The LDC Debt Burden

Less developed countries (LDCs) accumulated substantial amounts of external debt over the past decade, and this indebtedness has expanded considerably in the wake of the 1979-80 oil price increases. Concern has been raised over how great a burden on developing countries external debt represents. This article examines the trends in debt burden over the 1970s. It begins with a discussion of the problem of defining and measuring the burdens associated with external debt. Next, it traces the recent history of debt burden and contrasts the experience of countries that borrow most heavily from private banks with the poorest countries that, by and large, do not. Finally, it assesses the prospects of debt burden given the likelihood that, for some time, interest rates will remain high and exports will be difficult to increase, and therefore most LDCs will have to borrow to finance large current account deficits.

A number of conclusions emerge. To begin with, there are useful distinctions to be made when considering debt burden These are the economic burden of transferring domestic resources to foreigners to pay for debt servicing over the longer run, and the financial burden of generating sufficient foreign exchange to carry debt on an on-going basis. An excessive burden in either form could result in a liquidity crisis with sharp effects on imports and consumption.

Most developing countries did not incur a heavy economic burden during the 1970s when real borrowing costs, adjusted for inflation, were very low. External borrowing generally has been used productively, so that the economic burden should remain manageable even if real borrowing costs rise significantly.

The financial burden posed more difficult problems for many countries Low-income countries, especially, became vulnerable to shocks as import prices and debt servicing payments grew faster than their exports and international reserves A few of the higher income LDCs accounted for a large part of the increase in external debt For these major borrowers, an increasing proportion of external debt came from private banks, usually at interest rates subject to regular adjustment. Compared with official source debt, the higher interest rates and shorter maturities of these loans led to a greater financial burden of acquiring sufficient foreign exchange to service external debt. Recent rises in nominal interest rates have added to this burden. Through expanding and diversifying exports, a number of countries have managed to sustain a larger flow of foreign exchange, and thus minimized their financial burden.

Defining external debt burden

The distinction between economic and financial forms of debt burden focuses on different aspects of the overall burden An economic burden results from the reduction of goods available for domestic use when interest and amortization payments are made. Financial burden refers to the need to acquire and maintain sufficient foreign exchange to make debt service payments. If foreign exchange earnings and reserves are inadequate, a liquidity crisis can develop, forcing sharp reductions of imports, output, and consumption, even though the longer run economic burden may be low. The problem in assessing either form of debt burden is to determine the various returns to, and costs of, foreign borrowing.

The economic burden

The economic burden of external debt is simply the giving up of real resources as interest and amortization payments are made This burden should remain manageable as long as the addition to output made possible by a loan exceeds the claim on resources as debt service payments are made Determining whether this is the case is not a straightforward process

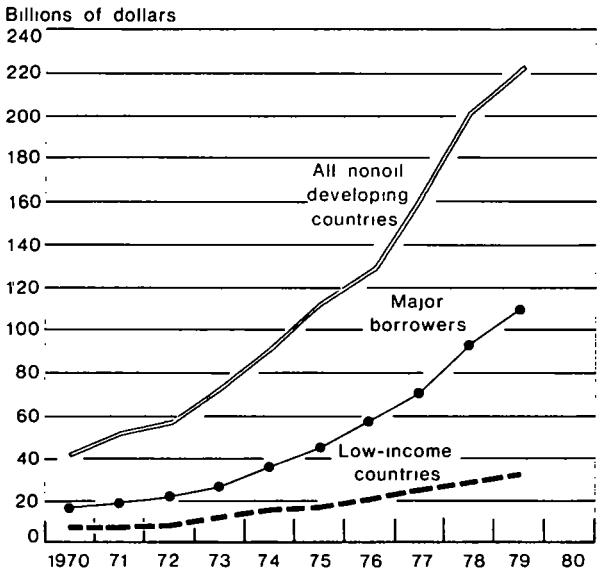
Some people might argue that the rapid increase in borrowing by developing countries is an indirect indicator that benefits have generally exceeded costs In this view, borrowing countries and lending institutions had sufficient information to calculate the benefits and costs of borrowing and decided that, on balance, these loans provided a net economic contribution This line of argument is not fully convincing for several reasons Fundamental uncertainty about future interest rates, prices, and other economic variables makes a precise comparison of future benefits and costs impossible Exceptionally low real interest rates may have misled borrowers and lenders about the long-run cost of borrowing Concern with maintaining or increasing imports and consumption in the short term may be so great that a possible need to reduce future consumption in order to service debts is not given much consideration

