The Debt Bearing Capacity of Developing Countries - A Comparative Analysis *

I. Introduction

The increasing debt burden of developing countries has been the subject of extensive international discussion. The rising flow of capital from the rich to the poor countries has contributed greatly to the maintenance of a growth momentum in most countries and the acceleration of growth in some. At the same time, the greater amounts of loans and their terms have resulted in a return flow of amortization and interest payments of such magnitudes as to constitute, in many cases, an obstacle to growth and flexible management of the balance of payments. The situation had led to strong arguments in favor of a softening of lending terms and an increase in outright grants. The creditor countries organized in the Development Assistance Committee of the OECD have recognized the problem by agreeing to the adoption of targets for softening further the terms for their official capital assistance.[1]

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1 The DAC countries agreed to certain targets for the terms of official lending in 1965 and subsequently liberalized these targets in 1969. There are at present three alternatives (Cf. OECD, The 1969 Report of the DAC Chairman):

(a) At least 70 per cent of *all* official assistance in the form of grants; or

(b) for at least 85 per cent of official development assistance *each* particular transaction has a concessional element of 61 per cent. (Concessional element or grant element is defined as the difference between the face value of the loan and the present value, calculated at a 10 per cent discount rate, of the stream of interest and amortization payments, expressed as a percentage of the face value. An example of a qualifying term is 30 years maturity, 8 years grace on amortization, and 2.5 per cent interest).

(c) 85 per cent of the official assistance program (both grants and loans) has an *average* grant element of 85 per cent.

The Pearson Commission recommends that the terms of official development assistance loans should be: interest of no more than 2 per cent, maturity between 25 and 40 years,

The prospects for economic development and the orderly growth of capital flows to developing countries will be enhanced by the effectiveness of measures designed to cope with "the debt problem". This paper seeks to determine how universal or extensive the debt problem is by taking a closer look at the assessment of debt bearing capacity of countries. It considers the economic factors which govern countries' ability to service loans without impairing their growth or the flexibility of their balance of payments management.

Part II describes a sequence of development stages characterized by countries' dependence on external capital and the level of debt, and considers the relevance of this sequence for the assessment of debt bearing capacity. Part III discusses the economic characteristics underlying ability to service debt. Part IV considers some further problems in the analysis of development debt. The concluding part deals with some of the broader aspects of the debt problem.

II. The sequence of growth-and-debt stages

The Blend of Capital

In discussing the ability of countries to service external debt it is essential to distinguish among different categories of debt. A particular debt will or will not be serviced on schedule depending on the terms of other loans contracted to finance the country's total resource gap. It is, therefore, best to look at the total blend of capital entering a country and consider the blend most suitable to the country's present and prospective position. For this purpose, one may distinguish the following categories of official capital provided to developing countries: [2]

and a grace period from 7 to 10 years. (Cf. The Report of the Pearson Commission *Partners in Development*, Praeger, 1969, p. 164).

The World Bank Annual Report, 1969, points out that for 79 developing countries, external public debt outstanding increased by 114 per cent from the end of 1961 to the end of 1967, from $21.6 billion to $46.2 billion, and rose by another $1.3 billion during the first half of 1968 to a total of $47.5 billion. Estimated payments of interest and amortization increased by about 74 per cent, to slightly more than $4 billion in 1968.

2 Technical studies by the OECD and the IBRD suggest that for the purpose of analysing the effects of the terms of aid a specification of the relative importance of these categories i.e. of a scatter of terms, may be more appropriate than an *average* set of terms (interest, grace and maturity) or *average* grant element. Each blend has its own average term and grant element but conversely each average term and grant element may result from a wide variety of blends. A relatively small decrease in the grant element or hardening of the average terms may conceal an increase in the proportion of capital provided on hard terms which will significantly increase the level of service payments in the earlier years. (See "Possible Improvements in Techniques of Lending", a study by the Staff of the World Bank). Capital may be called "official" under two different definitions, depending on whether or not the *creditor* or guarantor is in the official sector or whether the *debtor* or guarantor *in the recipient country* is in the official sector. The analysis in this paper applies to official capital under either definition. The statistics are for capital which is official under the second definition.

(a) Concessionary financing, almost exclusively public, including loans with interest of 3 per cent or less and grants.

(b) "Conventional" loans, with interest above 3 per cent but more typically between 5 and 8 per cent or higher and maturities over 10 years, including privately placed bonds, IBRD and regional development bank loans.

(c) Export or commercial credits, provided to finance export trade of industrial countries, with a variety of terms centering around 5-8 per cent interest (depending on the extent of subsidy provided) and maturities depending on the value of the contract and the characteristics of the project for which the goods are used, but usually 10 years or less.

(d) Eastern European credits (characterized by low interest, about 2½ per cent, and relatively short maturities, 10 years or less).

The "strongest" countries will be able to finance their capital needs with predominantly hard loans — i.e. mostly with "conventional" loans or export credits. The weaker a country's ability to service loans, the softer must be the blend, i.e. the greater its concessionary component.

The factual analysis in the present paper is based on data about grants and loans, with maturities over one year, provided by "donor" governments or guaranteed by recipient governments. Assessment of countries' debt bearing capacity must, however, also cover short-term credits and, more generally, the flow of finance from private creditors (industrial firms or banks) to private debtors without government guarantee and including short-term (mostly commercial) loans. They may at times bulk large in the capital flow to individual countries. Commercial credits when excessive (or in arrears) have, at times, been consolidated into longer-term public debt. In addition, the assessment must consider the role played by private investment.

The "servicing" of private investment does not proceed according to the same kind of schedules as used for loan capital, but nevertheless imposes a long-term claim on the conomy which must be taken into account in analysing the country's balance of payments prospects.

