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GRADUATE COLLEGE

THE EFFECT OF DEBT-SERVICING AND AID-TYING
ON THE GRANT ELEMENT IN FOREIGN
ECONOMIC ASSISTANCE

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
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degree of
DOCTOR OF PHILOSOPHY

BY
PATRICIA LEE PHELPS
Norman, Oklahoma
1977

THE EFFECT OF DEBT-SERVICING AND AID-
TYING ON THE GRANT ELEMENT IN
FOREIGN ECONOMIC ASSISTANCE

APPROVED BY

A. J. Kondonassis

Dr. Alexander J. Kondonassis
Chairman Dissertation Committee

J. Kirker Stephens

Dr. J. Kirker Stephens
Chairman, Economics Department

Robert A. Ford

Dr. Robert A. Ford
David Ross Boyd Professor of Finance

Paul Brinker

Dr. Paul Brinker
Professor of Economics

DISSERTATION COMMITTEE

ACKNOWLEDGEMENTS

Acquiring a Ph.D., especially the writing of the dissertation, is very much like the development process experienced by underdeveloped countries. First, it is a long-run affair, not happening overnight, but eventually becoming a way of life, changing one's horizons and value systems. Secondly, it is a process. Not a one-stage growth but many, comparable to Rostow's historical development. As I remember back over the long process and changes in my life and those close to me, I recognize those very distinct stages I and my loved ones traveled. Some changes were constructive, some destructive but the long-run development has been positive for all involved.

The third and final point. Very much like reaching "take-off" and pushing toward self-sustaining growth, there is no way I could have achieved personal development without the direction, help, love, support --all of those life-sustaining variables--freely given to me by my children, Ronda and Evette, my husband, John Sanderson, and my major advisor and dissertation chairman, Dr. Alex Kondonassis. Many others gave encouragement and concern but no one paid a higher sacrifice than my two children.

THE EFFECT OF DEBT-SERVICING AND AID-TYING
ON THE GRANT ELEMENT IN FOREIGN
ECONOMIC ASSISTANCE

BY: PATRICIA LEE PHELPS

MAJOR PROFESSOR: ALEXANDER J. KONDONASSIS, Ph.D.

The purpose of the study is to analyze the widely-held opinion that foreign economic assistance does not meet the stated objectives of both the donor and recipient countries. The two major problems brought on by the assistance which are examined are (1) the procurement restrictions which reduce the grant element and increase the effective reate of interest and (2) the debt structuring and lack of coordination which contribute to debt servicing. The hypothesis examined is that the donor's objectives, reflected in the design of the aid program, thrawt the theoretical expectations and contribute to the disillusionment with the assistance program.

A search of the literature and special studies measuring various aspects of foreign economic assistance was made and conclusions drawn regarding (1) the grant element in the flow of resources, (2) the effect of procurement restrictions on the value of assistance, (3) the balance-of-payments effect of procurement restrictions and (4) the sources of mounting debt-servicing burdens for recipient countries.

The discounted present value technique is applied to the flow of resources to estimate the donor's cost and the grant element to the recipient. Qualifying conditions such as procurement restrictions and contributions-in-kind are incorporated which indicate a reduction in value. In analyzing the balance-of-payments effect of procurement restrictions the donor's concern with domestic economic protection becomes clear in the design of the program. Although many studies indicate the excess price differentials involved in tied aid funds and the increase in effective interest rates, the aid programs continue to be designed with procurement restrictions. An analysis of the balance-of-payments cost of tied aid funds gives a more accurate picture of the donor's cost. The fact that funds are restricted in their use is neglected in the literature. The theoretical analysis of debt-servicing and the effect on net transfer of resources indicates the heavy cost incurred by developing countries in servicing assistance programs. The increase in funds necessary to service debt, combined with lagging foreign exchange earnings and long-run return on development projects creates balance-of-payments problems for aid recipients and a drain on their economy.

The principal findings, therefore, are: (1) the stated objectives of donors often deviate from the objectives made obvious in the design

of the programs, (2) theoretical conclusions regarding the role of capital assistance in the development process may not materialize due to the design of the programs, (3) the grant element is reduced significantly and the effective rate of interest increased in assistance programs due to procurement restrictions and the structuring of debt.

The recommendations are: (1) a more realistic evaluation of objectives and expectations regarding assistance, (2) design of the assistance programs to increase the effectiveness of the assistance, (3) an awareness of the pending debt-servicing crises of recipient countries and establishment of international mechanism for dealing with debt rescheduling.

OUTLINE OF STUDIES

Major Subject: Economics

Advanced Price and Welfare Theory; Advanced Macro-economic and Growth Theory; Econometrics I; Seminar in Price and Welfare Theory; Seminar in Macroeconomic and Growth Theory; History of Economic Analysis I; World Economic Development; Public Finance; Federal Financial Policies; Problems in State and Local Finance; Seminar in Economic Development; Readings in Selected Fields of Economics

Related Subjects: Finance and Mathematics

Finite Math Models; Continuous Math Models; Intermediate Business Statistics; Electronic Data Processing; Econometrics; Central Banking; Seminar in Monetary Theory

BIOGRAPHY

Born, Arkadelphia, Arkansas, September 21, 1940. Graduated from Arkadelphia High School, Arkadelphia, Arkansas, 1958. Washington State University, Pullman, Washington, B.A., 1963. Louisiana State University, Baton Rouge, Louisiana, M.A., 1966. Attended University of Oklahoma, Norman, Oklahoma since September 1971.

Teaching Appointments: Southeastern Louisiana University, Hammond, Louisiana, 1966-1968. Mississippi State College for Women, 1968-1969. Morehead State University, Morehead, Kentucky, 1969-1971. University of Oklahoma, Norman, Oklahoma, 1971-1974. Oscar Rose Junior College, Midwest City, Oklahoma, part-time 1974. Oklahoma City University, Oklahoma City, part-time 1973, 1975. University of North Alabama, Florence, Alabama, 1974-current.

Publications: "The Distributed Impact of Price-Level Variations on Floating Exchange Rates," Review of Economics and Statistics. A Bibliography of Economic Studies in Oklahoma 1965-1974, Center for Economic and Management Research. "Historical Development of Poverty and Public Assistance Programs," Midsouth Academy of Economists. "Projection of Property Tax Revenues to 1988 for District 17 Vocational-Technical School," Office of Research Administration, University of Oklahoma. "The Crisis in Debt-Servicing Currently Faced by Developing Countries," Midsouth Academy of Economists.

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THE EFFECT OF DEBT-SERVICING AND AID-
TYING ON THE GRANT ELEMENT IN
FOREIGN ECONOMIC ASSISTANCE

CHAPTER I

INTRODUCTION

The purpose of this study is to investigate various aspects of the two major problems associated with foreign economic assistance encountered by developing countries: (1) procurement restrictions, i.e. aid-tying, and (2) debt-servicing burdens.

Disillusionment with the assistance program is expressed by both the donor and recipient. U.S. Congressional resistance to foreign economic assistance programs, referred to hereafter as assistance, is expressed in reduced appropriations. Assistance is criticized for failing to accomplish rapid development of the recipient. It is the hypothesis of this study that the source of the disillusionment with the ability of aid flows to promote a more rapid self-sustaining economic development is the conflict between the stated official objective and the design of the aid program. Conclusions

drawn from special studies and empirical testing of hypotheses regarding existing aid programs provide the information for comparison of aid programs to theoretical hypotheses and stated official objectives of assistance.

Donor countries, experiencing domestic economic pressures, began the practice of tying aid flows and hardening the loan terms. The aid programs, as designed, do not reflect the official objective of economic development. Instead, the procurement restrictions and terms of the loans indicate a concern with economic protection of the donor, especially the donor's balance of payments, and contributes to the recipients problems due to the reduced value of aid and increased debt-servicing pressure. This relationship between the change in donor objectives and design of aid programs and the recipient's debt-servicing problem is explored.

The literature is negligent in analyzing the conflict between the donor's official aid objective and the operation of the assistance program.

A search of the literature is made to determine the development of problems relating to aid tying and debt servicing and the application of theoretical work to these problems. Statistical information used in evaluating various aspects of the study are compiled from World Bank data, United Nations studies, The RAND Corporation studies, and various institutional and private studies. The relationship between the objectives, theoretical expectations, and reality of assistance is defined.

The basic issues examined are:

1. The effect of procurement restrictions on the real value of the aid commitment.
2. The extent to which national economic objectives of the donor are reflected in the design of the aid program.
3. The balance-of-payments cost of aid to the donor and the extent to which aid-tying affects this cost.
4. The effect of the debt structure and mounting debt-servicing burdens on the recipient's development.

In Chapter II, the framework is established for investigating the hypothesis of the study--the extent to which the donor's objectives, reflected in the design of the aid program, thwart the theoretical expectations and contribute to disillusionment with the assistance program. The U.S. official objectives in providing assistance are traced historically through Presidential Addresses, official policies, and commentaries by statesmen and economists. Theories analyzing the role of capital assistance in the development process are reviewed to determine the results to be expected from the assistance funds.

The purpose of Chapter III is to establish a definition of aid which identifies the grant element in a flow of funds and gives a more accurate picture of the total cost of assistance to the U.S. This definition should also give a more accurate measurement of the net transfer of resources to the recipient. Empirical studies applying the discounted present value methodology to the flow of

financial resources from developed to developing countries to estimate the real value of aid are reviewed. The results of studies conducted by the United Nations, World Bank, and John Pincus which estimate the extent to which procurement restrictions reduce the grant element in a flow of funds are summarized. The effectiveness of assistance may not meet the theoretical expectations since the net transfer of resources is not the same as the dollar value of the assistance.

In Chapter IV the design of aid programs is examined to determine the extent to which the policies practiced deviate from the official position on assistance and affect the real value of assistance. The U.S.'s objectives in placing procurement restrictions are traced through Presidential Messages and policies enacted. The extent to which aid-tying served the objective of protecting the donor's balance-of-payments position may detract from its effectiveness in achieving self-sustaining development by reducing the grant element, thus being one of the major problems facing developing countries. In Chapter IV theoretical work estimating the donor's short- and long-run balance-of-payments effect of tying and untying aid are reviewed and compared.

The second, and related, problem facing developing countries today is analyzed in Chapter V. The purpose of Chapter V is to examine the terms and structure of the flow of resources to determine the extent to which foreign capital contributes to the problems of developing countries. Theories describing the growth of debt-servicing burdens and debt-servicing capacity are surveyed. Statistical studies and reports of the United Nations and World Bank are examined to anticipate the problems in debt-servicing in the near future.

Alternative institutional arrangements for coping with this problem are reviewed. The relationship between tied aid in Chapter IV and debt-servicing in Chapter V is examined. The manner in which aid-tying increases the effective rate of interest and contributes to the debt-servicing burden is explored.

A look at these results will allow decision-makers more accurate information in determining the size of aid flows, qualifying conditions to be attached to the aid programs, and realistic expectations and evaluations of aid performance. This could dispel some of the donor's disillusionment with assistance.

CHAPTER II

REVIEW OF ECONOMIC DEVELOPMENT ASSISTANCE OBJECTIVES AND THEORIES DESCRIBING THE CONTRIBUTION OF ASSISTANCE IN THE DEVELOPMENT PROCESS

Donor and Recipient Objectives

The objectives of economic development assistance depend on the point of view considered. From the recipient's viewpoint, the assistance is needed to supplement domestic savings and fill the resource gap to achieve long-run, self-sustained growth. In addition, the assistance relieves the foreign exchange shortage which often exists in developing countries.¹

Achieving development as soon as possible is the primary objective of aid recipients. The economic position of the developing and developed countries are compared by Robert McNamara, the World Bank President:

During the First Development Decade, the total GNP of the world increased by \$1,100 billion. . . . Only 6 per cent of the increase

¹Gerald Meier, Leading Issues in Economic Development, 2d ed. (Fair Lawn, N.J.: Oxford University Press, Inc., 1970), pp. 251-252. Also, Edward Marcus and Mildren R. Marcus, Economic Progress and the Developing World (Glenview, Ill.: Scott, Foresman and Co., 1971), pp. 46, 119-126.

went to countries where per capita incomes average \$200 or less-- but they contain 60 per cent of the world's people.

Today the average per capita income in the developed countries is approximately \$2,400. The comparable figure for the developing countries is \$180. By 1980 . . . in the developed countries . . . per capita income will have risen by some \$1,200. The comparable increase in the per capita income of the three-quarters of the world's people who live in the developing countries--even if the Second Development Decade growth objective is achieved--will be less than \$100.²

McNamara puts developmental problems in perspective by a first-hand account of one aspect of the problem:

The drift to the cities of the landless and the jobless is bound to increase. Today the major cities are doubling in size roughly every decade. By the year 2000 their total population will be some 500 per cent higher than today. More than a billion people will be seeking to make a living in these sprawling centers of urban decay.³

Urban planners in the U.S. who have encountered similar problems, although on a much smaller scale, can certainly sympathize with the multifarious problems of developing countries.

Financing development projects to accomplish GNP growth rate targets is only one use of assistance. Foreign exchange is needed not only to finance capital good imports required in the development process but also to service debt obligations on past borrowings. A 6 per cent GNP growth rate target was adopted by the UN General Assembly for the Second Development Decade. To accomplish this, foreign exchange earnings must increase by 7 per cent per year. However, the foreign

²Robert S. McNamara, One Hundred Countries, Two Billion People (New York: Praeger Publishers, 1973), pp. 74-75.

³Ibid., pp. 71-72.

exchange needed to service the debt obligations on past borrowings is expected to increase faster than the rate of increase in national income. Therefore, foreign exchange earnings must increase faster than the 7 per cent needed to accomplish the 6 per cent growth rate target.⁴

Experiencing such a strong need for assistance, recipients often develop an attitude which is criticized by donor countries. Leaders of the developing nations often make the assumption that an amount of assistance necessary to achieve stated per capita growth goals is an unconditional right. Increased trade opportunities, trade preferences, and "aid through trade" to insure a steady growth of export earnings is considered an obligation of developed countries.⁵

The donor country, in providing assistance, makes a choice among aid recipients and compares the recipients' benefits to the donor's costs and benefits. Donor objectives are:

1. Long-run, self-sustaining development of the recipient.
2. Humanitarian and maintenance of minimum income levels.
3. National security and political advantages to the donor.
4. Economic advantages to the donor.⁶

Foreign aid is only one component of a nation's foreign policy and the objectives are often so intertwined it is impossible to isolate

⁴Ibid.

⁵Raymond F. Mikesell, The Economics of Foreign Aid (Chicago: Aldine Publishing Company, 1968), pp. 22-24.

⁶Ibid., pp. 1-20. Also, Hollis B. Chenery, "Effectiveness of Foreign Assistance," in Developing the Third World: The Experience of the Nineteen-Sixties, edited by Ronald Robinson (London: Cambridge University Press, 1971), pp. 207-222.

a specific objective.⁷ According to some writers, aid is the most important means of furthering the purposes of American foreign policy. The role economic assistance is expected to play in accomplishing foreign policy objectives is spelled out in Millikan and Rostow's book, A Proposal: Key to an Effective Foreign Policy. U.S. foreign policy is assigned two priority tasks:

1. To provide security against overt military aggression.
2. To assist the development of a world in which U.S. security and way of life are not endangered.⁸

In the first task, economic assistance would solidify alliances and make them more effective militarily. The second task would reduce conflict because the national interests of the democratic societies would be compatible with U.S. goals.⁹

Another well-respected writer, Pulitzer Prize winner Herbert Feis, indicates the close relationship between foreign aid and foreign policy in the "Preface" to his book, Foreign Aid and Foreign Policy:

There is still a genuine need to mesh more closely the problems of attaining material improvement and those arising in the attempt to use foreign aid as an agent of foreign policy. I have tried to indicate how the competence displayed in each of these fields affects the other; and why and how, therefore, diplomats must be economic judges and economists must be political prophets.¹⁰

⁷Gerald Meier, "Foreign Aid: Economic Aspects," International-Encyclopedia of the Social Sciences, V, pp. 524-526.

⁸Max F. Millikan and W. W. Rostow, A Proposal: Key to an Effective Foreign Policy (New York: Harper & Brothers, 1957), pp. 2-4.

⁹Ibid.

¹⁰Herbert Feis, Foreign Aid and Foreign Policy (New York: Dell Publishing Co., Inc., 1966), p. vii.

A moral commitment was added to development assistance by President John F. Kennedy:

To those peoples in the huts and villages of half the globe struggling to break the bonds of mass misery, we pledge our best efforts to help them help themselves, for whatever period is required . . . because it is right.¹¹

Although the messages and commentaries are encouraging and full of good intentions, the official statements of foreign economic assistance policies are often general and vague. Political, national security, and humanitarian motives are often combined in an official statement such as that made by President Kennedy:

The 1960's can be--and must be--the crucial "decade of development" --the period when many less-developed nations can make the transition into self-sustained growth--the period in which an enlarged community of free, stable, and self-reliant nations can reduce world tensions and insecurity. . . .
. . . we are launching a "decade of development" on which will depend, substantially, the kind of world in which we and our children will live.¹²

The official position on foreign economic assistance under the Johnson administration is stated in the following quotation of President Johnson:

For our own security and well-being, and as responsible free men, we must seek to share our capacity for growth, and the promise of a better life, with out fellow man around the world. That is what foreign aid is all about.¹³

¹¹Michael Kent O'Leary, The Politics of American Foreign Aid, quoting President Kennedy (New York: Atherton Press, 1967), p. 3.

¹²U.S., President John F. Kennedy, "Message of the President to the Congress," March 22, 1961, quoted in Robert A. Goldwin, ed., Why Foreign Aid? (Chicago: Rand McNally & Company, 1962), pp. 4, 9.

¹³Mikesell, The Economics of Foreign Aid, p. 6 quoting President Lyndon B. Johnson, "Foreign Aid Message to Congress," January 14, 1965.

However, the exact procedures to follow to accomplish these stated objectives are rarely given. The question becomes, can foreign aid serve both as an instrument of development and as an instrument of foreign policy.

The emphasis in foreign economic assistance programs has changed over time. In the 1950's an attempt was made to strengthen allies against Communist invasion and this became the primary justification for economic development assistance. As early as President Truman's inaugural address of January 20, 1949, in which he declared his famous "Point Four" Program, Americans were encouraged to support economic development programs to ward off military threats.¹⁴ However, the emphasis has changed and during the 1970's the direction has been toward the development of countries to demonstrate the ability to achieve high growth rates in a democratic framework.¹⁵

The current approach of the assistance programs is criticized by Milton Friedman. He offers the alternative approach of strengthening the private enterprise sector in the developing countries instead of supporting government development plans and projects:

Though foreign economic aid may win us some temporary allies, in the long run it will almost surely retard economic development and promote the triumph of Communism. It is playing into our enemies' hands, and should be abolished. Instead we should concentrate on

¹⁴O'Leary, The Politics of American Foreign Aid, pp. 6-10. Also, Robert E. Asher, Development Assistance in the Seventies. Alternatives for the United States (Washington, D.C.: The Brookings Institution, 1970), p. 22; Charles P. Kindleberger, Economic Development (2d ed.; New York: McGraw-Hill Book Company, 1965), pp. 365-366.

¹⁵Asher, pp. 22-27.

promoting world-wide economic development through means that are consonant with the American tradition itself--strengthening of free market domestic economies in the less-developed nations, the removal of obstacles to private international trade, and the fostering of a climate favorable to private international investment.¹⁶

Over time, it has also been recognized that the objectives of security and peace are not always compatible with economic development. The assumption that economic development brings political stability and insures security, peace, and freedom can no longer be made. Political revolutions may be the consequence of economic development.¹⁷ If the developing country becomes aware of the gap in levels of living between the developed and developing economies and if ambitions increase faster than capacity, political unrest may result.¹⁸

The final donor objective of foreign aid, economic advantage for the donor, is probably the most severely criticized. Statistics support the complaint that aid-tying overvalues the amount of aid, increases debt-servicing burdens, and distorts the allocation of resources of the recipient away from high priority development projects to projects tailored to fit the aid.¹⁹

The hypothesis that aid will provide a market for exports has both supporters and critics. Robert Asher supports the position that

¹⁶Milton Friedman, "Foreign Economic Aid: Means and Objectives," in The United States and the Developing Economies, ed. by Gustav Ranis (New York: W. W. Norton & Company, Inc., 1964), p. 25.

¹⁷U.S. Foreign Assistance in the 1970's: A New Approach. Report to the President from the Task Force on International Development, Rudolph A. Peterson, chairman, March 4, 1970 (Washington, D.C.: Government Printing Office, 1970), p. 2.

¹⁸Kindleberger, Economic Development, p. 366.

¹⁹Chenery, "Effectiveness of Foreign Assistance," p. 218.

economic development can widen the market for the donor's exports; "Poor countries make poor markets. Better markets . . . will buy more exports from the U.S. and buy more from third countries which, in turn, may be able to buy more U.S. products."²⁰ However, Kindleberger, Mason, and Mikesell all agree that aid can not be justified on economic grounds alone.²¹ Economic development has both market-creating and market-destroying power. Market expansion is a result of increased imports as the level of income increases and market-destruction is the result of import-substitution industries being established.²²

Current Direction of U.S. Objectives

The current direction of thought is to integrate aid, trade, and investment, remembering that development is a long-run process and is a multilateral enterprise.²³

President Nixon recognized the need to redirect assistance. A Presidential Task Force on International Development was appointed in 1969 with Rudolph A. Peterson as the chairman to provide a report with comprehensive recommendations concerning the role of the U.S. in assisting less developed countries in the 1970's. Fourteen conditions and recommendations were made by the task force. It was discovered that

²⁰Asher, Development Assistance in the Seventies, p. 27.

²¹Edward S. Mason, "United States Interests in Foreign Assistance," in The United States and the Developing Economies, ed. by Ranis, pp. 18-19. Also, Kindleberger, Economic Development, p. 361; Mikesell, The Economics of Foreign Aid, pp. 11-12.

²²Kindleberger, pp. 361-365.

²³Asher, Development Assistance in the Seventies, pp. 219-229.

only 16 per cent of the foreign assistance funds were actually used for economic progress. The percentages of funds for the three major categories were: Security Assistance, 52 per cent; Welfare and Emergency Relief, 6 per cent; and International Development Assistance, 42 per cent with 26 per cent of these funds being used for security purposes.²⁴

The relationship of international development to U.S. national interest was defined as follows:

International development assistance serves long-term U.S. national interests. . . .

In the past, the line of demarcation between security and development interests was blurred. . . . foreign assistance was justified in terms of the conflict between East and West. Today all countries have a common interest in building and maintaining a global environment in which each can prosper.

Two reasons for an active U.S. role in international development are paramount.

First, the United States has an abiding interest in bringing nations together to serve common needs. It has consistently taken a position of leadership in creating institutions like the United Nations, the International Monetary Fund, and the World Bank, and in promoting cooperation in trade, investment, and arms control. The size and power of the United States gives us a special responsibility; if this country chooses not to play a major role, it necessarily endangers the success of such ventures.

Second, the developing countries contain two-thirds of the world's population. Their future success or failure will influence profoundly the kind of world we live in. The nations of the world are growing more interdependent--in trade, in finance, in technology, and in the critical area of political change. U.S. decision-making in such important areas as military expenditures will be influenced by the amount of turbulence in the developing countries of the world, and U.S. prosperity will be influenced by their economic progress.²⁵

²⁴U.S. Foreign Assistance in the 1970's: A New Approach, Peterson, Chairman, pp. 5-6.

²⁵Ibid., p. 7.

The Role of Capital Assistance in
Economic Development

Introduction

The primary objective of economic development assistance for both the donor and recipient is to achieve self-sustaining economic development. Development is a long-run process, an interaction of economic, social, and political variables ". . . never ending, destructive as well as construction."²⁶ The task of attaining development can not be considered complete by achieving a specific level of per capita income but is recognized in the changes in productive processes and the formation of ideas and attitudes.²⁷ Foreign economic assistance is praised as indispensable to the process of development by some authorities²⁸ and is criticized as ineffective and adversely affecting development by others.²⁹ The question then becomes: What contribution can assistance make to the development of the recipient country?

