long as opportunities for participation of indigenous capital are provided and monopolies avoided."[26] Although these terms were quite reasonable and attractive, Pakistan reserved the right to take over or participate in any industry vital to "the security or economic well-being of the State."[27] And nothing was said regarding the payment of compensation in

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[26]Quoted from United Nations, Foreign Investment Laws and Regulations of the Countries of Asia and the Far East (New York, 1951), ST/ECAFE/1, pp. 56-67.

[27]Ibid., p. 67.

case nationalization actually takes place.[28] By contrast, the Philippines assure "just compensation"[29] in the case of nationalization. As for the "reverse flow" (i.e., remittance of profits and dividends), "the Government will allow facilities for the remittance of a reasonable proportion of profits to countries from which capital is drawn."[30]

Because of such ambiguities and political instability, Pakistan was unable to attract substantial foreign private capital during the Pre-Plan period, 1947-1955; it averaged only Rs. 19 million per year. Inflows dropped to Rs. 16 million during the First Plan period, 1955-60; extreme political instability was the chief cause of this decline, and there was substantial capital flight from Pakistan.

The military regime which took power in October 1958 quickly restored political stability. Private foreign capital increased more than fivefold, averaging Rs. 85 million per year during the Second Plan period and Rs. 95 million during the period 1965-69.[31]

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[28] Ibid.

[29] Ibid.

[30] Government of Pakistan, Statement of Industrial Policy (Karachi, April 1948).

[31] See Appendix A, Table 1.

To attract more private investment, Pakistan has recently offered the following additional incentives: a tax holiday for new ventures--from 2 to 6 years depending upon the geographic location, with the relatively less developed regions receiving the longer holidays; eligibility for tax holidays to cover a wide range of industries; carrying forward of past losses; liberal depreciation allowances; income tax reliefs to foreign technicians; easy repatriation facilities; agreement with the United States and West Germany guaranteeing investment; and double taxation relief. For substantial increase in private capital inflows, it is suggested that Pakistan should be clear and specific on the "nationalization" issue; it should promise reasonable compensation in case of nationalization of any industry. However, the "reverse flow" issue is best left open.

It is further suggested that the Government of Pakistan should be careful in imposing restrictions on the consumer-oriented imports because ill-designed import-policy in this direction may discourage private capital inflows into Pakistan. This suggestion is based on our analysis which shows the existence of significant correlation between foreign private capital inflow (F_p) and imports of consumer goods (C_o) or imports of raw materials for consumer goods (R_{co}).[32]

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[32]See Appendix A, Table 8.

Policies to Increase Exports

The prospect for expanding exports of primary goods with an eye to reducing the export-import gap seems at first to be discouraging. World demand for the primary commodities of the developing countries has slowed down significantly since 1951 for the following major reasons: emergence of synthetics as a substitute for many natural raw materials; low elasticity of demand for primary commodities; the smaller component of raw materials per unit of finished good; agricultural protectionist policy by the developed countries; and slow growth of demand for foods in the developed countries.[33] Prebisch's well-known thesis suggests that the long-run tendency for the prices of primary products is to deteriorate relatively to the prices of manufactured goods.[34] The Report of the U.N.C.T.A.D. Secretariat in the Second Conference in New Delhi (February 1968) asserts: "It would be unrealistic to look for any improvement from additional exports of primary commodities unless there were reasons to expect a major shift in the import policies of developed countries with respect to primary products."[35]

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[33] J. Pincus, Trade, Aid and Development (New York: McGraw-Hill Book Company, 1967), pp. 233-294.

[34] R. Prebisch, Towards a New Trade Policy for Development, U.N.C.T.A.D. (Report of the Secretary General) (New York, 1964), E/CONF. 46/3, pp. 11-17.

[35] United Nations, U.N.C.T.A.D., Trade Prospects and Capital Needs of Developing Countries (New York, 1968), TD/34/Rev. 1, Chap. V, p. 47.

Both the theoretical and empirical bases of Prebisch's thesis have recently been called into question.[36] The fundamental fallacy probably lies in drawing conclusions from the aggregate gloomy picture, which shows a declining trend in the world demand for primary products. The degree of "gloominess" may well vary widely from country to country. Just because the recorded aggregate expansion rate of exports for the developing countries as a whole is slow, and because world conditions are unfavourable, it would be unreasonable to suggest that any strategy to improve exports for any particular developing country would meet with failure.

A close look at the socio-political and economic background of Asian and Latin American countries would reveal that a slow rate of exports is not exclusively a function of world demand conditions, but also of such domestic factors as an over-valued currency,[37] inflation, and political instability. "For most underdeveloped countries, variations in the supply of exports seem to

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[36] See M.J. Flanders, "Prebisch on Protectionism: an Evaluation," Economic Journal, June 1964, pp. 305-326; H.G. Johnson, Economic Policies Towards Less Developed Countries (Washington: The Brookings Institute, 1967), Appendix A, p. 249.

[37] In the case of Pakistan, the extent of over-valuation approximates 33%. See M.L. Pal, "Domestic Prices of Imports in Pakistan: Extension of Empirical Findings," Pakistan Development Review, Winter 1965, p. 554.

have been more important than fluctuations in demand."[38] For Pakistan in particular, "in many cases, the bottleneck is no longer a lack of export markets abroad but adequate production at home . . . about four-fifths of our present exports were suffering because of the production bottleneck."[39] (Underlining added.)

Thus there appears to be wide scope for increasing the exports of developing countries, especially manufactured goods. During the 1960's, Pakistan has registered an 18% increase in the export of manufactures, as opposed to a 2.5% increase in exports of primary commodities.[40] The Planning Commission has found that fish and rice are potentially very good sources of foreign-exchange earnings. It has also been suggested that raw-jute exports should be stabilized around an annual level of 40 to 45 thousands of bales, in order to prevent prices in the international market from falling. However, no plausible technique has been proposed to achieve this target.

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[38] A.I. Macbean, Export Instability and Economic Development (London: Allen and Unwin, 1966), p. 304. See also H. Myint, "The Inward and Outward Looking Countries of South-East Asia," Malayan Economic Review, April 1967.

[39] Government of Pakistan, Planning Commission, Briefing for the Pakistan Delegation to the Eleventh Meeting of Pakistan Consortium at Washington on 21st and 22nd May, 1968 (May 1968), Annex D. (Unpublished.)

[40] Ibid., p. 2.

Of Pakistan's policies to stimulate exports, the Export Bonus Scheme is by far the most important.[41] It was introduced in 1959 and was scheduled to run until the end of the Second Plan period. The objective of introducing the scheme was to create price differentials in favour of optimal economic activities through an implicit multiple exchange rate system. It seems that the allocation of foreign exchange through free operation of market mechanism has been satisfactory during the Second Plan period. It was then extended through the Third Plan. Prior to 1967, the prices of bonus vouchers as percentages of face value fluctuated around 150%, and in 1967 it was about 170-180%. (This is shown in Table 7.3.) Although the scheme has received considerable attention from economists, opinion as to its effectiveness in stimulating export earnings is divided. Some argue that the differential bonus rates (viz., 20% for sugar, rice milling, jute textiles, dyeing, etc.; 30% for all manufactured goods except jute textiles; and zero per cent for tea, salt, chemical fertilizers, coal and petroleum products,

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[41] The main features of the Scheme are as follows: for practically all manufactured goods, and selected materials, the exporter, upon surrendering his foreign exchange to the State Bank of Pakistan at the official exchange rate, obtains a voucher which authorizes him to purchase foreign exchange equal in value to a specified percentage (called the "bonus rate") of the foreign exchange earned. This voucher is freely transferable, and its price (called the "premium") is determined by market forces.

TABLE 7.3

PRICES OF BONUS VOUCHERS
(In Percentages of Face Value)

Ordinary Vouchers		High	Low
1963:	1st quarter	174	150
	2nd quarter	185	163
	3rd quarter	170	157
	4th quarter	167	149
1964:	1st quarter	159	146
	2nd quarter	147	135
	3rd quarter	150	137
	4th quarter	156	140
1965:	1st quarter	174	147
	2nd quarter	170	141
	3rd quarter	154	118
	4th quarter	149	134
1966:	1st quarter	167	148
	2nd quarter	163	149
	3rd quarter	161	147
	4th quarter	156	151
1967:	1st quarter	167	151
	2nd quarter	178	159
	3rd quarter	188	163
	4th quarter	184	166

Fifty per cent Reserved Jute Vouchers		High	Low
1966:	1st quarter	40	40
	2nd quarter	44	40
	3rd quarter	44	44
	4th quarter	44	44
1967:	1st quarter	104	48
	2nd quarter	105	85
	3rd quarter	115	89
	4th quarter	138	70

Source: I.B.R.D. and I.D.A., Current Economic Position of Pakistan (Washington, April 1968), Vol. II, Statistical Appendix, Table 56. (Unpublished.)

cotton ginning, jute pressing, etc.) have distorted the export pattern and resource-use in favour of commodities which earn less foreign exchange. For example, though cotton earns more foreign exchange than rice, there has been a shift in relative acreage in favour of rice.[42] Again, raw cotton and raw jute are the highest foreign-exchange-earning items in Pakistan, but the pattern of exports has become biased in favour of cotton and jute textiles because the latter enjoy a 20% bonus rate while the former are not only denied the bonus rate but also are subject to export tax.[43] Furthermore, Thomas suspects that the Export Bonus Scheme permits manufactured goods to be exported at a price, in terms of foreign exchange, which is less than the foreign-exchange cost of direct and indirect imported inputs used to produce that commodity, resulting in a loss of foreign exchange.[44] If this is true, it would seem very questionable whether the Export Bonus Scheme should be allowed to continue through the forthcoming Fourth Plan period.

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[42] G. Mohammad, "Some Physical and Economic Determinants of Cotton Production in West Pakistan," Pakistan Development Review, Winter 1963, pp. 491-527.

[43] R. Mallon, "Export Policy in Pakistan," Pakistan Development Review, Spring 1966.

[44] S.P. Thomas, A Critical Evaluation of Import Licensing in Pakistan, Research Report No. 38, (Karachi, February 1966). (Mimeographed.)

A recent study carried out by Soligo and Stern, however, dispels the doubt to a large extent, for apparently none of the 43 industries studied has suffered a net foreign-exchange loss.[45] Furthermore, the industries with the highest import requirements are receiving the highest bonus rate.[46] The study also confirms the findings of Mohammad and of Mallon that there has been a marked shift of resources in favour of manufacturing industries. In the short run, this may imply a loss of foreign-exchange earnings because of the diversion of resources from the production of goods earning the most foreign exchange, namely, cotton and jute. But this should not be a matter of great concern; as already noted, it would be unrealistic to look for any improvement from additional exports of primary commodities unless the import policies of developed countries are drastically changed. Against this background and in the long-run context, an export pattern biased in favour of manufactured goods appears to be a step in the right direction. The best strategy, therefore, would be to apply "efficiency" criteria--in terms of maximizing long-run net foreign-exchange earnings--as the basis for assigning appropriate bonus rates. This has not been adequately done so far.