So long as borrowers receive more in new loans than they must pay out for debt servicing, the economic burden may not seem pressing During a period when the inflow of resources made available by the new loans more than equals the outflow to meet interest and amortization payments, the borrower receives an increase in total available resources. If the borrower believes that this positive net inflow will continue indefinitely, it may not concern itself with the ultimate costs of external borrowing This can be a dangerous approach Unless external borrowing is making a net contribution, that is, unless its economic benefits exceed its costs, external debt will tend to rise much faster than gross domestic product (GDP) [1] Borrowing to pay for interest and amortization on the debt will also accelerate At some point, realizing that borrowing is being used for consumption rather than investment, lenders will search for less risky borrowers New loans will dry up, and the borrower will be faced with a painful cut in consumption.

Returns to borrowing. There are problems in estimating the economic returns to external borrowing. In simple theoretical models, the return to additional borrowing equals the general productivity of new investment in the economy, that is, the opportunity to increase output by undertaking investments But the contribution of external borrowing to output can differ from that of domestic investment Foreign loans may lead to the use of more efficient capital, relieve import bottlenecks, or otherwise contribute more to productivity than domestic investment. On the other hand, part of the additional resources made available by external borrowing may

Chart 1

Developing Country External Debt



In this article, data on external debt refers to long-term public and publicly guaranteed debt only

Nonoil developing countries are defined here to exclude members of the Organization of Petroleum Exporting Countries, countries in southern Europe, China, and South Africa Of the nonoil developing countries, major borrowers include Argentina, Brazil, Chile, Colombia, Mexico, Peru, the Philippines, South Korea, Taiwan, and Thailand, low-income countries include thirty-eight countries with per-capita incomes of less than $300 in 1977, as defined in the International Monetary Fund's World Economic Outlook (1980)

Sources World Tables (World Bank, 1980), World Economic Outlook (IMF, 1980)

[1] GDP is the total value of a country's output produced within its physical borders For most developing countries, GDP is greater than gross national product (GNP) which subtracts net dividend, interest, or other factor payments abroad So long as investment is more productive in the borrowing country than the lending country, economic theory predicts that debt inflows will occur Whether debt will rise faster than GDP, and by how much, depends on several factors, such as the stock of debt outstanding and the savings rate For further discussion, see R Solomon, "A Perspective on the Debt of Developing Countries", *Brookings Papers on Economic Activity* (1977 2), and C M Loser, "External Debt Management and Balance of Payments Policies", *Staff Papers* (International Monetary Fund, 1977 1)

be consumed rather than invested, thus reducing the contribution of the loan to economic growth In any case, there are few reliable empirical studies of the productivity of investments in developing countries. It is necessary to rely on less direct measures of the return to borrowing

The most widely available general indicator of the return to external borrowing is the growth rate of GDP. A high rate of return on investments is not the only source of rapid economic growth Improvements in organization, technological progress, increased arable land, and a larger labor force all contribute to growth. But investment plays an important part in the growth process Countries with high growth rates usually devote a large proportion of their total expenditures to investment. These countries offer opportunities for productive investments, whether financed from domestic or foreign sources Thus, the GDP growth rate can be taken as a broad indicator of the return to foreign borrowing

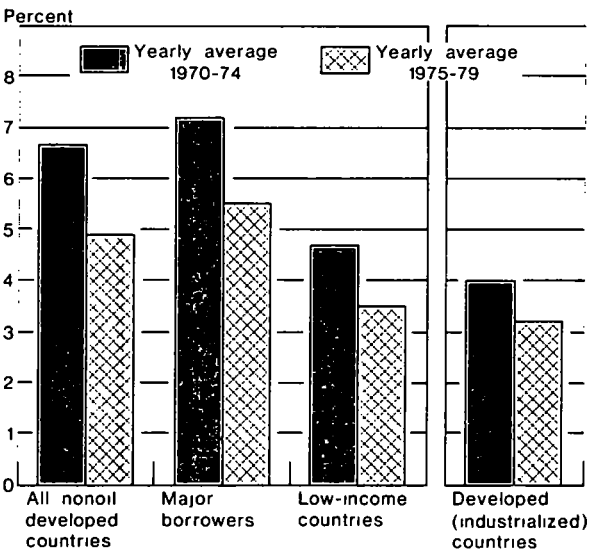
The ratio of external debt to GDP provides additional information on the return to borrowing As financing becomes available, the most promising investments are usually undertaken first. If inflows occur very rapidly, or the level of debt becomes high, the productivity of additional borrowing may be expected to fall A high and increasing debt/GDP ratio may indicate that borrowing has been used to finance consumption rather than increase investment However, the ratio could also increase if capital is highly productive in the borrowing country so that it is able to attract a rapid inflow of loans Therefore, the debt/GDP ratio must be used with care but, in conjunction with other information, it is helpful for the comparison of economic burdens, either between countries or over time [2]