Principal Development Stages

The successive stages of development can be characterized by countries' dependence on foreign capital, the level of debt contracted and the level of income achieved. In the early stage of development countries tend to have a relatively small dependence on external capital. They may even have a resource surplus, being mostly exporters of primary products, while the rest of the economy and society is left undeveloped. Since the amounts to be financed are small, external debt is also small. As development gathers momentum, the external resource need — the "gap" — increases and, after perhaps many years, reaches a peak. The gap will start to decline after the country has made certain critical achievements, which will depend on its development strategy, its resource base, geographical location, etc. Examples of these achievements are the production of a sufficient range of import substitutes, overcoming stagnation in traditional export markets and development of new export products and markets, and mobilization of sufficient domestic resources to finance its own investments. As the gap starts to decline, the debt contracted to finance it will continue to rise as long as new debts are needed to cover the resource gap. In fact, the debt continues to rise even after the gap turns into a surplus and as long as the surplus is less than the interest needed to pay debts outstanding. Once the surplus is large enough to cover interest on outstanding debt the country will be able to start reducing its debts. (A numerical and graphical illustration of these various stages is given in the Annex).[3]

In the sequence of growth-and-debt stages described, a basic assumption is that income rises in subsequent phases, i.e. the capital mobilized domestically and borrowed abroad is effectively used to increase output. The more effective the use of capital the quicker the country will be able to reduce its gap. Accordingly, it will be

3 Long-term simulation of growth and debt has been analysed in detail in *Economic Growth and External Debt*, by D. Avramovic and Assoc. (Johns Hopkins Press, 1964).

possible to distinguish subsequent phases in which first the gap, next the debt and finally the income level increases. In the later phases the gap declines first and next the debt, while the income level continues to rise. This sequence of events results in the following phases.

Phase[4]	Gap	Debt	Income
I A	Low	Low	Low
II A	High	Low	Low
III A	High	High	Low
III B	High	High	Middle
IV A	Low	High	Middle
V	Low	Low	High

Examples of country situations in each of these phases are given in Table 1 which presents 1964-67 data for 52 developing countries. In this Table the cut-off point between high and low gaps was 2.5 per cent of GDP, the average for the 52 countries. The cut-off points for the income ranges were arbitrarily set at $200 and $400 per capita and for the debt service at 10 per cent of export earnings in 1968. The debt service ratio must be considered in conjunction with other balance of payments characteristics which are discussed in Part IV.

In the sequence of phases countries are depicted as evolving, over a period of years, a stronger basic balance of payments position as measured by the relative extent of its dependence on external capital. It should not be denied, of course, that payments positions may be subject to considerable short-term fluctuation or that, regardless of income level, countries may follow policies which greatly affect their dependence on outside capital. The basic question is whether the country's policies promote growth and reduce its longer term dependence on external assistance. The gap may be kept small by direct controls which may be harmful to growth. Empirical evidence does not conclusively suggest that long-term development proceeds according to the sequence presented. Various factors may, in fact, help countries to accelerate their move from one stage to another or may explain why countries do not neatly fit into any of the phases presented:

4 The designation of each phase is the same as in Table 1.

(a) The debt burden may remain "low" because the country has received loans on predominantly soft terms [e.g. Chad and Congo (B)]. On the other hand, an unfavorable debt structure may increase the debt burden even while the resource gap and the income level are still low.

(b) A successful export orientation makes it possible to reach middle level income without developing a large resource gap [e.g. China (Taiwan) and Peru].

(c) Private investment finances a substantial portion of the resource gap and enables the country to keep down the debt burden (e.g. Malaysia). A number of countries manage to finance a substantial portion of a relatively large resource gap with private capital and thus have at present a low public external debt burden (e.g. Greece, Jamaica, Portugal and Spain).

These and other factors make the presentation of country data more complex than the one suggested above. In particular, for each phase based on the level of the gap and debt, more than one range of income will result in additional sub-categories, which are shown separately in Table 1.

Against the background of the growth-and-debt sequence one can derive two basic criteria for determining a country's ability to service debt:

(a) The more "developed" the country, the greater its debt bearing capacity: as the country approaches the end of the sequence, its need for external capital is reduced relative to its own resources and its ability to service debt improves.

(b) The more effective its policies are in moving toward the next "phase" of the sequence, the greater its ability to service loans.

Clearly, debt servicing capacity will tend to be greatest in the last phase. In this phase countries may be able to finance their external capital needs on hard terms even though their growth policies may not in all cases be very effective. Next in line would be countries which have reached the higher income level while their debt is still relatively high.

For remaining phases the second consideration is critical. In the earlier development phases a slow growth rate may require a very low average interest rate if countries' debt repayment capacity is not continuously and progressively to fall short of their debt

obligations.[5] On the other hand, countries in the earlier phases may be able to finance a significant part of their needs on hard terms if their exports are growing rapidly. Thus, within Phase I countries with a relatively rapid export growth are in a stronger position to service hard loans than those with poor export performance. The case for softer terms is even stronger in Phase III A where both external dependence and debt have increased while income is still low.

Effectiveness in export orientation and in reducing the gap is particularly important for middle income countries with high debts (Phase III B and IV A). The high external debt burden of these countries greatly increases the gross capital inflow needed to produce a net resource inflow. Their high debt service makes them vulnerable to short-term fluctuations. Their export growth momentum will help in overcoming short-term setbacks and in maintaining the external confidence needed to obtain a high gross capital inflow.

