tion. Either of these options is remote. In the meantime the employment outlook is deteriorating so much that it deserves at least equal place with debt service, budget cutting, and inflation.

Notes


3. Implicitly direct investment is aggregated with debt.

4. See Dornbusch (1985) for details.


References


4 Overborrowing: Three Case Studies

This chapter explores the role of disequilibrium exchange rates and budget deficits in promoting external indebtedness and the current debt crisis. Oil, U.S. interest rates, and the 1981–82 world recession are often isolated as the chief causes of the world debt crisis. But these factors have only made much more apparent and unsustainable an underlying disequilibrium in which exchange rate overvaluation and budget deficits were perpetuated by continuing and excessive recourse to the world capital market.

Because the details of the disequilibrium differ quite a bit between countries, I will look at three different episodes: Argentina, Chile, and Brazil. In one case capital flight played a key role in the growth in debt; in the other cases the level and composition of spending assumed primary importance. These determinants are investigated for the period 1978–82, which was chosen because it coincided with major changes in the world economy and with disequilibrium real exchange rate policies in several countries.

I will start by laying out a framework and some facts concerning the debt accumulation.

Some Facts and a Framework

Latin American debt problems are not new, and only a year after the Mexican and Brazilian problems became apparent the literature abounded with references to episodes of over-lending in the 1930s and before. Here is a typical quotation from 1937:

The history of investment in South America throughout the last century has been one of confidence followed by disillusionment, of borrowing cycles followed by widespread defaults, and of a series of alternating repudiations and recognitions of external debts. Willingness to maintain service payments has certainly been less high than in the British Empire, and excesses were inevitable under the conditions which existed while the United States was investing such huge sums in these countries... The ability of the most credit-worthy governments to avoid default must necessarily be impaired if any considerable part of the nominal value of loans has not, in fact, been put to the use for which it was intended. (Royal Institute of International Affairs 1937, p. 266.)

After the wholesale default on external debt in the 1930s there was a long gap during which current account imbalances were financed by a reduction in reserves (accumulated during the war), by direct capital inflows, by official aid, and by borrowing through international institutions. Table 4.1 shows external debt data for benchmark years for several countries. The data problems, even for the very recent years, are overwhelming. But even so, the table conveys a notion of the very rapid growth of external indebtedness in the 1970s.

Table 4.1
Gross external public or publicly guaranteed debt (billions of U.S. dollars, end of year)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>0.9</td>
<td>0.7</td>
<td>1.5</td>
<td>5.0</td>
<td>7.9</td>
<td>38.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.4</td>
<td>1.5</td>
<td>1.8</td>
<td>5.5</td>
<td>22.2</td>
<td>93.7</td>
</tr>
<tr>
<td>Chile</td>
<td>0.4</td>
<td>0.3</td>
<td>0.6</td>
<td>3.2</td>
<td>5.3</td>
<td>18.7</td>
</tr>
<tr>
<td>U.S. price level (1970 = 100)</td>
<td>41</td>
<td>68</td>
<td>75</td>
<td>100</td>
<td>137</td>
<td>235</td>
</tr>
</tbody>
</table>

Sources: United Nations (1964) and Morgan Guaranty.
Note: The data for 1945, 1956, and 1960 include only debt in excess of one-year maturity. The price level reported in the last row is the U.S. GNP deflator. The unit value index in dollars for world trade would show a somewhat larger cumulative increase.

From the supply side the conventional explanation for the lending burst is the oil shock, which made petro dollars available for financial intermediation by commercial banks. This is brought out by the fact that from 1970 to 1983 the share of bank lending in total debt increased from only 25 percent to nearly 75 percent. On the demand side the reasons for the debt buildup are much less clear-cut. Oil, interest rates, and the world recession are often cited and are certainly a good part of the story in some countries.

Table 4.2 and figure 4.1 show the important differences in the world macroeconomic setting for the debtors in the early 1970s and in the 1978–82 period. The earlier period is clearly a debtors' paradise with high growth, sharp real commodity price increases, and low nominal interest rates coupled with high inflation. The 1978–82 period is just the reverse and to that extent must account for some of the debt problems. To be more precise, I will show that the degree and particular kind of openness—unrestricted capital flows, free trade in goods, both or neither—influence the way in which households and firms respond to exchange rate misalignment and commercial and fiscal policy.