Costs of borrowing Two major factors require attention when considering the cost of external borrowing First, real borrowing costs depend on both nominal interest rates and inflation Second, real borrowing costs are subject to significant fluctuations over time, complicating the problem of determining the economic burden

Inflation has important effects on borrowing costs From the borrower's perspective, the real cost of borrowing may be estimated by the difference between nominal interest rates and changes in export prices [3]

Chart 2

Real Growth Rate of Gross Domestic Product



Sources World Economic Outlook (IMF, 1980), National Accounts Statistics (United Nations, 1979)

If export prices increase, the real resources required to pay for debt servicing decline. When nominal interest rates go up, the nominal cost of borrowing increases. Real borrowing costs depend on the balance between these factors During periods when export prices increase rapidly, the real cost of borrowing can fall substantially Conversely, rising nominal rates, along with stagnating export prices, can cause real borrowing costs to climb. Over time, nominal interest rates tend to adjust to reflect trends in inflation rates, plus compensation for the risk of lending and the real cost of capital But this adjustment does not happen immediately. Moreover, export prices in the borrowing country will not necessarily move in step with general inflationary trends and other factors that affect nominal interest rates

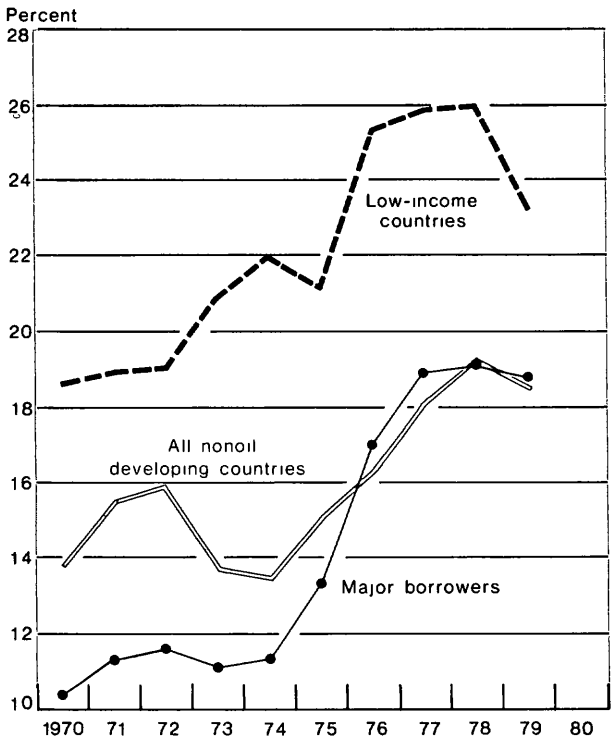
The economic burden depends on movements in interest rates and export prices extending well into the future. Most developing country Eurocredits in 1980, for example, had maturities of seven to ten years. Maturing debt is often rolled over, so that the relevant time frame is even longer. On the proportion of total debt from private lenders, interest rates usually are adjusted at least twice a year, in line with other interest rate movements. For this form of debt, nom-

[2] Denominating GDP in foreign currency can be misleading if the exchange rate is overvalued or undervalued Thus, debt/GDP estimates for individual countries must be used with caution

[3] Use of a more complex deflator, such as value-added in exports weighted by import price changes, would not materially affect the argument Problems with choosing the appropriate price deflator for external debt are discussed in M Long and F Veneroso, "The Real Value of International Financial Assets An Application to Non-oil LDC Debt" (Boston Boston University, Department of Economics, Discussion Paper Number 22, August 1978)