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[45] R. Soligo and J. Stern, "Some Comments on the Export Bonus, Export Promotion and Investment Criteria," Pakistan Development Review, Spring 1966, p. 43.

[46] Ibid., p. 49.

Another major problem concerning exports of developing countries is export-instability. A major issue that any export-oriented developing country faces is: will fluctuations in export earnings frustrate the development effort by weakening the economy's ability to obtain required imports and thus producing fluctuations in investment and production?

A rank-correlation analysis has been used here to assess the impact of export flucuations on investment and production in Pakistan. The results show that the rank-correlation coefficient between annual percentage flucuations in exports earnings (X_t^*) and investment (I_t^*) is not significant at the 5% level of significance.[47] One possible explanation for this lies in the tendency of the Government and businessmen in Pakistan to store capital goods and raw materials in anticipation of shortages of foreign exchange.[48] This breaks the usual relation between foreign exchange earned and imports of capital goods and raw material for such goods. But since both investment and the G.N.P. appear to be unaffected by fluctuations in export earnings, the question arises as to whether any substantial benefit can be derived from stimulating exports. In the short run, the effect may not

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[47] See Appendix A, Table 7.

[48] Macbean, op. cit., p. 193.

be large, but in the long run the trend of export earnings is bound to influence the course of economic development.

The following measures are therefore suggested in order to increase export earnings in Pakistan: (i) the "bonus" rate should be allocated on the basis of the industry's ability to increase net foreign exchange earnings; (ii) export outlets should be diversified (Pakistan's exports are now highly concentrated in the United States, the United Kingdom, mainland China and Japan) so as to withstand the impact of major import-policy changes in a particular country; attempts should be made to find new markets for manufactured goods in the socialist countries and in the market-oriented developed countries. Some progress has indeed already been made in this direction.

Policies to Reduce Imports

One of the most crucial elements in the strategy to close the export-import gap is to cut down import requirements in such a manner as not to affect the target growth rate. Given the level of development and target growth rate, the foreign-exchange component of investment is fixed. Since foreign-exchange earnings do not cover the entire import bill, one looks to external aid or outlets for additional exports. But the foreign exchange available

from all sources may still not bridge the entire gap. In that case, there is no other way but to cut imports.

The question is: how can it be done without reducing the target growth rate? Two approaches are possible:

(i) eliminate non-essential imports without bringing serious social and political consequences;

(ii) produce currently-imported goods domestically insofar as this is economically feasible.

Let us see how much non-essential imports can be compressed and to what extent this will close the export-import gap. Table 7.4 and Table 7.5 show the changing composition of imports in Pakistan.[49] Consumer-goods imports have declined drastically from 42% of total imports during the Pre-Plan period to 24% during the Second Plan period. In the Pre-Plan period, Pakistan had virtually no industry and therefore had to depend entirely on imported goods. The import decline reflects the rapid domestic growth of numerous consumer-goods industries. The proportion of imports of raw material for consumer goods also declined--from 19% during the Pre-Plan period to 15% during the Second Plan period. The most notable increase has taken place in the import of capital goods; they rose from 27%

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[49] For details, see Appendix A, Table 5.

TABLE 7.4

COMPOSITION OF IMPORTS
(In Percentage)

Year			C_o	R_{co}	R_{ca}	C_a
Pre-Plan	1951-52	- 1954-55	42	19	12	27
1st Plan	1955-56	- 1959-60	36	15	14	35
2nd Plan	1960-61	- 1964-65	24	15	14	47

C_o = Consumer goods

R_{co} = Raw materials for consumer goods

R_{ca} = Raw materials for capital goods

C_a = Capital goods

Source: N. Islam, Imports of Pakistan: Growth and Structure (Karachi, September 1967), p. 6.

TABLE 7.5

PAKISTAN:
COMPOSITION OF IMPORTS OF CONSUMER GOODS
(In Percentage)

	Pre-Plan	1st Plan	2nd Plan
Food and Food Products	45	59	63
Non-Food and Non-Food Products	55	41	37

Source: Calculated from N. Islam, Imports of Pakistan: Growth and Structure (Karachi, September 1967), p. 6.

of the total in the Pre-Plan period to 47% during the Second Plan. This increase is quite understandable in the context of the drive for industrialization. By the same token, the import of capital goods cannot be curtailed without affecting the target growth rate. As for consumer goods, they can be split into two categories: food and food products; and non-food and non-food products (luxury goods, etc.). The latter may be considered for compressibility to the degree that they are not essential for development. Table 7.5 shows that there has been a marked decline in Pakistan's imports of non-food and non-food products. They dropped from 55% of total consumer goods (roughly 13% of total imports) to 37% (9% of total imports) over a decade.[50] Even if it was possible to compress these imports, the reduction would not be significant enough to effect substantial savings in foreign exchange. In global terms as well, "the scope for further reducing imports of non-food consumer goods is becoming more limited."[51]

Table 7.6 shows that there is a high correlation between Pakistan's export-import gap (Gap II) and imports

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[50] Non-food consumer-goods imports of the developing countries as a whole accounted for 25% of their total imports in 1952-55, and this figure declined to 20% by 1968. See United Nations, U.N.C.T.A.D., Trade Prospects and Capital Needs of Developing Countries, Report by the U.N.C.T.A.D. Secretariat (New York, November 1967), TD/34/Supp. 1, p. 92.

[51] Ibid.

TABLE 7.6

CORRELATION BETWEEN GAP II AND A FEW SELECTED VARIABLES

VARIABLES[a/] (Independent)	CORRELATION COEFFICIENT (r)	REGRESSION COEFFICIENT (b)	COMPUTED t-VALUE	TABLE t-VALUE (at .05 Significance Level) n=N-2=19-2=17	REMARK ON VALUE OF r
C_a	0.947	1.056 (0.216)	4.896	2.110	Significant
R_{ca}	0.693	1.778 (0.486)	3.656	2.110	Significant
C_o	0.357	0.506 (0.435)	1.164	2.110	Not Significant
R_{co}	-0.224	-0.378 (0.398)	-0.951	2.110	Not Significant

DEPENDENT VARIABLE
GAP II (IMPORT-EXPORT GAP)

a/ C_a = Imports of Capital Goods; R_{ca} = Imports of Raw Materials for Capital Goods; C_o = Imports of Consumer Goods; R_{co} = Imports of Raw Materials for Consumer Goods.

Source: Calculated from Appendix A, Tables 1, 2 and 5.

of capital goods (C_a) or raw material for capital goods (R_{ca}), while correlation between Gap II and consumer goods (C_o) or raw material for consumer goods (R_{co}) is not significant. This underscores the point that any attempt to compress imports of consumer goods would not be effective in reducing the export-import gap.

Let us now turn to the possibility of import substitution as an instrument for closing the export-import gap. As one surveys the relevant literature, one gets the impression that the scope for import substitution is very limited. This is not necessarily true, however. For underdeveloped countries like Pakistan, with an inadequate economic infra-structure and a fast-growing population, it is natural to expect that the proportion of total investment required for agriculture and social-overhead capital would be larger than the proportion necessary for durable producer equipment in the manufacturing sector. Once this is realized--in other words, once emphasis is shifted from manufacturing-oriented "industrialization" to agriculture and social overhead--views regarding the "normal" pattern of import substitution will change to a very large extent.[52] It will then be seen that there is considerable scope for import substitution in terms of

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[52] For an excellent discussion of this topic, see H. Myint, International Trade and the Developing Countries (a Paper read at the International Congress in Montreal, September 2-7, 1968).

increased agricultural productivity; this would save a substantial amount of foreign exchange spent to import food and food products. The substitution of agricultural investment for industrial development, according to Tims, will reduce the magnitude of the current account deficit.[53]

Table 7.5 shows that food and food products in Pakistan rose from the already-high level of 45% of total consumer goods in the Pre-Plan period to 63% during the Second Plan period. The picture for the developing countries as a whole is similar. This further stresses the need to raise agricultural productivity, which would reduce food imports and save substantial foreign exchange.

Whether import substitution helps to close the export-import gap or not depends largely on whether "domestic absorption" remains equal to or less than the consumption level previously supported by imports. If domestic absorption exceeds the existing consumption level, it simply means that aggregate national savings have declined and that the very purpose for which import substitution was adopted becomes self-defeating. A recent study of import substitution in Pakistan, with respect to five selected commodities, suggests that there has been a "liberalization" of consumption (hence, the diminution of

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[53] See W. Tims, Analytical Techniques for Development Planning: a Case Study of Pakistan's Third Five-Year Plan (1965-1970) (Karachi, February 1968), pp. 95-104. The pattern of grants and subsidized loans to Pakistan reveals the apparent neglect of the agricultural development of the economy. (See Chapter 6, p. 183.)

aggregate savings) as a result of import substitution.[54] Also, a government survey of manufacturing industries in Pakistan suggests that they are working much below installed capacity,[55] and that the difference between industrial requirements and availability amounts to about 40% of total requirements.[56] During the Third Plan period, the situation is likely to become acute.

Thus successful import substitution in Pakistani manufacturing industry is a questionable proposition. However, there is no reason why import substitution should necessarily be in the direction of manufacturing industry. It can very well take place in agriculture and in raw-material production. Furthermore, a careful allocation of available foreign exchange (from both external and internal sources), based on shadow pricing, could minimize inefficiencies in import-substituting industry.

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[54] A.R. Khan, "Import Substitution, Export Expansion and Consumption Liberalization," Pakistan Development Review, Summer 1963. See also J.H. Power, "Industrialization in Pakistan: A Case of Frustrated Take-Off?", Pakistan Development Review, Summer 1963.

[55] Shortage of foreign exchange has resulted in unutilized capacity in the industrial sector which has grown to 10% of the G.N.P. in the past few years. See M. Haq, "Problems of Formulating a Development Strategy in Pakistan," in O.E.C.D., Development Plans and Programmes (Paris, September 1964), No. 16953, p. 114.

[56] Government of Pakistan, Ministry of Finance, Report of the Working Group on Import Policy (Islamabad, December 1967).

Chapter 8

CONCLUSIONS

Problems of Coverage

Coverage of this study is confined to the role of foreign economic aid in a developing economy experiencing a persistent deficit in the balance of payments, with special reference to Pakistan. Many conceptual and practical problems of definition and measurement are involved in this kind of analysis. There are also serious difficulties in establishing functional relationships among complex inter-dependent variables.

Two basic assumptions prevail throughout the study: (i) that overall government planning is conducive to the creation and maintenance of an appropriate environment for economic development; and (ii) that foreign aid, in the sense of inter-governmental grants and subsidised loans, plays a positive role in the development process.

Needless to say, both assumptions are open to question. As Myrdal points out:

> The emergence of . . . [a] common urge to economic development as a major political issue in all underdeveloped countries and the definition of development as a rise in the levels of living of the common people, the uncontested understanding that economic development is a task for the governments and that the governments have to prepare and enforce a general

> economic plan, containing a system of internationally applied controls and impulses to get development started and keep it going, is entirely a new thing in history. . . .[1] (Underlining added.)