The balance of payments accounts provide a link between the increase in gross external debt and the portfolio and spending decisions of the economy.

The increase in gross external debt corresponds to the sum of three items identified from the balance of payments accounts:

Increase in = current direct and + official + other
external account long-terms reserve private (1)
deficit portfolio increases capital debt
capital inflows

With respect to capital account transactions I make a distinction between direct investment and long-term portfolio capital flows on the one hand
and, on the other, the short-term flows, which for simplicity can be thought of as “hot money” on the way in and as “capital flight” on the way out. Equation (1) then shows that an increase in gross external debt can have three broad sources: current account deficits not financed by long-term capital inflows, borrowing to finance an official reserve buildup, or private capital flight.

The accounting identity in (1) immediately draws attention to the fact that the debt buildup does not correspond one-for-one to a resource transfer from lending countries to the borrowers. Part of the increased gross debt merely reflects capital flight and thus no change in aggregate net foreign assets. Another part reflects the capitalization through increased borrowing of the inflation component in nominal interest payments. The resource transfer is limited to the inflation-adjusted current account.  

The various components in (1) for Argentina, Brazil, and Chile in 1978–82 need to be identified empirically. Table 4.3 shows estimates of the components of the gross debt increase. Balance of payments and external debt data from different sources are used to try to piece together the “proximate sources” of the increase in gross external debt. The difference in data sources and the precariousness of debt and balance of payments data imply that these estimates cannot be very precise. Despite these limitations, the data give a good idea of the difference in patterns between countries.

In the case of Argentina the current account deficit is financed largely by direct investment and portfolio capital inflows. The increase in debt therefore corresponds to a large extent to the financing of capital flight—the central bank borrows abroad and sells foreign exchange to private residents, who use the proceeds to acquire foreign assets. The breakdown is of course not entirely precise because the current account certainly underestimates military imports. For Argentina it has been suggested that the underestimate may be as much as $7 billion. Underinvoicing of exports, overinvoicing of imports, and underestimates of tourism and smuggling further distort the data.

The tables make it clear that the Argentinian case is primarily one of increased debt to finance capital flight, not current account imbalances. Thus the government incurs external debts and uses the proceeds to finance private capital outflows or private acquisition of foreign assets. The increase in gross external debt misrepresents the net foreign asset position of the country, since increased public debts are matched for the
Table 4.3
Components of the increase in gross external debt, 1978-82 (billions of U.S. dollars)

<table>
<thead>
<tr>
<th>Country</th>
<th>Increase in gross external debt</th>
<th>Current account</th>
<th>Direct and portfolio capital inflow</th>
<th>Residual* (reserve gains + capital outflows)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>26.8</td>
<td>-10.6 6.8 -9.3 7.2</td>
<td>23.4</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>48.8</td>
<td>-58.4 4.7 -33.7 11.5</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>11.5</td>
<td>-11.4 3.9 -5.1 1.3</td>
<td>1.4</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Morgan Guaranty, Data Resources, Inc., and the International Monetary Fund (IMF).
A. This column is calculated as the part of debt increase net of the current account deficit or the net capital (direct and portfolio) outflows. Interest payments are not adjusted for inflation.

most part by larger private foreign assets. But inasmuch as the latter are removed from the control and disposition of the authorities, there is nevertheless a "debt problem."

In the case of Brazil and Chile the residual item in the last column accounts for very little. The increased debt reflects current account deficits, not capital flight. In both cases direct investment and portfolio capital flows finance only part of the current account deficits, and hence external debt increases by the difference. Both countries, unlike Argentina, have a cumulative trade deficit and, of course, deficits on service account. In both cases interest payments account for half or more of the increase in debt. To explain the large cumulative current account deficits and the capital flight, I now turn to theoretical considerations. I take as given that the experience in the individual countries was highly unusual and ask in what ways policies created circumstances in which economies indulge in large current account deficits or large-scale capital flight?

Theory

It is ordinarily thought that large increases in external debt have as their counterpart large cumulative current account deficits. These current account deficits, in turn, reflect either an imbalance between private saving and investment or a public sector budget deficit. More formally, from the national accounts the current account deficit or increase in net external liabilities is

\[
\text{Increase in net foreign investment saving deficit} = \text{private} - \text{private + budget} + \text{net foreign investment saving deficit}. \quad (2)
\]

Episodes of current account deficits can, in this sense, be analyzed in terms of the shocks to which the economy is exposed and the impact they exert on saving, investment, and the budget. The channels through which saving, investment, and the budget are affected will be discussed within the framework of standard neoclassical macroeconomics. Transitorily high levels of investment and budget deficits or transitorily low levels of saving will be identified.