Chart 3

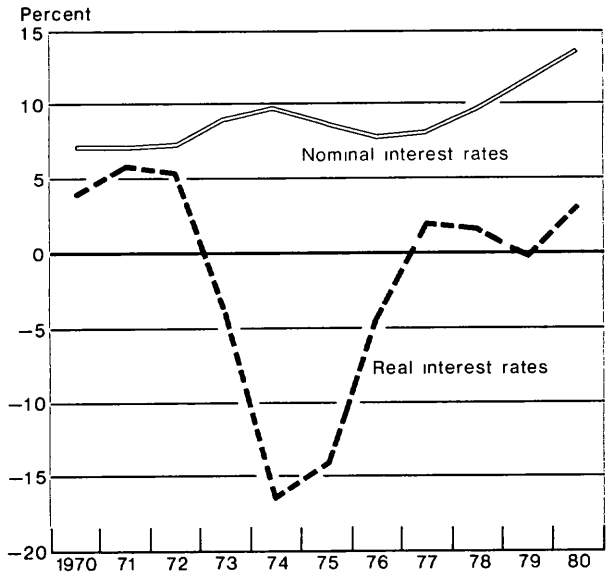
Ratio of External Debt to Gross Domestic Product of Developing Countries



Sources World Tables (World Bank, 1980), World Economic Outlook (IMF, 1980), International Financial Statistics (IMF, various issues)

Chart 4

Nominal and Real Interest Rates Faced by Developing Countries



The nominal rate is the average interest on new loan commitments by private lenders Real interest is the nominal interest rate minus the three-year average change in export prices

Sources World Debt Tables (World Bank, 1980), International Financial Statistics (IMF, various issues) Author's estimates for 1980 figures

inal interest rates even on existing debt may be expected to fluctuate widely over time. Export prices, particularly for primary commodities, often fluctuate greatly. These considerations make prediction of the economic burden difficult. One implication is that risks of adverse changes in the economic burden can be reduced by diversifying exports as much as possible.

The financial burden

The financial aspects of debt burden can be critical. The financial burden of external debt results from the need to acquire sufficient foreign exchange to pay for debt servicing. Financial burden increases whenever debt servicing increases, even though the economic burden may not change. A fall in sources of foreign exchange, whether from export earnings or inflows of new loans, will also increase the financial burden. Growing debt service payments may increase an economy's vulnerability to hikes in import prices or declines in export earnings. Over the longer run, an inability to generate sufficient foreign exchange through export growth to cover debt servicing can lead to an increasing financial burden. If financing problems result in a liquidity crisis, the economic effects can be sharp, including a squeeze on imports, reduced or even negative economic growth, and other painful adjustments.

Inflation increases the financial burden of the large proportion of private debt on which interest rates are adjusted periodically in line with movements in other interest rates. Inflation lowers the real value of the principal of a loan but, to compensate, interest rates go up. Thus, during an inflationary period, nominal interest rates include both the real cost of borrowing and, in effect, a principal payment equal to the fall in the real value of the loan. Debt service payments now include, not only the previously scheduled amorti-

zation payments, but also payments for the declining real value of the principal. The result is an acceleration in debt servicing and a greater need to acquire foreign exchange to service the debt. Although the real value of the debt is the same and thus the economic burden is unchanged, the financial burden rises.

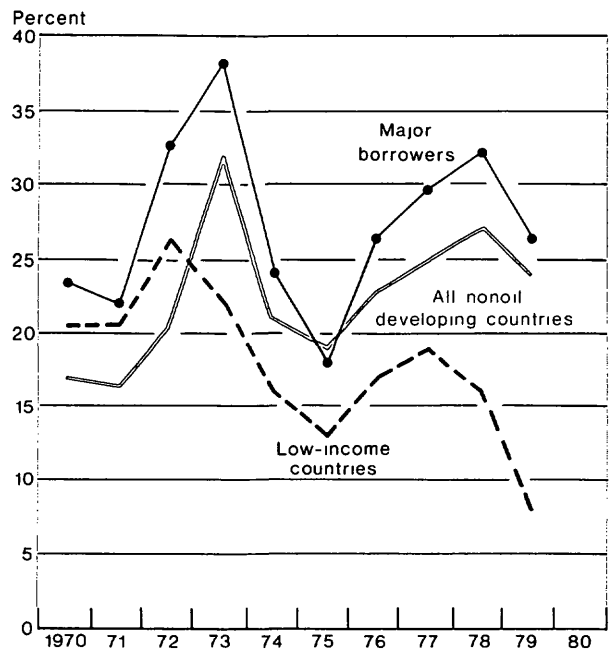
Financial burden is particularly complicated to measure. This is primarily because financial burden refers to any number of possible events rather than to a certain outcome. However, it is possible to distinguish factors affecting the short-run vulnerability to financing problems from the longer run need to generate sufficient foreign exchange through exports.