And since it is impossible to ascertain what would have happened without "planning", its impact cannot be precisely determined. But for Pakistan, it seems reasonable to believe that planning has worked well, at least during the first half of the 1960's.

As for the second assumption, foreign aid is neither a necessary nor a sufficient condition for economic development. Most of the present "developed" countries achieved their advanced status without foreign aid. Again, despite prolonged foreign aid, many underdeveloped countries still face acute economic difficulties, with general standards of living undergoing little or no improvement. In any event, aid cannot be treated as the indispensable component of economic development, since (as in the case of planning) it is impossible to know what would have happened to a particular economy without it. And yet, having said all this, recent experience in countries like Taiwan, Israel and Greece does show that foreign aid can play a significant role in accelerating economic growth.

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[1] G. Myrdal, Development and Underdevelopment: A Note on the Mechanism of National and International Inequality (Cairo: N.B.E. Printing Press, 1956), pp. 63 and 65.

Turning to the main theme, ideally the study should have treated the East and the West Wings of Pakistan separately, because they are virtually two independent economies. East Pakistan, close to Burma and China and separated from West Pakistan by over a thousand miles of Indian territory, differs in almost every way--including language, culture and climate--from the West Wing, which borders on Afghanistan and Iran. According to the Pakistan Resolution of March 23, 1940:

> No constitutional plan would be workable in this country [British India] or acceptable to the Muslims unless it is designed on the following basic principle, namely, that geographically contiguous units are demarcated into regions which should be so constituted, with such territorial readjustments as may be necessary with the areas in which the Muslims are numerically in majority, as in the north-western and eastern zones of India, should be grouped to constitute independent states in which the constituted units shall be autonomous and sovereign.[2] (Underlining added.)

But neither Wing is "sovereign" or "autonomous." Furthermore, the majority of the top decision-makers come from West Pakistan; and not surprisingly, a larger share or external as well as internal resources has flowed into West Pakistan, generating greater economic growth there than in the East Wing. Then too, the imbalance in regional growth, once entrenched, has tended to perpetuate itself.

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[2]Government of Pakistan, the Embassy of Pakistan, Pakistan Affairs (Washington, March 1968), p. 1.

This unequal flow of resources has not only widened the disparities in regional incomes but has also produced serious political strains--so much so that the Government was forced to recognize the problem of disparities in the Constitution of Pakistan. Under Article 145, Clause 3, a primary object in plan formulation" shall be to ensure that disparities between the Provinces, and between different areas within a Province, in relation to income per capita are removed and that the resources of Pakistan . . . are used and allocated in such a manner as to achieve that object in the shortest possible time."[3]

In an attempt to fulfil this constitutional obligation, the Third Plan proposed an increase of 40 per cent in the regional income of East Pakistan and 35 per cent for West Pakistan, as against 30 and 28 per cent respectively in the Second Plan. Development expenditures of Rs. 2.7 billion and Rs. 2.5 billion were allocated to East and West Pakistan respectively. However, two things must be explicitly recognized: the Third Plan does not provide any mechanism by which actual transfer of real resources from West to East Pakistan would take place;

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[3] On March 23, 1969, Pakistan's Constitution was abrogated by General Yahya Khan, the Commander-in-Chief of the Pakistan Army, who took power from President Mohammed Ayub Khan and placed the country under Martial Law. Yahya, however, declared that no major changes in policy would be made in the near future.

and there is conflict between the Plan's objectives of maximizing G.N.P. growth while channeling increased resources into the less productive East Wing. In any event, there is some reason to believe that regional disparities have not only failed to disappear but have actually widened.

Thus, a logical extension of the present study's coverage would have been the construction of two regional balance-of-payments accounts for Pakistan. This would have permitted a comprehensive analysis of the strains on national resources and could have yielded a deeper understanding of the impact of foreign aid on the country's economic growth. But the data for this type of approach are not available.[4] Consequently, the study has had to be more limited in scope than considerations of thoroughness would warrant.

A Review of Findings

The discussion in Chapter 3 indicated that some quantitative studies (for example, the Rosenstein-Rodan and Fei-Paauw models) have concentrated exclusively on the savings-investment gap in estimating the amount of foreign aid required to reach a given growth rate in a developing economy. It was also pointed out that such an

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[4] In this connection, see J.L. Fischer, "Concepts of Regional Economic Development Programs," Papers and Proceedings of the Regional Science Association, Vol. 1 (1955), pp. W1-W20.

approach may not yield meaningful results, because an increase in G.N.P. calls not only for adequate savings but also for indispensable minimum imports.

The McKinnon and Chenery-Strout models bring this foreign-exchange aspect into sharper focus. Despite various shortcomings--such as omission of the supply side of the foreign aid[5] and the apparent neglect of debt repayment[6]--the Chenery-Strout model provides useful insights into the nature and types (and possible sequence) of problems encountered by a developing economy. In essence, the model suggests that the savings-investment gap (Gap I) is dominant over the export-import gap (Gap II) when the supply of foreign exchange is adequate and the domestic savings rate falls below the rate necessary to achieve the target growth rate. Gap II emerges as the binding constraint when, given adequate domestic savings, foreign-exchange earnings are insufficient to finance imports of goods and services which cannot be produced domestically (at all or on competitive terms) but are vital for rapid economic growth. Both the McKinnon and and Chenery-Strout models show that foreign aid is much

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[5] G. Ranis and J.C.H. Fei, "Foreign Assistance and Economic Development: Comment," American Economic Review, September 1968, p. 908.

[6] See M.A. Rahman, "The Welfare Economics of Foreign Aid," Pakistan Development Review, Summer 1967.

more effective when Gap II, rather than Gap I, becomes the binding constraint. It is in this context that we undertook to analyze the balance-of-payments problems of Pakistan--a country with an unbroken record of deficits on current account since 1951-52, and with a long experience as one of the largest aid-recipients in the developing world.

An important finding was that foreign aid has contributed to balance-of-payments strain through the pressure of debt obligations and the distortion of investment priorities by tied project aid; but that aid has eased the strain through large supplies of essential commodity aid. The preponderance of project aid has helped, as well, to create excess productive capacity and a high-cost industrial structure in Pakistan.

The analysis revealed major weaknesses in past policies aimed at Pakistan's balance-of-payments problems. The decision not to devalue the rupee in 1949 was found to be particularly harmful; not only did Pakistan almost immediately lose the entire Indian market, particularly for jute, but in the course of time India became one of its chief rivals in the world jute market.

On the other hand, it was suggested that there is no need for alarm about the existing debt-servicing situation in Pakistan; it seems presently within manageable

limits. But unless adequate forestalling measures are taken well in advance, a debt crisis could develop in the years ahead.

There was also a detailed discussion of the problem of tied aid. France, Italy, Japan and the Netherlands, the "worst offenders" (according to Haq) in the field of tying, made 43 loans up to 1965, and nearly all of them were tied, hard project loans. None of 209 credits contracted up to 1965 were untied and soft commodity aid. On the average, the prices paid for tied aid in the United States, the United Kingdom, Japan, Italy and France were 38, 56, 63 and 66 per cent higher, respectively, than international prices. Tied aid reduced the real value of aid by roughly 20 per cent.

An interesting aspect of the study is the evidence suggesting that foreign aid has had a positive effect on domestic savings in Pakistan. At the very least, this casts doubt on Rahman's sweeping generalization that aid acts as a substitute for domestic savings in the developing countries.

Another important finding was the negligible correlation between the export-import gap and imports of consumer goods; this calls into question the frequently-made recommendation that consumer-goods imports be curtailed in order to bridge the gap. Also, a rank-correlation

analysis suggested that export instability in Pakistan is not significantly related to fluctuations in investment; such instability, therefore, should not, in itself, be cause for great concern.

Some General Policy Recommendations

Since foreign aid appears, on balance, to have played a positive role in Pakistan, it is strongly recommended that--despite the announced intentions of the Government to eliminate dependence on aid by the end of the Perspective Plan (1985)--every effort be made to increase both its quantity and quality. And since the supply of aid seems to depend more on political than on economic considerations, it is suggested that foreign policy be integrated with national economic policy, with a view to maximizing foreign-resource inflows and minimizing the burden of debt service. This is not to say that efforts to reduce reliance on foreign aid should be diminished or discontinued; in our judgment, the two goals are not mutually exclusive.

Another way of augmenting the supply of foreign aid might be to instill donor confidence in Pakistan's ability to utilize aid effectively and to repay past debts on time and in full. However, it should be borne in mind that economic performance is only one of the many criteria--

not necessarily the most important--used by the donor in supplying aid. Pakistan bears testimony to this in the years since 1965.

In any case, Pakistan should make specific efforts in the following directions: (1) to persuade the donors to soften the terms of lending; (2) to achieve a re-negotiation of old debts; (3) to obtain more untied commodity aid and so reduce idle capacity as much as possible; (4) to secure increased multilateral aid along with a constant or increasing level of bilateral assistance.

It has been suggested that private foreign capital should be attracted to Pakistan by offering sufficient incentives, particularly compensation for nationalized property, and liberal terms of profit remittance. Moreover, ways and means of expanding exports should be explored, with emphasis on export incentives and regionally-diversified markets for manufactured goods.

Finally, the recruitment of planners skilled in adapting to fluctuations in foreign-aid inflows, closer policy co-ordination between the donors and Pakistan, a wider sense of participation in the country's growth effort, and the maintenance of a stable political system--all these would contribute to a successful "take-off" by Pakistan in the near future.

APPENDICES

For Appendix A, Table 1, see the attached Folder.

APPENDIX A

TABLE 2

A SUMMARY STATEMENT OF PAKISTAN'S BALANCE OF PAYMENTS
(IN MILLION RUPEES/CURRENT PRICES)

	Pre-Plan 1951-55	First Plan 1955-60	Second Plan 1960-65	Third Plan[a] 1965-70
1. Total Import Payments	7,772	13,692	24,689	29,405
2. Total Export Earnings	6,572	9,517	13,218	14,874
3. Export-Import Gap (2) - (1)	1,200	4,175	11,471	14,531
4. Net Foreign Aid[b]	560	4,289	10,972	12,014
5. Short Fall[c] (4) - (3)	-740	114	-499	-2,517
6. Changes in Gold[d] and Foreign Exchange Reserves	(+) 817	(-) 146	(+) 219	(+) 308[e]
7. Errors and Omissions and Short-Term Capital Movements	-77	-32	-280	---

a/ The Third Plan is in its fourth year.
b/ Includes foreign private investment, Indus Basin aid and PL-480 aid.
c/ - for short fall or deficit and + for surplus or negative short fall.
d/ (-) for increase in Reserves and (+) for decrease or drawing down of Reserves.
e/ Does not include the figure for 1968-69, which was not available at the time of preparing the Table.

Source: Calculated from Appendix A, Table 1.