III. Determinants of debt servicing capacity

Ability to service external debt is determined by a combination of economic, social and political factors. The willingness to service debt may be a critical factor in difficult economic situations as is clear, for example, from Finland's war-time record of uninterrupted debt service. Political considerations — e.g. a hostile feeling toward foreign interests — also come into play. The economic considerations which help determine the country's ability to service development debt — and which provide a framework for the understanding of social and political motives toward external debt — may be summarized by these three parameters:

(a) Dependence on external capital — the size of the resource gap relative to the development effort (development expenditures or investments), GDP, or the level of imports or exports. The larger

5 In long-term debt-and-growth analysis a critical question is whether the debtor country can reach a point at which its "savings surplus" increases faster than the interest on its debt. If, over the longer term, interest increases faster than the savings available to repay debt, the country's debt will increase continuously. The interest rate at which this explosive debt situation occurs, the so-called critical interest rate, can be derived from the country's growth parameters (growth of product, the marginal savings rate and the capital output ratio). The slower the growth rate, the lower the marginal savings rate, and the less productive its capital investment the lower is the critical interest rate. (See J.P. Hayes, "Long-run Growth and Debt Servicing Problems", in Avramovic, *op. cit.*, p. 171).

this dependence, the greater will be future additions to external debt incurred to finance the gap, and consequently (given the terms of loans) the greater will be the debt service and the country's sensitivity to a hardening of terms.

(b) The *present* debt burden, i.e. present debt service payments measured against the country's ability to pay, taking into account its exports, the fluctuations in its balance of payments (trade as well as capital) and its ability to defend itself against these fluctuations (e.g. reserves). The level of service payments is the consequence of the amount of past borrowing and the terms on which the external finance was obtained.

(c) The rate at which the dependence on external capital is *reduced*, as a consequence of the pace and strategy of development. The slower the rate of reduction — or *a fortiori* the greater the future increase in the gap — the greater the amounts to be financed and serviced.

The ability to service debt may be assessed by either of two methods or a combination of both: an inter-country comparison of present positions and a projection of the gap and debt position of individual countries over time. For the purpose of an inter-country comparison one may use the present levels of the gap and the debt service. However, whether or not a country is making progress toward reducing dependence on external capital should be determined by comprehensive assessment of the country's present development effort, its success in devising a strategy suitable to its resource base and its present development stage and its effectiveness in implementing this strategy. Much weight must be given to ongoing trends, in particular of exports, and, more broadly, to policies now in effect to reduce the dependence on external capital.

An inter-country comparison of debt servicing ability may be carried out by taking the present level of the gap in relation to Gross Domestic Product and the debt service in relation to export earnings. Comparison of progress being made toward reducing the gap may be gauged by the rate of export growth in 1963-67 in combination with the level of income already achieved. For example, middle income countries with rapid export growth may be considered as having better prospects for reducing the gap than countries with slow growth (and other factors being the same). In this analysis export growth is taken as indicative of the country's ability to

expand production in an economic manner, i.e. at internationally competitive prices, and is therefore taken in preference to the lowering of the import ratio (imports in relation to GDP) which may be achieved at high levels of protection which cannot be maintained over a longer period without interfering with the country's growth.

A comparative analysis may be carried out on the principle that of each two situations for which two of the three characteristics (gap, debt and income level) are the same, the third characteristic decides which of the two has greater debt bearing capacity. In borderline situations the growth rate of exports of goods and services in 1963-67 can be used as an additional and decisive factor. In Table 2 such a comparative analysis is made of the sub-categories (based on 1963-67 data) of Table 1.

The countries with the greater debt servicing capacity are clearly those with a low resource gap (or a surplus), a low debt and good prospects to reduce the gap further. Group "A" in Table 2 includes the countries in the "high" income range (per capita income over $400) plus the countries in the middle range which have a low debt and a low gap *or* export growth.

The countries requiring the softest terms are those with a high gap, a high debt and poor prospects of reducing the gap. Group "C" in Table 2 includes the countries in the low income range (less than $200 per capita) except those with low gap and debt and rapid export growth.

Group	Average Grant Element	Average Interest Rate 6	% of 1965-67 Commitments	
			% of face value	% of grant equivalent
A	26.61	5.0	26.5	14.7
B	44.25	3.5	28.2	26.2
C	62.46	2.0	45.3	59.1

Note: The last two columns show the percentage distribution of 1965-67 loan and grant commitments to Groups A, B and C. The dollar amounts are given in Table 2. The grant equivalent (last column) is the product of the nominal (face) value and the grant element.

6 For 30 of the more important countries in Table 2, the proportion of concessionary loans (with interest below 3 per cent) and grants was 9 per cent of total 1965-67 commitments in the most creditworthy group, 41 per cent in the middle group and 58 per cent in the least creditworthy group.

The comparative analysis described results in a broad grouping of country situations which runs parallel with the degree of hardness of official capital flows provided, on average, in 1965-67. In the summary of Table 2, the average terms of official capital flows are measured by the average grant element and the average interest rate of official loan and grant commitments in 1965-67.

In actual practice, comparisons based on present economic positions must be supplemented by a projection of the gap and debt over time. The economic models used for the projections specify the growth rate and the corresponding investment-savings and export-import gaps. They have various degrees of complexity and may be manipulated flexibly to utilize non-quantitative information about resource use and policies. In essence, they must relate the path of the future external gap to the domestic growth and policy parameters.

The future levels of gross capital inflow and debt service follow from the projection of the gap and the assumptions as to the composition of the future capital inflow (by the main categories of debt). There must be a close interplay between the projection of the gap and the assumptions about the composition of the capital inflow. In particular, one development path may project a gap which, given the terms available at present, will produce a gross capital flow requirement which is beyond what is realistically feasible or will result in a dangerously high debt service in future years. The country must then try to get more capital on softer terms or, failing that, narrow its gap by reducing growth or improving its resource use or else run the risk of protracted balance of payments difficulties.[7]

7 Once the model has been specified, it may be practical to start on different assumptions, e.g., (a) the gap, exports, and imports, consistent with a certain growth target and development strategy, and a given term scatter produce a certain gross capital flow and corresponding debt service; (b) given assumed gross capital inflow and borrowing terms and an export growth rate based on export market assumptions, compute the resulting net resource flow, the import level and the corresponding growth rate. If the model is overdetermined, the domestic resource (investment-savings) gap may be different from the trade gap: the two can be made consistent through specification of policy variables. In practice, the country assessment will make assumptions about policies which have been incorporated into the projections of the external gap. The relation between the so-called two-gap problem and the policy parameters has been discussed in detail by Henry J. Bruton, *The Two-Gap Approach to Aid and Development: Comment*, and by Hollis B. Chenery in his reply (*American Economic Review*, June 1969) and the literature quoted therein.