Saving

Household saving behavior takes place in the standard multiperiod framework. Saving is governed by wealth, which is the present value of after-tax labor income plus the value of initial assets, and by the real interest rate. The real interest rate is the world nominal rate adjusted for depreciation and the domestic rate of inflation. The latter can differ from that abroad to the extent that traded and nontraded goods or export and import prices change over time or through changes in exchange rate or commercial policy. (On this point see Bruno 1976; Obstfeld 1983; Svensson and Razin 1983; and Dornbusch 1983a.)

There are several channels through which events in the economy can lead to a reduction in saving:

- An increase in wealth because of perceived higher future incomes or an increase in the future rental on domestic real capital. Since by assumption the gains in output occur only in the future, but consumers are forward looking, the anticipations lead to higher current spending and thus to dissaving.
- The effect of expected future income gains on current spending is reinforced if these anticipated gains come together with the removal of borrowing constraints and increases in wealth that make it possible to spend at the level of normal income.
- Dissaving may be the counterpart of intertemporal resource allocation by the household in response to intertemporal relative price and hence real interest rate movements. With high intertemporal substitutability, consumption occurs in periods when interest rates are low and inflation is high.
- Purchases of consumer durables are an important reason for variations in measured saving. Anticipated intertemporal variations in the real price of durables (and, even more strongly, in the availability of
durables) affect the timing of purchases. They lead to purchases in periods when the real price is low. This effect is more strongly at work the higher the rate of price increase on durables relative to interest and the rate of physical depreciation. The confidence in a strong resale market and hence increased liquidity of durables reinforces the tendency for intertemporal substitution of purchases, as does a reduction in credit constraints. (See Mishkin 1976 and Deaton and Muellbauer 1980, ch. 14.)

In the context of an open economy, a transitory real appreciation (or an overvaluation) of the exchange rate would therefore lead one to predict dissaving. Consumers would concentrate purchases of imported durables in those periods, and current account deficits would tend to be large.

A critical question is to what extent private saving behavior is affected by government budget deficits. In other words, do households, in response to deficits, build up assets in anticipation of future taxes on their own incomes and those of their heirs? It is assumed that these effects are limited to taxes borne directly by the current generation and do not extend further. Thus deficits are by and large not offset by increased current and future saving. Effects on saving result only from directly anticipated taxation or from a reduction in the value of assets that reflects future taxes on the income from those assets.

Investment

Investment is affected through three channels. The concern here is with the link between exchange rates and investment. Inventory investment is influenced by the cost of carrying inventories relative to the return on the goods being carried. Business fixed investment is influenced by changes in the desired capital stock and by changes in the adjustment costs associated with capital formation. A formal model is sketched in the appendix, but the focus here is simply on the main ideas.

An anticipated depreciation implies capital gains on imported goods, specifically on materials and consumer or producer durables. Firms would, other things being equal, purchase importables before an anticipated depreciation and hold them to collect capital gains. But that tendency is dampened by three factors: first, there will after a point be increasing marginal costs of carrying inventories; second, there is uncertainty about the future price; and third, carrying inventories involves an alternative cost in terms of nominal interest foregone. The optimal inventory for risk-averse firms, given these considerations, will depend on the mean and variance of the expected real return on inventories, on inflation relative to interest rates, and on the marginal carrying cost. Reduced variance and increased anticipated depreciation that is not reflected in interest rates will raise inventory investment and hence imports of materials or of producer and consumer goods.

To discuss business fixed investment, it is useful to think of a standard neoclassical theory based on adjustment costs. Real exchange rates here play a role because they determine the desired capital stock by influencing the user cost of capital or by affecting the adjustment cost. Real exchange rates affect adjustment costs because investment has import content, specifically in the form of imported machinery.

What are the effects of a transitory real appreciation? While the real exchange rate is overvalued, the real price of imported goods is low and, for that reason, investment is high. During the period of overvaluation, capital is being accumulated because the overvaluation in fact constitutes an investment subsidy for those investment activities that have import content. Once the real depreciation occurs, the accumulation of capital is reversed.