Once a country establishes a growth target, the amount of capital needed to accomplish this target is estimated. The significant variables are the domestic saving and investment, exports and imports, annual population growth rate, and the marginal capital-output ratios.³⁰

²⁶Asher, Development Assistance in the Seventies, p. 40.

²⁷Ibid., 39-40. Also, Benjamin Higgins, Economic Development, Problems, Principles, and Policies (New York: W. W. Norton & Company, Inc., 1968), pp. 578-579.

²⁸Ibid.

²⁹Peter Bauer, "UNCTAD and Africa," in Leading Issues, ed. by Meier, pp. 280-284.

³⁰E. K. Hawkins, "Measuring Capital Requirements," in Leading Issues, ed. by Meier, pp. 253-256. Also, Gerald M. Meier, "Foreign Aid: Economic Aspects," International Encyclopedia of the Social Sciences, V, 525.

The presence of constraints on the development process is evident by the very nature of the underdeveloped condition. These constraints fall into three broad categories: (1) the saving-investment gap, (2) the foreign exchange shortage, and (3) the limited capital absorptive capacity.³¹

The saving-investment gap is the difference in the predicted domestic saving and the amount of capital needed to accomplish the stated growth target.³²

The shortage of foreign exchange as a limitation on development can exist in the absence of a saving-investment gap. Foreign produced capital goods are often complementary to domestic production since most developing countries produce only a limited range of products. The domestic saving then must be converted into foreign exchange to make these purchases. If the release of resources through the reduction in consumption and increase in saving does not make the type of resources available for obtaining foreign exchange, development is limited.³³

The inflow of capital goods is of little use if the capital is not put to use in the productive process. The ability of a country to absorb an increase in capital goods depends upon the entrepreneurship, public and private administration, skilled workers and technicians. The lack of these human and institutional qualities is a limit on

³¹Hawkins, "Measuring Capital Requirements," pp. 254-257. Also, Mikesell, The Economics of Aid, p. 71.

³²Ibid.

³³Ibid.

development referred to as capital absorption capacity.³⁴

Foreign aid is expected to fill these gaps and overcome these constraints to enable countries to achieve self-sustaining growth and a gradual reduction and termination of aid. To accomplish this, marginal propensity to save must exceed average propensity to save and the investment channeled into strategic projects with low import content or import-substitution industries and contribute to an expansion of the export sectors.³⁵

The theoretical approach to determining the role of foreign aid to development suffers several limitations. One such limitation is the difficulty in obtaining a precise measurement of the capital-output ratios, saving ratios, and population growth rates. Another limitation is the treatment of the relationship of the variables as mechanical which obstructs many of the subtleties of the development process. Lastly, the models are highly aggregative and treat all units of investment and capital inflow as homogeneous units.

Theories of the Role of Assistance

Theories regarding the essence of development can be classified as partial or comprehensive. Three of the most important partial theories relate to capital-absorptive capacity, critical minimum effort, and intersectorial growth models.

³⁴Ibid. Also, Benjamin Higgins, United Nations and the U.S. Foreign Economic Policy (Homewood, Ill: Richard D. Irwin, Inc., 1962), pp. 22-26; Higgins, Economic Development, p. 580.

³⁵Meier, "Foreign Aid: Economic Aspects," pp. 525-526.

Capital-absorptive capacity

The estimated capital required for "take-off" establishes the amount of capital that can be effectively used, i.e. the capital-absorptive capacity of a country. The marginal contribution of investment is defined as the change in national income resulting from additional investment stimulating the economy and development taking place. The limit of a country's absorptive capacity is reached when an additional unit of investment reduces the marginal contribution of investment to "x". The value of "x" is determined by the rate of interest on development loans, or zero if a grant is provided.³⁶

The real limit on a country's ability to use capital effectively is established by the nature of the underdeveloped state. Such factors as lack of entrepreneurship, cultural and social impediments to technological change and innovation, inefficiency of public and private administration, lack of technicians and skilled workers and the low level of education in general, and the immobility of productive resources.³⁷

These factors prevent the developing countries from productively employing additional amounts of capital which are provided

³⁶Higgins, Economic Development, pp. 579-582. Also, Higgins, United Nations and the U.S. Foreign Economic Policy, pp. 22-26.

³⁷Hollis B. Chenery and Alan M. Strout, "Foreign Assistance and Economic Development," American Economic Review, LVI, No. 4 (September, 1966), pp. 680-681. Also, Roy F. Harrod, Towards a Dynamic Economics (London: Macmillan, 1948), cited in Mikesell, The Economics of Foreign Aid, p. 99.

through assistance programs. It is essential, therefore, that foreign aid be employed in strategic ways which remove bottlenecks. This would increase not only the productivity of the foreign assistance but also the domestic investment. To overcome the capital absorptive limitation, new techniques, skills, and methods of production and distribution must be introduced.³⁸

Many comprehensive development theories incorporate cultural and institutional factors which affect the capital absorptive capacity into their models. For example, the Chenery-Strout model includes the "skills limit" factor,³⁹ and Roy Harrod employs the "natural rate of growth" which is determined by population and skills.⁴⁰

Critical minimum effort

A critical minimum level of per capita income must be reached before sustained growth can take place. A small increase is considered a handicap to the development process since it only stimulates the socio-economic factors which retard growth such as: (1) population growth, (2) increased marginal capital-output ratio, (3) depressed entrepreneurial activity, and (4) resistance to new ideas and technical progress. These factors depress the level of income at a "low-level equilibrium trap." If per capita income can be increased to a "critical minimum effort" level the growth-inducing forces of

³⁸Mikesell, The Economics of Foreign Aid, pp. 99, 103-104.

³⁹Chenery and Strout, "Foreign Assistance and Economic Development," pp. 680-681.

⁴⁰Harrod, Towards a Dynamic Economics, p. 99.

saving, investment, and changes in socio-economic structure will overcome the depressing forces. Therefore, in order for economic assistance to be of any value it must be provided in the amount and type to break through the barriers to the critical minimum effort and enable the growth-inducing forces to overpower the depressing forces.⁴¹

Intersectoral growth models

Comprehensive growth models are often criticized as being too highly aggregated. The disaggregated, intersectoral growth models analyze the productive process of various sectors of the economy and the interaction of the sectors or industries. The value of these theories is in identifying "leading" or strategic sectors which induce expansion of investment and output in other sectors. The "linkage" effects of some sectors stimulate the growth potential in the economy because of the way in which the factors of production and output of each sector are related. If these sectors can be identified and aid directed toward their development, self-sustaining growth will be enhanced.⁴²

⁴¹Harvey Leibenstein, Economic Backwardness and Economic Growth (New York: John Wiley & Sons, 1957). Also, Richard R. Nelson, "A Theory of the Low-Level Equilibrium Trap in Underdeveloped Countries," American Economic Review, XLXI (December, 1956), 894-908 cited by Mikesell, The Economics of Foreign Aid, pp. 47-50.

⁴²Albert O. Hirschman, The Strategy of Economic Development (New Haven, Conn.: Yale University Press, 1958). Also, Hollis B. Chenery and Paul G. Clark, Inter-Industry Economics (New York: John Wiley and Sons, 1959); Tibor Barna, ed. Structural Interdependence and Economic Development (New York: St. Martin's Press, 1963); A. T. Peacock and Douglas Dosser, "Input-Output Analysis in an Underdeveloped Country, A Case Study," Review of Economic Studies, XXV (October, 1959), 21-24.

Four comprehensive theories of development in which foreign economic assistance plays a significant role are discussed in this study. They are Rostow's stages of economic growth, Chenery-Strout comprehensive model, the Fei-Paauw saving constraint model, and McKinnon's foreign exchange constraint. These theories are comprehensive in that many factors are considered simultaneously.

Rostow's "take-off" stage

The social, cultural, and other environmental prerequisites for economic progress are significant factors in Rostow's explanation of stages of development. Rostow's third stage, "take-off into self-sustaining growth," has become standard equipment in foreign-aid policies. According to Rostow, the prerequisites for take-off are (1) an investment rate greater than 10 per cent of national income, (2) the development of a leading sector, and (3) a stable political, social and institutional framework favorable to economic growth.⁴³

Rostow's comprehensive model is historical in approach and depends very much upon the establishment of a framework capable of mobilizing and transmitting capital from one sector to another. Foreign aid can be of assistance in helping a country reach the critical level of investment called for in the self-sustaining growth stage.

A final element in the supply of loanable funds is, of course, capital imports. Foreign capital has played a major role in the take-off stage of many economies; for example the United States, Russia, Sweden, Canada. . . . Foreign capital was notably useful

⁴³W. W. Rostow, The Stages of Economic Growth. A Non-Communist Manifesto (Cambridge, England: Cambridge University Press, 1960), p. 39.

when the construction of railways or other large overhead capital items with a long period of gestation played an important role in the take-off or the late preconditions period. . . . foreign capital can be mightily useful in helping carry the burden of these overhead items either directly or indirectly.⁴⁴

Chenery-Strout comprehensive model

The Chenery-Strout model combines the savings-investment gap, the foreign-exchange gap, and the capital-absorptive capacity in determining the role of foreign aid in the development process. Foreign assistance can provide the prerequisites for the take-off stage such as skills, organizational ability and technology, and encouragement of self-help measures.⁴⁵

The amount of aid required to achieve a 10 per cent growth in investment for take-off is: $F_t = F_0 + (\beta k - \alpha') (V_t - V_0)$ ⁴⁶ where F_t is the net inflow of foreign capital, $F_0 = I_0 - S_0$ is the initial savings-investment gap, ". . . the increment in investment in each period is a constant ratio (βk) to the increment in GNP,"⁴⁷ α' is the marginal propensity to save, and V_t is the level of GNP in year t .

The conclusions of the model regarding the effectiveness of external assistance in promoting development are:

1. "In the short run the effectiveness of external resources depends on their use to relieve shortages of skills, saving, and imported commodities."⁴⁸

⁴⁴Ibid., p. 49.

⁴⁵Chenery and Strout, "Foreign Assistance and Economic Development," pp. 680-681.

⁴⁶Ibid., p. 687.

⁴⁷Ibid.

⁴⁸Ibid., p. 724.

2. "The long-run effectiveness of assistance is also likely to be increased by supporting as high a growth rate as the economy can achieve without a substantial deterioration in the efficiency of use of capital."⁴⁹
3. "Limiting the form of assistance to the machinery and equipment needed by substantial investment projects is likely either to lower the rate of growth or to distort the pattern of investment."⁵⁰

The model is comprehensive in the sense that most possibilities arising in the course of providing economic assistance for development are included. The assistance should contribute to the mobilization and use of domestic resources by alleviating bottlenecks. The conclusions are also in agreement with the "critical minimum effort" approach. When the maximum growth rate established by capital absorptive capacity is achieved, the increase in GNP is less likely to be offset by population growth. The economy also benefits from a rapid increase in savings rate, expansion of exports, and the country becomes more attractive to foreign private investment. The final conclusion supports the widely held contention that tied aid becomes increasingly inappropriate as development processes start.

These conclusions support the use of economic assistance for development purposes and make recommendations for improvement.

⁴⁹ Ibid.

⁵⁰ Ibid., p. 727.

Fei-Paauw saving (self-help) constraint

The Fei-Paauw theory is primarily concerned with the savings constraint and the contribution foreign aid can make when the domestic economy has maximized savings efforts and still falls short of the funds needed to achieve self-sustained growth.⁵¹ Two of the three cases discussed call for assistance. In one case a termination date for providing assistance can be seen but not in the second case:

Case 1. $\eta_0 < h + \kappa < u/k = \eta u$

Case 2. $\eta u < h + \kappa$

where η_0 is the initial rate of growth of capital and GNP, h is the target rate of growth in per capita GNP, κ is the rate of population growth, u is the per capita marginal savings ratio, k is the capital-output ratio, and ηu is the long-run rate of growth of capital and GNP.⁵²

Case 1: The Aid is "gap-filling" and complements the country's own self-help efforts. The long-run growth rate of capital and GNP (ηu) is greater than the sum of the target per capita growth rate of GNP and the rate of population growth ($h + \kappa$).⁵³

Case 2: The long-run rate of growth of capital and GNP (ηu) is less than the sum of the target rate of growth of GNP and the rate of population growth ($h + \kappa$). Foreign aid will be "gap narrowing" and

⁵¹John C. H. Fei and D. S. Paauw, "Foreign Assistance and Self-Help: A Reappraisal of Development Finance," Review of Economics and Statistics, XLVII (August, 1965), 251-267 cited by Mikesell, The Economics of Foreign Aid, pp. 87-89.

⁵²Ibid., p. 87.

⁵³Ibid., pp. 87-89.

technical assistance will be necessary to increase self-help efforts to raise the per capital marginal savings ratio.⁵⁴

McKinnon's foreign exchange constraint

If aid is strategically used to remove bottlenecks, a small amount of aid can have a significant impact on the growth rate. If the foreign exchange constraint is dominant, foreign aid can be used to provide strategic goods not produced in the developing country.

How long aid must be provided before the growth becomes self-sustaining is determined by e' , the net marginal propensity to export over and above current account requirements, exceeding e , the export capacity coefficient, by a critical amount. The greater e' exceeds the critical ratio (the amount by which $e' > e$), the smaller the total amount of aid necessary to fill the trade gap for achieving self-sustained growth.⁵⁵

Criticism of Aid as an Instrument
of Development

Not all authorities on foreign aid agree that foreign aid contributes to the development of the recipient.⁵⁶ However, very few writers are as critical as Peter Bauer⁵⁷ who believes that not only is

⁵⁴ Ibid.

⁵⁵ R. I. McKinnon, "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation," Economic Journal, LXXIV (June, 1964), 388-409 cited by Mikesell, The Economics of Foreign Aid, pp. 89-91.

⁵⁶ Friedman, "Foreign Economic Aid: Means and Objectives," pp. 13-24.

⁵⁷ Bauer, "UNCTAD and Africa," pp. 280-284.

aid ineffective in promoting developing but actually serves as a major deterrent to the development process. The policies related to the use of aid funds discourage capital development in the private sector of the recipient's economy.

Economic development depends not only on the supply of capital but on the human qualities of attitude, values, objectives, motivations, and the social and political institutions. Foreign aid is incapable of affecting these human qualities and therefore is ineffective as an instrument of development.

The inflow of aid, according to Bauer, adversely affects these essential human qualities by undermining the idea of self-reliance and instilling the attitude that development depends on external grants thus relieving the people of the responsibility of personal development.

When resources are supplied locally, the human qualities and productive institutions necessary in the productive process are reinforced and improved and provide a basis for further economic development.⁵⁸

Summary and Conclusions

Although several objectives for providing economic development assistance were explored in the first part of this chapter, the ultimate justification from both the donor and recipient viewpoint is to achieve self-sustained growth. The issues, then, are: (1) how can aid assist the development process and (2) how long must the assistance

⁵⁸Ibid.

continue before the recipient economy responds and growth becomes self-sustaining.

It must first be recognized that development is a long-term procedure and is a process involving more than economic variables. Developing countries face many obstacles in their efforts to reach the "take-off" stage of development. The three paramount obstacles are the savings-investment constraint, foreign exchange shortage, and limited capital-absorptive capacity. If foreign aid is to be of any value, it must contribute to the elimination of one or all of these bottlenecks.

The value of the theories relating foreign aid to the development process is in pointing out the principal variables and predicting the development results under alternative assumptions. The "critical minimum effort" theory indicates a minimum amount of growth must take place to overcome the depressing forces which are stimulated when the status quo is disturbed. The intersectorial growth models point to specific sectors which are capable of inducing growth in related industries. Rostow's "take-off" stage is considered the point at which the development process can proceed to achieve self-sustaining growth. The Chenery-Strout model is probably the most comprehensive analysis of the development process and the significant variables.

Although foreign aid as an instrument of development is not without its critics, most theories reach the conclusion that foreign aid can provide the necessary, missing ingredients for the developing countries to achieve self-sustaining growth.

CHAPTER III

DEFINITION AND MEASUREMENT OF ECONOMIC DEVELOPMENT ASSISTANCE

Introduction

A variety of flows of resources from developed to developing countries are referred to as "aid." Although the objective of the transfer of resources may be a monetary return or military or political concession the term "aid" is often interpreted to mean a gift.

In this chapter, procedures for determining the grant element in the flow of funds are reviewed. First, John Pincus's pioneer work⁵⁹ in application of the discounted present value technique to economic development assistance is presented from both the donor and recipient's point of view. Secondly, the merits of transferring funds by means of a grant or a loan are compared. Since the grant element is the amount

⁵⁹ John A. Pincus, "The Cost of Foreign Aid," Review of Economics and Statistics, XLV, No. 1 (February, 1966), pp. 360-367. Also, John A. Pincus, Economic Aid and International Cost Sharing. A Report Prepared for the Office of the Assistant Secretary of Defense, International Security Affairs, R-431-ISA (Santa Monica, Calif.: The RAND Corporation, July, 1965).

actually transferred to the recipient, the question is raised as to why the loan is ever used. The merits of each instrument are reviewed in Wilson Schmidt's renowned work.⁶⁰

Thirdly, nonquantitative factors which affect the degree of concession in a flow of funds, often more significantly than the financial terms, are discussed. Procurement restrictions have been used increasingly over the past ten years. However, the measurement of their influence is difficult. The formula developed by Janos Horvath⁶¹ introduces a technique for incorporating the tied-aid influence on the grant element. Also, UN studies indicating the degree to which aid-tying has reduced the grant element are reviewed.

Determining the Definition of Aid

The Criteria

The recommended criteria for establishing a definition of economic development assistance are:

1. The primary objective of the funds is development of the recipient's economy.
2. Assistance with military objectives is excluded.⁶²

⁶⁰Wilson E. Schmidt, "The Economics of Charity: Loans versus Grants," Journal of Political Economy, LXXII, No. 4 (1964), 387-395.

⁶¹Jonas Horvath, "Foreign Economic Aid in the International Encyclopedia of Social Sciences: A Review Article," Journal of Economic Literature, IX, No. 2 (June, 1971), pp. 432-441.

⁶²"These differences between the official and the economically scientific measurement of development assistance have undoubtedly played a significant part in the growing disillusionment with the effectiveness of development assistance, as has the fact that much so-called aid has been given for political and military purposes rather than the

3. The assistance is provided on concessional terms.

A review of the funds provided to developing countries reveals that objectives other than economic development of the recipient are pursued in the design of the aid program. See Chapter II for a discussion of the donor's objectives.

The second criterion, separation of development and military programs, is a difficult task. The need for the separation has long been recognized and was one of the recommendations made to the U.S. President by the Task Force on International Development in 1970:

4. U.S. international development programs should be independent of U.S. military and economic programs that provide assistance for security purposes. Both types of programs are essential, but each serves a different purpose. Confusing them in concept and connecting them in administration detract from the effectiveness of both.⁶³

Because of the relationship between world-wide development and U.S. security and because of fungibility⁶⁴ of funds, it is often difficult to distinguish budget commitments for development purposes and those for military considerations.⁶⁵

promotion of economic development, and may well indeed have been counter-productive in terms of promoting development." Harry Johnson, "The 'Crisis of Aid' and the Pearson Report," A Lecture Delivered at the University of Edinburgh on June 3, 1970 (Edinburgh: University Press, 1970), p. 8.

⁶³U.S. Foreign Assistance in the 1970's: A New Approach, Peterson, Chairman, p. 2.

⁶⁴Fungibility refers to aid funds used to purchase goods normally purchased by the aid recipient through normal commercial routes with free foreign exchange. Fungibility is also referred to in the literature as "switching" and "tied aid substitution."

⁶⁵Millikan and Rostow, A Proposal: Key to an Effective Foreign Policy, pp. 1-23. Also, Horvath, "Foreign Economic Aid, A Review Article," pp. 433-435.

To employ the third criterion that funds be provided on concessional terms it is necessary to determine the degree of concession in the wide range of terms on which funds are made available. The 1 per cent of GNP target which Development Assistance Committee (DAC) countries⁶⁶ have pledged includes such nonconcessionary funds as private flows, which made up 45 per cent of the flow in 1975. The account, Net Flow of Financial Resources from DAC countries, is composed of the following categories:

- I. Official Development Assistance
 - 1. Bilateral grants and grant-like flows
 - 2. Bilateral loans at concessional terms
 - 3. Contributions to multilateral institutions
- II. Other Official Flows
 - 1. Bilateral (official export credits, official equity investment)
 - 2. Multilateral (purchase of loan participations and bonds issued by multilateral agencies, debt relief transactions)
- III. Private Flows
 - 1. Direct investment
 - 2. Bilateral portfolio

⁶⁶Participating in the work of DAC are: Australia, Austria, Belgium, Canada, Denmark, Federal Republic of Germany, France, Italy, Japan, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, United States of America and the Commission of the European Communities.

3. Multilateral portfolio

4. Export credits⁶⁷

This account is not an accurate measurement of the net transfer of resources to the recipient nor is it the same as the "real cost" to the donor. To be defined as "aid" the funds must be provided on terms unattractive to private capital flows, which are determined by the expected return compared with the risks involved. The market mechanism reflects the collective judgments in rates of interest and terms of debt instruments. For a financial arrangement to be defined as aid, it must be accepted that the terms are concessionary to the extent that the private market criteria do not apply.⁶⁸

"Aid" is the Grant Element

The definition of aid used in this study is the grant element in a flow of resources, determined by the discounted present value methodology. A grant can be viewed as a loan with a 100 per cent subsidy. It is defined as ". . . a unilateral transfer to the recipient country, with no obligation to repay the amount and no charges for the use of the funds in the form of interest payments . . ."⁶⁹.

⁶⁷ Development Co-operation. 1972 Review. Efforts and Policies of the Members of the Development Assistance Committee. Report of the Development Assistance Committee, Edwin M. Martin, Chairman (Paris: Organisation for Economic Co-operation and Development, 1972), pp. 1-9, 46-48.

⁶⁸ Pincus, "The Cost of Foreign Aid," pp. 360-367. Also, Egon Neuberger, "Foreign Aid--Is it Worth Continuing?" (Santa Monica, Calif.: The RAND Corporation, April, 1964), p. 4; E. K. Hawkins, The Principles of Development Aid (Baltimore: Penguin Books Inc., 1970), pp. 17-19, 28; Meier, "Foreign Aid: Economic Aspects," p. 521.

⁶⁹ Hawkins, The Principles of Development Aid, p. 30.

The grant element in a loan is the difference in the present value of the loan and the obligation to repay. This difference for "hard" loans, defined as loans repayable in the lender's currency and at market rates of interest, is zero; there is no grant element or aid value. For "soft" loans, defined as loans repayable in the borrower's currency and at interest rates less than the market rate, it is necessary to calculate ". . . the mean of the probability distribution that the interest and capital repayment will be useful to the lender without an implicit foreign exchange discount."⁷⁰ If the probability of the debt service being converted into foreign exchange is exactly half, the soft loan may, at market rates of interest then be regarded as half aid and half business. According to Charles Kindleberger, aid figures do not correctly define the grant element: ". . . these subtle calculations are altogether ignored, and aid is aid, no matter how closely the terms approach the market."

The grant element can be measured from the donor or recipient's viewpoint. This difference in point of view is often a source of confusion in aid literature. To the donor the grant element is the real resource cost of the aid. To the recipient it is the net transfer of resources.⁷² The discounted present value methodology is based on the

⁷⁰ Charles P. Kindleberger, International Economics (4th ed.: Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 411.

⁷¹ Ibid.