IV. Some further problems in debt analysis

The analysis presented provides a framework for the assessment of debt servicing problems. It also throws light on some special aspects such as the use of the per capita income level as a criterion in determining the composition of the capital inflow appropriate to a country's economic position, the rapid increase in medium-term export credits and the level of external debt service payments in relation to export earning.

Poverty and the Composition of the Capital Inflow

Creditor countries may set the terms of their capital assistance to the poor countries on considerations of general economic strength and prospects, export prospects, absorptive capacity, the return or pay-off projects, poverty and other welfare considerations and, last but not least, the economic, social, and political ties with the borrowing countries and the objective of helping a government in power. The relation between the donor and recipient countries and the poverty of the latter receive, in practice, special attention in the allocation of the concessionary aid and, therefore, have an important bearing on the terms of capital inflow.

In practice, the higher the per capita income of the country, the harder the blend of official capital it receives. This is suggested by following data for 78 countries, measuring the hardness of the blend by the average interest rate:

	Average Interest Rate
Low Income (less than $200)	2.3
Middle Income ($200-$400)	3.6
High Income (above $400)	4.9

Note: For each group the average interest rate is weighted by the annual average commitment of official loans and grants in 1965-67.[8]

Determination of the terms of the capital flow based on long-term balance of payments considerations is in general consistent

8 Arranging countries by the average interest rate suggests that the softest capital flows (with interest rates below 1 per cent) went to countries averaging $130 per capita GNP; capital flows with average interest rates above 4 per cent went to countries with average per capita GDP above $400, and capital flows with average interests of between 2 and 4 per cent went to countries with average per capita GDP of around $250.

with the poverty criterion. The poorer countries — say, per capita income of $200 and lower — with a broad based development effort tend to have a larger resource gap. When the gap is small, it may be related to the fact that their development effort has hardly started. Furthermore — and this is the crucial though very sad reality — poverty and stagnation are starkly correlated: the poorer the country the worse its prospects of closing the gap.

The low debt burden of some of the poorest countries may be explained by two factors. In some the resource gap is low because their development has hardly begun. Once development starts, the gap is bound to rise. In others, a relatively large gap is covered by grants or other concessionary finance. Neither situation suggests strong ability to service capital on hard terms.

Some of the poorer countries, however, are in fact managing to accelerate their export earnings at a pace which enables them to reduce the dependence on external capital, e.g. the Philippines, Thailand, and Congo (K). Rapid export growth may accelerate the development of the economy as a whole. Sustained growth on this pattern will be possible when the growth of the export sector is transfused throughout the economy, providing feedback and incentives of growth and larger domestic markets. If it is not, the ensuing inequalities may set up social and political reactions which will tend to make the success story short-lived.

The social aspects of development may assume a key role in assessing debt servicing capacity. Regardless of the level of income reached, progress in reducing dependence on external capital may suffer a set-back if the country does not succeed in spreading the benefits of greater productivity throughout the economic and social fabric. Failure of this kind may eventually disrupt present policies and lead to revisions in the composition of investment and public expenditures generally or it may involve far higher investment levels in an attempt to increase the growth rate or to accelerate the growth of particular areas or classes. Some of the countries which had favorable export growth rates in recent years continue to suffer from a very substantial amount of unemployment. Greater attention to the social aspects of development may have consequences for countries' resource gaps and the productivity of their capital investment as conventionally measured — both crucial elements in the assessment of their creditworthiness.

The Role of Export Credits in Development

A substantial segment of external capital flowing to developing countries is provided by private or semi-public institutions set up to finance export trade of industrial countries. Exporting countries have sought, through various understandings, to limit the maximum maturity of these credits to 5 years, but many are, nevertheless, provided with longer term (8-10 years) maturities and at interest rates ranging from 5 per cent and up (depending on the degree of subsidization by the exporting country). These credits (although primarily trade credits) play a crucial role in development finance. They can be obtained relatively easily for projects promising a rapid return. They finance urgently needed capital goods or part of the rapidly growing general import trade which accompanies effective development.

The easy availability of export (or suppliers') credits may represent a distinct disadvantage when countries do not have an adequate external debt management. When credits are used for low priority purposes their relatively hard terms may not be justified by the return on the project.[9] When this practice is sufficiently widespread the country may experience serious difficulties.

It is not surprising that the greater part of new export credits was extended to the relatively stronger countries, i.e. those with a small resource gap, relatively favorable export growth and good prospects for further reducing their resource gaps (e.g. Greece, the Philippines, Yugoslavia, Mexico, Peru, Spain, Korea and Iran). Most of these countries experience rapid growth, large absolute gross external resource needs and, with development well under way, an abundance of good projects, particularly in industry. It can be expected that as additional countries prove to be able to accelerate their exports and to maintain growth while reducing their resource gap, they too will attract large volumes of these credits. Their rapid growth, when sustained, should enable them to service high interest rates.