Short-run vulnerability. In an accounting sense, total foreign currency expenditures for debt servicing, imports, or other outflows less total inflows from exports, transfer payments, borrowing, or other sources must be balanced by a change in international reserves. To some extent, inflows and outflows can be managed, through devaluations or import controls, for example. However, the first line of defense against a high financial burden or possible liquidity crisis is to maintain sufficient international reserves. These reserves can finance adverse swings in import costs or export revenues while longer term adjustment policies are being put in place.

There is no exact formula for an "optimal" level of reserves. As both the volume and prices of international trade increase, the desired level of reserves goes up. Probably the most common measure of the ability to withstand short-run trade fluctuations is the ratio of international reserves to imports of goods and services (including interest on debt). Taken by itself, this ratio provides only a very rough indication of the economy's short-run vulnerability to adverse events. Financial vulnerability is also influenced by such factors as the stability of export receipts, the compressi-

Chart 5

Ratio of International Reserves to Imports of Developing Countries

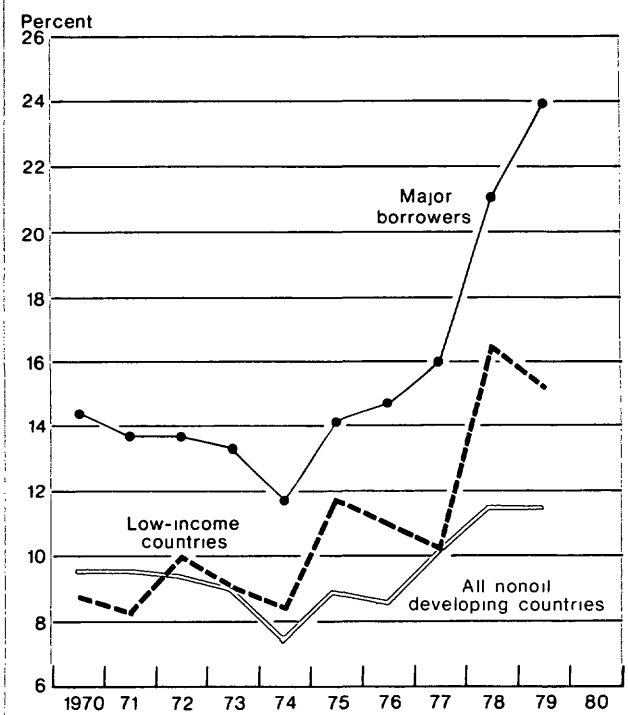


International reserves excluding gold (For low-income countries, gold is included, valued at 35 special drawing rights per ounce) Imports of goods and services

Sources International Financial Statistics (IMF, various issues), World Economic Outlook (IMF, 1980)

Chart 6

Ratio of Debt Service to Exports of Developing Countries



Exports include goods and services Debt service on public and guaranteed debt

Sources World Tables (World Bank, 1980), International Financial Statistics (IMF, various issues)

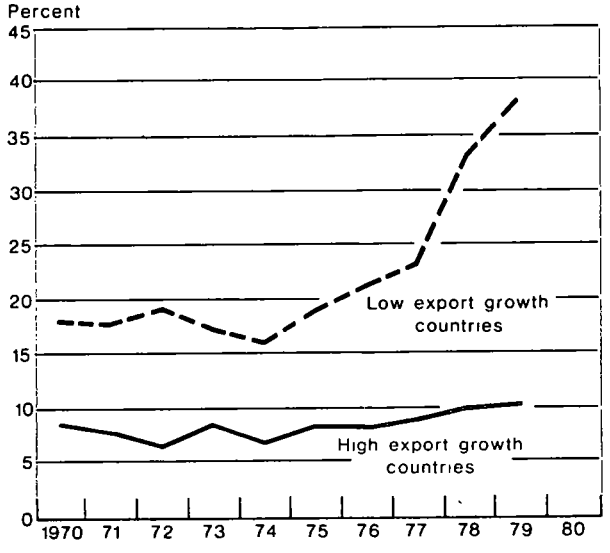
bility of imports, and the country's capacity to borrow rather than use reserves. No convenient measures of these other factors are available. However, they can have a considerable effect on the financial burden.

Longer run financial vulnerability. In addition to the danger of excessive financial burden arising from short-run fluctuations, a long-run imbalance between inflows and outflows can occur. As external debt increases, interest and amortization payments also rise. Unless exports grow in proportion, the share of exports devoted to debt servicing will continually increase The economy may come to depend on additional borrowing to fill the gap between exports and debt service payments plus imports. If new loans are used to cover interest and amortization payments on outstanding debt, they do not contribute to increased investment and growth. Lenders may become reluctant to extend loans for what they consider to be nonproductive uses. Even if lending continues at the same rate, debt servicing can tend to absorb an increasing fraction of export receipts, leaving less for imports. If export revenues fall or import prices rise, a liquidity crisis could occur very quickly.