⁷² John A. Pincus, "Costs and Benefits of Aid: An Empirical Analysis," in Leading Issues in Economic Development, ed. by Gerald Meier, pp. 257-266. Also, Hawkins, The Principles of Development Aid, p. 40.

logic that current funds are worth more than the same amount of future funds. The faster the loan is repaid, the smaller the opportunity cost for the donor. For the aid recipient, the longer repayment is postponed, the greater the grant element. The most significant factor in computing the grant element is the rate of discount used, which is not the same for the donor and the recipient.⁷³

Limitations of the grant element methodology

There are several limitations in using the grant element calculated from financial terms as a measurement of the aid value to recipients or the real cost of the assistance to the donor.

1. By considering only the financial aspects of the funds, qualitative features of the assistance which have a direct bearing on the transfer of resources, such as aid-tying, are not taken into consideration.⁷⁴
2. Direct and indirect benefits and costs accruing to the donor, such as commercial ties and increased profit on private foreign investment, and recipient, such as transfer of technology, are difficult to identify and quantify.⁷⁵
3. The rate of discount to be used is not easily determined.⁷⁶

⁷³Ibid.

⁷⁴Hawkins, The Principles of Development Aid, p. 40; Also, Neuberger, "Foreign Aid--Is it Worth Continuing?", pp. 5-6; Mikesell, The Economics of Aid, pp. 227-234, 246-248.

⁷⁵Pincus, "Costs and Benefits of Aid: An Empirical Analysis," pp. 257-266.

⁷⁶Pincus, Economic Aid and International Cost Sharing, pp. 124-125.

4. Many types of aid, such as investment guarantee and tax incentives given to private investors, are not taken into account.⁷⁷

The effect of these conditions are qualitative in nature. However, when information is available, they should be expressed in quantitative terms.

Measuring the Grant Element

Discounted Present Value Technique

The grant element is estimated for both the donor and the recipient. From the donor's point of view the real cost incurred in providing funds is the income foregone, estimated on the basis of the alternative uses and rates of return of the funds. The present value of the loan is determined by discounting the repayment streams of interest and amortization at various long-term rates of interest. The difference between the face value of the loan and the present value is the grant element.⁷⁸ The grant element must then be qualified for such conditions as aid-tying, contributions-in-kind, and monopoly elements discussed later.

The grant element is calculated from the donor's viewpoint for three terms and summarized in Table 1. The loans are repayable in U.S.

⁷⁷Mikesell, The Economics of Foreign Aid, pp. 204-218, 222-226.

⁷⁸Pincus, "The Cost of Foreign Aid," pp. 360-367. Also, Pincus, Economic Aid and International Cost Sharing; Pincus, "Costs and Benefits of the Aid," ed. by Meier, Leading Issues, pp. 257-268.

dollars. A 7 per cent rate of discount was chosen to represent the opportunity cost of the funds loaned as foreign aid. A lower discount rate would have reduced the grant element. For example, if the Export-Import Bank loan had been discounted at 5 3/4 per cent, the discounted present value would have been \$3,500,000, equal to the face value, and the grant element would have been zero. As the discount rate increases, the donor's opportunity cost increases and the grant element increases from the donor's point of view.

TABLE 1
GRANT ELEMENT ACCORDING TO DISCOUNTED
PRESENT VALUE METHODOLOGY

Agency	Amount of Loan ^a	Interest Rate	Loan Term and Grace Period	Discounted Pre. Val. ^b	Grant Element ^c
Ex-Im Bank	\$ 3,500	5.70 %	7 yr + 2 yr	\$ 3,102.5	\$ 397.5 (11.35)
ICA ^d	3,500	4.00 %	7 yr + 3 1/2 yr	2,888.5	611.5 (17.47)
AID ^e	65,000	0.75 %	30 yr + 10 yr	17,645.0	47,355.0 (72.85)

^aAmounts are in thousands of U.S. dollars.

^bDiscounted present value calculated using a 7 per cent rate.

^cThe grant element as a percent of the total loan is given in parentheses.

^dInternational Cooperation Administration

^eAgency for International Development

Source: Based on John Pincus, Economic Aid and International Cost Sharing. A Report Prepared for the Office of the Assistant Secretary of Defense, International Security Affairs, R-431-ISA (Santa Monica, Ca.: The RAND Corporation, July, 1965), Table 5-2, p. 116.

The grant element for the recipient is the difference between the rate of interest on aid loans and the rate available in the international market or alternative sources of assistance. It is more difficult to calculate for the aid recipient due to the difficulty in establishing appropriate discount rates, appropriate values for tied aid, the simplifying assumptions required for calculation of benefits from private investment, and the difficulty of determining the inherent benefits from technical assistance and technological transfer incurred in assistance programs and private foreign investment.

The fact that a given nominal aid commitment does not have the same grant element to the donor and the recipient because of the different discount rates prevalent in each country is demonstrated in the following example of a 20-year, \$1 million loan, granted at 3 per cent interest with a 5-year grace period:

1. The grant element to the donor is the nominal value of the loan minus the present value of repayments and (a) is zero if the discount rate is 3 per cent, and (b) \$297,513 if the discount rate is 6 per cent.
2. The grant element to the recipient is the market rate of interest minus the rate of interest on the loan and is \$437,780 if the discount rate is 8 per cent.⁷⁹

The grant element for the donor is the result of the difference between the market rates of return and the return on the loan committed for assistance. For the recipient the interest rate on the loan is lower than the alternative borrowing rate of 8 per cent.

⁷⁹Pincus, "Costs and Benefits of Aid," ed. by Meier, Leading Issues, p. 264.

Application of discounted present value to aid statistics

The grant element in the foreign aid provided by DAC countries for 1962-1966 is determined under two alternative discount rates: (1) the rate of return on domestic investment, and (2) rate of interest paid by the IBRD. The results are summarized in Table 2.

TABLE 2
REAL COST TO DONORS OF AID COMMITMENTS^a

Discount Rate	1962	1963	1964	1965	1966
Donor's domestic interest rate ^b	590.0 (21.7) ^c	726.0 (25.2)	1050.0 (28.5)	624.3 (20.6)	993.0 (28.1)
IBRD borrowing rate ^d	244.8 (9.0)	823.7 (11.2)	565.6 (15.4)	304.7 (10.5)	833.4 (25.6)
Nominal value of loan commitment	2714.5	2877.2	3681.9	3027.0	3553.9

^aThe grant element is calculated for loan commitments of the DAC countries from the donor's viewpoint.

^bThe cost of aid to the donor assuming domestic investment is the alternative to bilateral lending, is calculated using the long-term domestic government bond rate plus 1 per cent as the discount rate.

^cThe cost of aid to the donor as a percentage of the nominal value of the loan is given in parentheses.

^dThe rate of interest paid by IBRD when borrowing in the market is the discount rate used to calculate the cost to the donor of providing bilateral loans if the alternative is exclusive reliance on multilateral aid channels.

Source: Based on Pincus, "Costs and Benefits of Aid," in Leading Issues, ed. by Meier, Table 2, p. 263.

The grant element of loans to thirty-nine recipients is determined by the discounted present value technique. As the alternative source of funds becomes more expensive the grant element increases. The results are summarized in Table 3.

TABLE 3
RECIPIENT'S GRANT ELEMENT^a

Year	Nominal Value of Borrowing (\$ million)	Grant Element Discounted at		
		IBRD Borrowing Rate (4 - 5.6 %)	Private Foreign Lending Rate (8%)	Domestic Investment Rate (12%)
1960	\$ 2278.7	\$ 58.6 (2.6) ^b	\$ 314.3 (13.8)	\$ 710.6 (31.2)
1964	3355.0	473.6 (14.1)	1013.2 (30.2)	1592.3 (47.5)
1965	2665.0	482.7 (18.1)	826.3 (37.5)	1302.1 (48.9)

^aThe borrowing is for thirty-nine developing countries.

^bThe grant element as a percentage of the nominal value of the loan is in parentheses.

Source: Based on Pincus, "Costs and Benefits of Aid," in Leading Issues, ed. by Meier, Table 3, p. 266.

As indicated previously, grant element statistics may overestimate the sacrifice of the donor and overestimate the value of the aid for the recipient because of qualitative features of the aid commitments. An attempt to incorporate these conditions in measuring the grant element is made later in the chapter.

Grant Element in Grants
and Loans Compared

The grant element in loans and grants is compared by Wilson Schmidt in a 1964 article, "The Economics of Charity: Loans versus Grants." The grant element in alternative aid programs is measured by the discounted present value method. Contrary to common belief, loans are not costless to the donor:

The cost to the lender of a loan is not zero simply because the lender receives interest and repayment. If the funds would produce a yield in the benefactor nation which is greater than the interest income contained by lending the funds abroad, the benefactor nation loses real income through foreign loans.⁸⁰

By the same logic, grants are not always more expensive than loans for the donor:

. . . grants cost the benefactor less than loans if the yield on capital is higher in the benefactor nation than in the recipient nation.⁸¹

The cost of the grant element to the donor is examined under two conditions. In case 1, a grant is cheaper than a loan and in case 2 a loan is cheaper than a grant. The outcome depends on the rate of return prevailing in the donor and recipient countries.

Case 1: Grant cost less than a loan

The following assumptions are made:

1. The yield on capital is 7 per cent in the recipient country and 8 per cent in the donor country.
2. The length of the loan or annual grant is 50 years.

⁸⁰ Schmidt, "The Economics of Charity: Loans versus Grants," p. 388.

⁸¹ Ibid., p. 389.

3. The grant element to the recipient in each alternative is \$13.80.

The "real cost" to the donor of the \$13.80 transfer is given in Table 4.

TABLE 4
PRESENT COST TO THE DONOR OF ALTERNATIVE
AID COMMITMENTS--CASE 1

Alternative Programs	Present Cost to Donor
1. Annual grant of \$1	\$ 12.23
2. Lump sum grant of \$13.80	13.80
3. Loan of \$14.50 at 0 per cent	13.98
4. Loan of \$100 at 6 per cent	24.47
5. Loan of \$10 million at 6.9999 per cent	1.2 million

Source: Wilson E. Schmidt, "The Economics of Charity: Loans versus Grants," Journal of Political Economy, LXXII, No. 4 (1964), Table 1, p. 389.

The procedure for determining the \$13.80 grant element in each of the five cases is as follows:

1. An annual grant of \$1 will cost the donor \$1 annually for 50 years but the present cost, discounted at 8 per cent over the 50 years is only \$12.23.
2. The present cost to the donor of a lump-sum grant of \$13.80 is \$13.80. The donor loses real income on \$13.80 forever, which at 8 per cent is \$1.104 per year. The present cost of such a perpetual loss is $\$1.104/.08 = \13.80 .

3. A loan of \$14.30 at zero rate of interest will cost the donor 8 per cent annually, the discounted value over 50 years is \$13.98.
4. A \$100 loan at 6 per cent interest will cost the donor 2 per cent annually since the yield on capital for the donor is 8 per cent. The present value of \$2 per annum over 50 years, discounted at 8 per cent is \$24.47.
5. The present cost of a \$10 million, 50 year loan, yielding 6.999 per cent interest will cost a donor country, capable of 8 per cent return, a discounted value of \$1.2 million.⁸²
The grant element for the recipient is still only \$13.80.

It becomes apparent from this study that it is possible to provide a specified grant element to a recipient (\$13.80 in this case) through a variety of programs. The size of the grant element depends crucially on the comparative rates of return existing in each country and the terms of the transfer. The higher the rate of interest on the loan, the larger the size of the loan must be to maintain a constant yield of \$13.80 to the recipient.

Case 2: Loans are cheaper than grants

The same discounting procedures are applied to determine the grant element in the case in which the rate of discount is greater in the recipient country (8 %) than the donor (6 %). The grant element maintained in each alternative is \$12.23. The results are summarized in Table 5.

⁸²Ibid., pp. 388-389.

TABLE 5
PRESENT COST TO THE DONOR OF ALTERNATIVE
AID COMMITMENTS--CASE 2

Alternative Programs	Present Cost to Donor
1. Annual grant of \$1	\$ 15.76
2. Lump-sum grant of \$12.23	12.23
3. Loan of \$12.50 at 0 per cent	11.82
4. Loan of \$33.33 at 5 per cent	5.25
5. Loan of \$50 at 6 per cent	0
6. Loan of \$100 at 7 per cent	- 15.76

Source: Based on Wilson E. Schmidt, "The Economics of Charity: Loans versus Grants," Journal of Political Economy, LXXII, No. 4 (1964), Table 2, p. 391.

Thus, Schmidt's theorem is supported:

For a given level of present value of benefit to a recipient, loans cost the benefactor less than grants if the yield on capital is higher in the recipient nation than in the benefactor nation.⁸³

Comprehensive Grant Equivalent Formula

The following formula developed by Janos Horvath⁸⁴ deserves a special place in aid literature defining and measuring the grant element. Many concessionary factors heretofore noted are now incorporated into the comprehensive grant equivalent formula.

⁸³ Ibid., p. 390.

⁸⁴ Horvath, "Foreign Economic Aid in the International Encyclopedia of the Social Sciences: A Review Article," p. 438.

The grant element is found by multiplying the aid program by the comprehensive grant ratio. The comprehensive grant ratio incorporates the "concession factors" which determine the degree of concession in a flow of resources. The following formula shows explicitly the relationship of the factors to the comprehensive grant ratio.

$$g = [1 - i/q] \times [1 - \frac{e^{-qM} - e^{-qT}}{q(T-M)} + g_1 + g_2 + g_3 + g_4]^{85}$$

where:

g = the comprehensive grant ratio	g_1 = grant element of aid tying
i = interest rate charges	g_2 = grant element of repayment currency provisions
q = comparative rate of discount (opportunity cost)	g_3 = grant element of surplus goods
T = time of maturity in years	g_4 = grant element of change in terms of trade
M = moratorium on repayment, i.e. the grace period	e = base of natural logarithm, 2.718

This technique fills a gap in foreign aid measurement.

The Effect of Tied Aid on the Grant Element

The practice of tying aid, which is becoming increasingly the rule rather than the exception, reduces the value of the aid to the recipient.⁸⁶ Many costs are involved with tied aid, all of which

⁸⁵ Ibid.

⁸⁶ Pincus, "The Cost of Foreign Aid," p. 363. Also, Meier, "Foreign Aid: Economic Aspects," p. 528; Hawkins, Principles of Foreign Aid, pp. 28-29, 40, 124; W. Whitney Hicks, "Estimating the Foreign Exchange Costs of United Aid," The Southern Economic Journal, XXX, No. 1 (July, 1963), 168-174; Mikesell, The Economics of Foreign Aid, p. 252.

reduce the grant element. The most obvious cost is the price differential on tied-aid exports. Several studies have been conducted to measure this excess cost and reduction in aid value. These studies and the methodologies used are examined.

Excess Costs Due to Price Differentials

A direct cost of tied aid is the excess cost due to the price paid by the recipient country exceeding the lowest delivered price available on the world market. These price differentials are due to several factors:

1. Explicit collusion by suppliers in the donor country.
2. The f.o.b. price, which is equivalent to the donor's domestic price, is charged.

Suppliers often set the export price less than the domestic price since the foreign market is considered more competitive than the domestic market. However, when donor suppliers treat aid-financed exports as an extension of the domestic market and charge the domestic price, the aid recipient is overcharged relative to the world market price.⁸⁷

⁸⁷ Alan Carlin, Project versus Program Aid: From the Donor's Viewpoint, P-3283 (Santa Monica, Calif: The RAND Corporation), December, 1965. Also, H. W. Singer; "External Aid: For Plans or Projects?", Economic Journal, LXXV, No. 299 (September, 1965), 539-545; Jagdish N. Bhagwati, The Tying of Aid. Growth, Development Aid and Finance (Synchronization of International and National Policies). United Nations Conference on Trade and Development, Second Session, (TD/7/Supp. 4), February 1, 1968, pp. 23-30.

Excess costs of tied aid due to price differentials can be measured by comparing, item by item, the prices quoted by the donor country to world market prices. This type of data is difficult to obtain and suffers many limitations:

1. Numerous cases would need to be examined in order to generalize from specific cases to conclusions.
2. Estimates are based on a relatively small sample of tied purchases and the results may not be typical.
3. Direct costs can only be estimated reliably when international tenders have been invited or when standard price lists exist.⁸⁸

One study based on a comparison of internationally bid prices and tied aid prices was conducted by the United Nations Conference on Trade and Development (UNCTAD) and the results are summarized in Table 6. The spread of bids on International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) credits from the highest to the successful bid was used to measure the potential excess cost of aid-tying. The formula for measuring the percentage of potential excess cost is: $(\text{High Bids} - \text{Successful Bids}) / \text{Successful Bids}$.

The results in Table 6 indicate that the percentage of potential excess cost averaged 49.3 per cent. Over 31 per cent of the value

⁸⁸ United Nations, Conference on Trade and Development, Second Session, The Costs of Aid-Tying to Recipient Countries. Progress Report by the UNCTAD Secretariat. Growth, Development Finance and Aid (Synchronization of International and National Policies), (TD/7/Supp.8) February 15, 1968, pp. 1, 7, 9. Also, Bhagwati, The Tying of Aid, p. 33.

of contracts awarded involved a potential excess cost of over 50 per cent. Sixty-three per cent of the value of contracts awarded involved a potential excess cost of over 30 per cent.

TABLE 6
POTENTIAL EXCESS COST OF AID-TYING^a

Range	Number of Contracts	Percentage of Contracts	Percentage Value of Contracts to total value
Less than 10 %	12	13.0	17.6
10 - 20 %	8	8.7	5.4
20 - 30 %	13	14.1	14.1
30 - 40 %	12	13.0	13.0
40 - 50 %	9	9.8	18.6
50 - 100 %	27	29.4	28.0
100 % and over	11	12.0	3.3
Total	92	100.0	100.0

^aThe potential excess cost was determined by the ratios of the difference between the high bids and successful bids to the successful bids in competitive bidding on twenty IBRD loans and three IDA credits for 1960 to 1966.

Source: Jagdish N. Bhagwati, The Tying of Aid. Growth, Development Aid and Finance (Synchronization of International Policies). United Nations Conference on Trade and Development, Second Session (TD/7/Supp.4), February 1, 1968, Table 4, p. 35.

This procedure may over- or under-state the costs. The actual costs of aid-tying may be overstated if:

1. The products are not standardized. The price differential may indicate differences in clauses and conditions of the sale, quality differences, and different specifications of the contract.
2. The donor offers a lower cost than the highest IBRD bid. The spread between the highest and lowest bid then overstates the cost.⁸⁹

The actual costs may be understated if:

1. The donor is higher than the highest IBRD bid and did not bid on the contract, precluding it from the study.
2. The full range of prices are not made known since potential suppliers have little incentive to bid on contracts financed through tied aid.⁹⁰

Country studies--estimates⁹¹
of excess costs of tied aid

A study of the excess cost of imports financed through tied aid was conducted by the UN for four countries--Chile, Iran, Tunisia, and Pakistan.

⁸⁹ Bhagwati, The Tying of Aid, pp. 33-35. Also, United Nations, The Costs of Aid-Tying to Recipient Countries, pp. 7-9.

⁹⁰ Ibid.

⁹¹ The policy of aid-tying was officially embraced and internationally practiced beginning in the early 1960's. By the late 1960's the recipients began experiencing the severity of the excess cost and UN studies were conducted to measure the reduction in grant element. Since that time, the excess cost of tied aid has become an accepted condition and very little attention has been given to incorporating the qualitative features of aid-tying into grant element calculations.

Chile

A sample of 51 tied credits was reviewed but international bids were obtained for only 16 of the credits. The excess cost was estimated by the formula: $(A - B) / B$ where A is the price actually paid to the U.S. supplier (f.o.b.) and B is the lowest international bid (f.o.b.)⁹². The total tied-aid flow amounted to \$30.5 million, 10 per cent of Chile's total official and multilateral assistance for the period 1964-1967. The 16 credits for which international bids were obtained amounted to about \$180,000, less than 1 per cent of the total amount of credits in the sample.⁹³ The average percentage of excess cost on the 16 purchases was 12.4 per cent. See Table 7.

Consistent with the theory that international bids on items financed by tied aid are offered on only small items, the price of most of the 16 items ranged from \$5,000 to \$20,000. The cost of preparing bids is high and when aid recipients have limited flexibility in purchasing, international bids are not forthcoming on large purchases where the chance of obtaining the contract is not high.⁹⁴ The average percentage of excess cost is lower on small purchases than on large procurements because:

1. Lack of international competition on larger purchases lead to excess costs.

⁹²United Nations, Conference on Trade and Development, "Summary and Evaluation of Data Relating to the Utilization of Tied Credits to Chile," (TD/7/Supp. 8/Add. 1) cited in United Nations Conference on Trade and Development, The Costs of Aid-Tying to Recipient Countries, pp. 8-10.

⁹³Ibid.

⁹⁴Ibid.

TABLE 7
CHILE'S IMPORTS FROM THE US
FINANCED BY TIED AID^a

Item Imported	Lowest International bid (f.o.b.)		Price Actually Paid to U. S. Supplier (f.o.b)	Excess Cost ^b
	Country	Amount		
Reclosers	Japan	2,170	5,775	166 %
Disc insulators	Japan	6,093	8,425	38
Steel cables	Switzerland	7,005	7,205	3
Cables	Belgium	9,114	9,490	4
Cables and Connectors	France	15,785	17,241	9
Rotary compressor	UK	24,142	29,759	23
Light truck	UK	8,456	10,367	23
Motors	Netherlands	8,799	9,888	12
Power grader	FR Germany	17,475	19,360	11
Spare grinding wheels	USA	1,795	1,795	--
Insulating oil	UK	4,980	5,378	8
Tractors	UK	10,760	10,915	1
Mercury vapour	Switzerland	2,598	2,687	3
Telegraphic components	Switzerland	2,746	2,779	1
Spare parts for locomotives	FR Germany	23,780	24,973	5
Tractors	UK	33,900	35,924	6
Average		11,224	12,622	12.4

^aFor 1964-1967, in U.S. dollars. International tenders were invited and received on these items.

^bExcess cost was computed as a percent of the lowest international bid; (US price - lowest bid) X 100.

Source: Based on United Nations, Conference on Trade and Development, Second Session, The Costs of Aid-Tying to Recipient Countries. Progress Report by the UNCTAD Secretariat. Growth, Development Finance and Aid (Synchronization of International and National Policies), (TD/7/Supp. 8) February 15, 1968, Table 1, p. 8.

2. Lack of international competition leads to the establishment of higher prices in the tied-sources country.
3. Switching by the aid recipient is more limited on large purchases. The recipient has less flexibility in rearranging its imports, especially if the donor is a primary source of aid financing.

Due to these factors the study suggests that the 12.4 per cent is an underestimation of the average percentage of excess direct costs of aid-tying.⁹⁵

Iran⁹⁶

The estimate of excess costs to Iran due to price differentials on tied aid is based on 6 projects, accounting for \$9 million and 20 per cent of total procurements under tied aid for the year 1966-1967. During this time period the total inflow of tied-aid capital amounted to \$56.7 million with \$49 million representing actual disbursements on goods and services in connection with 15 development projects. The excess cost for the 6 projects was estimated to be \$1.4 million, 15 per cent of the total amount spent on the 6 projects.

Tunisia

An estimate of the excess cost of tied aid to Tunisia due to price differentials was made for 1965 based on \$17 million of U.S.

⁹⁵ Ibid., pp. 4-5, 9-10.