A rising volume of medium-term credits at high interest rates brings about a rapid increase in the country's gross borrowing needs and in its debt service ratio. Both the high level of gross capital

9 See *Suppliers Credit from Industrialized to Developing Countries*, (April 1967), a study of the Staff of the World Bank prepared for UNCTAD.

inflow and the debt service make the country vulnerable to short-term set-backs in trade (caused by export declines or temporary increases in import requirements) and reduction in external confidence. Such liquidity risks should be short-lived as long as the country is able to sustain its forward momentum of growth, particularly of exports, reducing progressively its net dependence on external capital and maintaining its ability to attract (and "roll over") a high level of gross external capital flows. In these situations, the availability of reserves and international liquidity to help the country overcome short-term set-backs are, of course, essential to maintain growth and confidence.

In countries with a large resource gap and already high external indebtedness reliance on export credits can easily increase debt service to levels where it may encumber balance of payments management. Countries with large industrial sectors may have many projects whose rapid pay-off or high returns will make them suitable for medium-term export credits. In these countries the terms which can be financed by individual projects may well be considerably harder than the average terms appropriate to the country's over-all position or, put in another way, the amount of relatively hard credits justified on project grounds may not be compatible with the composition of the capital inflow which seems suitable from the viewpoint of the economy as a whole. In their impact on the economy the favorable effects of the rapidly yielding parts of the investment program may be offset by projects in other sectors with lower returns (and which may not be financed with external capital) and the poor prospect of the country's exports.

High Debt Service and Creditworthiness

The level of debt service payments must be considered in relation to other elements and characteristics of the balance of payments, notably fluctuations in trade (both exports and imports) and in capital flows, the defenses which the country has against fluctuations in trade and capital, such as its reserves and access to the IMF and short-term financing facilities. In addition, the structure of the debt is of importance: a predominantly short-term structure is accompanied by higher debt service levels but, on the other hand, the "roll over" of the outstanding debt (the renewal of credits as their maturities fall due) may be easier for shorter-term debts than for longer-term debts; this is true especially when the latter are tied to relatively few large projects.[10]

The "roll over" of outstanding debt increases the debt service for countries in the latter stages of the development-and-debt cycle. For this reason, countries with relatively strong debt servicing capacity may have a high service ratio. In turn, a high ratio does not necessarily indicate low debt servicing capacity.

For the stronger countries with high debt service ratios the essential question is whether they can continue their growth momentum and justify the confidence which the outside creditors have had in them. In the short-term, these countries may experience liquidity problems. A high debt service ratio may be indicative of liquidity risks since it is usually accompanied by a relatively high level of gross capital flows. Gross flows are hard to maintain at a high level in the case of adverse developments affecting confidence, such as short-term capital outflow and temporary adverse trade developments. On the other hand, as long as the basic conditions making for rapid growth continue, the country will be able to "renew" the credits as they fall due, either by obtaining new credits for new projects or by renewing lines of credit outstanding with reliable customers. Countries in these situations usually have an abundance of good projects for which they can obtain medium- or longer-term loans.[11]

V. Concluding remarks

The assessment of debt bearing capacity in the foregoing analysis hinges critically on the progress countries will make toward independence from external capital. Estimates of future dependence must

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10 An alternative debt service ratio, used first by the OECD Secretariat, allows for the debt structure by including in the numerator the total service payments over the next 5, 10, or 15 years. This so-called cumulative debt burden ratio also can be adjusted for reserves by deducting from the cumulative debt service any reserves over 2 months' imports (or adding the shortfall below 2 months' import requirements). The impact of the debt structure on debt burden is also recognized in Charles R. Frank, Jr. and William R. Cline, *Debt Service and Foreign Assistance: An Analysis of Problems and Prospects in Less Developed Countries*, (Woodrow Wilson School of Public and International Affairs, Princeton, New Jersey; May 1969).

11 Uninterrupted renewal of credits may be easier when the maturities are short or the absolute amounts involved smaller. For this reason it may be appropriate to exclude the amortization of short- and medium-term credits or, particularly, export credits from the debt service ratio calculation.

entail an element of judgment about the country's policies and its ability to make good use of resources, as well as the longer-term outlook of commodity markets. Uncertainty also arises from the social repercussions of low growth rates, persistent inequality of income distribution and excessive emphasis on "productive" investment. Such uncertainties make any assessment of balance of payments' consequences necessarily tentative.

A basic issue is whether countries can simultaneously reduce their resource gap and develop their economies at a reasonable and socially acceptable pace. The theory of the growth-and-debt cycle cannot be very precise about the time period in which the cycle is completed. A period of 60 years, used in the illustration of the Annex, gives little comfort for the solution of debt servicing problems of a longer-term character. In some of the countries which in the past relied heavily on foreign capital — e.g. Canada or Australia — the inflow of external resources extended over many decades. The actual achievements of developing countries in the past 10 years do not suggest a rapid closing of the resource gap of most countries. Rapid progress has been made by a few countries which received much grant assistance, pursued effective policies and had a largely literate population (e.g. Korea and Taiwan). A significant group of countries, particularly in Latin America, have managed to *keep* their dependence on external capital relatively small: much of their external needs can safely be financed on relatively hard terms. However, given the realities of social conditions in the poor countries and the technological progress in the rich countries, a steady and general closing of the resource gap is doubtful and may not therefore provide a solution to the "debt problem". Available projections of resource gaps which indicate a rapid decline must be regarded with caution. For this reason a comparative analysis of *present* economic positions such as discussed in this paper may provide a more solid basis for assessing debt bearing capacity. In any case, great attention should be given to analysis of the possible impact of *present* policies or more socially oriented policies on resource requirements.