APPENDIX A

TABLE 3

NET INFLOW OF FOREIGN RESOURCES
(IN MILLION RUPEES)

Year (July-June)	Foreign Aid: Grants & Loans a/	Debt Servicing	Net Foreign Aid	Net Private Foreign Investment	Changes In Reserves	Net Foreign Resources
1951-52	5	-	5	11	(+) 467	483
1952-53	145	-	145	19	(+) 377	541
1953-54	180	1	179	22	(+) 38	239
1954-55	165	10	155	24	(-) 65	144
1955-56	472	10	462	9	(-) 371	100
1956-57	762	33	729	21	(+) 194	944
1957-58	1256	32	1224	28	(+) 320	1572
1958-59	810	44	766	10	(-) 162	614
1959-60	1067	41	1026	14	(-) 127	913
1960-61	1506	100	1406	90	(-) 55	1441
1961-62	1580	120	1460	90	(+) 97	1647
1962-63	2382	188	2194	81	(-) 308	1967
1963-64	2931	243	2688	90	(+) 201	2979
1964-65	3142	346	2796	77	(+) 284	3157
1965-66	2914	411	2503	100	(-) 312	2291
1966-67	3334	520	2814	92	(+) 470	3376
1967-68	3520	600	2920	130	(+) 150	3200
1968-69	4010	715	3295	160	-	3455

a/ Indus Basin Aid and PL-480 Aid are included.

Source: Calculated from Appendix A, Table 1.

For Appendix A, Table 4, see the attached Folder.

For Appendix A, Table 5, see the attached Folder.

APPENDIX A

TABLE 6

YEARLY PER CENT CHANGES IN
PAKISTAN EXPORTS, IMPORTS, G.N.P. AND INVESTMENT

YEAR July-June	% CHANGE IN M=M*	RANK	% CHANGE IN X=X*	RANK	% CHANGE IN GNP = GNP*	RANK	% CHANGE IN I=I*	RANK
1950-51	26.1	12	109.6	16	3.70	8	4.7	5
1951-52	38.0	14	- 21.3	2	0.08	2	38.6	15
1952-53	-36.1	1	- 24.8	1	2.90	6	17.2	11
1953-54	-19.1	4	- 14.8	3	6.20	14	6.2	6
1954-55	- 1.3	7	- 4.8	7	0.47	3	0.6	3
1955-56	20.1	9	45.8	15	-0.26	1	13.7	7
1956-57	76.2	16	- 9.8	5	5.90	13	4.5	4
1957-58	-12.2	5	- 11.8	4	0.75	4	31.3	13
1958-59	-23.0	2	- 6.8	6	1.40	5	- 2.0	1
1959-60	55.9	15	39.0	14	4.20	4	35.0	14
1960-61	29.5	13	- 2.3	8	5.20	12	44.2	16
1961-62	-12.4	6	2.4	10	5.90	13	27.1	12
1962-63	22.8	11	21.9	13	3.50	7	7.7	8
1963-64	15.9	8	2.3	9	8.20	15	15.3	9
1964-65	21.3	10	4.7	11	4.50	10	15.5	10
1965-66	-21.6	3	12.8	12	5.60	11	0.8	2
AVERAGE % VARIATION	10.9		14.6		3.6		16.1	

Source: Derived from Government of Pakistan, Central Statistical Office, Statistical Bulletin (Karachi, 1962-67); M. Haq, The Strategy of Economic Planning: A Case Study of Pakistan (Karachi: Oxford University Press, Pakistan Branch, 1963), Appendix B, Tables B-1, B-2, B-3; I.B.R.D. and I.D.A., Current Economic Position and Prospects of Pakistan (April 17, 1968), Vol. II, Statistical Appendix.

APPENDIX A

TABLE 7

RANK CORRELATION COEFFICIENTS BETWEEN PAKISTAN EXPORTS AND GNP, IMPORTS AND PRECEDING YEAR'S EXPORTS, AND EXPORTS AND INVESTMENT

RANK CORRELATION COEFFICIENT	SAMPLE SIZE	REMARK
$\rho_{X_t^* GNP_t^*} = .08$	$n = 16$	NOT SIGNIFICANT (at 5% Significance Level)
$\rho_{M_t^* X_{t-1}^*} = .21$	$n = 16$	NOT SIGNIFICANT (at 5% Significance Level)
$\rho_{X_t^* I_t^*} = .22$	$n = 16$	NOT SIGNIFICANT (at 5% Significance Level)

NOTATIONS:

ρ = Rank Correlation Coefficient

x^*_t = Percentage change in exports (x_t)

GNP^* = Percentage change in GNP

M^*_t = Percentage change in imports (M_t)

I^*_t = Percentage change in investment (I_t)

Source: Calculated from Appendix A, Table 6.

For Appendix A, Table 8, see the attached Folder.

APPENDIX A

TABLE 9

U.S.A.I.D. LOANS TO PAKISTAN[a]
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Soft)[b]				Tied Commodity Loan (Soft)				Sectors	Economic Group[d]
	Amount A	Interest Rate r	Grace Period G[c]	Repayment Period R[c]	Amt. A	Int. Rate r	Grace Period G	Repay. Period R		
1.Airport Eqpt.	10	0.75	20	61					Govt.	T & C
2.Chalna Anchorage	17	0.75	20	61					Govt.	T & C
3.Ctg.Hill Tracts	11	0.75	20	61					Govt.	Agr.
4.Commodities - 5th					667	2.00	20	61	Govt.	Commerce
5.Dacca - Aricha Road	67	2.00	20	61					Govt.	T & C
6.Distribution Scheme--KESEC	34	2.00	20	61					Private	Utilities
7.Embank.Proj. --EP	31	0.75	20	61					Govt.	Agr.
8.Feasibility Study	10	0.75	20	61					Govt.	Others n.e.i.

APPENDIX A, TABLE 9 - (continued)

9. General Commodities - 1st					200	0.75	20	61	Govt.	Commerce
10. General Commodities - 2nd					143	0.75	20	61	Govt.	Commerce
11. General Consultants--EP	21	0.75	20	61					Govt.	Others n.e.i.
12. General Consultants--WP	27	0.75	20	61					Govt.	Others n.e.i.
13. Iron & Steel --1st					429	0.75	20	61	Govt.	Commerce
14. Iron & Steel --2nd					336	0.75	20	61	Govt.	Commerce
15. Iron & Steel					476	2.00	20	61	Govt.	Commerce
16. Karnaphuly Project	18	2.00	20	61					Govt.	Agr.
17. KTSTC	9	0.75	20	61					Private	Utilities
18. Malaria Eradication--I	18	0.75	20	61					Govt.	Utilities

APPENDIX A, TABLE 9 - (continued)

19.Machine Pool Organ.	29	2.00	20	61	Govt.	Others n.e.i.
20.Malaria Eradi-cation--II	50	2.00	20	61	Govt.	Utilities
21.Mech.Eqpt. EP WAPDA	7	0.75	20	61	Govt.	Others n.e.i.
22.Mech. Pool WP WAPDA	24	0.75	20	61	Govt.	Others n.e.i.
23.P.H. Engg. EP WAPDA	7	0.75	20	61	Govt.	Utilities
24.P.E. Railways	41	2.00	20	61	Govt.	T & C
25.P.W. Railways	36	2.00	20	61	Govt.	T & C
26.Power Distbn. EP	41	0.75	20	61	Govt.	Utilities
27.Power Station L.Pur	86	2.00	20	61	Govt.	Utilities
28.Power Station Sidirganj	41	2.00	20	61	Govt.	Utilities

APPENDIX A, TABLE 9 - (continued)

29.Port Project Ctg.	16	2.00	20	61	Govt.	T & C
30.Power Distbn. WP WAPDA	60	2.00	20	61	Govt.	Utilities
31.Railways - 4th	148	0.75	20	61	Govt.	T & C
32.Railways - 5th	69	0.75	20	61	Govt.	T & C
33.Salinity Proj. - 1st	51	0.75	20	61	Govt.	Agr.
34.Salinity Proj. - 2nd	4	0.75	20	61	Govt.	Agr.
35.Sui Gas Trans. - 3rd	13	2.00	20	61	Private	Utilities
36.Telecommuni-cations	22	0.75	20	61	Govt.	T & C
37.Transmission Lines	13	2.00	20	61	Govt.	Utilities
38.Urban Water Supply	17	2.00	20	61	Govt.	Utilities

APPENDIX A, TABLE 9 - (continued)

a/ All loans in this Table are Contractual loans.

b/ In this study the average period of repayments and the weighted rate of interest are 18 years and 3.3476% respectively. Treating these as the terms of a "standard" loan, the installment comes to 0.03720. All loans whose installments are below this figure have been treated as soft loans and those with higher installments as hard.

c/ The periods are given in number of half-years.

d/ "T & C" and "Agr." denote "Transport and Communications" and "Agriculture" respectively.

Source: Government of Pakistan, State Bank of Pakistan, External Debt Servicing Liability (Karachi, June 1965), pp. 43-56.

APPENDIX A

TABLE 10

U.S. EXIMBANK AND U.S. BANK LOANS TO PAKISTAN 1947-1965 (Millions of Rupees)

Project	Tied Project Loan (Hard)[a]						
	Amount A	Interest Rate r	Grace Period G[b]	Repayment Period R[b]	Sector	Economic Group[c]	Form of Loan
EXIMBANK:							
1.Cotton Ginning	31	5.75	5	17	Govt.	Manufacturing	Contractual
2.Dacca Hotel	16	5.75	4	36	Private	Others n.e.i.	Contractual
3.General Tyres	4	5.75	4	16	Private	Manufacturing	Contractual
4.IDBP	12	5.75	4	10	Private	Manufacturing	Contractual
5.Karachi Hotel	17	5.75	6	36	Private	Others n.e.i.	Contractual
6.PIA - 1st	68	5.75	2	14	Semi-Govt.	T & C	Contractual
7.PIA - 2nd	16	5.75	2	10	Semi-Govt.	T & C	Contractual
8.Railways	57	5.75	3	16	Govt.	T & C	Contractual
9.Wheat[d]	(71)	(2.50)	(29)	(59)	Govt.	Commerce	Contractual
BANK LOANS:							
1.PIA - 1st	27	5.75	-	11	Semi-Govt.	T & C	Supplier's
2.PIA - 2nd	11	6.00	11	-	Semi-Govt.	T & C	Supplier's

a/ See Appendix A, Table 9, Footnote b/.
b/ See Appendix A, Table 9, Footnote c/.
c/ "T & C" denotes "Transport and Communications".
d/ Tied Soft Commodity Loans.