⁹⁶ Eprime Eshag, "Study on the Excess Cost of Tied Economic Aid Given to Iran in 1966/67," (TD/7/Supp. 8/Add. 2), cited in United Nations Conference on Trade and Development, The Costs of Aid-Tying to Recipient Countries, pp. 11-12.

development aid, accounting for over 20 per cent of the tied aid received by Tunisia in 1965. Tunisia received a gross inflow of development capital of \$133 million in 1965. Of this figure, \$74.5 million was official source-tied aid, \$41 million representing goods and technical assistance services subject to direct tying. The U.S. accounted for over 60 per cent of the official source-tied aid. The study limited its estimates to the disbursements made under U.S. commodity-loan agreements and under certain project development loans.⁹⁷

The method of estimating the excess cost is based on equalization. The value of goods imported under AID loans, c.i.f. (cost, insurance, freight), is compared with the price charged to local merchants by the government of Tunisia. The process of equalization enables the merchant handling the AID-financed imports to earn a reasonable profit on those goods in which U.S. prices are considerably higher than the prices of the alternative sources of supply. The reliability of equalization as an indicator of the excess cost of tying depends on the correspondence between internal prices and world prices. In the case of Tunisia, the internal prices were influenced by domestic policies of taxation and tariffs such that the equalization method underestimated the excess costs of tying. Using estimated equalization as an indicator of excess cost, 18 per cent of the c.i.f. value of imports under commodity-loan agreements tied to the U.S. source was excess cost.⁹⁸

⁹⁷ Eprime Eshag, "Report on Tied Economic Aid Given to Tunisia in 1965," (TD/7/Supp. 8/Add. 3), cited in United Nations Conference on Trade and Development, The Costs of Aid-Tying to Recipient Countries, pp. 13-14.

⁹⁸ Ibid.

Pakistan

Mahbub ul Haq estimated the excess costs of tied aid for Pakistan for the years 1960-1963 based on a sample of 20 development projects ". . . by comparing the lowest bid from the tied source with the lowest international bid."⁹⁹ Using this methodology rather than the actual price paid, the conclusion reached was that the weighted average price was ". . . '51 per cent higher from the tied source compared to the international bids."¹⁰⁰ This methodology reveals ". . . an estimate of the range of cost which can be incurred owing to the tying of aid, rather than an estimate of actual cost incurred."¹⁰¹

Excess Costs Due to Contributions-in-Kind

The grant element is difficult to calculate for contributions-in-kind (primarily the sale of surplus commodities), one category of tied aid. The problem is in determining the correct price to place on these contributions. Some possible prices are: (1) the world market price, (2) the opportunity cost of the factors of production, (3) the recipient's domestic price, and (4) the market-clearing price.

The grant element of commodities shipped under PL 480 was calculated by John Pincus, using three methods. The Title I shipments were defined as 80 per cent grant and 20 per cent loan. The shipments were

⁹⁹ Mahbub ul Haq, "Tied Credits: A Quantitative Analysis," a paper submitted to International Economic Association Round Table Conference on Capital Movements and Economic Development, Washington, D.C., July 1965, cited in United Nations Conference on Trade and Development, The Costs of Aid-Tying to Recipient Countries, p. 14.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

valued at world market prices. At the time of Pincus's study, Title I shipments were sold for local currency with a portion of the revenue earmarked for U.S. use in the country and the remainder either granted or loaned to the host government for economic development purposes. The proceeds reserved for U.S. use are not included in Pincus's study as aid. The loans are basically grants since the repayments cannot be used by the U.S. to buy other currencies or to import the recipient's products. The Title II and III shipments are valued by the U.S. in reporting PL 480 contributions to DAC at Commodity Credit Corporation (CCC) cost. The over-evaluation of aid is apparent in that the 1961 world price of wheat was approximately \$60 per metric ton, while Title II exports of wheat were valued at approximately \$150 per metric ton.¹⁰² The affect of PL 480 calculations on the value of U.S. aid is given in Table 8, the only difference in the nominal aid value being the method of valuing the U.S. PL 480 contributions.

Method A. This method is used in reporting PL 480 contributions to DAC. Title I proceeds are included as aid when the deposit is made in the U.S. counterpart account. Title II and III commitments are valued at CCC cost, which is above world market prices.

Method B. All 1961 PL 480 shipments were valued at world market prices regardless of whether the counterpart funds were deposited.

Method C. The price is established by estimating the market clearing prices, using the estimated elasticity of demand and assuming

¹⁰²Pincus, "The Cost of Foreign Aid," pp. 366-367. Also, Pincus, Economic Aid and Cost Sharing, pp. 144-145.

the PL 480 shipments are sold in the world markets. The decrease in the nominal aid value is the result of the difference between actual 1961 world prices and those that would have prevailed had the commodities been sold on world markets.

TABLE 8
U.S. BILATERAL AID COMMITMENTS^a

Method	Nominal Aid Value	Nominal Value as % of GNP	Aid Value Discounted at		
			5 % ^b	5.75 % ^c	10 % ^d
Method A	4456	0.86	2867	2966	3385
Method B	3979	0.76	2431	2527	2924
Method C	3616	0.67	2114	2208	2596

^ain \$ millions, for 1961.

^bDomestic Opportunity Cost

^cIBRD lending rate

^dPrivate investment rate of return

Source: John A. Pincus, "The Cost of Foreign Aid," Review of Economics and Statistics, XLV, No. 1 (February, 1963), based on Table 3, p. 363.

This method of computing market-clearing prices is applied to 1961 PL 480 shipments and the results are summarized in Table 9. Using the assumed demand elasticity for each commodity, the price at which all goods could have been sold is designated as the "market-clearing price." For example, assuming a demand elasticity of - 0.7 for Wheat and Flour A for 1961 the shipment of 10,942,000 metric tons would have

cleared the market at \$42.86 per metric ton for a value of \$469 million. The export price at which the shipments were valued for DAC purposes was \$60.41 for a total value of \$661 million. The difference of \$192 million can be considered as excess valuation of aid.

If the market-clearing value of "Wheat and Flour B" is established at \$1.36 per bushel as the minimum export price and the total value set at \$729 million, only 53 per cent of 1961 PL 480 wheat shipments could have been sold on the world market at the assumed demand elasticities. At lower prices, wheat would have competed with feed-grains and demand would have been much more elastic. The rest of the wheat is valued at zero.¹⁰³

TABLE 9
PUBLIC LAW 480 SHIPMENTS VALUED AT 1961 WORLD-MARKET
PRICES AND AT ESTIMATED MARKET-CLEARING PRICES

Commodity	Shipments (000 met- ric tons)	Market- clearing Price (\$ per m.tn.)	Market- clearing Value (\$ million)	Export Price (\$ per m. ton)	Export Value 1961 Price	Assumed Demand Elastic- ity
Wheat and Flour A	10,942	42.86	469.0	60.41	661.0	- 0.7
Wheat and Flour B	10,942	50.000	290.0	---	350.4	
Barley	319	45.40	14.5	47.18	15.1	- 1.3
Corn	1,362	44.74	60.9	48.61	66.2	- 1.3
Dried Milk	276	121.74	33.7	155.52	43.1	- 1.0
Cotton	239	613.09	140.7	624.90	149.5	- 3.3

Source: Based on John A. Pincus, Economic Aid and International Cost Sharing. A Report Prepared for the Office of the Assistant Secretary of Defense, International Security Affairs, R-431-ISA (Santa Monica, Ca.: The RAND Corporation, July, 1965), Table 5-16, p. 145.

¹⁰³ Ibid.

Summary

The amount of dollars in the figure "Flow of Resources to Developing Countries" is often mistakenly assumed to be aid, commonly referred to as "give-aways." The dollars which Congress appropriates in Foreign Economic Assistance acts are most certainly considered as aid. The grant figures are rarely questioned as being a complete loss to the U.S. economy. However, all of these over-state the amount of "gift," i.e. unilateral transfer of resources, and the cost of the program to the U.S. economy and taxpayer. The purpose of this chapter has been to redefine aid in such a manner that costless transfers from the developed to the developing countries can be identified easily and to examine the methods of measuring the various components of the resource flows.

The motives for which assistance is provided and the objectives which assistance is expected to accomplish often deviate considerably from the objective of development of a recipient's economy. Additionally, about half of the resource flows are through private market channels with the explicit purpose of profit maximization for the investor. No justification can be made for including this in the aid figure. The true "aid" is the grant element which is a unilateral transfer of resources from one country to another. The problem then is to extract the grant element from the flow of total resource figure.

The discounted present value technique can be applied to assistance programs to determine the value, incorporating the terms of the commitment and the alternative costs to both donor and recipient. This method can be used to compare resource transfers through loans and

grants. There are cases in which it is less costly for a donor to provide a given grant element through a grant rather than a loan.

The most difficult aspect of an aid commitment to measure is the specification that the funds must be spent on particular items in the donor country. It is not essential that the grant element be reduced because of this stipulation. However, statistics show that the grant element is reduced by 20 per cent due to excess price of tied-aid financing.

Only the grant element in resource flows should be identified as aid, the flows having been discounted according to the appropriate discount rate and the commitment adjusted for specific qualifications, such as aid-tying.

CHAPTER IV

THE BALANCE OF PAYMENTS EFFECT OF TIED AID

Introduction

The purpose of the chapter is to examine the balance of payments effect of tying and untying aid. Theoretical analysis of tied aid is relatively neglected in the literature. For example, the cost-benefit analysis of aid often does not take into account the tied aid factor:

In view of the difficulty of measuring the appropriate discount for tied contributions (theoretically it is the difference between the price charged for tied goods and their world market price), I have not tried, in these computations, to apply a discount.¹⁰⁴

Another important theoretical work in assessing the value of aid neglects the tied aid factor:

Important considerations concerning the costs and effectiveness of tying arrangements have not been discussed in this paper. Such considerations include the fungibility of foreign exchange, which may permit aid-receiving countries to shift normal imports to an aid basis and free the proceeds of normal exports for untied spending; the discriminatory effect of tying as measured by price differentials; whether as a matter of policy tying is to be eschewed because it reduces the value to underdeveloped countries of a given amount of aid, or embraced because it permits a higher volume of

¹⁰⁴Pincus, "The Cost of Foreign Aid," p. 363.

aid with a given balance of payments deficit or a lower deficit with a given amount of aid.¹⁰⁵

The importance of the tied aid factor is recognized, yet is neglected even though 80 per cent of U.S. bilateral aid is tied.

The theoretical aspect of the tied aid policy on the donor's balance of payments is examined. The short-run impact depends on the recipient's ability to use aid funds to finance imports normally purchased with free foreign exchange. The additionality factor attempts to measure this short-run impact. The long-run effect of aid tying or untying is the result of respending of aid funds through normal trade channels. This is measured by the reflection-ratio, the reserve-accumulation, and the generalized multisector multiplier models.

History of Aid Tying

The U.S. became committed to a policy of aid tying in 1959 due to increasing concern over the U.S. balance of payments problem. At that time, 58 per cent of aid was untied and bids were received on a world-wide basis. The aid-tying policies set down to increase U.S. exports came from several directions: (1) the U.S. Treasury issued a "Buy American" policy for the Development Loan Fund (DLF)¹⁰⁶, (2) President Eisenhower re-emphasized the policy in 1960,¹⁰⁷ (3) the Director

¹⁰⁵ Hicks, "Estimating the Foreign Exchange Costs of Untied Aid," pp. 173-174.

¹⁰⁶ N. R. Danielian, The U.S. Balance of Payments (Washington, D.C.: International Economic Policy Association, 1966), p. 4.

¹⁰⁷ Ibid., citing "Directive by the President Concerning Steps to be Taken with Respect to the U.S. Balance, of Payments," White House Press Release, November 17, 1960.

of the International Cooperation Administration (ICA) was instructed to effect an orderly cessation of commodity procurement financed with ICA program funds from nineteen reserve accumulating countries.¹⁰⁸

These policies of aid tying were given wide Congressional approval by the passage of the Foreign Assistance Act of 1961. Section 604 states the intent of reducing the impact of aid activities on the balance of payments:

Funds made available under this Act may be used for procurement outside the U.S. only if the President determines that such procurement will not result in adverse effects upon the economy of the U.S. or the industrial mobilization base, with special reference to any areas of labor surplus or to the net position of the U.S. in its balance of payments with the rest of the world, which outweighs the economic or other advantages to the U.S. of less costly procurement outside the U.S.¹⁰⁹

This was the beginning of tremendous pressure on export promotion. In a 1961 balance of payments message, President Kennedy stated: "In seeking overall equilibrium, we must place maximum emphasis on expanding our exports."¹¹⁰ The Trade Expansion Act of 1962 was another attempt to open new markets and widen existing markets for American exports.¹¹¹

¹⁰⁸ Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Luxembourg, Monaco, Netherlands, New Zealand, Norway, South Africa, Sweden, Switzerland, U.K., Hong Kong.

¹⁰⁹ Foreign Assistance Act of 1961. Section 604.

¹¹⁰ U.S., Congress, Senate, Committee on Banking and Currency, Balance of Payments--1965, before a subcommittee of the Committee on Banking and Currency, Senate, 89th Congress, 1st Session, Part I, 1965, p. 623, quoted in Danielian, The U.S. Balance of Payments, p. 97.

¹¹¹ Trade Expansion Act of 1962.

In spite of export promotion efforts and increased aid-tying, concern regarding the mounting balance-of-payments problem is recorded in periodic Presidential messages and directives to cut the overseas dollar cost of aid.¹¹² Although a long lead-time usually exists before a change in policy is reflected in expenditure figures due to pre-tied obligations, the technique of tying economic assistance to U.S. procurement did curtail the direct adverse impact according to the Agency for International Development (AID) Administrator, Mr. David Bell. U.S. procurement of goods financed with aid funds increased from 42 per cent in 1960 to 80 per cent in 1964.¹¹³

Aid-Tying Motives

The most common motives for tying aid are:

1. To minimize the foreign exchange cost of aid and reduce the adverse balance-of-payments effect.
2. To strengthen commercial ties, influence trade patterns, and promote domestic exports.
3. To support domestic programs, especially in the case of PL 480.
4. To advance political considerations.¹¹⁴

¹¹² Danielian, The U.S. Balance of Payments, pp. 4-5.

¹¹³ Ibid., p. 97.

¹¹⁴ Bhagwati, Growth, Development Aid and Finance: The Tying of Aid, pp. 17-19. Also, Mikesell, The Economics of Foreign Aid, pp. 184-193, 246-254; Hicks, "Estimating the Foreign Exchange Costs of Untied Aid," pp. 168, 173; Alan Carlin, Project Versus Program Aid: From the Donor's Viewpoint, Rand Project No. 3283 (Santa Monica, Ca.: The RAND Corporation, 1965), pp. 4-9; V. N. Bandera, "Tied Loans and International Payments Problems," Oxford Economic Papers, XVII, No. 2 (July, 1965), pp. 299-300; Hawkins, The Principles of Development Aid, pp. 18, 29, 97.

To what extent aid tying achieved the original objective of relieving balance of payments pressure is estimated in this chapter. Measurement is difficult due to:

1. Fungibility or "switching" in which the recipient uses the aid funds to finance imports previously imported with free exchange.
2. The responding effect in which third country trading partners of aid recipients increase imports from the U.S.
3. The competitive reciprocal aid-tying by other donor countries.¹¹⁵

Aid-Tying Arrangements

Aid may be tied through a variety of arrangements. The most common form is bilateral aid to finance a specific project or a development program. Export credits and PL 480 financing are definitely tied, the only question being how much of the credit is "aid."¹¹⁶

Project aid is given to finance the foreign exchange component of a specific project. The cost to the recipient is the loss of bargaining power and control over economic and political policies. Capital expenditures are favored over import maintenance due to the donor's eagerness to capitalize on the "billboard" effect of aid. An indirect benefit of project aid which the recipient may enjoy is an increase in

¹¹⁵ Bhagwati, The Tying of Aid, pp. 37-47.

¹¹⁶ Lester B. Pearson, Partners in Development, Report of the Commission on International Development (New York: Praeger Publishers, 1969), pp. 118-121, 176-179. Also, Mikesell, The Economics of Foreign Aid, pp. 254-255; Hawkins, Principles of Development Aid, pp. 122-125.

absorptive capacity brought on by the process of project preparation.¹¹⁷

In contrast, the total needs and the development plan of the recipient are considered when program aid is provided. Specific items are not designated for purchase and the donor is not involved in detailed use of the funds. Aid tying is not as successful in this case.¹¹⁸

The issues in the project or program approach to economic assistance are fungibility, local currency financing, and determination of high priority projects. Although tying of aid through projects insures that particular goods will be exported, the project which is really financed may not use the goods supplied by the donor due to fungibility. The aid funds may release the recipient's funds to finance projects not approved by the donor. The effect of tying can also be minimized by the recipient by identifying goods normally imported with free foreign exchange as project related.

Secondly, most project aid funds are purely foreign exchange aid. Local currency needs must be provided by the recipient and may be withdrawn from projects which the recipient regards as high priority.

Thirdly, the scope of program aid is the entire development plan of the recipient and the interrelationship of policies whereas project aid is a series of isolated efforts.¹¹⁹

In spite of recommendations by such authorities as the Pearson Commission for more program aid to increase its effectiveness, project

¹¹⁷H. W. Singer, "External Aid: For Plans or Projects?", Economic Journal, LXXV, No. 299 (September, 1965), pp. 539-545. Also, Carlin, "Project Versus Program Aid," pp. 1-15.

¹¹⁸Ibid.

¹¹⁹Ibid.

aid still receives support from Congress and from those who identify project aid with traditional banking guidelines. The basic question is--What is the objective of aid? The form of assistance is determined by the donor and it is the donor's objective that dominates the decision.¹²⁰

Theoretical Analysis of the Balance-of-Payments
Effect of Tied Aid

Introduction

Although the policy of tying was instituted in response to the seriousness of the U.S. balance-of-payments deficit, it is not a "cure-all" for balance-of-payments problems. In fact, the U.S. balance-of-payments deficit is the result of the triangular nature of transactions with the developing countries according to some authorities:

Actually, the main source of the persistent payments surplus of continental Europe, which is the counterpart of our payments deficit, are not the direct transactions between the U.S. and Europe--but indirect transactions. Continental Europe has a huge export surplus in relation to the less developed nations, which is being financed largely by the public and private funds that the U.S. pours into those countries. Hence, a curtailment of the continuous increase in the flow of U.S. funds to less developed countries is needed for a correction both of our own payments deficit and of the continental European surplus.¹²¹

The balance-of-payments effect of aid can be separated into two distinct parts: (1) the initial change in exports and (2) subsequent, induced changes in exports, i.e. the respending effect. The questions are:

¹²⁰ Singer, "External Aid: For Plans or Projects?", pp. 540-544. Also, Carlin, "Project Versus Program Aid", p. 2.

¹²¹ Danielian, The U.S. Balance of Payments, p. 98, quoting a speech given by Governor J. L. Robertson of the Federal Reserve Board in a Conference of New Reserve Bank Directors, Washington, D.C., March 25, 1965.

1. What share of the tied aid returns to the U.S. in the form of additional exports?
2. What is the respending effect as countries adjust their spending patterns to first-round balance-of-payments gains and losses if aid is untied?
3. What share of aid can the U.S. expect to get back, immediately and in the long run, in the form of additional exports if aid is untied?

Substitution and Additionality

The first and third questions refer to the use of aid funds to purchase items normally purchased with free foreign exchange--the short-run situation of "substitution" or "switching." The donor's ability to correct a balance-of-payments deficit through tying depends on the effectiveness of the tying restrictions. Successful tying means an increase in the donor's exports equal to the amount of tied aid.

Even as early as the Brookings Institute Study in 1963 it was recognized that aid-financed exports may not represent a net addition to exports. However, at that time no model had been developed to measure the extent of switching so the study "guessed" the proportion of aid funds substituting for free foreign exchange. The funds released by substitution were assumed to be spent as ordinary export earnings. The Brookings Study estimated that 47 per cent of AID economic aid expenditures in 1961 leaked into Western European reserves. However, this estimate is difficult to evaluate since a great deal of the analytical and empirical evidence necessary to support the

assumptions used in the study were not available at the time and were therefore unscientifically "guessed."¹²²

The determination of the "additionality" factor is considered by the authors of the Rand studies¹²³ to be one of the major contributions of their studies. The idea of additionality is to identify those U.S. exports which would not have been purchased in the absence of assistance. Cooper defines additionality as the ratio of the flow of additional exports to the flow of development lending.¹²⁴ It is in the determination of the additionality factor that the authors of the Rand studies consider other studies have made the greatest error in calculating balance-of-payments costs of aid.¹²⁵

Long-Run, Responding Effect

Question two and three refer to the "feedback" or responding of aid funds through normal trade channels. The long-run changes in world

¹²²Walter S. Salant, *et al.*, The United States Balance of Payments in 1968 (Washington, D.C.: The Brookings Institution, 1963), pp. 170-174.

¹²³Richard V. L. Cooper, The Additionality Factor in Tied U.S. Development Assistance, A Report Prepared for the Agency for International Development, R-974 (Santa Monica, Ca.: The RAND Corporation, July, 1972). Also, David S. C. Chu and Robert Shishko, The Responding Effects of Untying Aid, A Report Prepared for Agency for International Development, R-975-AID (Santa Monica, Ca.: The RAND Corporation, June, 1972); Robert Slighton, *et al.*, The Effect of Untied Development Loans on the U.S. Balance of Payments, A Report Prepared for Agency for International Development, R-973-AID (Santa Monica, Ca.: The RAND Corporation, June, 1972).

¹²⁴Cooper, The Additionality Factor, pp. v, 2.

¹²⁵Ibid., pp. 3, 6. Also, Slighton, The Effect of Untied Development Loans, pp. 36-39.

trade often reverse the short-run, balance-of-payments loss from untying aid or leakages of tied aid funds through substitution. The studies surveyed concluded that the first-round loss of U.S. exports over-estimate the total change in U.S. exports and balance-of-payments effect of aid.¹²⁶

Reflection-ratio model¹²⁷

The basic assumption is that the demand for imports is a direct function of exports. This is given without any provision for reserve-accumulation behavior: $M = a + \lambda X$ where M is imports, X is exports and λ is the reflection ratio. It is accepted in economic literature that a change in exports affects income and thus imports. However, since exports are not the only autonomous element of income the model is criticized by the authors of the Rand studies as being misspecified and leading to inefficient estimates of the true parameters.¹²⁸

Reserve-accumulation model¹²⁹

The assumption that distinguishes the reserve-accumulation

¹²⁶Salant, Balance of Payments in 1968, p. 161. Also, Sligh-ton, The Effect of Untied Development Loans, pp. viii, 72, 80, 92; Chu and Shishko, The Responding Effects, p. 47; Hicks, "Estimating the Foreign Exchange Costs of Untied Aid," p. 168.

¹²⁷Rolf Piekarz and Lois E. Stekler, "Induced Changes in Trade and Payments," Review of Economics and Statistics, XLIX (November, 1967), 517-526. Also, W. Beckerman, "The World Trade Multiplier and the Stability of World Trade, 1938 to 1953," Econometrica, XXIV (July, 1956), 239-252.

¹²⁸Chu and Shishko, The Responding Effects, p. 3.

¹²⁹Hicks, "Estimating the Foreign Exchange Costs," pp. 168-174; Salant, Balance of Payments in 1968; Laurence E. Lynn, Jr., "An Empirical Analysis of U.S. Foreign Economic Aid and the U.S. Balance of Payments, 1954-1963," (unpublished Ph.D. dissertation, Yale University, 1966), p. 35.

model from the reflection-ratio model is that governments hold foreign exchange in proportion to their trade volume. As exports increase reserves increase. Funds not retained are respent on additional imports. An extreme form of the model assumes that developed countries retain as reserves all the foreign exchange generated by an increase in exports, and the developing countries retain none.¹³⁰

The reserve-accumulation models of Hicks, Rhomberg and Boissonneault,¹³¹ and the Brookings Institute Study make the assumption that the Western European countries, including the U.K., add the increased foreign exchange earnings to reserves and do not allocate incremental foreign exchange earnings according to observed trade patterns. Hence, the total volume of aid-induced U.S. exports estimated will be less than the amount of the initial aid expenditures. The stronger the aid recipient's trade ties with Europe, the weaker the export-generating effect of U.S. aid.¹³²

Lynn used the reflection ratio technique, assuming alternative reserve accumulating behavior of third countries, to estimate the third country impact of aid expenditures on U.S. exports. The Hicks technique is modified by allowing for the possibility that U.S. economic aid is

¹³⁰ Chu and Shishko, The Respending Effects, p. 2.