Assessment of debt bearing capacity is based on ongoing policies — and these, if reversed, may change the long-term outlook or cause short-term liquidity problems. Furthermore, they imply a certain level of capital availability, particularly concessionary, and the way it is allocated over the individual countries. In practice, there is a good deal of inertia in country allocations, and the assessments

usually assume that currently available capital will be allocated in roughly unchanged proportions. However, if there were to be a drastic change in allocations and a considerable concentration of capital flows to certain countries, the analysis of individual country prospects would be greatly affected. Furthermore, the assessments are contingent on the levels of international liquidity available to help countries overcome the consequences of short-term set-backs.

The likelihood of policy reversals should not be overstated. Deterioration in financial policies can quickly bring about a worsening of the countries' short-term external payments position. On the other hand, the orientation of financial and investment policies in recipient countries is also subject to a good deal of inertia. This author found elsewhere that in many country situations the orientation of development policies seemed greatly influenced by such factors as economic size and world market positions, which must be taken as given at least for periods of, say, 5-8 years.[12] New governments which enter with new ideas or objectives quickly find themselves faced with the same basic facts which constrained the freedom of action of their predecessors. This is not to deny that elimination of waste in resource use will greatly strengthen the country's economic position, but even in these situations the consequences of past wastefulness are only slowly worn off.

Throughout the analysis a sharp distinction is made between countries which may have short-term liquidity problems and those which, on long-term considerations, should receive the softest possible terms. Lending to the former entails risks for the creditors but they concern countries whose growth rates enable them to pay high interest rates. These risks are much smaller than those involved in lending to countries whose growth prospects do not suggest a rapid decline in dependence on external capital.

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Washington D.C.

12 *The Export Experience of Developing Countries*, p. 63 (World Bank Staff Occasional Papers Number Three, The Johns Hopkins Press, Baltimore, Md., 1967).

ANNEX

Illustration of the Stages of the Long-Term Growth and Debt Cycle

Numerous combinations of parameters in a debt model can produce a secular movement in the resource gap and the debt ratio, as illustrated in the Chart. For the purpose of clear illustration, the parameters used are high although they occur in certain countries, e.g. Korea and Taiwan. Lower growth rates for exports and imports would produce a flatter cycle. In the illustration, the gap starts at zero with exports and imports each at 100: the growth rates of exports and imports are as shown below. New loan commitments are assumed 10 per cent in export credits and 90 per cent in official debt on terms shown below. At the point where the resource surplus and the debt service become equal, it is assumed that the surplus will go down with the service on existing debt until both reach zero, when the cycle is completed.

Rate of Growth of Exports:

Years	%
1, 2, 3	4
4, 5, 6	5
7, 8, 9, 10	6
11, 12, 13	7
14, 15, 16	8
17, 18, 19	9
20 onwards	10

Rate of Growth of Imports:

Years	%
1- 5	6
6-10	8
11-15	10
16, 17, 18	9
19 onwards	8

Terms of Loans:

	Interest	Grace	Maturity
Export Credits	6	2	7
Other Debt	3	7	27

The resource gap has been expressed as a percentage of exports (called the "gap ratio").

In this particular illustration the gap ratio completes a cycle in about 60 years, rising to a peak of 36 per cent after 18 years and falling to zero after 37 years. After 43 years the debt service can be financed by the surplus which in subsequent years converges to zero at the end of the cycle.

The precise phasing of the cycle is, of course, sensitive to the parameters. It is important to note that the debt service curve starts its upward trend *behind* the gap ratio: the debt service ratio reaches a peak when the gap is already well on its way down. In absolute amount the debt service reaches a peak after 41 years. The debt service *ratio* peaks at 21 per cent after 29 years. On harder terms (e.g. 50 per cent of debt in export credits) the peak will, of course, be higher (42 per cent).

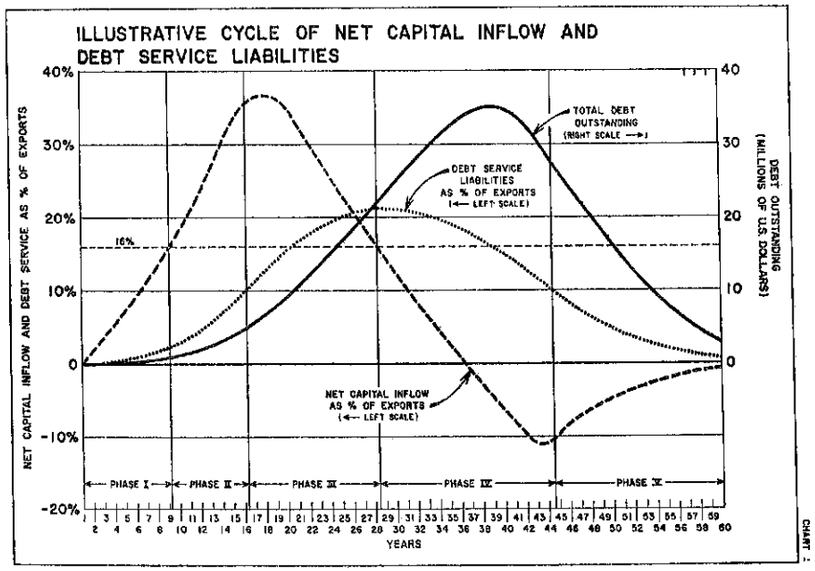

CHART I

The different phasing of the debt service and gap ratio paths give rise to five subsequent phases which are similar to the stages referred to in Part II of the paper. These phases are:

Phase I - Both ratios are "low".

Phase II - The gap ratio becomes "high" while the debt service ratio is still low.

Phase III - Both ratios are high.

Phase IV - The gap ratio is low and the deficit turns into a surplus, while the debt ratio is still high.

Phase V - Both ratios are once again low.

The cut-off points between high and low, shown in the Chart, are approximately 10 per cent for the debt service ratios and 16 per cent for the gap ratio.