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 11

GERMANY'S LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard) [a]				Untied Loans				Sector	Economic Group [c]
	Amount A	Interest Rate r	Grace Period G [b]	Repayment Period R [b]	Amt. A	Int. Rate r	Grace Period G	Repay. Period R		
1. Actate Rayon Plant	84	6.00	-	21					Private	Manufacturing
2. Airways Equipment [d]					3	5.50	12	30	Govt.	Transport & Communications
3. Auxy. Machine --Jute	4	6.00	-	11					Semi-Govt.	Manufact.
4. Buses W. Pak.					12	5.50	10	31	Govt.	T & C
5. Caustic Soda Plant					4	5.50	10	31	Govt.	Manufact.
6. Coaxial Cable Proj.	15	6.25	-	26					Govt.	T & C
7. Coastal Vessels EP					21	3.00	14	27	Govt.	T & C

APPENDIX A, TABLE 11 - (continued)

8.Commodities [d]					26	5.50	10	30	Govt.	Commerce
9.Coaxial Cable Proj.	5	6.00	-	22					Govt.	T & C
10.Coaches--PW Railway [e]					6	3.00	14	36	Govt.	T & C
11.Ferries--E.Pak.					18	3.00	14	29	Govt.	T & C
12.General Commodity [d]					30	5.50	10	30	Govt.	Commerce
13.Hattar C. Facty.--1st	18	6.00	-	27					Private	Manufact.
14.Hattar C. Facty.--2nd	15	6.00	-	27					Private	Manufact.
15.IDBP--1st					71	5.50	10	31	Govt.	Manufact.
16.IDBP--2nd					24	5.50	10	31	Govt.	Manufact.
17.IDBP--3rd					5	5.50	10	31	Govt.	Manufact.
18.PTA Repair Yard [e]					8	3.00	14	36	Govt.	T & C

APPENDIX A, TABLE 11 - (continued)

19. Maintenance [d]					29	5.50	10	31	Govt.	Commerce
20. Mangopir C. Factory					26	5.50	10	33	Govt.	Manufact.
21. One New Ship MSC	18	5.75	-	23					Semi-Govt.	T & C
22. PICIC--1st					83	5.50	10	31	Govt.	Manufact.
23. PICIC--2nd					24	5.50	10	31	Govt.	Manufact.
24. PICIC--3rd					12	5.50	10	31	Semi-Govt.	Manufact.
25. Power Stn. Multan	77	6.25	-	22					Semi-Govt.	Utilities
26. Polyethelene Plant	47	6.00	-	21					Private	Manufact.
27. Railways--1st	31	6.00	-	24					Private	T & C
28. Railways--2nd					62	3.00	14	27	Govt.	T & C
29. Railways--3rd					45	4.30	10	30	Govt.	T & C
30. Railways--4th					38	4.25	12	33	Govt.	T & C
31. Salinity Cont. Thal [e]					32	3.00	14	36	Govt.	Agricult.

APPENDIX A, TABLE 11 - (continued)

32. Soda Ash Plt.	23	6.00	-	23						Private	Manufact.
33. Sugar Mill Badin	14	6.00	-	23						Semi-Govt.	Manufact.
34. Sugar Mill Bannu	13	6.00	-	23						Semi-Govt.	Manufact.
35. Telegraph Strs.--1st e/					30	3.00	14	27		Govt.	T & C
36. Telegraph Strs.--2nd e/					17	3.00	14	36		Govt.	T & C
37. Telegraph Tel. Hqt.					16	3.00	14	36		Govt.	T & C
38. Tubewells E.P.--1st	9	6.00	-	24						Semi-Govt.	Agricult.
39. Tubewells E.P.--2nd	5	6.00	-	23						Semi-Govt.	Agricult.
40. Tubewells E.P.--3rd	7	6.00	-	27						Semi-Govt.	Agricult.
41. Two Old Ships NSC	15	5.75	-	21						Semi-Govt.	T & C

APPENDIX A, TABLE 11 - (continued)

42. Water Dev. Proj.--1st	2	5.75	-	20		Semi-Govt.	Agricult.
43. Water Dev. Proj.--2nd	8	5.75	-	22		Semi-Govt.	Agricult.
44. Water Dev. Proj.--3rd	2	3.25	-	22		Semi-Govt.	Agricult.
45. Zeal Pak. C. Facty.	6	6.25	-	22		Semi-Govt.	Agricult.

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

c/ See Appendix A, Table 9, Footnote d/.

d/ Commodity Aid

e/ Project Soft Loan

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 12

FRANCE'S LOANS TO PAKISTAN[a]
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard)[b]					
	Amount	Interest Rate	Grace Period[c]	Repayment Period[c]	Sector	Economic Group[d]
1. Acid Plant EPIDC	4	5.00	-	22	Semi-Govt.	Manufacturing
2. Cinocolour Lab I	2	5.00	-	22	Private	Manufacturing
3. Cinocolour Lab II	3	5.00	-	23	Private	Manufacturing
4. Conforce Ltd. Lahore	1	5.00	-	23	Private	Manufacturing
5. Crescent Sugar Mill	2	5.00	-	23	Private	Manufacturing
6. DDT Facty. E. Pak.	5	5.00	-	25	Semi-Govt.	Manufacturing
7. Eastern Refinery --1st	9	5.00	-	26	Private	Manufacturing
8. Eastern Refinery --2nd	49	5.00	-	26	Private	Manufacturing
9. Frontier Sugar Mill I	.09	5.00	-	23	Private	Manufacturing

APPENDIX A, TABLE 12 - (continued)

10. Frontier Sugar Mill II	3	5.00	-	23	Private	Manufacturing
11. Habib Sugar Mill	2	5.00	-	23	Private	Manufacturing
12. Hyesons Sugar Mill	2	5.00	-	23	Private	Manufacturing
13. Insecticides Pak.	6	5.00	-	24	Private	Manufacturing
14. Lyalpur Chem.Fert.	1	5:25	-	22	Semi-Govt.	Manufacturing
15. Mining Eqpt. WPIDC I	1	5.00	-	24	Semi-Govt.	Others n.e.i.
16. Mining Eqpt. WPIDC II	.01	5.00	-	24	Semi-Govt.	Others n.e.i.
17. Mining Eqpt. WPIDC III	.07	5.00	-	23	Semi-Govt.	Others n.e.i.
18. Off-Shore Oil Term	12	5.00	-	23	Semi-Govt.	T & C
19. Pahartali Text. Mill	2	5.00	-	24	Private	Manufacturing
20. Plastic Inds. --IDBP	.07	5.00	-	23	Private	Manufacturing

APPENDIX A, TABLE 12 - (continued)

21. Power Proj. EP WAPDA I	.05	5.00	-	24	Semi-Govt.	Utilities
22. Power Proj. EP WAPDA II	.02	5.00	-	22	Semi-Govt.	Utilities
23. Premier Sugar Mill I	2	5.00	-	23	Private	Manufacturing
24. Premier Sugar Mill II	6	5.00	-	22	Private	Manufacturing
25. Satrang Textile	.05	5.00	-	22	Private	Manufacturing
26. Storage Oil --IDBP	13	5.00	-	25	Private	T & C

a/ All loans in this Table are in the form of Supplier's Credits.

b/ See Appendix A, Table 9, Footnote b/.

c/ See Appendix A, Table 9, Footnote c/.

d/ "T & C" denotes "Transport and Communications."

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 13

JAPAN AND ITALY'S LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard)[a]						
	Amount A	Interest Rate r	Grace Period[b] G	Repayment Period[b] R	Sector	Economic Group	Form of Loan
JAPAN							
1.Fertilizer --EPIDC	98	5.37	-	14	Semi-Govt.	Manufacturing	Supplier's
2.Textile IDBP --1st	97	5.75	-	19	Private	Manufacturing	Supplier's
3.Textile Credit --3rd	133	6.00	-	23	Private	Manufacturing	Supplier's
4.Thermal Power --EPIDC	22	5.37	-	21	Semi-Govt.	Manufacturing	Supplier's
5.Yen Credit--1st	95	6.00	11	20	Govt.	Utilities	Contractual
6.Textile IDBP --2nd	62	6.00	-	23	Private	Manufacturing	Supplier's

APPENDIX A, TABLE 13 - (continued)

7.Yen Credit--2nd 119	6.00	10	20	Govt.	Utilities	Contractual
8.Yen Credit--3rd 143	5.75	10	20	Govt.	Agriculture	Contractual
9.Yen Credit--4th 143	5.75	11	26	Govt.	Utilities	Contractual
ITALY						
Power Distribution 16	6.00	-	23	Semi-Govt.	Utilities	Supplier's

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 14

THE NETHERLANDS' LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard) [a]						
	Amount A	Interest Rate r	Grace Period G [b]	Repayment Period R [b]	Sector	Economic Group [c]	Form of Loan
1. Boeing PIA	8	6.00	-	10	Govt.	T & C	Supplier's
2. Floating Crane	7	5.75	-	22	Semi-Govt.	T & C	Supplier's
3. Fokker--1st	7	5.75	3	10	Semi-Govt.	T & C	Supplier's
4. Fokker--2nd	9	5.75	4	10	Semi-Govt.	T & C	Supplier's
5. Fokker--3rd	5	5.75	-	22	Govt.	T & C	Supplier's
6. IPIN. [d] 5-yr. Plan	(32)	(5.50)	(14)	(38)	Govt.	Commerce	Contractual
7. Sugar Mills	19	5.75	-	21	Semi-Govt.	Manufact.	Supplier's

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

c/ "T & C" denotes "Transport and Communications."

d/ Untied Hard Commodity Loan.

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 15

DENMARK, CANADA AND THE U.K.'S LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard) [a]						
	Amount A	Interest Rate r	Grace Period G [b]	Repayment Period R [b]	Sector	Economic Group [c]	Form of Loan
U.K.							
1. 2nd Credit	133	5.25	7	14	Govt.	Agr., Manuf., Util., T & C, Others n.e.i.	Contractual
2. 3rd Credit	67	5.25	10	30	Govt.	Manuf. & Util.	Contractual
3. 4th Credit	40	5.25	10	30	Govt.	T & C	Contractual
4. 5th Credit	93	5.25	13	37	Govt.	Manuf., Util., T & C	Contractual
5. 6th Credit	133	5.25	14	37	Govt.	Manuf., Util., T & C	Contractual
6. 7th Credit	27	5.25	15	37	Govt.	Agr., Manuf., T & C	Contractual
7. 8th Credit	84	5.25	15	37	Govt.	Agr., Manuf., Comm., T & C	Contractual

APPENDIX A, TABLE 15 - (continued)

8. 9th Credit	54	6.00	15	37	Govt.	Manuf., T & C	Contractual
9. 10th Credit [d]	(52)	(6.00)	(15)	(37)	Govt.	Manuf., Comm., T & C	Contractual
10. 11th Credit	.06	6.00	14	36	Govt.	T & C	Contractual
11. Cr-Aircraft--PIA--1st	59	3.50	-	16	Semi-Govt.	T & C	Supplier's
12. Cr-Aircraft--PIA--2nd	5	6.25	-	12	Semi-Govt.	T & C	Supplier's
13. Cr-Aircraft President	27	3.50	-	16	Semi-Govt.	T & C	Supplier's
14. Credit for Ships	37	6.00	2	29	Govt.	T & C	Contractual
CANADA							
1. Canadian Loan to EPIDC	280	6.00	6	25	Semi-Govt.	Manuf.	Contractual
2. Canadian Loan to EPWAPDA	264	6.00	7	32	Semi-Govt.	Utilities	Contractual

APPENDIX A, TABLE 15 - (continued)

DENMARK							
1. White Cement Plant	4	6.50	4	23	Semi-Govt.	Manuf.	Supplier's
2. Zeal Pak Cement Facty.	30	6.50	4	24	Semi-Govt.	Manuf.	Supplier's

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

c/ "Agr.", "Manuf.", "Util.", "T & C" and "Comm." denote "Agriculture", "Manufacturing", "Utilities", "Transport and Communications" and "Commerce" respectively.

d/ Tied Hard Commodity Loan.