¹³¹ Rudolph Rhomberg and Lourette Boissonneault, "Income and Price Effects on the U.S. Balance of Payments," IMF Staff Papers, XI (July, 1964), pp. 59-124.

¹³² Lynn, "An Empirical Analysis of U.S. Foreign Economic Aid and the U.S. Balance of Payments, 1954-1963," p. 35.

not allocated by the recipients in the same proportions as the overall U.S. share of the recipient's markets. This allows the technique to be applied to tied, as well as untied, aid.¹³³

Multisector multiplier model

According to the Rand studies, the long-run impact of untying results from increases in the demand for U.S. exports induced by the increases in income in those countries enjoying a first-round increase in exports.¹³⁴ The major weakness, as seen by the Rand writers, common to both the reserve-accumulation and reflection-ratio models is that neither correctly links changes in exports to changes in income and thus to changes in imports.¹³⁵ The Rand studies do not use the reflection ratio but use a multisector multiplier model which makes this link and presents a multiregional model of world income and trade.

Specific Studies Measuring the Balance-of-Payments Effect of Aid

The following studies demonstrate the three techniques for measuring the short-run and long-run effects of aid and aid-tying on the balance of payments. The theoretical models are described and a critical analysis of the results, with policy implications, is presented.

¹³³ Ibid., pp. 34-36.

¹³⁴ Slighton, The Effect of Untied Development Loans, pp. 72-85.

¹³⁵ Chu and Shishko, The Respending Effects, p. 3.

Reflection-Ratio Technique of Hicks

A country's reflection ratio is found by the formula:

dM_d / dM_t where dM_d is the change in the recipient's imports from the donor and dM_t is the total change in the aid recipient's imports. The long-run effect of an aid dollar is found by tracing the funds through rounds of spending by the formula: RR_{at} / RR_{td} where RR_{at} is the aid recipient's reflection ratio vis-a-vis third country and RR_{td} is the third country's reflection ratio vis-a-vis the aid donor. If the aid recipient spends the funds in another country, the third country's imports from the U.S. will be increased by some portion.¹³⁶ For example, assume Country B receives \$1 in U.S. aid and spends the funds according to the assumed trade matrix of Table 10. Country B will spend \$0.70 in Country A, \$0.20 in Country C and \$0.10 in the U.S. Country C will then spend half of the \$0.20 in the U.S., \$0.08 in B, and \$0.02 in A, which does not trade with the U.S. After four rounds of spending by Countries B and C, U.S. exports will have increased by \$0.22. The reflection ratio for Country B, in relation to the U.S., is therefore .22.¹³⁷

The reflection ratios in most studies are estimated by the average import share. The portion of U.S. aid returned to the U.S. through successive rounds of spending is estimated by raising the power of the matrix of reflection ratios.

¹³⁶Hicks, "Estimating the Foreign Exchange Costs," pp. 168-174.

¹³⁷Salant, Balance of Payments in 1968, pp. 275-277, based on Whitney Hicks, "A Matrix for Estimating the Foreign Exchange Cost of Foreign Assistance," AID memorandum (August 31, 1962).

TABLE 10
ASSUMED TRADE MATRIX

Recipient Country	Spending Country			
	US	A	B	C
US	--	00	.10	.50
A	00	--	.70	.10
B	00	00	---	.40
C	00	00	.20	---

Source: Walter S. Salant, et.al., The United States Balance of Payments in 1968 (Washington, D.C.: The Brookings Institution, 1963), p. 275.

The following conclusions become apparent from Hick's study:

1. The balance-of-payments effect of aid varies widely among the various aid recipients.
2. Tying of aid would alter trade patterns.
3. Aid-tying can not be expected to improve the balance of payments by an amount equal to the aid flow since the U.S. receives a considerable portion of aid funds through normal trade patterns.¹³⁸

The reflection-ratio methodology is criticized on the following points:

1. The ratios are derived from a trade matrix, rather than a payments matrix.

¹³⁸Hicks, "Estimating the Foreign Exchange Costs," p. 173.

2. It is assumed that an increment in foreign exchange is spent in the same manner as total foreign exchange earnings.
3. The reflection ratios of the major aid recipients are higher than the regional average. When the regional ratios are used, respending effects of aid are understated and the adverse effect of aid on the balance of payments is overstated.¹³⁹

The Brookings Institution Study¹⁴⁰

The study to estimate the balance-of-payments impact of projected changes in economic assistance for 1968 and of procurement restrictions is a pioneer effort. Previously, little attention had been given to the following factors:

1. The "ultimate impact" of foreign economic assistance on the U.S. balance of payments.
2. The effectiveness of procurement restrictions.
3. The extent to which aid dollars return to the U.S. through normal commercial channels in the absence of tying.
4. The substitution effect in which aid recipients use tied aid to finance goods normally purchased in the U.S.

The limitations of the study are recognized by the authors but their goal is accomplished--to point out unanswered questions and offer estimates, even though crude and imprecise, to serve as a starting point for a more thorough analysis.

¹³⁹Salant, The Balance of Payments in 1968, p. 277.

¹⁴⁰Walter S. Salant, et al., The United States Balance of Payments in 1968 (Washington, D.C.: The Brookings Institution, 1963).

Short-run impact

The reflection-ratio technique is used to measure the percentage of untied aid funds respent in the U.S. which are assumed to be spent as ordinary export earnings. Using a matrix of trade relationships to estimate the "feedback ratios," the percentage of aid funds estimated to be respent in the U.S. is calculated and summarized in Table 11.

TABLE 11
SPENDING OF AID AND SUBSTITUTION
FOR NORMAL U.S. IMPORTS^a

Aided Region	Respending of Untied Aid in U.S.	AID Substi- tution for Normal U.S. Imports	ILC ^b Sub- stitution for Normal US Imports
Latin America	55	40	90
Far East (excluding Japan)	47	35	85
Near East and South Asia	31	25	75
Africa	15	20	70

^aPercentages calculated using 1960 matrix of trade relationships.

^bIrrevocable Letters of Credit

Source: Walter S. Salant, *et al.*, The United States Balance of Payments in 1968 (Washington, D.C.: The Brookings Institution, 1963), pp. 171-173.

Substitution occurs more frequently in regions with strong trade ties to the U.S. and where a large portion of total aid is tied. When AID funds finance goods normally purchased by a country, foreign exchange is freed to finance other goods according to the country's

trade pattern. The study does not claim scientific derivation of these substitution percentages; they are called "educated guesses."

In 1963 AID shifted from cash grants to irrevocable letters of credit which do not appear in the balance of payments until they are drawn. At that time, the exports are reported as "involving no immediate dollar outflow." The irrevocable letters of credit are not very effective in increasing U.S. exports.¹⁴¹

Long-run, respending effect

Using the trade matrix and feedback ratios, the respending effects of \$1,000 of aid made available under three circumstances are estimated and the results summarized in Table 12. The balance-of-payments cost of untied aid is not the same in each region but would be the least in Latin America (\$450) and the highest in Africa (\$850) because Africa is not normally a strong trading partner of the U.S. Tying arrangements reduce the balance-of-payments cost considerably in the long-run. Even the irrevocable letter of credit, where substitution is high for major trading partners, cost is reduced since some of the aid funds are captured in second and third round spending through normal trade channels.

Lynn's Empirical Analysis

The reflection-ratio technique, in conjunction with a variety of reserve-accumulation assumptions, is used to estimate the following effects:

¹⁴¹Ibid., pp. 171-173.

TABLE 12
COMPARATIVE BALANCE-OF-PAYMENTS COST
OF \$1000 IN ASSISTANCE

Untied Aid			
Country	Feedback Ratios	Ultimately Spent in the U.S.	Balance-of-Payments Cost
Latin America	.55	.55 X 1000 = 550	1000 - 550 = 450
Far East	.47	.47 X 1000 = 470	1000 - 470 = 530
Near East and South Asia	.31	.31 X 1000 = 310	1000 - 310 = 690
Africa	.15	.15 X 1000 = 150	1000 - 150 = 850

Country	Substitution for Normal Imports ^a	Portion Respent in the U.S. ^b	Balance-of-Payments Cost
Tied Commodity Aid			
Latin America	.50 X 1000 = 500	.55 X 500 = 275	500 - 275 = 225
Far East	.45 X 1000 = 450	.47 X 450 = 212	450 - 212 = 238
Near East and South Asia	.35 X 1000 = 350	.31 X 350 = 108.5	350 - 108.5 = 241.5
Africa	.30 X 1000 = 300	.15 X 300 = 45	300 - 45 = 255

Irrevocable Letter of Credit			
Country	Feedback Ratios	Ultimately Spent in the U.S.	Balance-of-Payments Cost
Latin America	.90 X 1000 = 900	.55 X 900 = 495	900 - 495 = 405
Far East	.85 X 1000 = 850	.47 X 850 = 400	850 - 400 = 450
Near East and South Asia	.75 X 1000 = 750	.31 X 750 = 233	750 - 233 = 517
Africa	.70 X 1000 = 700	.15 X 700 = 105	700 - 105 = 595

^aThe percentages of AID funds substituted for normal U.S. imports are assumed to be 10 points higher in 1968 than in 1961. Thus, the rate of substitution for AID tied commodities is higher than the rates given in Table 11.

^bSince some of the goods supplied through aid are substitutes for normal U.S. purchases, foreign exchange is freed which will be spent according to the U.S. normal trade share matrix, Table 11.

Source: Based on Walter S. Salant, et al., The United States Balance of Payments in 1968 (Washington, D.C.: The Brookings Institution, 1963), pp. 173-174.

1. The impact of U.S. foreign economic aid on U.S. exports to aid recipients during 1954-1963.
2. The additional U.S. exports to aid recipients resulting from the tied aid policy.
3. The recipient's ability to use tied aid to finance goods normally imported from the U.S.¹⁴²

Lynn developed a single-equation, multiple regression model describing U.S. exports to developing countries as a function of (1) the volume of foreign exchange available and (2) the established trade patterns. The available foreign exchange is assumed to be equal to the total imports of the country. The U.S. market share of the recipient's total imports for the preceding year is taken as a proxy for the determinants of trade patterns. Coefficients are estimated using ordinary least squares estimation procedures with cross section data for forty-three aid recipient countries for 1954-1963.¹⁴³

The model

The basic equation in the model determining the U.S. exports to a given country is:

$$E = a_0 + a_1X^d + a_2X^s + b_1A^1 + b_2A^2 + b_3A^3 + b_4O + b_5R + c_1A^1S_{-1} + c_2A^2S_{-1} + c_3A^3S_{-1} + c_4OS_{-1} + c_5RS_{-1}^{144}$$

¹⁴²Lynn, An Empirical Analysis of U.S. Foreign Economic Aid, pp. 3-4.

¹⁴³Ibid., pp. 37-45.

¹⁴⁴Ibid., pp. 41-43. E=U.S. exports to a country. X^d and X^s = dummy variables for countries in the Dollar and Sterling Area. A^1 = American aid loans and grants. A^2 = Export-Import Bank loans. A^3 = PL 480 shipments. R=official funds. F=M= total supply of foreign exchange available to importers. $O=F-(R+A^1+A^2+A^3)$ =other foreign exchange. S_{-1} = the observed U.S. share of the country's market in the preceding period.

To modify the model to apply to tied aid the following variables are summed:

1. U.S. exports which would have been purchased with the aid without the tying restriction-- $(1 - \alpha)\gamma A^1$.
2. The portion of untied aid used to finance U.S. exports-- $(1 - \alpha)(1 - \gamma)A^1$.
3. Additional U.S. exports due to the limited scope for tied-aid substitution -- $\alpha\gamma A^1 - \theta M^*$.
4. U.S. exports financed with non-aid foreign exchange-- M^* .

The equation for determining U.S. exports with the tied aid conditions included becomes:

$$E = (1 - \alpha)(1 - \gamma)A^1 + \gamma A^1 + (1 - \theta)M^* \quad 145$$

Therefore, a tied aid policy may result in an increase in U.S. exports if the recipient is unable to substitute the aid funds for free foreign exchange previously used in the purchase of U.S. exports.

The empirical results

Of the many hypotheses tested in Lynn's study, one of the most significant tests is the estimation of the scope for tied aid substitution ($M^* / \alpha\gamma A^1$) for individual aid recipients. In one test, based on pooled data for 1958-1960, Pakistan, India, Sudan, Ethiopia, Viet Nam,

¹⁴⁵Ibid., pp. 23-26, 43-45. The symbols are defined as: α = the proportion of tied aid which the country would prefer to spend in third countries. γ = the proportion of aid which is tied. M^* = the volume of imports from the U.S. normally not financed by aid. $\alpha\gamma A^1$ = the portion of tied aid which the recipient would spend in third countries if the aid were not tied. θ = index of tied-aid substitution; the value is zero if no substitution occurs, unity if substitution occurs to the maximum.

and Bolivia were identified as having a limited scope for substitution, where $M^*/\alpha\gamma A^1 < 1$.¹⁴⁶ See Table 13.

TABLE 13
SCOPES FOR TIED AID SUBSTITUTION

Country	1962	1963
Bolivia	1.47	.73
China (Taiwan)	4.63	7.04
Dominican Republic	2.93	1.83
United Arab Republic	15.09	4.27
Ethiopia	.27	.55
Haiti	10.45	18.55
India	1.79	.86
Indonesia	3.69	-----
Iran	4.48	6.15
Israel	8.09	8.65
Korea	1.52	2.80
Libya	3.43	4.14
Monocco	2.09	2.66
Pakistan	.74	.88
Paraguay	3.68	3.12
Sudan	.46	.57
Thailand	9.52	5.99
Tunisia	8.96	3.93
Turkey	1.35	1.40
Viet Nam	.52	.26

Source: Laurence E. Lynn, Jr., "An Empirical Analysis of U.S. Foreign Economic Aid and the U.S. Balance of Payments, 1954-1963," (unpublished Ph.D. dissertation, Yale University, 1966), pp. 90-93.

The 1958-1960 period is considered representative of U.S. exports in 1962 and 1963 if a tied aid policy had not been in effect. U.S. competitiveness had begun to deteriorate as a result of the general development of Western Europe and Japan.¹⁴⁷

¹⁴⁶ *Ibid.*, pp. 23-26, 43-45, 52-54, 87-115. ¹⁴⁷ *Ibid.*, pp. 73-6.

The respending effects

The total impact of U.S. aid on the balance-of-payments, after the full effect of aid respending in third countries and their trading partners has stimulated imports from the U.S. to the maximum was estimated and is summarized in Table 14. A trade matrix, representing each country's share of the market, was developed and the first round effect of a U.S. aid dollar on the exports of major trading regions was estimated. The increased exports of major trading regions of the world stimulate an increase in imports from the U.S., which is added to the first round U.S. exports to arrive at the full impact on U.S. exports of an aid dollar.

TABLE 14

TOTAL IMPACT OF ONE DOLLAR OF "AMERICAN" AID ON U.S. EXPORTS
UNDER FOUR RESERVE ACCUMULATION ASSUMPTIONS

Region	Assumptions			
	1 ^a	2 ^b	3 ^c	4 ^d
Latin America	.389	.464	.496	.896
Middle East	.154	.269	.319	.842
Africa	.065	.184	.218	.895
Asia	.161	.335	.367	.769

^aCanada, the United Kingdom, the Common Market countries, other Western European countries, Australia, New Zealand, South Africa and Japan add increased foreign exchange earnings to reserves.

^bThe European Common Market countries and other Western European countries only add increased foreign exchange earnings to reserves.

^cOnly Common Market countries add increased foreign to reserves.

^dNo country adds increased foreign exchange earnings to reserves.

Source: Lynn, An Empirical Analysis, pp. 113-114.

The balance-of-payments cost of U.S. aid depends on (1) the aid recipient's ability to substitute aid funds for imports normally purchased through trade channels and (2) the extent to which U.S. exports are stimulated when aid funds are respent through normal trade channels. The conclusion of Lynn's study points to the bigger issue of the U.S.'s competitive position in world markets. Recognizing the respending power of aid funds, it is impossible to separate the balance-of-payments cost of aid and the U.S.'s ability to recover these funds in normal trading operations.¹⁴⁸

Cooper's Model to Estimate the
Additionality Factor

An alternative method for determining additional exports resulting from tied aid, i.e. the "additionality factor," is defined as the ratio of the flow of additional U.S. exports to the flow of funds: $\alpha = (X - X^*)/A$ where α is the additionality factor, X is the U.S. exports subsequent to lending, X^* is the U.S. exports prior to lending and A is the amount of assistance. Cooper defines "additional exports" as those U.S. exports which the aid recipient would not have purchased without the aid, financed by both the aid funds and the country's free foreign exchange.¹⁴⁹

This definition differs from that used by Lynn and AID studies, "accounting methodology," which identifies additional exports as those

¹⁴⁸ Ibid., pp. 121-125.

¹⁴⁹ Cooper, The Additionality Factor, pp. 1-9.

exports financed through aid, which would not have been exported without aid. Cooper's definition includes U.S. exports financed out of the aid recipient's free foreign exchange. Secondly, the trade bounds in Cooper's model are set by σ (the U.S. share of the trade market) and $1 + \sigma'$. The accounting methodology requires that the two components add to 100 per cent since it is concerned with the allocation of aid funds. The boundary is, therefore, between 0 and 1.¹⁵⁰

Since additionality is the major factor in the determination of the cost of aid to the U.S., misspecification of the additionality factor, which is Cooper's criticism of the accounting method, underestimates the effect of U.S. lending on exports and overestimates the balance-of-payments cost of aid.

The model

Two factors must be determined:

1. The amount of U.S. exports in the absence of assistance.
This cannot be observed but must be estimated by an econometric model.
2. The amount of U.S. exports during the existence of an assistance program, which can be observed.¹⁵¹

Sources of the additionality factor are:

1. The portion of assistance financing the aid recipient's imports from the U.S. which normally would have been purchased from third countries, i.e. effectively tied aid.

¹⁵⁰Ibid., pp. 2-3, 5-9, 16, 26, 28.

¹⁵¹Ibid., pp. 6-7.

2. Increased purchases of commodities from the U.S. through normal trading patterns due to the additional foreign exchange supplied by U.S. assistance.¹⁵²

To determine additional U.S. exports to aid recipients, a model of the aid recipient's importing behavior in the absence of aid is constructed. Additional exports are found by subtracting the amount of exports that would have occurred in the absence of aid from the observed level of exports with an aid program.¹⁵³

The importing behavior of aid recipients is predicted under three situations:

1. No assistance program. U.S. exports prior to lending = $X^* = \sigma M^*$
2. An untied assistance program. U.S. exports subsequent to lending = $X = \sigma M^* + \sigma A = \sigma M$
3. Tied assistance program. $X = \sigma (M - A) + \alpha A + u$

where σ is the U.S. market share normally, α is the additional amount of exports generated by the assistance, γ is the portion of aid spent on U.S. goods which are higher priced than the world market price, M^* is the total commodity imports of the developing countries prior to lending (an unobserved variable), M is the total imports of the developing countries subsequent to lending and $\alpha = \sigma + \gamma$ is the additionality factor.¹⁵⁴

¹⁵²Ibid., pp. 7-9.

¹⁵³Ibid., pp. 7, 15.

¹⁵⁴Ibid., pp. 9-17.

The set of conditions are: $0 \leq \sigma \leq 1$; $0 \leq \gamma \leq 1$; $1 \leq \alpha \leq 1 + \sigma$ and the appropriate specification of the bounds are σ and $1 + \sigma$. The value of the additionality factor (α) will be between the U.S. market share of the recipient's imports (σ) and one plus the U.S. market share ($1 + \sigma$). If tying is ineffective, U.S. exports will equal the amount normally purchased from the U.S. by the recipient (σ). If tying is completely effective, the recipient will spend all of the assistance in the U.S. plus continue to purchase the commodities normally imported from the U.S. In this case, the additionality factor is greater than one, i.e. ($1 + \sigma$). The larger the additionality factor, the smaller the balance-of-payments loss to the aid donor.¹⁵⁵

Empirical results

The additionality factor is estimated for 20 of the largest aid recipients, representing 85 per cent of the U.S. development assistance loans. Countries with additionality factor greater than 1 increase exports from the U.S. by an amount greater than the size of the aid

¹⁵⁵ Ibid., pp. 16-17. The possibility of encountering statistical errors is present in both cross-sectional and time series data. Cooper rejected the cross-sectional data because this approach would require the assumption be made that σ and α are the same for each country. Additionally, there is the possibility of heteroscedasticity (lack of constant variance in the error term). To assume that market trade shares and additionality factors were identical among countries would be a serious error since they vary tremendously from country to country and appear to be correlated with the geographical location. The time series approach also has problems in that σ and α , although unique with each country, are assumed invariant with respect to time. There is also the possibility that the disturbance terms are serially correlated, a problem frequently encountered in time series studies in which the errors in one time period are dependent on errors in previous periods. Cooper, pp. 20-21.

TABLE 15

SUMMARY OF ADDITIONALITY FACTOR ESTIMATES AND INCREASE IN U.S. EXPORTS RESULTING FROM 1969 U.S. DEVELOPMENT LOAN PROGRAM

Country	Development Assistance Loans A	Additional-ality Factor α	Additional U.S. Exports ΔA
Colombia	73.8	0.768	56.7
Costa Rica	5.8	0.740	4.3
Dominican Republic	12.7	0.582	7.4
Bolivia	16.9	0.416	7.0
Brazil	76.3	0.949	72.4
Chile	38.7	0.049	1.9
Congo	0.4	0.637	0.2
Ghana	15.2	0.639	9.7
Morocco	9.0	0.488	4.4
Nigeria	4.8	4.675	22.4
Tunisia	1.0	1.177	1.2
Greece	3.0	0.971	2.9
Israel	2.4	0.775	1.9
Turkey	62.7	1.080	67.7
India	220.8	1.026	226.5
Pakistan	151.9	0.906	137.7
Indonesia	23.4	1.444	33.8
Korea	31.0	1.106	34.3
Philippines	3.3	0.996	3.3
Taiwan	3.0	0.934	3.0

Source: Based on Cooper, The Additionality Factor, Tables 2, 6, 7, 9, 10, pp. 26-27, 40-41, 43-44, 61-62, 64-65.

program. The additionality factor of 6 of the 20 countries was greater than 1 and 5 countries had an additionality factor of at least .9. This indicates that for these countries tying was effective in increasing U.S. exports. Only 3 of the countries had an additionality factor of less than .5.

The apparently limited effectiveness of tying arrangements was concentrated in South America where the U.S. market share of commercial exports is high and there is a good opportunity for substitution of aid-financed imports for goods normally purchased from the U.S.

Cooper's results can be compared to Lynn's. The additionality factor was estimated by Lynn to be between .3 and .7. Cooper estimated the value to be .6 for South America and the Caribbean and .9 for the remainder of the recipients.

Responding Effects of Untying Aid According
to Chu and Shishko's Estimation

The U.S. will experience an initial balance-of-payments loss if aid is untied. However, part of the loss will be recovered. Countries experiencing an increase in exports will increase imports from the U.S. and the U.S., experiencing a decrease in income, will respond by decreasing imports. The two actions will work to partially offset the balance-of-payments loss of untying aid.¹⁵⁶

Neither the reflection-ratio nor reserve-accumulating techniques are used. Instead, a multisector multiplier model is developed with final income changes coming from three sources:

1. Autonomous changes in income.
2. Self-induced changes in income (domestic multiplier).
3. Changes in income resulting from changes in exports to other countries (foreign trade multiplier).¹⁵⁷

¹⁵⁶ Chu and Shishko, The Responding Effects of Untying Aid, pp. iii, v, vi, 1, 6.

¹⁵⁷ Ibid., p. 6.

The model

Two sets of parameters are estimated from time series data:¹⁵⁸

1. The marginal propensity to spend on domestic goods (MPC).
2. The marginal propensity to spend on imported goods (MPI).