TABLE 1 - EXTERNAL DEBT SERVICE, TERMS AND ECONOMIC CHARACTERISTICS OF 52 DEVELOPING COUNTRIES

Category	Country	Gap (% of GDP) Average 1963-67	Debt Service Ratio 1968	Per Capita GNP, 1967 ($)	Export Growth Average 1963-67	Average Terms (1965-67) (a)		Average Annual Commitments of Loans & Grants (b) (1965-67)
						Grant Element	Interest Rate	
I. (A)		(Low)	(Low)	(Low)				($ Million)
	Tanzania	− 2.6	6.0	80	7.7[4]	69.56	1.8	48.1
	Congo (K)	− 0.8[11]	1.9	90	11.9[4]	80.37	1.1	200.3
	Uganda	− 3.0	7.3	100	10.8	73.66	1.4	31.5
	Kenya	− 1.6	6.9[13]	120	5.6[4]	66.46	2.0	86.3
	Thailand	1.8	4.0	130	14.3	62.27	2.7	79.5
	Ceylon	2.1	6.0	160	− 2.1[4]	44.08	3.3	65.2
	Philippines	1.1	8.0[13]	180	10.9[3]	48.64	3.6	151.9
	Zambia	−20.5[6]	2.3[13]	180	10.1[5]	62.22	2.7	53.5
	Morocco	0.2	7.4[13]	190	2.0[4]	53.23	3.2	176.4
	Senegal	0.7	2.6[13]	190	1.8[7]	84.83	0.8	32.9
						Average 62.90	2.4	Total 925.6
I. (B)		(Low)	(Low)	(Middle)				
	Ecuador	neg.	9.0	210	6.4	39.01	4.3	54.3
	Paraguay	2.1	9.4	220	5.5	46.47	3.7	26.5
	Honduras	1.9	1.7	240	14.1	55.19	2.9	24.9
	China	1.0	4.2	250	25.0	33.09	4.4	108.3
	Malaysia	− 3.0	2.2	290	3.8[8]	27.13	5.1	70.9
	Guatemala	2.1	6.2	310	11.9	45.13	3.6	38.7
	Guyana	1.8	4.6	330	2.4[3]	80.58	1.3	15.1
	Peru	0.1	8.2	350	9.0	23.71	5.7	225.1
						Average 32.87	4.8	Total 563.8
I. (C)		(Low)	(High)	(Low)				
	Ethiopia	1.8[8]	10.6[13]	60	8.0[2]	69.67	1.7	53.0
	India	2.3[8]	24.0	90	11.2	73.56	1.2	1920.3
	Indonesia	1.4	19.2	100	6.9[4]	41.01	3.1	632.1
						Average 65.58	1.7	Total 2605.4
II. (A)		(High)	(Low)	(Low)				
	Chad	8.7[10]	3.2	70	1.2	64.29	2.5	16.3
	Nigeria	4.7	6.3	80	6.8	63.32	2.5	89.9
	Congo (B)	15.8[9]	8.2[13]	190	1.6[4]	19.64	5.3	17.5
						Average 57.27	2.9	Total 123.7

Continued: TABLE 1 - EXTERNAL DEBT SERVICE, TERMS AND ECONOMIC CHARACTERISTICS OF 52 DEVELOPING COUNTRIES

Category	Country	Gap (% of GDP) Average 1963-67	Debt Service Ratio 1968	Per Capita GNP 1967 ($)	Export Growth Average 1963-67	Average Terms (1965-67) (a)		Average Annual Commitments of Loans & Grants (b) (1965-67)
						Grant Element	Interest Rate	
II. (B)		(High)	(Low)	(Middle)				($ Million)
	Dominican R.	5.9	9.0	260	— 0.8	81.86	1.0	75.8
	El Salvador	3.3	3.0	270	8.3	61.16	2.5	21.2
	Nicaragua	5.6[5]	5.0	360	8.4[4]	54.34	3.0	31.4
						Average 71.71	1.7	Total 128.4
II. (C)		(High)	(Low)	(High)				
	Gabon	16.5	6.7	410	6.5[1]	54.34	3.0	12.6
	Portugal	4.3	9.1[13]	420	12.4			
	Jamaica	2.9	3.3	460	6.7[9]	37.46	4.4	32.2
	Panama	11.7	3.7	550	8.4[4]	71.52	1.9	20.2
	Spain	3.1	2.3	680	13.5[4]	20.24	5.2	212.6
	Greece	10.0	6.4	700	10.1[4]	20.12	5.3	58.3
	Cyprus	7.6	2.0	780	7.8	74.14	1.6	3.5
						Average 26.73	4.8	Total 339.4
III. (A)		(High)	(High)	(Low)				
	Pakistan	6.0[3]	17.9	70	8.7[12]	62.42	2.3	603.1
	Korea	9.6	13.6	160	32.0	24.20	4.7	442.8
	U.A.R.	2.9[3]	18.6	160	4.8[4]	34.64	4.0	203.4
	Bolivia	5.8	13.2	170	18.9	67.65	2.1	17.3
	Ghana	4.1	13.1	200	1.2[4]	52.62	3.1	47.9
						Average 44.95	3.4	Total 1314.5
III. (B)		(High)	(High)	(Middle)				
	Tunisia	11.3	23.0	210	6.9	52.34	3.1	158.7
III. (C)		(High)	(High)	(High)				
	Costa Rica	6.3	11.1	410	12.1[4]	23.03	5.2	58.0
IV. (A)		(Low)	(High)	(Middle)				
	Brazil	— 0.8	20.3	250	6.7[4]	48.26	3.4	344.4
	Iran	— 5.5	10.3[14]	280	12.4[4]	23.02	4.7	475.6
	Turkey	2.0	16.0	290	9.2	50.01	3.1	300.1
	Colombia	— 0.8	12.7	300	4.1[4]	47.13	3.4	184.9
						Average 39.30	3.8	Total 1305.0