The ratio of debt service to exports provides a rough measure of an economy's financial burden in this longer run sense. If this ratio is high, a large proportion of export earnings must be devoted to debt servicing, so that expanding imports, or even maintaining real imports as prices rise, may increasingly depend on uninterrupted flows of new loans The debt service/exports ratio gives some indication of the significance of service payments due each year, but requires extremely tenuous projections if it is to reflect possible bunching of amortization payments in future years. As with other financial burden indicators, there is no exact formula for determining when this ratio is dangerously high. Rather, it is useful to help identify trends in financial burden across countries or over time.

Chart 7

Ratio of Debt Service to Exports of Major Borrowers



Exports include goods and services High export growth countries are Chile, Colombia, South Korea, Taiwan, and Thailand Low export growth countries are Argentina, Brazil, Mexico, Peru, and the Philippines

Sources World Tables (World Bank, 1980), International Financial Statistics (IMF, various issues)

Debt burden trends

The previous section clarified the distinctions in the types of debt burden. Economic burden results from the transfer of domestic resources to foreigners to pay for external debt servicing. Financial burden arises from the need to acquire sufficient foreign exchange to cover both debt service payments and imports If foreign exchange is unavailable, a liquidity crisis can occur leading to sharp effects on the economy. This section traces the trends since 1970 in various measures of these aspects of debt burden.

Economic burden comparisons

The external debt of the nonoil developing countries[4] accumulated rapidly even before the first oil price shock, but this growth accelerated thereafter Public external debt[5] reached $220 billion by the end of 1979, a fivefold increase since 1970 (Chart 1) Most of the increase occurred after 1973 A major proportion of this increase was obtained from private sources, primarily banks, and was concentrated in a few relatively high-income LDCs with good prospects. By 1979, ten of these major borrowers[6] accounted for 70 percent of

[4] Nonoil developing countries are defined here to exclude members of the Organization of Petroleum Exporting Countries, countries in southern Europe, China, and South Africa

[5] Public debt includes long-term debt guaranteed by the public sector of the borrowing country as reported through the World Bank's Debtor Reporting System No comprehensive data on nonguaranteed debt or short-term debt are available Given the size of current account deficits that were financed, these forms of debt probably increased in roughly the same proportion as public debt for major groups of LDCs, but omission of short-term and private debt would distort the relative debt position of individual countries

[6] Argentina, Brazil, Chile, Colombia, Mexico, Peru, the Philippines, South Korea, Taiwan, and Thailand

the private source debt At the other extreme, the poorest thirty-eight countries accounted for only 10 percent of total debt, and an even smaller fraction of debt from private lenders. Although these low-income countries[7] had a slightly slower growth rate of debt, their public debt still quadrupled during the 1970s

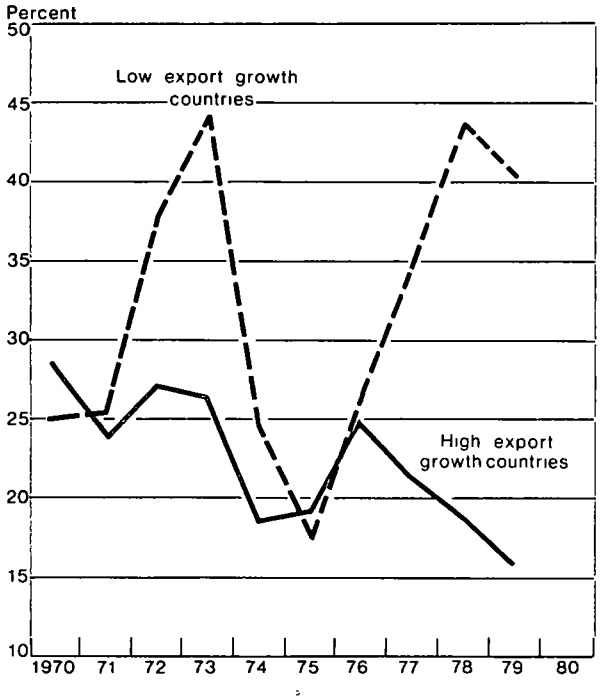
The economic returns to the rising debt appear to have been good Investment rates have been high and rising in most developing countries and real growth of GDP has remained significantly above growth of the industrialized world. In the first half of the decade, growth averaged over 6 percent in developing countries, compared with less than 4 percent in the industrial countries (Chart 2). Along with most of the world, the developing countries experienced slower growth after the 1973 oil price hike. Still, developing countries managed to grow almost 5 percent on average, while growth fell to slightly more than 3 percent in the industrial countries Since 1974, external debt has risen faster than GDP (Chart 3) The debt/GDP ratio tended to level off toward the end of the decade, but large current account deficits in 1980 probably led to another rise. Still the debt/GDP ratio remained moderate for most countries.