The final changes in income, i.e. the respending gain by the U.S. is estimated by the equation: $dy_1 = dA_1 + m_{11} dy_1 + m_{21} dy_2 + m_{31} dy_3$ where dA_1 is the autonomous change in country 1, dy_2 and dy_3 and final changes in income in countries 2 and 3, m_{11} is the MPC in country 1 and m_{21} and m_{31} are MPI of countries 2 and 3 to import from country 1.¹⁵⁹

Given the initial change in exports and income brought on by untying aid, the subsequent changes can be found for country 1 by:

1. $\Delta_{x1} = m_{21} dy_2 + m_{31} dy_3$ is the change in exports in country 1.
2. $\Delta_{m1} = (m_{12} + m_{13}) dy_1$ is the change in imports of country 1.
3. $\Delta_{x1} - \Delta_{m1}$ is the respending effect on the balance of payments of country 1.¹⁶⁰

The empirical results

In all cases, under all alternatives, the U.S. is a first-round loser. The loss is the greatest for unilateral untying and least for multilateral untying. Other countries experiencing first-round losses are Canada, Germany, and France.¹⁶¹

¹⁵⁸ The parameters are estimated for a world of 15 regions: U.S., Canada, U.K., Germany, France, Japan, Caribbean, South America, EEC, other European countries, Africa, Middle East, South Asia, Far East, Australia-New Zealand-South Africa (ANZA).

¹⁵⁹ Chu and Shishko, The Respending Effects of Untying Aid, p. 6.

¹⁶⁰ Ibid., p. 8. ¹⁶¹ Ibid., pp. 27-34.

The respending effect is examined under two sets of policies:

1. The existence or absence of compensatory fiscal-monetary policies by first-round losers.
2. The existence or absence of foreign-exchange constraint in the aid recipient.¹⁶²

The conclusion reached is:

. . . if development loans were untied, between 6 and 33 per cent of the U.S. first-round loss would be recouped in respending effects, depending on the definition of aid used, the circumstances under which lending is untied, the stabilization-policy reactions of the countries involved, and whether or not the import behavior of the recipient is foreign-exchange constrained.¹⁶³

The results are summarized in Tables 16 and 18.

About half of the respending gain is the result of reduced U.S. imports when income falls. If the U.S. pursues compensatory fiscal and monetary policies to bolster domestic income, U.S. imports would not decrease.¹⁶⁴

If the aid recipients are not foreign-exchange constrained and imports are assumed to be a function of income, 40 to 80 per cent of any increase in export earnings will be respent. If the recipients are foreign-exchange constrained, the U.S. can expect to recover 17 to 29 per cent of the first-round loss.¹⁶⁵

¹⁶² Ibid., pp. 8-10, 25-26, 30-33, 47.

¹⁶³ Ibid., p. 47

¹⁶⁴ Ibid., pp. 32-33, 47-48.

¹⁶⁵ Ibid., pp. 25-26, 32-33, 47. Also, Table 8, p. 31.

TABLE 16
RESPONDING EFFECTS OF UNTYING U.S. AID ON
U.S. BALANCE OF PAYMENTS

First-Round Vector ^b	Percent Responding Gain of First-Round Loss ^a			
	A ^c	B ^d	C ^e	D ^f
1	15.2	7.3	17.0	9.3
2	15.0	10.0	18.7	14.1
7	18.9	21.7	28.9	33.2

^aThe trade definition used is 1a, defined as merchandise trade less military assistance program (MAP), for the period 1958-1968.

^bThe vectors are defined in Table 17.

^cNo region is foreign-exchange constrained; no first-round loser undertakes compensatory fiscal or monetary policy.

^dFirst-round losers compensate with monetary and fiscal policies.

^eRecipients are foreign-exchange constrained.

^fRecipients are foreign-exchange constrained and first-round losers compensate.

Source: Chu and Shishko, The Responding Effects of Untying Aid, based on Table 8, p. 31.

TABLE 17
DEFINITIONS OF VECTORS

Vector Number	Only U.S. Unties	All DAC Coun- tries Except France Untie	Only Explicit- ly Tied Loans Are Untied	All Loans Are Untied	U.S. Loans at 1969 Level
1	X		X		X
2		X	X		X
7 ^a		X		X	

^aU.S. Loans are reduced 15%; Loans to South Asia are reduced.

Source: Chu and Shishko, based on Table 7, p. 28.

TABLE 18
SHORT- AND LONG-RUN EFFECTS ON EXPORTS
FROM UNTYING OF AID^a

Country	First Round Changes Vectors ^c			Responding Effects ^b Vectors ^c		
	1	2	7	1	2	7
U.S.	-467.8	-352.3	-167.9	71.2	52.9	31.8
Canada	12.7	- 25.6	- 28.6	- 10.4	8.4	12.3
Caribbean	2.0	3.1	4.1	- 0.2	- 0.9	- 1.4
South America	6.4	8.8	11.7	1.0	0.6	- 1.0
U.K.	72.3	46.1	- 10.3	- 17.2	- 7.7	7.8
Germany	73.3	52.3	-127.7	- 3.2	3.2	53.2
France	41.7	- 53.7	- 76.3	2.4	26.8	22.7
Other EEC	67.4	90.6	91.1	- 20.6	- 36.6	- 51.5
Other						
Europe	59.8	87.6	74.9	- 10.3	- 22.1	- 25.7
Africa	3.9	8.1	11.2	5.6	2.8	- 3.4
Middle East	7.6	14.1	18.6	5.1	2.9	0.1
South Asia	3.2	8.0	12.8	- 0.6	- 1.3	- 1.8
Japan	79.8	34.9	82.9	- 5.7	9.2	7.8
Far East	16.0	32.9	42.4	- 13.6	- 28.0	- 35.9
ANZA	21.7	45.2	61.1	- 3.5	- 10.8	- 15.1

^aIn millions of U.S. dollars.

^bThe responding effects assume the base case and trade definition 1 a, defined in Table 16.

^cThe vectors are explained in Table 17.

Source: Based on Chu and Shishko, The Responding Effects of Untying Aid, Appendixes D and E, Tables D-1, E-1, pp. 61, 63.

Comprehensive Model of the Impact of Untying
Aid on the U.S. Balance of Payments

In this model, the three parameters estimated are:

1. The pattern of trade financed by untied aid.¹⁶⁶
2. The exports financed with tied aid.¹⁶⁷
3. The relationship between the initial change and the long-run change in trade flows caused by untying aid.¹⁶⁸

The three types of untying decisions examined are:

1. Unilateral untying of all export procurement restrictions.¹⁶⁹
2. Reciprocal untying by all aid donors.¹⁷⁰
3. Reciprocal untying agreement with a subset of aid donors.¹⁷¹

The model

The model depends on two basic concepts, the trade shares and the additionality factor. Trade-share matrices of "commercial" exports¹⁷² are developed to estimate changes in trade patterns if aid is untied and the results summarized in Table 19. The U.S.'s decreasing share of world exports and the wide variations among the importing regions are significant factors.

¹⁶⁶Robert Slighton, et al., The Effect of Untied Development Loans on the U.S. Balance of Payments, pp. 6-35.

¹⁶⁷Ibid., pp. 36-47. ¹⁶⁸Ibid., pp. 72-86. ¹⁶⁹Ibid., pp. 47-52.

¹⁷⁰Ibid., pp. 53-64. ¹⁷¹Ibid., pp. 64-71.

¹⁷²Ibid., Table 1, p. 12. Commercial exports are defined as: Total DOT exports - (U.S. special category exports + PL 480 exports + Sino-Soviet exports + AID financed exports) + non-additional $(1-\alpha)$ AID financed exports less 90 per cent of total development assistance, excluding technical assistance, by countries other than the U.S.; $\alpha = .6$ for Latin America, $\alpha = .9$ elsewhere.

TABLE 19
U.S. SHARE OF EXPORTS 1962-1970

Year	Caribbean	Other South America	Other Europe	Africa	Middle East	South Asia	Far East
Average Share of Total DOT Exports							
1962-1965	.576	.331	.095	.100	.228	.362	.280
1966-1968	.545	.330	.093	.103	.192	.332	.261
1969-1970	.511	.302	.082	.099	.180	.237	.207
Average Share of Commercial Exports							
1962-1965	.576	.311	.096	.072	.157	.124	.251
1966-1968	.543	.314	.099	.082	.164	.112	.221
Synthetic Trade-Share Matrix A ^a							
1966-1968	.520	.395	.140	.115	.200	.171	.225

^aThe synthetic trade-share matrix A was developed to reflect more realistic assumptions. The average share matrix for commercial exports for 1966-1968 was modified to reflect (1) the differences in IBRD/IDA data and commercial trade data, (2) exports originating in the developing countries, (3) trends in export shares, and (4) the December 1971 exchange rate realignment. Slighton, The Effect of Untied Development Loans on the U.S. Balance of Payments, pp. 31-35.

Source: Robert Slighton, et al., The Effect of Untied Development Loans on the U.S. Balance of Payments, A Report Prepared for AID, R-975-AID (Santa Monica, Ca.: The RAND Corporation, June, 1972), based on Tables 5 and 11, pp. 19, 33.

The "additionality factor", measuring the effectiveness of tying arrangements in affecting the trade pattern of exports, is defined as $\alpha_{ij} = (X_{ij} - X_{ij}^*) / A_{ij}$ where X_{ij} is the observed flow of exports

from donor country i to aid recipient country j , X_{ij}^* is the unobserved value of the flow of exports from country i to j if A_{ij} equals zero, and A_{ij} is the value of the tied aid program.¹⁷³

There is no constraint on the value of α_{ij} . The additionality factor was estimated by ordinary least squares regression analysis of time series data on development assistance. The basic equation is $X_{US} = \sigma M + (\alpha - \sigma)A + u$, where X_{US} is the US share of exports to the developing countries, σ is the U.S. share of commercial exports, M is the total value of imports of the developing countries, α is the additionality factor, and A is the amount of development assistance.¹⁷⁴

The larger the U.S.'s share of commercial exports, the smaller the additionality factor since it becomes easy to substitute aid-financed imports for goods normally financed with free foreign exchange. If tying is effective additionality will approximate $(\gamma + \sigma)$ where γ is the proportion of tied aid which must be used to purchase U.S. goods, even though they are higher than the world market price.¹⁷⁵ The additionality factor was estimated under a variety of conditions and the results summarized in Table 20.

First-round effect of untying

Unilateral untying

The authors suggest that additionality assumption (3) and export-share assumption (3) are the most realistic.¹⁷⁶ The initial

¹⁷³Ibid., p. 36.

¹⁷⁴Ibid., pp. 40-42.

¹⁷⁵Ibid., p. 40.

¹⁷⁶Ibid., pp. 51-52, Table 15, p. 51.

TABLE 20

U.S. BALANCE OF PAYMENTS INITIAL COST OF
UNILATERAL UNTYING OF AID^a

Export Share Assumptions	Additionality Assumptions				
	(1)	(2)	(3)	(4)	(5) ^b
(1)	- 40.0	- 46.5	- 49.0	- 59.5	- 67.3
(2)	- 40.8	- 47.3	- 49.8	- 60.4	- 68.1
(3)	- 38.5	- 45.0	- 47.5	- 58.1	- 66.6
(4)	- 37.4	- 43.8	- 46.4	- 56.9	- 64.6

^aThe net losses are presented as a percentage of the U.S. development loan program.

^bIt is assumed that no procurement switching takes place and is included as a benchmark since the greater the additionality factor, the greater the balance-of-payments cost of untying aid.

Additionality assumptions:

- (1) $\alpha_{ij} = .5$ for Latin America; $.8$ for the rest of the world.
- (2) $\alpha_{ij} = .55$ for Latin America; $.9$ for India; $.85$ for the rest of the world.
- (3) $\alpha_{ij} = .6$ for Latin America; $.9$ for the rest of the world.
- (4) $\alpha_{ij} = .75$ for Latin America; 1.0 for the rest of the world.
- (5) $\alpha_{ij} = 1.0$ for all countries

Export share assumptions:

- (1) $\sigma_{ij}^i =$ U.S. share of 1965-1970 IBRD/IDA exports.
- (2) $\sigma_{ij}^{i,j} =$ U.S. share of 1966-1968 commercial exports.
- (3) $\sigma_{ij}^{i,j} =$ synthetic export matrix A.
- (4) $\sigma_{ij}^{i,j} =$ synthetic export matrix B.

Source: Based on Slighton, et al., The Effect of Untied Development Loans on the U.S. Balance of Payments, Table 15, p. 51.

U.S. balance-of-payments loss resulting from unilateral untying is estimated to be 47.5 per cent of the aid program. See Table 20. In comparison, multilateral untying by all DAC countries is estimated to be 35.1 per cent. See Table 21.

Multilateral untying

The result of multilaterally untying aid depends on the export-share and additionality assumptions and the U.S. share of world development aid. For example, under additionality assumption (3), if the ratio of U.S. aid to the aid of other DAC countries is 1.094, the balance-of-payments loss is 35.1 per cent. If the U.S. ratio of total aid is .615, the loss is 24.6 per cent.¹⁷⁷ The geographical distribution of aid is also significant. If the proportion of aid going to South Asia is reduced from 43 per cent of total U.S. aid to 27 per cent, the loss would decrease from 41.8 to 36.0 per cent.¹⁷⁸

Untying by a subset of donors

The major difficulty here is in specifying the joint additionality parameter for the subset, i.e. the proportion of aid-financed exports procured from non-participating countries.¹⁷⁹ Administrative machinery can be established, although cumbersome, to insure that aid funds are spent in countries participating in the untying agreement.

¹⁷⁷ Ibid., Table 17, p. 56.

¹⁷⁸ Ibid., p. 64, Table 17 p. 56, Table 19 p. 59.

¹⁷⁹ Ibid., pp. 64-65.

TABLE 21

THE U.S. BALANCE-OF-PAYMENTS EFFECT OF RECIPROCAL
UNTYING OF AID BY A SUBSET OF DAC DONORS^a

Type of Untying Agreement	Loans Eligible for Untying are the Same as Tied Development Loans in 1969		Loans Eligible for Untying are the Same as Total Development Loans in 1969 ^b	
	Case 1 ^c	Case 2 ^d	Case 1 ^c	Case 2 ^d
Multilateral Untying	- 35.1		- 27.7	
Reciprocal Untying by all DAC Countries Other Than:				
Canada	- 35.7	- 36.1	- 28.1	- 28.7
France	- 36.4	- 37.6	- 28.8	- 30.6
Japan	- 35.0	- 38.5	- 26.3	- 31.1
United Kingdom	- 34.6	- 36.9	- 28.3	- 30.9
Germany	- 34.1	- 37.0	- 30.5	- 33.6
Canada & France	- 37.1	- 38.6	- 29.4	- 31.6

^aThe changes in U.S. exports are represented as percentages of U.S. development loans. The additionality assumption (3) and export-share assumption (3) are made.

^bBecause aid programs consist of a mix of formally and informally tied aid, the tied aid funds are often difficult to identify so total development loans were tested.

^cAdministrative machinery is established to prevent nonparticipating countries from gaining exports.

^dNo machinery is established and non-participating donors obtain their normal "commercial" share of all exports financed by the development assistance of the subset.

Source: Slighton, et. al., The Effect of Untied Development Loans on the U.S. Balance of Payments, based on Tables 20 and 21, pp. 68, 69.

Respending effect

If the U.S. does not follow a fiscal-monetary policy that compensates for the income effects of the first-round change in exports, the balance-of-payments can recover approximately 14 to 17 per cent of the initial loss which resulted from untying. If the U.S. does follow such a policy, only approximately 5 to 7 per cent of the initial loss will be recovered.¹⁸⁰

The U.S. can expect to lose 43 per cent of the untied aid if aid is untied unilaterally and 30 to 32 per cent if multilaterally untied. Since U.S. imports are expected to decrease in response to the fall in income, the total balance-of-payments loss is estimated to be 37 per cent for unilateral untying and 26 to 28 per cent for multilateral untying.¹⁸¹

Summary

There are two major economic problems facing developing countries today--the mounting debt service burden and the increased procurement restriction provisions. Both conditions increase the cost of aid to the recipient and both reduce the value of the aid. Yet, both achieve a major objective of the donor--that of reducing the balance-of-payments effect of aid commitments for the donor. The purpose of this chapter has been to examine the tying restrictions and to present the theoretical analysis of the short- and long-run balance-of-payments effect of tying and untying aid.

¹⁸⁰ Ibid., pp. 72-85.

¹⁸¹ Ibid., pp. 91-92.

Aid-tying policies became more prevalent in the early 1960's in response to balance-of-payment deficits and pressure to expand exports. Tying aid insures the attainment of other objectives, especially the identification of projects with the donor. Project aid is especially useful in the "billboard" effect and tying agreements are usually successful. Program aid serves the overall development objectives of the recipient but tying is not very successful.

The most difficult aspect to measure is the amount of substitution of aid-financed goods for items normally imported from the donor.

The short-run effectiveness of aid-tying restrictions can be measured by the additionality factor, which attempts to measure the U.S. exports which would not have been purchased in the absence of aid.

The long-run effect depends upon the U.S.'s trade relations with the trading partners of the world. The aid funds spent in these countries enable them to increase imports from the U.S. The responding effect is measured by reflection-ratio, reserve-accumulation, and the multisector multiplier models.

The conclusions of the specific studies analyzed are:

1. The Brooking Institute study showed that some methods of tying are more effective than others. Substitution is between 20 and 40 per cent for AID funds but irrevocable letters of credit are almost ineffective, allowing for substitution of 70 to 90 per cent.

2. The geographical location of the funds influence the effectiveness of tying. If the area is a major trading partner, there is more opportunity for substitution. If the "scope for tied aid substitution" is larger than one, Lynn's study showed that it is possible that no increase in U.S. exports will result from tying.
3. Even though aid funds may be lost to the donor initially, they may be recovered through normal trading channels.
4. The foreign exchange position of the recipient influences the additionality factor. If the recipient is foreign exchange constrained, the tying will be effective.
5. The donor's fiscal and monetary policies will affect the long-run results. Recovering the balance-of-payments loss depends, in part, on a decrease in the donor's imports, in response to the decrease in export income. U.S. imports will remain at the same level if policies are enacted which prevent the fall in income.
6. The cooperation of other aid donors in reducing tying restrictions can reduce the balance-of-payments loss from 43 per cent for unilateral untying and 30 per cent if aid is untied multilaterally.
7. The U.S. share of the export market is significant in recovering aid funds through normal commercial trade channels. The donor could protect its export market by becoming more competitive and increasing the market share of trade.

The effectiveness of aid-tying depends upon many factors. It can not be assumed that all tied aid will be recovered. However, the balance-of-payments loss is not as great in the long run as the short run. The donor's power in achieving the objective of balance-of-payments protection is accomplished as much by its domestic policies and reactions as those of the recipients.

CHAPTER V

DEBT SERVICING

Introduction

Debt servicing is one of the major economic problems facing developing countries today. Many countries, anxious to accomplish stated rates of growth, expand borrowings beyond debt-servicing capacity. Capital accumulation has been emphasized as essential to development. However, traditional sources of financing, such as domestic saving, private capital markets, taxation, and trade surplus, are very limited for the developing country. The gap between investment outlays and domestic financing is covered by foreign capital. Capital accumulation, therefore, becomes a balance-of-payments issue and a debt-servicing problem is created.¹⁸²

Although a country may be in financial trouble because of a shortage of qualified leadership and, therefore, mismanagement and wastefulness, the ability of a country to service debt is a function of

¹⁸²Gerald M. Meier, International Trade and Development (New York: Harper & Row, 1963), pp. 83-115.

(1) export performance, (2) propensity to import, (3) the amount of gross capital inflow, (4) the level of total savings, and (5) the rate of return on investments. Some factors are within a country's control and some are not.¹⁸³

Debt-servicing payments often grow faster than export earnings, which may be inadequate because of internal problems or external market conditions. Foreign capital, largely loans and export credits, have little concessionary element. The biggest danger in the use of export credit is the reliance on short-term borrowing to finance long-term investments.¹⁸⁴ However, regardless of the form of debt--whether governmental assistance, export credits, or multilateral lending--the repayment plus interest puts a strain on the developing country's economy.

Much of the debt is created in aid-related programs, especially the bilateral aid which is usually tied to procurement of specific commodities. A good example is the sale of U.S. agricultural commodities under Title I of PL 480. This aid program has been criticized as engineered by marketers of the U.S. Department of Agriculture and not by foreign relation agencies. The debt-servicing problem here, expressed by Swerling, is that the accumulation of local currencies,

¹⁸³World Bank, Annual Report 1968, in Leading Issues in Economic Development, ed. by Meier, pp. 269-273.

¹⁸⁴Pearson, Partners in Development, pp. 118-122.

increasing at compound rates, invites, ". . . repudiation or cancellation of debts later."¹⁸⁵

It was demonstrated in Chapter III, that aid-tying reduces the grant element which, in effect, increases the rate of interest.¹⁸⁶ The following example illustrates the increase in effective rate of interest through aid tying.

. . . suppose that the tying of aid involves a 50 per cent excess cost of the project over world market prices, so that the real resources provided are worth only two-thirds of their money price. This would more than cancel out the transfer involved in a ten-year interest-free loan payable in full at maturity where the alternative cost of capital was 4 %, or a fifteen-year interest-free installment loan at an alternative opportunity cost of capital of 5 %.¹⁸⁷

This increase in rate of interest must be considered when determining the debt-servicing burden and capacity of the aid recipient.

The recipient of tied aid overestimates the real value of the loan and underestimates the economic burden of the commitment to future repayment. Especially if excess cost is present, the repayment of the loan involves returning more real value than was received.¹⁸⁸

An additional problem with tied aid is that debt-service payments must be made in free foreign exchange which means the developing

¹⁸⁵ Boris C. Swerling, "Role and Character of Foreign Aid - Discussion," American Economic Review . Papers and Proceedings, XLIX, No. 2 (May, 1959) 242-245.

¹⁸⁶ Harry G. Johnson, Economic Policies Toward Less Developed Countries (Washington, D.C.: Brookings Institution, 1967), pp. 113-118.

¹⁸⁷ Ibid., n. 14, p. 81.

¹⁸⁸ Ibid., pp. 80-84. Also, Richard J. Ward, Development Issues for 1970's (New York: Dunellen Publishing Co., Inc., 1973), p. 157.

country must allocate an increasing share of export earnings to service debt. Any free foreign exchange used to service debt reduces the net resource transfer of aid. Resources are transferred from creditor to debtor only to the extent that the terms involve an element of subsidy when compared with terms on commercial loans.¹⁸⁹ These problems of ". . . aid-tying, competition among the more advanced countries in the extension of suppliers' credits, and debt rescheduling. . ." ¹⁹⁰ are considered the most pressing problems facing developing countries today.

Export Credit and Debt Servicing

Export credit is provided on commercial terms without preparation of a development program and without coordination of the lending which results in "bunching" of debt repayment. The credit-worthiness of the country is then damaged when financial crises arise and rescheduling of debt becomes necessary.¹⁹¹

Advanced countries, anxious to promote exports, provide credit without adequate consideration of the debt-servicing capacity of the debtor country. This practice began in the early 1960's in a maddening push to expand exports to bolster weakening balance of payments.¹⁹²

¹⁸⁹Johnson, Economic Policies Toward Less Developed Countries, pp. 25, 113-118.

¹⁹⁰Robert M. Stern, "International Financial Issues in Foreign Economic Assistance to the Less Developed Countries," in Economic Development and Structural Change, ed. by I. G. Stewart (Edinburgh: Great Britain: Edinburgh University Press, 1969), p. 61.

¹⁹¹Pearson, Partners in Development, pp. 118-123.

¹⁹²Seymour E. Harris, ed., The Dollar Crisis (New York: Harcourt, Brace and World, Inc., 1961), pp. 2-3, 18-20. Also, Henry C. Wallich, "Government Action" in The Dollar Crisis, pp. 106-107.