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 16

CHINA, YUGOSLAVIA AND THE USSR'S LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Tied Project Loan (Hard) [a]						
	Amount A	Interest Rate r	Grace Period G [b]	Repayment Period R [b]	Sector	Economic Group [c]	Form of Loan
YUGOSLAVIA							
1. Brick-making Plant	.07	3.00	-	20	Private	Manufacturing	Supplier's
2. Ctg. Drydock & H. Engg.	41	3.00	-	27	Semi-Govt.	Manufacturing	Supplier's
3. Flour Mill Plant	.02	3.00	-	20	Private	Manufacturing	Supplier's
4. National Shipping Co.	14	3.00	-	20	Govt.	T & C	Supplier's
5. Pak. Shipping Lines	14	3.00	-	19	Private	T & C	Supplier's
6. Shipyard Engg. Works	7	3.00	-	18	Semi-Govt.	T & C	Supplier's

APPENDIX A, TABLE 16 - (continued)

7. Slaughter House GC	7	3.00	-	18	Private	Others n.e.i.	Supplier's
8. Slaughter House Islamabad	1	3.00	-	18	Private	Others n.e.i.	Contractual
9. Two Ships-- IDBP	28	3.00	-	16	Private	T & C	Supplier's
U.S.S.R.							
Oil Exploration	143	2.50	32	-	Govt.	Others n.e.i.	Contractual
CHINA							
Commodities d/	(114)	-	(20)	(20)	Govt.	Commerce	Contractual

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

c/ "T & C" denotes "Transport and Communications."

d/ Tied Hard Commodity Loan.

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 17

I.B.R.D. LOANS TO PAKISTAN
1947-1965
(Millions of Rupees)

Project	Untied Project Loan (Hard) [a]				Sector	Economic Group [c]	Form of Loan
	Amount A	Interest Rate r	Grace Period G [b]	Repayment Period R [b]			
1. Indus Basin Project (WP)	429	5.50	12	40	Govt.	Agriculture	Contractual
2. Karna Phuli Paper Mill (EP)	20	4.60	2	29	Private	Manufacturing	Contractual
3. Karachi Port --1st (WP)	71	4.75	10	41	Semi-Govt.	T & C	Contractual
4. Karachi Port --2nd (WP)	81	5.50	10	41	Semi-Govt.	T & C	Contractual
5. KESEC--1st	66	4.60	5	26	Private	Utilities	Contractual
6. KESEC--2nd	67	5.50	10	31	Private	Utilities	Contractual
7. KESEC--3rd	11	6.00	6	26	Private	Utilities	Contractual
8. PICIC--1st Proj.	20	5.75	8	22	Private	Manufacturing	Contractual
9. PICIC--2nd Proj.	48	6.00	6	15	Private	Manufacturing	Contractual

APPENDIX A, TABLE 17 - (continued)

10.PICIC-3rd Proj.	71	5.75	6	18	Private	Manufacturing	Contractual
11.PICIC-4th Proj.	96	5.75	5	25	Private	Manufacturing	Contractual
12.PICIC-5th Proj.	143	5.50	-	20	Private	Manufacturing	Contractual
13.Railways--1st	130	4.60	5	26	Govt.	T & C	Contractual
14.Railways--2nd	148	6.00	7	25	Govt.	T & C	Contractual
15.Railways--3rd	60	6.00	7	25	Govt.	T & C	Contractual
16.Railways--4th	87	5.50	7	34	Govt.	T & C	Contractual
17.Railways--5th	23	5.50	7	34	Govt.	T & C	Contractual
18.Sui Gas (WP)	67	4.75	4	37	Govt.	Utilities	Contractual
19.Sui Northern Gas Proj.(WP)	71	5.50	4	36	Private	Utilities	Contractual

a/ See Appendix A, Table 9, Footnote b/.

b/ See Appendix A, Table 9, Footnote c/.

c/ "T & C" denotes "Transport and Communications."

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 18

I.D.A. LOANS TO PAKISTAN[a]
1947-1965
(Millions of Rupees)

Project	Untied Project Loan (Soft)[b]				
	Amount	Interest Rate	Grace Period[c]	Repayment Period[c]	Economic Group[d]
1. Ctg. Sewerage Project (EP)	114	0.75	20	80	Utilities
2. Chandpur Irrigation (EP)	43	0.75	21	80	Agriculture
3. Dacca Sewerage Project (EP)	124	0.75	20	80	Utilities
4. Demra Project (EP)	5	0.75	21	80	Agriculture
5. E. Pak. Education Project (EP)	21	0.75	20	80	Others n.e.i.
6. E. Pak. Highway Project (EP)	107	0.75	21	80	T & C
7. E. Pak. Railway Project (EP)	48	0.75	21	80	T & C
8. Embankment Project (EP)	24	0.75	20	80	Agriculture
9. Inland Project	10	0.75	21	80	T & C
10. Industrial Estates Project (WP)	31	0.75	21	80	Manufacturing
11. Indus Basin Project (WP)	279	0.75	20	80	Agriculture

APPENDIX A, TABLE 18 - (continued)

12. Inland Water Transport Project	25	0.75	19	80	T & C
13. Kherpur Gr. Water Project (WP)	86	0.75	21	80	Agriculture
14. Tubewell Agr. Development	129	0.75	20	80	Agriculture
15. W.Pak. Education Project (WP)	41	0.75	20	80	Others n.e.i.
16. W.Pak. Highway Project (WP)	81	0.75	21	80	T & C
17. W.Pak. Railway Project (WP)	119	0.75	21	80	T & C

a/ All loans in this Table are Contractual and allocated to the Government sector.

b/ See Appendix A, Table 9, Footnote b/.

c/ See Appendix A, Table 9, Footnote c/.

d/ "T & C" denotes "Transport and Communications".

Source: Same as Appendix A, Table 9.

APPENDIX A

TABLE 19

I.F.C. LOANS TO PAKISTAN[a]
1947-1965
(Millions of Rupees)

Project	Untied Project Loan (Hard)[b]				
	Amount	Interest Rate	Grace Period[c]	Repayment Period[c]	Economic Group
1. Adamjee Industries	4	7.00	11	8	Manufacturing
2. Crescent Jute Products	9	7.75	6	16	Manufacturing
3. Ismail Cement Industries	19	7.50	9	22	Manufacturing
4. Ismail Cement Ltd.	6	7.50	6	20	Manufacturing
5. Packages Ltd.	11	7.75	6	20	Manufacturing
6. Steel Corporation of Pak.	3	7.00	10	10	Manufacturing

a/ All loans in this Table are Contractual and allocated to the Private sector.

b/ See Appendix A, Table 9, Footnote b/.

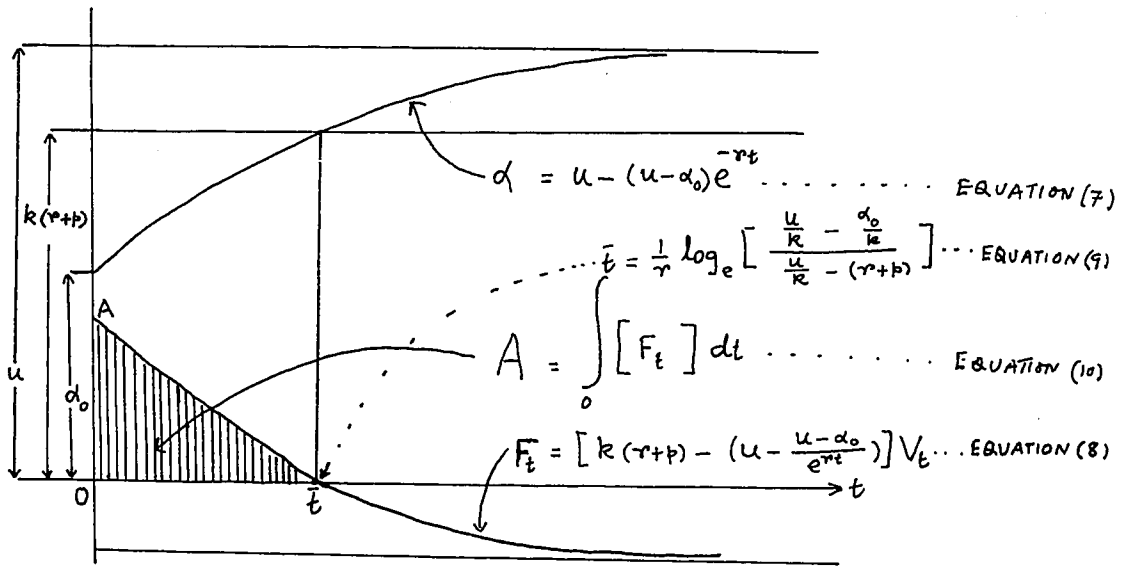
c/ See Appendix A, Table 9, Footnote c/.

Source: Same as Appendix A, Table 9.

APPENDIX B

DERIVATION OF TOTAL VOLUME OF REQUIRED FOREIGN AID FROM THE FEI-PAAUW MODEL

The total volume of aid through accumulation from the base year (t_o) to the aid-termination year ($\bar{t}$) is given by the shaded area $OA\bar{t}$ in the diagram below:



The following are the two basic assumptions required for the derivation of the total required aid:

1. No reverse flow of capital and interest payments is permitted.
2. $V^*(0) = 1$ and $P(0) = 1$ where $V^*(0)$ = Per capita G.N.P. at initial period; $P(0)$ = Population at initial period.