Countries that borrowed most heavily from private sources appear to have had the greatest returns to external borrowing Economic growth in these major borrowing countries exceeded the developing country average by almost 1 percent each year Comparison with the industrial countries is more striking. From 1970 to 1974, growth averaged over 7 percent among the major borrowers, 3 percent more than the industrial country average In the second half of the decade, growth of the major borrowers slowed to 5½ percent but remained over 2 percent above the industrial country average. Also, the major borrowers began the period with relatively little debt relative to their GDP. Thus, despite heavy borrowing, their debt/GDP ratio was about equal to the developing country average at the end of the decade

Economic returns were lower for the poorest countries. Throughout the 1970s these countries had less investment and lower growth than other developing countries. Their GDP did grow somewhat faster than in the industrial countries, indicating a potential for productive uses of borrowing However, debt grew more rapidly than output By 1979, external debt equaled almost one fourth of GDP, substantially above the average for all developing countries

Chart 8

Ratio of International Reserves to Imports of Major Borrowers



International reserves excluding gold Imports of goods and services

Source International Financial Statistics (IMF, various issues)

Inflation and borrowing costs The cost of external borrowing is the other side of the economic burden Chart 4 presents some evidence on borrowing costs. On new loan commitments from private sources,[8] nominal interest rates increased somewhat over the period, as higher inflation rates led to higher interest rates in most financial markets. This upward trend was not marked before 1979, but rates have risen sharply in the last two years

Borrowing costs were subject to considerable variation Movements in real interest rates, measured as the difference between nominal rates and changes in LDC exports prices, complicated the problems of predicting borrowing costs Until 1972, real interest rates averaged 5 percent (about equal to the average in the

[7] As classified by the International Monetary Fund in the *World Economic Outlook* (1980) Per-capita income in these thirty-eight countries averaged less than $300 in 1977

[8] Interest rates on official lending are generally below rates for private lending

1960s). In 1973-74, however, many commodities prices boomed. The average price of LDC exports nearly doubled. As a result, real interest rates fell to negative levels. By 1975, real interest rates were increasing, but remained close to zero through 1979 as the rise in nominal interest lagged world inflation Recent higher nominal rates and slow growth of export prices have increased real interest rates once again. For countries that depend on a small number of exports, the movements were almost certainly even sharper. Given the long period for which most external debt has been contracted, this volatility made prediction of the real cost of borrowing very difficult.

On average, the real interest rate was a negative 2 percent over the last decade. This outcome was largely fortuitous, reflecting both the commodities boom and the slow adjustment of nominal interest rates to higher world inflation. This low interest rate meant that borrowing costs were very low during most of this period. In economic terms, the return to borrowing far outweighed the costs so that increased borrowing was a profitable strategy to support economic growth. In this sense, the economic burden of developing countries has been very low.

Changes in financial burden

The financial vulnerability of developing countries showed pronounced movements over the decade. This was apparent in the ratio of international reserves to imports (Chart 5). This ratio serves as a rough indicator of an economy's susceptibility to short-run adverse developments. As reserves grew rapidly during the commodities prices boom, the average ratio for all developing countries rose in the early part of the decade, reaching a peak of 32 percent in 1973. By 1975, after the first oil price shock and declines in commodities prices, the ratio fell by over one third to 19 percent. From 1976 to 1978 reserves were rebuilt, but the second oil shock in 1979 was accompanied by another fall in reserves relative to imports.

To some degree, these movements were a normal part of the adjustment process by which reserves are used to cover short-term fluctuations in import prices and export earnings. Developing countries as a group ended the decade with a stronger relative reserve position than at the beginning. A trend deterioration in this ratio for low-income countries, however, was more troublesome. These countries began the decade with a reserves/imports ratio equal to the developing country average. By the end of the decade the ratio fell by over two thirds The 1979 ratio of 8 percent covered less than one month's imports of goods and services. Clearly, many of these countries have become more vulnerable to financial problems

Longer run financial burden measures tended to rise over the decade. This tendency, as shown by the debt service/exports ratio presented in Chart 6, was relatively slight for all developing countries taken together Again, the low-income countries experienced a larger increase than most countries. Most of the borrowing by low-income countries was from official sources at relatively low interest rates and long maturities. Still, exports grew less rapidly than debt service payments, so that by 1979 the debt service/exports ratio for low-income countries was more than 30 percent above the ratio for all nonoil developing countries.