A program of short-term export credit insurance and guarantees through the Export-Import Bank was established. The mood of the time was captured in the President's White House Message on Balance of Payments in 1961:

. . . I am directing the President of the Export-Import Bank . . . to prepare and submit . . . a new program under the Export-Import Bank to place our exporters on a basis of full equality with their competitors in other countries . . . asked the Secretary of Treasury to initiate and submit . . . a study of methods through which private financial institutions can participate more broadly in providing export credit facilities.¹⁹³

This grand-scale export credit provision of the sixties became the debt-servicing nightmare of the seventies.

Coordination and Cooperation

To avoid debt-servicing crises, a systematic check of export-credit activity and review of long-term public assistance loan commitments should be made on each aid recipient. Although more problems arise with export credits, some countries (India and Turkey) face debt-servicing problems stemming from accumulated official development assistance.¹⁹⁴

The problems of export credit and official development assistance can not be isolated and solved independently. A wide variation in lending terms exist among lending countries. Recent debt-rescheduling experiences indicate that private interests gain since the suppliers'

¹⁹³U.S., President, Message to Congress, "The White House Message on Balance of Payments and Gold," February 6, 1961 in The Dollar in Crisis, ed. by Seymour Harris, p. 303.

¹⁹⁴Stern, "International Financial Issues in Foreign Economic Assistance to the Less Developed Countries", in Economic Development and Structural Change, ed. by Stewart, pp. 55-57.

credits become converted into public assistance. Therefore, coordination of terms of assistance is necessary since inequities may be created if the hard terms of some donors pre-empt the debt-servicing capacity of recipients at the expense of the donors providing assistance on soft terms.¹⁹⁵

Theoretical Framework of Debt-Servicing Problems

Theoretical analysis of the problem of servicing developmental loans began as early as 1946. It was recommended at that time by Hal Lary that mechanisms be established to provide flexibility in debt-servicing payments reducing the risk of default and interruption of the flow of trade.¹⁹⁶ Theoretical work analyzing the structure of the debt and the debt-servicing capacity of the recipients, the primary sources of debt-servicing problems, is reviewed in this section.

Structure of Debt

The structure of the debt--interest rate, grace period, maturity, procurement restrictions--is especially important. The investments in infrastructure, i.e. dams and highways, and social programs, i.e. food, health and education, are expected to contribute to the growth of the economy and enhance tax revenues through increased production. Currently, debt-servicing grows faster than national income

¹⁹⁵ Ibid., pp. 55-57, 61-68.

¹⁹⁶ Hal B. Lary, "The Domestic Effects of Foreign Investment," American Economic Review: Papers and Proceedings, XXXVI, No. 2 (May, 1946), 672-686.

and export earnings. A net transfer of resources from the debtor to the creditor is then possible as debt-servicing claims an increasing share of foreign exchange.¹⁹⁷ Mikesell even questions the possibility of developing countries ever achieving self-generating growth without first ". . . going through a period of defaults or requiring general debt forgiveness."¹⁹⁸

The following examples describe the influence of the structure of debt on the transfer of resources. If gross lending is maintained at a constant amount, it is possible that debt-service payments will eventually exceed gross lending and the net transfer of resources from donor to aid recipient will decline and become negative. For example, if \$100 is loaned each year on hard terms of 5 1/2 per cent interest, 13 year maturity, and 3 years grace period, the net transfer will be zero after 9 years and negative thereafter because of debt-servicing. On IDA terms of 3/4 of 1 per cent, 50 year maturity, and 10 year grace, the net transfer will decrease to \$90 the 10th year and decrease steadily thereafter.¹⁹⁹

To maintain a constant level of net resource inflow, gross lending must increase, the rate of increase depending on the terms of

¹⁹⁷ Mikesell, The Economics of Foreign Aid, pp. 122-126, 265-269. Also, Goran Ohlin, Foreign Aid Policies Reconsidered (Paris: Organisation for Economic Co-operation and Development, 1966), p. 92; World Bank, Annual Report 1968 in Leading Issues in Economic Development ed. by Meier, pp. 269-273.

¹⁹⁸ Mikesell, The Economics of Foreign Aid, p. 265.

¹⁹⁹ Ibid., Figure 2, p. 109.

of the loans. To maintain an annual net inflow of \$100 the size of loan by the 10th year must be \$109 on IDA terms and \$270 on hard terms. Any increase in the loan exceeding the \$100 is necessary to cover the interest and amortization payments on debt accumulated over the 10 year period to maintain the annual \$100 net inflow.²⁰⁰

Growth of Debt-Service Charges

Debt-servicing charges increase rapidly because of what Jacob Viner calls the ". . . wondrous working of compound interest."²⁰¹ Theories developed to explain this phenomenon and its application to development aid are surveyed.

Hal Lary²⁰²

One of the first writers to direct attention to the debt-servicing problem on long-term, developmental loans was Hal Lary. His model demonstrates the growth in debt servicing and eventual net inflow of resources to the lending country on a portfolio of investments and loans. A portfolio of \$50 billion, composed of \$10 billion in investment and \$40 billion in 30-year loans, to be disbursed over a 20-year period, would be yielding the lender a net return of \$2.5 billion in 19 years.

²⁰⁰ Ibid., Figure 3, p. 110. Also, Meier, "Improving the Quality of Aid--Note," in Leading Issues in Economic Development, ed. by Meier, p. 291.

²⁰¹ Ohlin, Foreign Aid Policies Reconsidered, p. 105.

²⁰² Hal B. Lary, "The Domestic Effects of Foreign Investment," American Economic Review: Papers and Proceedings, XXVI, No. 2 (May, 1946), 672-686.

Evsey Domar²⁰³

Domar's model also illustrates the relationship between the inflow and outflow of funds from the vantage point of the lender. The inflow of resources (amortization plus interest payments) for the lender first approaches and then exceeds the outflow of new investment, reaching the limit and stabilizing: $(\text{amortization rate} + \text{interest rate}) / (\text{amortization rate} + \text{rate of growth of new lending})$. The faster new lending grows, the smaller will be the ratio between the inflow and the outflow of funds. If the rate of growth in lending exceeds the interest rate, this ratio will be less than one, and a net inflow for the lender will never arise. If, however, the rate of growth of new lending, falls below the rate of interest, a net inflow will become inevitable.

This is particularly applicable to the developing countries today who borrow to pay debt-servicing. A great deal of growth and development must take place in the borrowing economy to achieve self-sufficiency to the point of tolerating the eventual repayment and net outflow of resources and the slowing down in the rate of new borrowing.

Randall Hinshaw²⁰⁴

To sustain an export surplus of \$1 billion per year through lending, donor countries must increase gross lending annually since it

²⁰³ Evsey D. Domar, "The Effect of Foreign Investment on the Balance of Payments," American Economic Review, XL (December, 1950), 805-826.

²⁰⁴ Randall Hinshaw, "International Investment: Foreign Investment and American Employment," American Economic Review: Papers and Proceedings, XXXVI, No. 2 (May, 1946), 661-671.

will be necessary to lend interest as well as principal. From the developing countries point of view, if imports annually exceed exports by \$1 billion, indebtedness will grow rapidly, depending on the rate of interest charged. The growth in debt is the result of the importer's borrowing interest payments. For a country to run a balance-of-payments deficit of \$1 billion, after 25 years it must borrow \$4.41 billion at 2 per cent, \$5.9 billion at 4 per cent, and \$8.9 billion at 6 per cent using 20-year loans.²⁰⁵

This model portrays a realistic situation for developing countries. For example, assume (1) \$20 billion (net of amortization) is annually loaned at 5 per cent interest, and (2) the U.S. imports of \$10 billion a year from the debtor country. The developing country receives \$30 billion annually. At the end of 30 years all dollars accruing to the debtor country will be owed to the U.S. as interest. Beyond 30 years, the flow of dollars will be inadequate even to pay the interest charges.²⁰⁶ The geometric increase of debt is the result of borrowing to service debt. Net repayment of debt will take place only as the country moves from one stage of development to a more advanced stage.²⁰⁷

²⁰⁵ Ibid., based on Tables 3 and 4, pp. 666-667.

²⁰⁶ Ibid., pp. 667-668.

²⁰⁷ Charles P. Kindleberger, The Dollar Shortage (New York: John Wiley & Sons, Inc., 1950), pp. 74-75.

Goran Ohlin²⁰⁸

This model deals specifically with the growth of debt-servicing when the balance-of-payments gap is increasing. If the gap is increasing at a steady rate, k , the rate at which the debt will grow is determined by either (1) the rate of growth of the gap k , or (2) the rate of interest, i .

If $k > i$, then the ratio of net lending to gross lending, n , will approach a stable level:

$$n = \frac{k - i}{k + a} = \frac{\text{net lending}}{\text{gross lending}}$$

where a is the amortization rate.

If $i > k$ then debt servicing will absorb increasing portions of the capital inflow and n will decline and approach zero. A net inflow will be maintained only if the rate of growth of new loans exceeds the rate of interest. It is only through the large increase in debt that the decreasing fraction of net inflow will be adequate to cover the increasing balance-of-payments gap.

The conclusion, therefore, is that if a country faces a growing resource gap which is to be met by borrowing, the growth of debt is determined by the rate of growth of the gap k , the interest rate i , and the amortization rate a .

Debt Servicing Capacity

The most common statistics used in estimating the debt-servicing capacity of developing countries are the rate of return on investment

²⁰⁸Goran Ohlin, Foreign Aid Policies Reconsidered (Paris: Organisation for Economic Co-operation and Development, 1966).

debt-service / export earnings ratios, and the growth of national income, reflecting the fact that the most significant consideration is the overall performance of the economy and the entire development program. The irony of the situation is that the level of poverty and need for assistance standards used in qualifying a country for aid often are such that a country qualifying for aid has no debt-servicing capacity even though debt-servicing is a prerequisite for further aid.²⁰⁹

Debt-servicing capacity depends, in part, on the selection of appropriate investment which will increase productivity and generate economic growth. Capital should be allocated according to the highest social marginal product. Strategic investments can be made which will increase domestic savings and stimulate export industries to permit a continued increase in exports.²¹⁰

The second factor, export earnings, indicates the close relationship between trade and debt-servicing capacity. Inadequate export earnings increase the ratio of debt-service payments to foreign exchange receipts. Aid is expected to expand export capacity to provide a surplus of foreign exchange. It is not essential that the investment of foreign capital create its own means of payment directly since the development of one sector influences the development of other sectors.²¹¹

²⁰⁹ Meier, Leading Issues in Economic Development, p. 269. Also, Mikesell, The Economics of Foreign Aid, pp. 105-126; Ward, Development Issues for the 1970's, pp. 111-112.

²¹⁰ Meier, International Trade and Development, pp. 108-111. Also, Mikesell, The Economics of Foreign Aid, pp. 119-120.

²¹¹ Meier, International Trade and Development, pp. 108-111.

Since aid recipients are expected to eventually achieve self-sustained growth and become able to repay the debt, the growth of national income is necessary. Raymond Mikesell developed a formula to define the "critical rate of interest" which establishes the maximum percentage of national income which interest payments can reach before absorbing intolerable amounts of domestic product. This critical rate of interest, i , depends upon:

1. The initial and marginal savings rates, s_0 and s' .
2. The incremental capital-output ratio, k .
3. The desired rate of growth in GDP, κ .

$$i = \frac{\kappa (s_0 - s')}{s_0 - k\kappa} \quad 212$$

This rate allows the debt to increase at the same rate as GDP.

The crucial role of the MPS can be seen by examining a case in which the savings rate is equal to the desired investment rate. Here a deficiency would increase at compound interest since the country would always have to borrow to pay the interest.

The role of the growth in national income in determining debt-servicing burden is also demonstrated by Evsey Domar in a study of three cases. It is assumed in all three cases that the government borrowing is 6 per cent of the national income and the interest rate is 2 per cent, the only difference in the three cases being the growth rate of national income.

²¹²Mikesell, The Economics of Foreign Aid, p. 121.

If national income remains constant, 14.25 per cent is used to pay interest after 100 years. If national income increases at \$5 billion per year, the percentage of national income to service the debt increases more slowly and absorbs only 7.57 per cent of national income after 100 years. In national income increases at a constant 2 per cent, the percentage of national income required to pay interest does not increase indefinitely but approaches a limit, in this case, of 5.71 per cent. At the end of 100 years the percentage of national income servicing debt is only 5.49 per cent compared to 7.57 and 14.25 per cent in the other cases.²¹³

Current, Historical, and Empirical Nature
of Debt-Servicing Problems

The Current Situation

The increasing balance-of-payments deficits covered by borrowing, especially short-term private credit, have brought attention from financial leaders all over the world. Arthur F. Burns made the statement following an International Monetary Fund (IMF) conference:

"Some foreign governments are running 'frightening' deficits that 'have to be brought under control'".²¹⁴ He cautioned against a world-wide overexpansion of credit:

There is a tendency (in some countries) to run governmental deficits on a huge scale and to pile new debt on top of old

²¹³ Evsey Domar, "The 'Burden of the Debt' and the National Income," American Economic Review, XXXIV, No. 4 (December, 1944), 798-827.

²¹⁴ "Fed Chief Says Some Nations Must Curb 'Frightening' Deficits to Slow Inflation," Wall Street Journal, quoting Arthur Burns, June 21, 1976, p. 7.

debt . . . I think some of that has been overdone . . . Some 215 countries around the world may be excessively in debt already.

Annual deficits of developing countries increased from \$10 billion in 1973 to \$28 billion in 1974 and \$37 billion in 1975.²¹⁶

These deficits have required extraordinary borrowing from the IBRD, IMR, regional development banks and from private lenders. The external public debt outstanding of the 86 developing countries increased to \$118.9 billion during 1973, an increase of \$18.9 billion from 1972.²¹⁷ This debt will burden the countries with heavy repayments for years to come, much of it being expensive credit from private banks.

William E. Simon, U.S. Treasury Secretary speaking to the Joint Conference of IMF and IBRD in Manila in October, 1976, warns of the seriousness of the continuing deficits and growing debt:

As debt grows to finance the continuing deficits, an increasing number of countries which have delayed adjustment (of their economies) will approach limits beyond which they cannot afford to borrow and beyond which prudent lenders won't lend to them. This is a serious matter and it can't be ignored by lenders or borrowers.²¹⁸

The need for better financing of the massive deficits in international payments by developing countries was one of the major topics discussed at the Conference.

²¹⁶"Debt Will Clearly Dominate Thinking of IMF, World Bank Meeting Delegates," Wall Street Journal, October 4, 1976, p. 7.

²¹⁷World Bank, Annual Report 1975, Table 4, p. 91.

²¹⁸"IMF Members Warned on Using Credit to Hide Domestic Economic Weaknesses," Wall Street Journal, October 5, 1976, p. 12.

The most recent increase in deficits can be attributed primarily to the increased price of imports, especially oil and fertilizer which added \$10 billion a year to the cost of imported energy for these countries, and decreased export earnings which decreased when both the prices of and demand for exports decreased due to the recession of industrialized countries.²²⁰

Countries experiencing persistent deficits are told to look internally and review domestic policies:

Countries with large, persistent deficits in their international accounts are headed for trouble if they continue papering over their problems with borrowed money instead of strengthening their domestic economies.²²¹

Speakers at the 1976 IMF and IBRD Conferences suggested deficit countries restrain domestic demand, permit the shift of resources to the external sector to increase exports (to hold down debt), and rely less on borrowing, especially high-cost, short-maturity credits from private banks.²²²

Because of the build-up of debt-servicing payments a great deal of attention has been given recently to the possibility of rescheduling of debt, default, and a moratorium on debt.²²³ Two major topics

²²⁰"All But the Poorest of Developing Nations Maintain High Growth, World Bank Says," Wall Street Journal, September 23, 1976, p. 6. Also, "Developing Debt. Emerging Nations Use Private Lenders More, Causing Some Worries," Wall Street Journal, September 28, 1976, pp. 1, 26; Wall Street Journal, October 4, 1976.

²²¹Wall Street Journal, October 5, 1976, p. 12.

²²²Ibid.

²²³"North-South Talks Sponsored by the UN Are Showing First Signs of Compromise," Wall Street Journal, May 10, 1976, p. 7. Also, Wall Street Journal, October 4, September 28, 1976.

of discussion at the May 1976 Conference were:

1. International guarantees of private loans to developing countries which would provide cheaper and more plentiful financing by private banks who now consider themselves overcommitted to Third World borrowers.
2. Special treatment for the world's poorest nations, perhaps including forgiveness of their debts to governments, and provision for all future government aid to be nonrepayable.²²⁴

No resolutions were passed at this time although both topics continue to be discussed at other conferences. Although individual cases of rescheduling take place, a widespread moratorium or default on debt is considered unlikely by bankers, ". . . credit is too important to the developing countries for them to take action that could destroy it."²²⁵

Private credit

One of the disturbing features of the current debt structure is the increase in lending by private institutions for purposes previously extended by governmental agencies. Previously private credit was extended only for specific objectives:

. . . to facilitate trade or to develop specific revenue-generating projects--both areas where risks can be judged with some confidence and where the means of repayment are clear. Much of the new lending, is for the general purposes of the borrowing government chiefly to finance deficits in its balance-of-payments with other countries.

²²⁴ Wall Street Journal, May 10, September 28, 1976.

²²⁵ Wall Street Journal, September 28, 1976.

Prospects of collecting on the debt depend on the economic health of the country, which is difficult to forecast, also on the willingness to repay on the part of the country's leaders, who may not be the same people who obtained the loan.²²⁶

But concern with this type of lending is not due only to debt-servicing problems but also to private financing, unplanned and unregulated, involving bankers in the internal affairs of a country.²²⁷

The current trend in private lending will lead to "bunching of maturities." Loans with 10-year maturities were common in 1973 but in 1975 most loans carried maturities of 3-5 years. This means in certain years, 1980 for example, loan repayments will be heavy as schedules coincide. It will create problems for some countries and requests for restructure of payment schedules can be expected.²²⁸

Historical Evolution of Debt-Servicing Problems

Today's concern for debt-servicing capacity stems, in part, from the unforgotten massive defaults on foreign loans in the 1930's. However, a close look at the lending prior to this period of default will reveal a huge flow of resources back to the U.S. in interest and dividend payments. During 1924-1930, the average annual gross outflow of private resources was \$1,214 million but the net outflow was only \$764 million since \$266 million returned in amortization and \$184 million in net sales by the U.S. of outstanding foreign securities. This \$764 million was almost entirely offset by a reverse flow of

²²⁶ Ibid.

²²⁷ Ibid.

²²⁸ Ibid.

\$754 million in dividends and interest, resulting in a net outflow from the U.S. of only \$10 million. By 1930 American interest receipts from private long-term foreign loans amounted to \$429 million as compared with \$87 million in 1919.²²⁹

The plight developing countries find themselves in today is not of the same nature of the 1924-1930 era but it was accurately predicted. Although writers in the 1940's foresaw the long-run debt-servicing problems which developing countries would encounter if careful attention was not given to the debt structure, the trend of the 1960's toward increased use of private credit and harder terms of official lending does not indicate that the warnings of the earlier writers were heeded.²³⁰

Many changes have taken place in international lending from the 1920's to the present. During the 1920-1940 period, most lending was by the private sector with the returns being both interest and dividends. Following World War II, the U.S. government made reconstruction loans. The economies being restored had experienced economic progress and the basic framework of growth, development, and trade was already firmly fixed in the minds of the leaders.²³¹ But with the

²²⁹Hinshaw, "International Investment," 661-671.

²³⁰Arthur I. Bloomfield, "Postwar Control of International Capital Movements," American Economic Review, Papers and Proceedings, XXXVI, No. 2 (May, 1946), 687-709. Also, Hinshaw, "International Investment," 661-671.

²³¹J. J. Polak, "Balance of Payments Problems of Countries Reconstructing with the Help of Foreign Loans," Quarterly Journal of Economics, LVII (November, 1942), 208-240. Also, Raymond F. Mikesell and J. J. Polak, "International Investment-Discussion," American Economic Review, XXXVI, No. 2 (May, 1946), 710-715.

event of the development loan, the borrower was ". . . politically unstable . . . unfamiliar to the Western investor, commercially, legally, socially, and politically."²³² The development loans encouraged changes which had never been experienced.

As the type of lender changed from private to government during the 1946-1952 era, most of the governmental transfers of resources were in the form of grants. However, from 1955 to the present, the type of aid has changed from grants to loans, with debt-servicing payments accounting for an increasing proportion of export earnings, increasing from \$0.8 billion in 1955 to \$11 billion in 1973.²³³

Empirical Aspect of the Debt-Servicing Problems

Some of the problems most closely associated with the current debt-servicing problems are the nature of the debt and debt-service payments, i.e. size, structure, composition, and the foreign exchange constraint.

The distribution of the outstanding external public debt, using GNP as an indication of debt-servicing capacity, indicates that the countries with the weakest debt-servicing capacity carry the largest percentage of debt relative to capacity.²³⁴

²³² Pincus, Economic Aid and International Cost Sharing, pp. 34.

²³³ World Bank, Annual Report 1975, Table 8, p. 97.

²³⁴ United Nations, Conference on Trade and Development, Debt Problems in the Context of Development: Report by the UNCTAD Secretariat (TD/B/C.3/109/Rev. 1), 1974, pp. 5-6.

TABLE 22

COMPARISON OF DEBT OUTSTANDING ON A PER CAPITA BASIS, 1971

Income Per Capita (\$)	Number of Countries	Percent of Total Debt (1)	Percent of Total GNP (2)	Ratio (1)/(2)
100 or less	15	9.5	4.2	2.26
101 - 200	17	23.6	21.7	1.09
201 - 300	14	11.9	10.4	1.14
301 - 500	18	28.7	26.0	1.10
501 +	17	26.2	37.7	.69

Source: United Nations, Debt Problems in the Context of Development: Report by the UNCTAD Secretariat (TD/B/C.3/109/Rev. 1), 1974, based on Table 2, p. 6.

The terms of the loans have increasingly been hardened with a marked increase in the interest rate and decrease in grant element.

TABLE 23

AVERAGE TERMS AND GRANT ELEMENT OF LOAN COMMITMENTS^a

Year	Maturity (years)	Grace (years)	Interest (%)	Grant Element ^b (%)
1967	16.8	4.4	4.3	36
1968	19.0	4.6	4.4	37
1969	18.1	4.4	4.8	34
1970	19.7	5.2	4.9	35
1971	17.8	4.6	5.1	32
1972	17.6	4.6	5.2	32
1973	18.9	5.0	5.9	28
Average	18.27	4.7	4.94	33.4
Total % Change 1967-1973	+12.5	+ 13.6	+37.2	- 22.2

^aEighty-six developing countries.

^bDiscounted at 10 % rate.

Source: World Bank, Annual Report 1975, Table 9, p. 98.

More recently, the terms on both U.S. Export-Import Bank and the World Bank have been hardened. In an effort to reduce export-credit competition among developed countries, the U.S. Export-Import Bank increased the down payment from 10 per cent to 15 per cent July 1, 1976. The interest rates of 8 1/4 to 9 1/2 per cent and maximum maturities of 10 years for developing countries and 8 1/2 years for industrial countries remained unchanged.²³⁵ The World Bank increased interest rates from 8.5 to 8.9 per cent, reduced the grace periods from 5 to 3 - 4 years, and decreased total maturity from 20 years to 15.²³⁶ Over this same time period, the composition of debt changed with the portion of total lending obtained from private sources, which has no concessionary features, increasing relative to the official.

TABLE 24

PRIVATE AND OFFICIAL LENDING COMPARED^a

Year	Private	Official	Total	Private (% of Total)	Official (% of Total)
1967	14.7	36.1	50.8	28.9	71.1
1968	16.2	41.1	57.2	28.3	71.7
1969	18.8	45.3	64.1	29.3	70.7
1970	21.8	51.9	73.7	29.6	70.4
1971	26.3	59.9	86.1	30.5	69.5
1972	30.8	69.2	100.0	30.8	69.2
1973	38.5	80.4	118.9	32.4	67.6

^aIn U.S. \$ billions. External public debt outstanding for 86 developing countries.