Let A_T = Total volume of accumulated foreign aid. The value of A_T for <u>any</u> $V^*(0)$ and $P(0)$ is obtained from:

$$A_T = V^*(0)\ P(0)\ A_T^*$$
$$= A_T^*$$
$$= \int_0^{\bar{t}} F(t)\ dt \qquad \ldots (1)$$

The value of $A(t)$ is found from Equation (8) in the Fei-Paauw model (see Chapter 3) as follows:

$$F_t = \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{rt}}\right)\right] V_t$$

$$= \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{rt}}\right)\right] V_0\, e^{(r+p)t} \qquad \because V_t = V_0\, e^{(r+p)t}$$

$$= \left[k(r+p) - \left(u - \frac{u-\alpha_0}{e^{rt}}\right)\right] \frac{K_0}{k}\, e^{(r+p)t} \qquad \because k = \frac{K}{V}$$

$$= \left[\frac{k(r+p)}{k} - \frac{u}{k} + \left(\frac{u}{k} - \frac{\alpha_0}{k}\right) e^{-rt}\right] K_0\, e^{(r+p)t} \qquad \text{or } K/k = V \text{ or } V_0 = \frac{K_0}{k}$$

$$= \left[-\hat{\beta} + \hat{\alpha}\, e^{-rt}\right] K_0\, e^{(r+p)t}$$

$$= \left[\hat{\alpha}\, e^{-rt} - \hat{\beta}\right] K_0\, e^{(r+p)t} \qquad \ldots\ldots (2)$$

where

$$\hat{\alpha} = \frac{u}{k} - \frac{\alpha_0}{k}$$

$$\hat{\beta} = \frac{u}{k} - (r+p)$$

Now having Equation (2), and Equation (9) in Chapter 3, we integrate Equation (1):

$$A_T^* = \int_0^{\bar{t}} [F_t]\, dt$$

$$= \int_0^{\bar{t}} \left[(\hat{\alpha} e^{-rt} - \hat{\beta}) K_0 e^{(r+p)t} \right] dt$$

$$= \int_0^{\bar{t}} \left[\hat{\alpha} K_0 e^{pt} - \hat{\beta} K_0 e^{(r+p)t} \right] dt$$

$$= \hat{\alpha} K_0 \int_0^{\frac{1}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} e^{pt}\, dt \quad - \hat{\beta} K_0 \int_0^{\frac{1}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} e^{(r+p)t}\, dt$$

$$= \hat{\alpha} K_0 \left[\frac{1}{p} e^{pt} \right]_0^{\frac{1}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - \hat{\beta} K_0 \left[\frac{1}{r+p} e^{(r+p)t} \right]_0$$

$$= \hat{\alpha} K_0 \left[\frac{1}{p} e^{p\frac{1}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - \frac{1}{p} e^{p.0} \right] - \hat{\beta} K_0 \left[\frac{1}{r+p} e^{(r+p)\frac{1}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - \frac{1}{r+p} e^{(r+p).0} \right]$$

$$= \hat{\alpha} K_0 \left[\frac{1}{p} e^{\frac{p}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - \frac{1}{p} \right] - \hat{\beta} K_0 \left[\frac{1}{r+p} e^{\frac{r+p}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - \frac{1}{r+p} \right]$$

$$= \frac{\hat{\alpha}}{p} K_0 \left[e^{\frac{p}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - 1 \right] - \frac{\hat{\beta}}{r+p} K_0 \left[e^{\frac{r+p}{r}\log_e(\frac{\hat{\alpha}}{\hat{\beta}})} - 1 \right]$$

$$= \frac{\hat{\alpha}}{p} K_0 \left[e^{\log_e(\frac{\hat{\alpha}}{\hat{\beta}})^{\frac{p}{r}}} - 1 \right] - \frac{\hat{\beta}}{r+p} K_0 \left[e^{\log_e(\frac{\hat{\alpha}}{\hat{\beta}})^{\frac{r+p}{r}}} - 1 \right]$$

$$= \frac{\hat{\alpha}}{p} K_0 \left[\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - 1 \right] - \frac{\hat{\beta}}{r+p} K_0 \left[\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r}} - 1 \right] \qquad \because e^{\log(x)} = x$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[\left\{ (r+p) \left(\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - 1 \right) \right\} - \left\{ p \frac{\hat{\beta}}{\hat{\alpha}} \left(\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r}} - 1 \right) \right\} \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[\left\{ (r+p) \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) \right\} + \left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \left\{ - p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r}} + p \right\} \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[\left\{ r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) \right\} + \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \left\{ - p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r}} + p \right\} \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) - p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r}} + p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) - p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{r+p}{r} - 1} + p \left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) - p \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} - (r+p) + p \left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \right]$$

$$= \frac{\hat{\alpha}}{p(r+p)} K_0 \left[\left\{ r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}} + p \left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \right\} - (r+p) \right]$$

$$= \frac{\hat{\alpha} K_0}{p(r+p)} \left[\left(\frac{\hat{\beta}}{\hat{\alpha}} \right) \left\{ r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}+1} + p \right\} - (r+p) \right]$$

$$= \frac{\hat{\alpha} K_0}{p(r+p)} \left[\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \left\{ p + r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}+1} \right\} - (r+p) \right]$$

Since K(0) is constant, we can arbitrarily put K(0) = 1

$$= \frac{\hat{\alpha}}{p(r+p)} \left[\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \left\{ p + r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}+1} \right\} - (r+p) \right] \quad \cdots \quad (3)$$

Derived. (Compare Equation (24) of the Fei-Paauw model.[1])

$\therefore$ $A_T = V^*(0)\ P(0)\ A_T^*$ where A_T = Total volume of accumulated aid for V (0) = P(0) = 1

$= A_T$ for V (0) = P(0) = 1 [by assumption]

$$= \int_0^{\bar{t}} F(t)\, dt$$

$$\bar{t} = \frac{1}{r} \log \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)$$

$$= \int_0^{\bar{t}} \left[\left(\hat{\alpha} e^{-rt} - \hat{\beta} \right) K_0\, e^{(r+p)t} \right] dt$$

$$= \frac{\hat{\alpha}}{p(r+p)} \left[\left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{-1} \left\{ p + r \left(\frac{\hat{\alpha}}{\hat{\beta}} \right)^{\frac{p}{r}+1} \right\} - (r+p) \right]$$

Thus, given p, u, k, r and α_0, A_T is uniquely determined by Equation (3).

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[1] J.C.H. Fei and D.S. Paauw, "Foreign Assistance and Self-Help," Review of Economics and Statistics, August 1965, p. 258.

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APPENDIX A

SOURCES AND NOTES FOR TABLE 1

Notes

1/ Fiscal year in Pakistan starts from July 1 to June 31.

2/ This figure is obtained after adjusting the effect of 1955-Devaluation.

3/ Figures for Imports for the period 1951/52 to 1959/60 have been taken from Pakistan's Balance of Payments (compiled by State Bank of Pakistan, Department of Statistics, July 1963-June 1964); and figures for the period 1960/61 to 1967/68 have been taken from Memorandum for the Pakistan Consortium (Government of Pakistan, Planning Commission) for the period 1965/66, 1966/67 and 1967/68.

4/ Figures for Capital/Consumer goods and raw material for Capital/Consumer goods for the period 1951/52 to 1959/60 have been worked out by applying the "ratio" found by Professor Islam in his study, Imports of Pakistan: Growth and Structure, A Statistical Study (Pakistan I.D.E., September 1967, Statistical Papers No. 3); and figures for the period 1960/61 to 1963/64 have been taken from

the Memorandum for the Pakistan Consortium, 1966-67 (May 1966) and for the period 1964/65 to 1967/68 from Current Economic Position and Prospects of Pakistan (Volume II, Statistical Appendix, April 17, 1968), published by I.B.R.D. Association. Table 57.

5/ Figures for P.L. 480 and Indus Basin Imports have been taken from Memorandum for the Pakistan Consortium, 1965-66, pp. 177-178 for the period 1960/61 to 1963/64 and figures for the period 1964/65 to 1967/68 from the Current Economic Position and Prospects of Pakistan (Volume II, Statistical Appendix, Table 57).

6/ Invisible Exports include non-monetary Gold (i.e., value of smuggled gold confiscated by the Customs and acquired by the State Bank of Pakistan), foreign travel, freight charges and insurance, investment income (i.e., interest and discount earned on foreign Securities and Treasury Bills and also income on Indus Basin Development Funds balances on investment accounts), Government expenditure (not included elsewhere), private remittance and transfers and miscellaneous.

7/ Breakdown figures for the First Plan have been taken from the Second Five Year Plan (1960-65), published by the Government of Pakistan, Planning Commission, in June 1960 (p. 86); figures for the Second Plan and part of the Third Plan have been taken from the Current Economic Position and Prospects of Pakistan (I.B.R.D., Volume II, Statistical Appendix, Table 57).

8/ Figures for changes in Gold and Foreign Exchange Reserves have been taken from the Pakistan Economic Survey, 1967-68 (Government of Pakistan, Ministry of Finance), pp. 107-108.

9/ Projected figures for 1968-69 have been taken from Annual Plan, 1968-69 (Government of Pakistan, Planning Commission, June 1968), pp. 15 and 29.

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Main Sources to Table 1

1. Government of Pakistan, Ministry of Finance, Pakistan Economic Survey, 1963-64, 1964-65, 1965-66, 1966-67 and 1967-68.

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4. Government of Pakistan, Planning Commission, Memorandum for the Pakistan Consortium, 1965-66, 1966-67 and 1967-68.

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7. I.B.R.D. and I.D.A., Current Economic Position and Prospects of Pakistan (April 17, 1968, Volume II, Statistical Appendix).

8. Government of Pakistan, Central Statistical Office (C.S.O.), 20 Years of Pakistan in Statistics, 1947-1967 (Karachi, 1968).

APPENDIX A

TABLE 1

CONSOLIDATED BALANCE OF PAYMENTS FOR PAKISTAN FOR THE PERIOD 1/ 1951/52 TO 1967

(Million Rupees)

	PRE-PLAN PERIOD				FIRST PLAN PERIOD							SECOND PLAN PE
	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63
TOTAL PAYMENTS 3/	2789	2032	1594	1357	2067	2890	3244	2453	3038	3859	4059	4295
I. Development Imports	629	435	343	439	456	467	504	465	1447	1905	2155	2398
Capital Goods 4/ (C_a)	391	248	187	266	275	254	277	242	925	1166	1421	1690
Raw Material for Capital Goods (R_{ca})	153	129	96	99	102	90	108	119	360	549	460	411
Invisibles (M_{DI})	85	58	60	74	79	123	119	104	162	190	274	297
(a) Freight Charges and Insurance	-	-	-	-	-	-	-	-	-	127	210	220
(b) Technical Assistance	-	-	-	-	-	-	-	-	-	63	64	77
II. Non-Development Imports	2160	1597	1251	918	1611	2423	2740	1988	1591	1391	1424	1502
Consumer Goods (C_o) (Including non-P.L.480 Imports)	776	570	164	201	254	323	348	240	760	580	547	563
Raw Material for Consumer Goods (R_{co})	437	162	228	109	138	133	114	94	427	316	334	306
Invisibles (M_{NDI})	947	865	859	668	1219	1967	2278	1654	404	428	451	540
(a) Of which Debt Servicing	-	-	1	10	10	33	32	44	41	100	120	188
(i) Of which Debt Repayment	-	-	-	-	-	-	-	-	-	-	-	-
III. Indus Basin Imports 5/	-	-	-	-	-	-	-	-	-	60	170	300
IV. P.L. 480 Imports 5/	-	-	-	-	-	-	-	-	-	503	323	691
TOTAL FINANCING	2789	2032	1594	1357	2067	2890	3244	2453	3038	3859	4059	4295
FINANCED BY:												
I. Own Earnings	2368	1490	1396	1318	2047	1883	1672	1787	2128	2286	2384	2748
Exports	2137	1297	1268	1180	1812	1621	1425	1440	1750	1877	1920	2252
Invisibles 6/	231	193	128	138	235	262	247	347	369	409	464	532
II. Foreign Aid: Loans and Grants	5	145	180	165	472	762	1256	810	1067	943	1087	1391
Project Aid	-	—	—	-	} 286	} 295	} 851	} 443	} 626	375	546	657
Commodity Aid	-	—	-	-						505	477	657
Technical Assistance	-	—	-	-	41	37	47	52	71	63	64	77
Food Grants and Short-Term Credits	-	—	-	-	145	430	358	315	370	-	-	-
III. Foreign Private Investments	11	19	22	24	9	21	28	10	14	90	90	81
IV. Indus Basin Aid	-	-	-	-	-	-	-	-	-	60	170	300
V. P.L. 480 Aid	-	-	-	-	-	-	-	-	-	503	323	691
VI. Changes in Gold and Foreign Exchange Reserves 7/ (Including I.M.F. Drawing)	467	377	38	-65	-371 2/	194	320	-162	-127	-55	97	-308
VII. Short-Term Capital Movements and Errors and Omissions	-62	1	-42	-85	-90	30	-32	8	-44	32	-79	-12