Differences among major borrowers. The ten major borrowing countries showed diverse behavior on both the short-term and longer term indicators of financial burden. The ratio of debt service to exports fell until 1974, then began a distinct rise. By 1979, the debt service/exports ratio had doubled to 24 percent from its 1974 low. But this average for all major borrowers obscured important differences within the group. Over the decade, some major borrowers concentrated on the rapid expansion of exports as a base for economic growth. Others emphasized growth of domestic markets and import substitution while exports grew less rapidly. These alternatives produced very different results in terms of the financial burden of their external debt.

In Charts 7 and 8 the major borrowers are divided into high export growth and low export growth countries.[9] It would be hazardous to draw strong conclusions from this evidence, particularly since some members of the low export group began to increase exports rapidly toward the end of the decade. Yet the groupings offer an interesting contrast. The high exporters showed only a slight upward trend in debt service/exports, from 8 percent in 1970 to about 11 percent by 1979. The low exporters began the decade with a relatively high ratio of 18 percent. The commodities boom years permitted a slight fall during the mid-1970s, but by 1979 the ratio had climbed to over 30 percent. To some degree, low export countries compensated for this higher financial burden by maintaining greater reserves (Chart 8). However, the sharp decline in the reserves/imports ratio between 1973 and 1975 illustrates the speed with which these reserves can be depleted. By the end of the 1970s, the major borrowers with lower export growth generally faced a greater financial burden than those countries which were able to expand exports more rapidly.

[9] Export growth in 1970-79 averaged 23 percent for the high group (Chile, Colombia, South Korea, Taiwan, and Thailand) and 15 percent for the low group (Argentina, Brazil, Mexico, Peru, and the Philippines)

Prospects for the debt burden

For most developing countries the long-run economic returns to external borrowing appear favorable. The available evidence suggests that these countries have the ability to use external borrowing, along with domestic saving and investment, improved organization, and other inputs, to add to their economic growth. Countries which have been major borrowers from private sources have had especially high rates of economic growth. They should be able to continue to use external borrowing productively The poorest countries are in a more difficult situation, given their slower growth rates in recent years. For these low-income countries, credit from official sources, on terms more generous than they can obtain on private markets, performs an important function.

Rapidly increasing export prices and lagging adjustments of interest rates to higher inflation contributed to very low borrowing costs during much of the 1970s. Even when costs return to more positive real levels, the economic burden does not appear in danger of becoming excessive. Most LDCs have been able to use external borrowing for productive purposes, so that returns probably exceed costs by a substantial margin.

The question is whether higher levels of external indebtedness will lead to an unmanageable financial burden. Over the near future, most countries should be able to withstand adverse shocks. In the late 1970s most countries were able to rebuild their reserves relative to imports. Recent economic developments have reduced this reserve cushion, particularly for countries heavily dependent on oil imports. But, assuming that no further severe shocks occur in the immediate future, these reserves should be adequate.

Again, the low-income countries are in a much less favorable position. Their vulnerability to excessive financial burden increased markedly over the last decade By 1979 their reserves were very low, and they have declined since. A number of these countries are faced with severe financial strains even if no further external shocks are imposed.

For the higher income developing countries, the prospects for financial burden are a source of more concern over the longer run than the near term. An increasing proportion of their external debt is obtained from private sources. This debt is usually subject to regular adjustments in interest rates. Higher nominal interest rates have added to the financial burden of servicing this debt In some countries, debt servicing has grown more rapidly than exports. This implies an increased vulnerability by these countries to prolonged weakness in exports, further sharp increases in import prices, reduction of the volume of new loans, or other adverse developments. This possibility of an excessive financial burden can occur despite the underlying strengths in their economies

In recent years, many countries have moved to expand and diversify their exports. This policy tends to reduce debt burden in two ways. First, a broad export base should lessen fluctuations in average export prices, making real borrowing costs and the economic burden more predictable Second, greater exports lower the financial burden by reducing the country's vulnerability to temporary disruptions in loan inflows and other adversities. This relationship underlines, for both developing and developed countries, the importance of open markets for international trade and strong, stable growth of the industrialized economies.

David Roberts