Source: World Bank, Annual Report 1975, Table 4, p. 91.

²³⁵"U.S. Ex-Im Bank Tightens Terms on Export Loans," Wall Street Journal, June 10, 1976, p. 10.

²³⁶Wall Street Journal, October 4, 1976, p. 7.

The reverse flow of resources in the form of interest payments and amortization decreases the net transfer of resources. From 1967 to 1973 debt servicing increased from \$4 billion to \$11 billion, a 173 per cent increase. See Table 25. This trend will continue during the 1970's as grace periods expire and repayment begins and as the use of private credit increases, bringing with it even harder terms.

TABLE 25
TOTAL DISBURSEMENTS AND DEBT SERVICE^a

Year	Total Disbursement (grants & loans)	Debt Service			Debt Service as a Percent of Total Disbursement
		Amortization	Interest	Total	
1967	10,853.1	2,917.3	1,104.3	4,021.6	34.0
1968	11,445.6	3,381.9	1,291.8	4,673.7	40.8
1969	12,006.3	3,728.7	1,539.7	5,268.4	43.9
1970	13,498.4	4,348.4	1,878.5	6,226.9	46.1
1971	14,896.7	4,769.1	2,168.5	6,937.0	46.6
1972	18,804.8	5,875.9	2,512.8	8,388.8	44.6
1973	23,739.6	7,685.4	3,316.6	11,002.0	46.3

^aIn U.S. \$ millions.

Source: World Bank, Annual Report 1975, Table 8, p. 97.

Of the total debt-service payments over this time period, interest payments increased by 200.3 per cent and amortization payments by 163 per cent while total disbursements increased by only 118.6 per cent. Debt-servicing absorbed almost half of total disbursements by 1973, increasing from 34 per cent in 1967 to 46.3 per cent in 1973.

The net transfer of resources increased slowly, even declining in 1968 and 1969 in spite of annual increases in total disbursements. Even though total disbursements grew by 118.7 per cent, most of the increase was in loans rather than grants. This increased the portion of funds required to service debt and resulted in an increase in net transfer of only 86.4 per cent over this 7 year period. See Table 26.

TABLE 26
DISBURSEMENTS AND NET TRANSFER^a

Year	Disbursements			Net Transfer
	Loans	Grants	Total	
1967	7,885.3	2,967.8	10,853.1	6,831.5
1968	8,651.3	2,794.2	11,445.6	6,771.9
1969	9,129.1	2,877.2	12,006.3	6,737.8
1970	10,667.5	2,830.9	13,498.4	7,271.5
1971	11,824.8	3,071.9	14,896.7	7,959.1
1972	15,187.9	3,616.9	18,804.8	10,416.0
1973	20,164.5	3,575.1	23,739.6	12,737.6

^aIn U.S. \$ millions.

Source: World Bank, Annual Report 1975, Table 8, p. 97.

Foreign exchange constraint

In order to service debt and eventually repay it, a resource transfer to the creditor country must be made. The two major sources of foreign exchange for a developing country are export earnings and foreign capital inflow, specifically development assistance. ²³⁷

²³⁷United Nations, Debt Problems in the Context of Development, pp. 111-117.

Export earnings

Development programs are expected to increase productivity and foreign exchange earnings sufficiently to repay the loan. However, the earnings may be inadequate because of factors affecting cost, external demand, supply or price of the export production. The developing countries' share of the world export market has remained relatively stable over the past seven year period, the only significant change being the 1974 increase due to oil exports. The 1963-1968 average was 19 per cent of the world market and the 1969-1974 share had increased to 20 per cent even when including the 1974 increase to 26 per cent of the market. See Table 27.

TABLE 27
DEVELOPING COUNTRIES' SHARE OF WORLD EXPORT MARKET^a

Year	Total World Exports	Developing Countries Exports	Ratio
av. 1963-1968	194,965	37,120	19.0
1969	272,760	48,640	17.8
1970	313,200	55,010	17.6
1971	350,100	62,240	17.7
1972	416,790	75,010	18.0
1973	571,520	108,480	19.0
1974	864,240	225,810	26.1
av. 1969-1974	464,768	95,865	20.0

^aIn U.S. \$ millions.

Source: World Bank, Annual Report 1975, pp. 88-89.

One measure used in determining debt-service capacity and the foreign exchange constraint is the portion of export earnings absorbed by debt-servicing. For the five years 1969-1973, debt service has averaged 10.9 per cent of export earnings for 86 developing countries.

TABLE 28
DEBT SERVICE RATIO TO EXPORTS^a

Year	Exports	Debt Service	Ratio
1969	48,640	5,268.4	10.8
1970	55,010	6,226.9	11.3
1971	62,240	6,937.6	11.1
1972	75,010	8,388.8	11.2
1973	108,480	11,002.0	11.1
Average	69,876	7,565.5	10.9

Source: Calculated from World Bank, Annual Report 1975, Table 2, pp. 88-89 and Table 4, p. 91.

Aggregates, however, often do not reveal the debt-servicing position for specific countries. In Table 29, the debt-service ratios are given for selected countries, reflecting the highest ratios or rapid changes, for 1965-1973. The annual average debt-service ratios for these countries increased over this time period, changing from 16.8 in 1965 to 19.9 in 1973.

TABLE 29
DEBT-SERVICING RATIOS

Country	1965	1966	1967	1968	1969	1970	1971	1972	1973
Egypt	15.2	15.5	19.5	19.4	24.5	26.2	19.4	31.5	34.6
Zambia	4.2	2.2	2.4	2.7	1.9	5.1	10.0	10.7	28.0
Israel	23.7	22.6	15.7	16.9	17.2	18.6	13.4	17.7	20.8
India	15.4	19.1	24.9	25.1	26.5	28.0	25.9	24.5	20.1
Turkey	20.3	20.5	16.4	20.0	19.2	22.5	19.0	18.8	10.4
Argentina	20.2	25.5	25.9	28.3	24.1	21.0	19.5	20.3	18.3
Brazil	20.9	21.9	16.0	15.6	16.6	15.3	15.8	14.3	13.9
Colombia	14.4	16.5	14.2	13.1	11.8	11.9	14.8	12.6	13.0
Dominican Republic	19.2	12.6	7.3	7.7	8.6	5.1	6.7	4.1	4.5
Mexico	24.8	21.9	23.8	26.3	23.3	25.2	24.1	23.5	25.2
Uruguay	6.9	12.5	17.0	18.9	18.5	18.4	22.2	34.0	30.1
Average	16.8	17.3	16.6	17.6	17.5	17.9	17.3	19.3	19.9

Source: World Bank, Annual Report 1975, Table 6, p. 94.
Also, United Nations, Debt Problems in the Context
of Development, Table 4, pp. 31-33.

Development assistance

The Development Assistance Committee (DAC) members set a target of providing development assistance equal to 1 per cent of their GNP.²³⁸ However, these capital flows often have a very low grant element. Forty-five per cent of the flow is not under the control of the government at all since it is private credit. The 1 per cent target includes all items in the account, Net Flow of Financial Resources, described in Chapter III, much of it with no concessional element. Even under these conditions a 1 per cent target has not been achieved. See Table 30.

²³⁸ Ibid., p. 2.

TABLE 30
COMPARATIVE AID-GIVING PERFORMANCE, 1971^a

Countries ^b	Total Net Flows ^c	Official Development Assistance	
		Net Transfer	Grant Element
United States	0.67	0.30	0.27
Sweden	0.69	0.45	0.43
Canada	0.82	0.37	0.35
Switzerland	1.04	0.12	0.12
Denmark	0.88	0.30	0.29
Germany	0.80	0.43	0.41
France	0.51	0.33	0.33
Norway	1.00	0.64	0.38
Australia	1.27	0.52	0.49
Belgium	1.09	0.50	0.48
Netherlands	1.63	0.57	0.54
United Kingdom	1.15	0.36	0.34
Austria	0.56	0.05	0.06
Japan	0.96	0.20	0.15
Italy	0.85	0.15	0.11
Portugal	2.12	1.35	0.81
Total DAC	0.83	0.33	0.30

^aPercentage of GNP.

^bCountries are ranked in order of per capita GNP.

^cIncludes official and private flows.

Source: Organisation for Economic Co-operation and Development, Development Co-Operation, 1972 Review. December, 1972, Tables 1 and 2, pp. 205-206.

Recommendations for Coping with
Debt-Servicing Burdens

Rescheduling of Debt

The theoretical implications of debt-servicing can become real nightmares for some developing countries. Although some guidelines must be established to prevent the impending disaster, no consensus has

been reached yet among developed and developing countries as to the nature of the problem or the appropriate mechanism for dealing with it.

Rescheduling of debt which has taken place over the past twenty years has been under emergency conditions. Negotiations of this nature do not give proper attention to the interrelationships between debt-servicing, capital flows, and the development program of the debtor country nor does it establish appropriate channels for meeting future rescheduling needs. Table 31 illustrates the type of credit which most often requires rescheduling. The "Date of Agreements" and "Due Date" indicate the immediacy of the need.

A great deal of opposition is voiced to establishing permanent debt-relief machinery. The following objections raised and responses offered are:

1. **Objection:** Standards of management may be relaxed and corrective measures neglected.

Response: Review of the economy and the recommended debt relief measures could be conducted similar to the review made prior to granting aid.

2. **Objection:** Debt relief will be abused if it is assumed to be automatic.

Response: Criteria could be established to eliminate the implication of automaticity.

3. **Objection:** Short-term commercial borrowing would be converted into long-term debt with a redistribution of scarce funds to countries with debt problems.

TABLE 31
RESCHEDULING OF EXTERNAL DEBT: 1956-1968

Debtor Country and Date of Agreement	Type of Debt	Due Date of Rescheduled Debt
Argentina		
May 30, 1956	Suppliers' Credits	June 30, 1965
Oct. 24, 1962	" "	1963-1964
June 26, 1965	Insured Supp. Cred.; Gov. Loans	1965
Brazil		
May 24, 1961	Suppliers' Credits	6/1961 - 12/1965
July 1, 1964	" "	1964 - 1965
Turkey		
May 11, 1959	Suppliers' Credits	8/1958 - 1/1964
March 27, 1965	Gov. Loans: Consolidated Supp. Cred	1964 - 1967
Chile		
Feb. 24, 1965	Suppliers' Credits; Gov. Loans	1965 - 1966
Ghana		
Dec. 9, 1966	Insured Suppliers' Credits	6/1966 - 12/1968
Oct. 22, 1968	" " "	1/1969 - 7/1972
Indonesia		
Dec. 20, 1966	Ins. Suppliers' Cred.; Gov. Loans	6/1966 - 12/1967
Oct. 18, 1967	" " " " "	1968
Oct. 17, 1968	" " " " "	1969
India		
May 24, 1968	To Be Det. by Bilateral Agreement	4/1968 - 4/1969
Peru		
Sept. 27, 1968	Suppliers' Credits	4/1968 - 12/1969

Source: Compiled from Lester B. Pearson, Partners in Development. Report of the Commission on International Development (New York: Praeger Publishers, Inc., 1969), Table 20, Annex II: Statistical Material, pp. 383-384.

4. **Objection:** Relief for suppliers' credits acts as a subsidy to export credits and undermines competition in international markets.

Response: Export credits finance development programs, are included in a donor's "total flow of external resources," and increase when aid funds decrease.²³⁹

The existing multilateral institutions become involved with an individual country's debt-servicing ability at various points:

1. The IBRD when the issue is the long-term development impact of capital flows.
2. The IMF when the balance-of-payments is affected.
3. The DAC when the assistance performance of each donor is evaluated.

These institutions deal with debt relief on an ad hoc basis and make little effort to develop an effective debt strategy. Considering the "crisis" orientation of the procedure, meeting debt-service payments is the objective and proper attention is not given to the amount of assistance required to attain minimum development objectives.²⁴⁰

Over time, rules and procedures have developed in these ad hoc conferences which require the debtor to make a stand-by agreement with the IMF and to design a stabilization program as a

²³⁹United Nations, Debt Problems in the Context of Development, pp. 18-20.

²⁴⁰Ibid., pp. 20-21.

pre-condition of obtaining debt relief. However, these conditions are concerned primarily with enabling the debtor to resume debt payments.²⁴¹ An international policy is needed to assist in reorganizing debt. Procedures should be established to:

1. Identify potential debt difficulties before the crisis.
2. Apply appropriate measures without long delays.
3. Recognize the economic conditions of the debtor and prospects for new flows of assistance when setting the terms and degree of concessionality.
4. Integrate debt-relief with development programs to allow the process of development to continue.
5. Insure equal treatment of all debtors.
6. Insure equitable distribution of the burden of providing debt relief.²⁴²

In summary, a new approach to debt relief would require an institutional arrangement, criteria for determining eligibility and guidelines for action.

Interest Subsidy Fund

Two fundamental issues to be resolved in the Interest Subsidy Fund are (1) the method of financing the Fund and (2) the criteria for distributing the funds.

²⁴¹Ibid.

²⁴²Ibid., pp. 1-2, 18-24. Also, United Nations, United Nations Conference on Trade and Development, Debt Problems of Developing Countries, Report of the Ad hoc Group of Governmental Experts on its Third Session, Geneva, February 25 - March 7, 1975, pp. 1-10.

One approach to financing the Fund²⁴³ is to allocate the burden among the donor countries according to the interest due each donor. One of the recommendations to come from the Pearson Report is that ". . . donor countries commit the equivalent of one-half or more of the interest payments due them on official bilateral loans from developing countries to the World Bank to subsidize the interest rates on some Bank lending."²⁴⁴ This approach is criticized since debt-servicing difficulties result from a variety of factors, interest payments being just one factor. The donor country's terms of lending may not be responsible for the debt-servicing problems of the recipient. Therefore, the donor should not be held responsible for an unfair commitment to the Interest Subsidy Fund.²⁴⁵

Suggestions considered in distribution of interest subsidies are: (1) uniformity among developing countries, (2) type of loan, and (3) specific criteria to be determined.²⁴⁶

World Bank Third Window

Development assistance on terms between those of the Bank and IDA would be provided to countries with very low per capita income.

²⁴³United Nations, Debt Problems in the Context of Development, pp. 23-24. The General Assembly Resolution 3039 (XXVII) requested a study on the desirability and feasibility for the establishment of the fund.

²⁴⁴Pearson, Partners in Development, p. 222 cited in United Nations, Debt Problems in the Context of Development, p. 24.

²⁴⁵United Nations, Debt Problems in the Context of Development, p. 24.

²⁴⁶Ibid., p. 23.

This approach is being experimented with at the suggestion of the Development Committee.²⁴⁷ In 1975 the Third Window was funded with \$1 billion to lend to countries with less than \$375 per capita GNP, although countries with higher per capita incomes should not be completely excluded.²⁴⁸ No conclusion has been reached at this time on the results of the experiment.

Conclusions

The debt-servicing problems facing developing countries today were brought on by their attempt to achieve economic development faster than the increase in foreign exchange earnings and domestic saving. This resulted in countries resorting to export credits on commercial terms and accepting tied aid which had a higher effective rate of interest than that reflected in the agreements. This increase in debt was often at the encouragement of the developed countries who engaged in export promotion competition through credit availability.

The conclusion drawn from this introduction to the debt-servicing problem is that a concerted effort must be made to coordinate the lending policies of the developed countries to prevent debt-servicing commitments from exceeding capacity.

Whether examined from the point of view of the decrease in the net flow of resources or the increase in total indebtedness, the

²⁴⁷ Formally the Joint Ministerial Committee of the Boards of Governors of the World Bank and the IMF on the Transfer of Real Resources to Developing Countries.

²⁴⁸ World Bank, Annual Report 1975, p. 14.

impact of the debt structure on the transfer of resources through debt-servicing depends upon the terms of the loan. The less concessional the terms, the larger and more rapid the increase in debt-service payments.

A great deal of theoretical work has been done to determine the effect the structure of debt has on the transfer of resources through debt-servicing, the rate of growth in debt-servicing charges, and the capacity of a country to service debt. The conclusion is that debt repayment requires a transfer of resources from debtor to creditor. This transfer can begin very soon after the initial loan, much sooner than the development process increases the productive capacity of the debtor. The possibility of this happening depends upon the terms and conditions of the loans and the export earnings derived from the productivity of the investment created by the loan.

Repayment schedules on both previously committed, long-term obligations and short-term, private credit are "bunching", absorbing large amounts of foreign exchange simultaneously. At the same time, balance-of-payments deficits for developing countries persist as oil prices increase and export earnings fall. However, no international mechanism has been established at this time. The solutions are still in the "discussion" stage. This situation did not occur over-night. It is the culmination of events over the past twenty years.

Countries have faced debt-servicing problems and defaults in the past. The major difference in the situation today is the stage of development of the debtor country. These countries have never

experienced development and have questionable debt-servicing capacity. The distinction between loans for development purposes and for rebuilding war-torn areas or for private enterprise was made clear from the beginning. However, the trend recently has been toward more use of private credit, a hardening of official loans, and a "bunching" of repayment obligations.

Total external public debt of 86 developing countries increased from \$50.7 billion to \$118.9 billion from 1967-1973 with a heavier per capita debt being on low-income countries. The hardening of terms on debt is reflected in the grant element decreasing from 36 to 28 per cent .

The need for an appropriate mechanism for rescheduling debt has once again occurred in international finance. The methods for coping with debt-servicing in the past can serve as a useful guide but as the conditions and circumstances change, the mechanisms and recommendations must be adapted to the relevance of the situation. There is a wide divergence in opinion on the appropriate action to take. Among the solutions currently under review are an interest subsidy fund, a third window in World Bank lending, rescheduling of debt on an international bases and restructuring of debt terms and conditions. A great deal of work, cooperation and mutually agreed upon principles must take place before debt-servicing is a dead issue.

CHAPTER VI

CONCLUSIONS

The source of "disillusionment" with the accomplishments of aid, on the part of both the donor and recipient, was found to lie in the multifarious objectives of the donor, expectations of what aid should accomplish, and the classification of many resource flows which had no concessionary element as aid.

Donors often expect economic assistance to accomplish too many objectives. It was found in Chapter II that the donor expects a single assistance commitment to provide national security, promote democratic ideology, bring economic advantage, assist the recipient in achieving development, and bring world-wide recognition for demonstrating a humanitarian spirit.

Both donor and recipient expect economic development in response to assistance commitments. The point is often obscured that development is a long-term process and can only proceed at the pace at which the people are willing to accept change. If immediate results are not evident, the donor is often disillusioned and believes

the funds have been wasted. The recipient also is often anxious to reach self-sustaining growth and is frustrated with the slow growth process.

The extent to which assistance can contribute to economic development is pointed out in Chapter II by increasing capital-~~absorptive~~ capacity, overcoming the critical minimum level of investment, and stimulating economic activity among the various sectors of the economy. The basic obstacles to development were found to be the savings-investment gap, foreign-exchange constraint, and the limited capital-~~absorptive~~ capacity. It is the consensus of such economists as Benjamin Higgins, Hollis Chenery, Alan Strout, Walter Rostow, John Fei, D. S. Paauw, and R. I. McKinnon that foreign economic assistance can help in reducing these obstacles and contribute to development.

As mentioned earlier, part of the disillusionment with the accomplishments of aid, lies in its definition. The primary objective should be achieving self-sustaining growth for the recipient. However, in Chapter III it becomes clear that the flow of funds from developed to developing countries are often military in nature or private creditors attempting to maximize profit.

If the definition of aid is restricted to the grant element, as suggested in Chapter III, a more accurate measurement of the net transfer of resources and a more realistic expectation of aid's potential impact could be held. The discounted present value methodology is applied to both loans and grants in Chapter III to measure

the grant element from both the donor and recipient point of view.

One aspect of foreign assistance which does not lend itself very easily to grant element measurement is the tied-aid commitment. However, it is demonstrated in Chapter III that approximately 80 per cent of bilateral aid is tied. Also 45 per cent of the account, Net Flow of Financial Resources from DAC countries, is private credit, usually in the form of export credit, which is definitely tied to procurement in the donor country. The excess cost due to price differential is estimated in Chapter III, based on United Nations case studies to range between 12 and 51 per cent of the value of the assistance.

Since aid-tying reduces the grant element, i.e. value of the aid commitment, and increases the effective interest rate, it has been suggested that the procurement restrictions be reduced or eliminated. The motives and balance-of-payments effects of aid tying and untying are explored in Chapter IV.

Donor countries started tying aid and encouraging the use of export credits in an effort to reduce balance-of-payments deficits through increased exports. The financial arrangement was just one part of the push to expand exports. However, no evidence was available at the time the policy was enacted to determine the effectiveness in alleviating balance-of-payments pressure.

One of the first studies to estimate the balance-of-payments effects of procurement restrictions was conducted by the Brookings Institution in 1963. This and other studies conducted through the

1960's and early 1970's are surveyed in Chapter IV. The conclusions reached are many. The most important conclusions are:

1. Substitution of aid funds for free foreign exchange purchases may take place and result in no additional exports for the donor at all. The extent of substitution depends on the trade relation which the donor has with the recipient.
2. Funds which leak to a nondonor country may eventually return to the donor through normal trade routes, again depending on the donor's trade relations with the rest of the world.
3. The monetary-fiscal policies enacted by the donor country determines the extent to which a decrease in exports can curtail a donor's imports and thereby correct a balance-of payments deficit.
4. The cooperation of the community of donor countries in multilaterally eliminating procurement restrictions is a key factor in the balance-of-payments impact of untying aid for any one country.
5. The most significant conclusion, evident throughout Chapter IV, is the importance of maintaining a competitive position in normal trade channels. If this is practiced, there would be very little need for procurement restrictions or concern over untying aid.

Since procurement restrictions increase the effective interest rate and reduce the grant element, demonstrated in Chapter III, this practice contributes to the debt-servicing problems explored in Chapter V. Also, since the primary purpose of the procurement restrictions in balance-of-payments support for the donor country, evident in Chapter IV, the objectives of assistance explored in Chapter II appear heavily weighed in favor of protection of economic interest of the donor. The terms and structure of economic assistance are explored in Chapter V and it is apparent that a large portion of assistance returns to the donor in debt-servicing. For example, in Chapter V, it is shown that 46 per cent of the \$23.7 billion total disbursements in 1973 was returned to creditor countries in interest and amortization on past debt.

Developing countries are required to use an increasing amount of their foreign exchange earnings to service debt commitments. In conjunction with this problem, the scheduling of debt maturities are coinciding in such a manner that in some years debt-servicing burdens will absorb a disproportionate amount of foreign exchange earnings.

A few countries have experienced debt rescheduling but attention is brought to the lack of a proper mechanism for dealing with this newly developing situation in Chapter V. In the past, the institutions were capable of dealing with isolated problems as they occurred. However, as mounting debt pressures force countries to

request rescheduling of the debt, it is essential that new institutional arrangements be established. To solve the debt problems of developing countries, donor countries must cooperate by coordinating the terms and structure of debt.

In conclusion, the principal findings are: (1) the stated objectives of donors often deviate from the objectives made obvious in the design of the aid programs, (2) theoretical conclusions regarding the effectiveness of aid in the development process may not materialize due to the design of the aid programs, (3) the grant element is reduced significantly and the effective rate of interest increased in assistance programs due to procurement restrictions and the structuring of debt.

The recommendations are: (1) a more realistic evaluation of objectives and expectations regarding assistance, (2) design of the assistance programs to increase the effectiveness of the assistance, (3) an awareness of the pending debt-servicing crises of recipient countries and establishment of international mechanism for dealing with debt rescheduling.

In the final analysis, the disillusionment is based on the lack of understanding of the grant element in congressional appropriations for assistance and the flow of financial resources labeled assistance. In fact, a statement attached to the appropriations indicating the specifications regarding procurement restrictions, repayment terms, and probable return flow of resources through trade could improve understanding of the true cost of the assistance and provide a more accurate basis for decision-making. A similar calculation by the aid recipient would result in the recipient's choice among alternative sources of financing, in cases where alternatives are available.

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