Continued: TABLE 1 - EXTERNAL DEBT SERVICE, TERMS AND ECONOMIC CHARACTERISTICS OF 52 DEVELOPING COUNTRIES

Category	Country	Gap (% of GDP) Average 1963-67	Debt Service Ratio 1968	Per Capita GNP, 1967 ($)	Export Growth Average 1963-67	Average Terms (1965-67) (a)		Average Annual Commitments of Loans & Grants (b) (1965-67)
						Grant Element	Interest Rate	
IV. (B)		(Low)	(High)	(High)				($ Million)
	Chile	— 0.2	15.9	470	13.0[4]	38.72	4.0	336.7
	Mexico	0.2	24.0	490	8.2[4]	16.91	5.9	556.2
	Argentina	— 1.7	25.2	800	2.8[4]	14.18	5.7	376.5
						Average 21.89	5.3	Total 1269.4
V.		(Low)	(Low)	(High)				
	Singapore	0.9	0.4	600	7.0[8]	44.32	4.3	22.7
	Trinidad & Tobago	— 1.7[9]	2.8	790	2.3[6]	63.52	2.6	19.8
	Finland	1.3	4.2	1660	7.3[4]			
	Iceland	0.2[3]	7.4	1690	6.9	20.56	5.6	17.4
						Average 43.76	4.1	Total 59.9
								GRAND TOTAL 8851.8 (c)

(a) Average terms calculated from official loans and grant commitments in 1965-67 (as shown in IBRD *Annual Report* of 1969), using a breakdown of major categories of capital by terms (concessionary, conventional, export credits and Eastern European credits) and representative terms for each category. Average grant element and interest rate were weighted by the amount of commitments (average annual for 1965-67).

(b) Official loans and grants, cf. IBRD *Annual Report*, 1969.

(c) Grand total of 52 countries, $8.85 billion, accounts for 89.9 per cent of $9.85 billion, the total of 84 developing countries.

[1] 1965-68.
[2] 1963-68.
[3] 1963-66.
[4] 1964-68.
[5] 1965-67.
[6] 1964-66.
[7] 1965-66.
[8] 1966-68.
[9] 1964-67.
[10] Average for 1963 and 1965.
[11] Average for 1964 and 1966.
[12] Based on export of goods only.
[13] For 1967.
[14] As % of foreign exchange earnings net of income remittance of oil companies.

Note: "Gap" is defined as the average annual balance of goods and non-factor services in 1963-1967. Debt service ratio is the debt service payments as % of earnings of exports of goods and non-factor services. Per capita income cf. World Bank Atlas, 1969. The cut-off between low and high debt is 10 per cent of debt service ratio (i.e. debt service as a percentage of exports of goods and services) in 1968. The cut-off points for the three income ranges are $200 and $400 GNP per capita. For the gap, the cut-off point is 2.5 per cent of GDP.

TABLE 2 - GROUPING OF COUNTRY CATEGORIES BASED ON COMPARISON OF THE RESOURCE GAP, DEBT SERVICE, PER CAPITA INCOME AND EXPORT GROWTH

Groups	Category	Gap	Debt	Income Level	1965-67 Weighted Average (%)		Average Annual Commitment of Loans and Grants (1965-67)			
					Grant Element	Interest Rate	Nominal Amount		Grant Equivalent (1)	
							$M.	%	$M.	%
A	V	L	L	H	43.76	4.1	59.9	0.7	26.2	0.6
	I B	L	L	M	32.87	4.8	563.8	6.4	185.3	4.4
	IV B	L	H	H	21.89	5.3	1269.4	14.3	277.9	6.6
	II C	H	L	H	26.73	4.8	339.4	3.8	90.7	2.1
	II B	H	L	M	57.09	2.8	52.6	0.6	30.0	0.7
	III C	H	H	H	23.03	5.2	58.0	0.7	13.4	0.3
					Average 26.61	5.0	Total 2343.1	26.5	623.5	14.7
B	I A	L	L	L	65.97	2.3	516.7	5.8	340.9	8.1
	IV A	L	H	M	39.30	3.8	1305.0	14.7	512.9	12.1
	II B	H	L	M	81.86	1.0	75.8	0.9	62.0	1.5
	III A (Korea)	H	H	L	24.20	4.7	442.8	5.0	107.2	2.5
	III B	H	H	M	52.34	3.1	158.7	1.8	83.1	2.0
					Average 44.25	3.5	Total 2499.0	28.2	1106.1	26.2
C	I A	L	L	L	59.02	2.6	408.9	4.6	241.3	5.7
	I C	L	H	L	65.58	1.7	2605.4	29.4	1708.6	40.4
	II A	H	L	L	57.27	2.9	123.7	1.4	70.8	1.6
	III A	H	H	L	55.50	2.7	871.7	9.9	483.8	11.4
					Average 62.46	2.0	Total 4009.7	45.3	2504.5	59.1
							GRAND TOTAL 8851.8	100.0	4234.1	100.0

(1) Grant Equivalent amounts are the product of the nominal amount and the Grant Element.

Note: For sources and definitions of categories, see Table 1. The basis of the grouping is discussed in the text. Categories I A, II B and III A are split over two groups with the countries with a higher export growth falling in the higher group. For Category III A Korea with an export growth rate of 32 per cent was allocated to Group B; the rest to Group C. For Categories I A and II B the cut-off point was an export growth rate of 8 per cent (the average for the countries in Table 1). Exports of merchandise alone increased at a somewhat slower pace in the 'sixties (e.g. The U.N. *World Economic Survey, 1968*, gives a 6.3 per cent growth rate for all developing countries in 1960-67; the GATT *International Trade, 1968*, gives 6.5 per cent for 1960-68).

B. A. D. V.