TABLE 1

ONSOLIDATED BALANCE OF PAYMENTS FOR PAKISTAN E PERIOD[1] 1951/52 TO 1967/68

(Million Rupees)

N PERIOD				SECOND PLAN PERIOD				THIRD-PLAN PERIOD			
/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68 (Estimated)	1968/69[9] (Projected)
44	2453	3038	3859	4059	4295	5933	6543	6112	7423	7550	8320
04	465	1447	1905	2155	2398	2892	3160	2642	3270	3500	4150
77	242	925	1166	1421	1690	1860	2050	1800	2120	2300	2600
08	119	360	549	460	411	634	740	560	790	805	1100
19	104	162	190	274	297	398	370	282	360	405	450
-	-	-	127	210	220	270	309	205	260	295	350
-	-	-	63	64	77	128	61	77	100	100	100
40	1988	1591	1391	1424	1502	1627	2087	2447	3233	3100	3130
48	240	760	580	547	563	598	572	548 (224)	943 (353)	700 (100)	600
14	94	427	316	334	306	334	637	484	700	655	765
278	1654	404	428	451	540	600	729	1260	1380	1430	1765
32	44	41	100	120	188	243	346	411	520	600	715
-	-	-	-	-	-	-	139	146	315	490	420
-	-	-	60	170	300	400	454	450	445	300	540
-	-	-	503	323	691	832	752	573	475	650	500
3244	2453	3038	3859	4059	4295	5933	6543	6112	7423	7550	8320
1672	1787	2128	2286	2384	2748	2785	3015	3394	3580	3750	4150
1425	1440	1750	1877	1920	2252	2215	2404	2687	2920	3210	3450
247	347	369	409	464	532	570	611	707	660	640	700
1256	810	1067	943	1087	1391	1699	1936	1891	2414	2570	2970
851	443	626	375	546	657	941	1055	1262	1270	1500	1750
			505	477	657	630	820	552	877	900	1120
47	52	71	63	64	77	128	61	77	100	100	100
358	315	370	-	-	-	-	-	-	167	70	-
28	10	14	90	90	81	90	77	100	92	130	160
-	-	-	60	170	300	400	454	450	445	300	540
-	-	-	503	323	691	832	752	573	475	650	500
320	-162	-127	-55	97	-308	201	284[8] (76)	-312 (175)	470	150	-
-32	8	-44	32	-79	-12	-256	-65	16	-53	-	-

APPENDIX A

TABLE 4

INVISIBLE EXPORT

PERIOD

PRE-PLAN

1 S T

Million

INVISIBLE EXPORT ITEMS	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-
1. NON-MONETARY GOLD (net)	...	...	...	...	...	0.5	2	...	
2. FOREIGN TRAVEL	...	...	...	...	...	2	6	3	
3. TRANSPORTATION & INSURANCE	...	12	37	26	23	32	64	67	6
4. INVESTMENT INCOME	...	6	19	15	13	20	33	44	3
5. GOVERNMENT EXPENDITURE	...	5	18	25	22	22	30	37	3
6. MISCELLANEOUS	79	144	158	129	70	53	84	82	8
7. PRIVATE REMITTANCES & MIGRANTS' TRANSFERS	...	...	0.6	...	...	10	18	29	2
TOTAL	79	167	232	195	128	140	235.7	262	25

Source: Government of Pakistan, State Bank of Pakistan, Pakistan's Balance of Payments July 1963-June 1964.

Government of Pakistan, C.S.O., 20 Years of Pakistan in Statistics 1947-67 (Karachi, 1968).

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EARNINGS FOR THE

1949-1969

PLAN 2ND PLAN 3RD PLAN

Rupees

956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
...	2	5	13	3	0.7	...	2	...	...	...	...	...
3	3	4	4	6	9	9	8	11	10	9	9	10
67	66	71	81	80	84	72	107	115	106	99	96	105
44	32	28	35	44	47	36	36	50	47	44	44	47
37	38	61	68	97	121	163	107	183	172	160	156	170
82	84	143	138	149	166	215	199	264	248	231	224	245
29	25	35	31	30	36	37	111	129	120	112	109	119
262	250	347	370	409	464	535	570	742	707	660	640	700

APPENDIX B

TABLE 5

PERCENTAGE DISTRIBUTION OF VARIOUS COMPONE

(1951-52 to 1968

	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	19
A. DEVELOPMENT IMPORTS									
(i) Capital Goods	474.5	297.0	308.7	419.5	446.6	704.5	659.1	540.4	
(ii) Raw Materials for Capital Goods	182.5	149.6	152.7	151.1	163.4	241.9	256.9	263.7	
	657.0	446.6	461.4	570.6	610.0	946.4	916.0	804.1	12
(i) as a % sub total A	72.2%	66.5%	66.9%	73.1%	73.2%	74.4%	72.0%	67.2%	
(ii) as a % sub total A	27.8%	33.5%	33.7%	26.9%	26.8%	25.6%	28.0%	32.8%	
B. NON-DEVELOPMENT IMPORTS									
(iii) Consumer Goods	926.3	661.9	425.1	309.9	398.2	875.8	831.3	520.6	
(iv) Raw Materials for Consumer Goods	514.7	184.1	196.3	163.3	212.1	347.6	243.5	198.4	
	1441.0	846.0	621.4	473.2	610.3	1223.4	1074.8	719.0	1
(iii) as a % sub total B	64.3%	78.2%	68.4%	65.5%	65.2%	71.6%	77.3%	72.4%	
(iv) as a % sub total B	35.7%	21.8%	31.6%	34.5%	34.8%	28.4%	22.7%	27.6%	
TOTAL (A B)	2098.0	1292.6	1082.8	1043.8	1220.3	2169.8	1990.8	1523.1	2
A as a % of TOTAL (A+B)	31.3%	34.6%	42.6%	54.6%	49.9%	43.6%	46.0%	52.7%	
B as a % of TOTAL (A+B)	68.7%	65.4%	57.4%	45.4%	50.1%	54.4%	54.0%	47.3%	

Source: Imports of Pakistan: Growth and Structure, a Statistical Study, by N. Islam.

a/ Figures for the period 1965-1969 have been taken from Table 1 (Appendix A).

TABLE 5

OF VARIOUS

52 to

COMPONENTS OF IMPORTS[a]

1968-69).

-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
.5	659.1	540.4	904.0	1206.5	1459.4	1941.1	2150.4	2600.4	2250	2565	2550	2600
.9	256.9	263.7	343.7	555.9	444.4	419.9	876.1	602.8	560	890	900	1100
.4	916.0	804.1	1247.7	1762.4	1903.8	2361.0	3026.5	3203.2	2810	3455	3450	3700
4%	72.0%	67.2%	72.5%	68.5%	76.7%	82.2%	71.0%	81.0%	80.0%	74.2%	73.9%	70.2%
6%	28.0%	32.8%	25.5%	31.5%	24.3%	17.8%	29.0%	19.0%	20.0%	25.8%	26.1%	27.8%
.8	831.3	520.6	736.6	935.5	682.4	804.5	980.8	1367.8	1121	1318	1250	600
.6	243.5	198.4	408.1	453.4	476.4	644.7	621.2	796.4	484	704	680	765
.4	1074.8	719.0	1144.7	1388.9	1158.8	1449.2	1602.0	2164.2	1605	2022	1930	1365
6%	77.3%	72.4%	64.3%	67.4%	58.9%	55.5%	61.0%	63.2%	69.8%	65.1%	64.7%	43.9%
4%	22.7%	27.6%	35.7%	32.6%	41.1%	44.5%	39.0%	36.8%	30.2%	34.9%	35.3%	56.1%
.8	1990.8	1523.1	2392.4	3151.3	3062.6	3810.2	4628.5	5367.4	4415	5477	5380	5065
6%	46.0%	52.7%	52.1%	55.9%	62.2%	62.0%	65.4%	59.7%	63.6%	63.0%	64.1%	73.0%
4%	54.0%	47.3%	47.9%	44.1%	57.8%	38.0%	34.6%	40.3%	36.4%	37.0%	35.9%	27.0%

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APPENDIX A

TABLE 8

CORRELATIONS AMONG SOME SELECTED

(PERIOD 1950-51

		R	C_a	R_{ca}	M_{di}	C_o	R_{co}
		RESERVES	CAPITAL GOODS IMPORTS	RAW MATERIALS FOR C_a	INVISIBLES IN DEVELOP. IMPORTS	CONSUMER GOODS IMPORTS	RAW MATERIALS FOR C_o
		1	2	3	4	5	6
R	1		...	-.142	-.307	.058	-.353
C_a	2			.768	.102	.441	-.163
R_{ca}	3				.656	.734	.452
M_{di}	4					.805	.958
C_o	5						.670
R_{co}	6						
M_{ndi}	7						
X_g	8						
X_i	9						
F	10						
F_p	11						
M-X	12						

* Indicates High Correlation between F_p and R_{co} or C_o.

Source: Calculated from Appendix A, Table 1.

TABLE 8

ECTED

950-51

GROWTH VARIABLES OF PAKISTAN

- 1968-69)

M_{ndi} INVISIBLES IN NON-DEV. IMPORTS 7	X_g EXPORTS OF GOODS 8	X_i INVISIBLE EXPORTS 9	F FOREIGN AID 10	F_p PRIVATE FOREIGN CAPITAL 11	M-X GAP 12		
-.371	.062	-.294	.156	-.366	.271	1	R
...	.882	.241	.958	-.172	.947	2	C_a
.358	.707	.737	.706	.442	.693	3	R_{ca}
.914	.032	.977	.078	.959	.032	4	M_{di}
.571	.268	.845	.406	.681*	.357	5	C_o
.974	-.190	.905	-.192	.997*	-.224	6	R_{co}
	-.245	.855	-.243	.975	-.262	7	M_{ndi}
		.170	.843	-.209	.837	8	X_g
			.221	.903	.166	9	X_i
				-.195	.967	10	F
					-.232	11	F_p
						12	M-X