A second channel through which overvaluation influences investment is via the desired stock of capital. Suppose investment has significant import content and that capital is used in the production of tradables. A transitory overvaluation and anticipated real depreciation now exerts opposing effects on investment. The low real price of tradables depresses the stock demand for capital, but the investment subsidy implicit in overvaluation tends to promote investment. The net result depends on how significant the subsidy is as a determinant of investment. When import content is important the net result will still be a transitory investment boom and hence an import boom in investment goods.

Once again the anticipated real depreciation that has been assumed is not fully matched by higher interest rates. To the extent that nominal interest rates rise in anticipation of depreciation, this raises the user cost and therefore reduces any impact on investment.

There are thus strong links between the time path of the real price of imports and the purchases of imported investment goods. Anticipation of real depreciation must produce an import bulge.

The Budget

The government, in principle, obeys the intertemporal budget constraint.
The budget constraint states that the present value of tax revenues (including the inflation tax) must equal the initial debt plus the present value of outlays. Subject to political constraints on the rate of cut in outlays or the rate of increase in taxes, the government would practice tax smoothing as suggested in Barro (1983). A permanent loss in revenues would be immediately and fully offset through increased tax rates or reduced outlays, leaving debt unchanged. Transitory shocks to revenue or to outlays would be substantially met by debt finance. The increase in debt is in turn amortized over the long term by a small increase in taxes and a small cut in outlays.

An increase in interest rates reduces the present value of the excess of taxes over outlays and hence requires an adjustment in the path of taxes and expenditures. Once again, if the shock is transitory, debt finance will bridge the gap in the short term while small changes in taxes and outlays ensure intertemporal solvency of the government. If the increase in interest rates is permanent, then immediate adjustment of tax rates relative to outlays occurs and debt remains unchanged.

The rightness of the debt finance model must be relaxed to allow for three practical considerations. First, there are constraints on the rates at which politicians can or will change taxes and outlays. Second, it may take time to identify disturbances as transitory or permanent, since all disturbances are initially assumed to be transitory, particularly when they are adverse. Third, debt default, both internal and external, is a way of ensuring the intertemporal budget constraint, although such a "policy" would of course be reflected in the interest rate required by holders of the public debt.

The government budget problem is made more specific by the introduction of specific standard of living constraints. Such constraints imply that in the presence of adverse shocks to the real income of the favored group, additional outlays are required to support the standard of living. If tax adjustments or reductions in the standard of living can occur only over time, there is a built-in link between (adverse) economic shocks and the budget. Adverse shocks therefore invariably involve an early stage of deficit finance, even if they are persistent.

A failure to smooth taxes and outlays as well as benefits in the case of a permanent disturbance does not justify it. Why might taxpayers prefer to see low tax rates now and pay for those low rates by higher future rates that will yield equal present-value tax collection? Why would those who receive government benefits desire a front-loaded flow of benefits rather than a steady stream of equal present value? The tax-smoothing model rejects such behavior as irrational and predicts that a government following noxious policies along these patterns would be thrown out of office for failing to maximize voters' welfare. But the moment the private sector discounts at a rate in excess of the market rate of interest the future is systematically undervalued and biased toward debt finance. The argument is reinforced when liquidity constraints lead part of the population to discount at exceptionally high rates.

There is of course an interdependence between the model of debt finance and the private sector's optimal intertemporal allocation of resources and portfolio choice. The more the government chooses debt finance, postponing required tax increases, the more the private sector can adjust to the future increased taxes or debt default by holding nontaxable assets (dollars and washing machines). This raises the cost to the government of delaying adjustment, but does not eliminate altogether the tendency toward short-run deficit finance.

In concluding on the issue of the budget, it is worth noting two important linkages between the exchange rate and government outlays. First, to the extent that there is an external public debt, a real depreciation raises the real value of debt service in terms of domestic output and hence is likely to increase the budget deficit. There is thus a potential tradeoff between international competitiveness and a balanced budget.

The second link between exchange rates and the budget arises in cases of exchange rate guarantees. If the government has guaranteed a given exchange rate sometime in the past but has since found it necessary to depreciate, the resulting exchange rate subsidy will cause the budget to deteriorate. Where exchange rate guarantees and external debt exist and it is difficult to adjust taxes, there is thus a tendency to seek overvaluation as one of the ways to minimize debt finance.

In this review of the various channels through which the current account is affected by transitory and permanent disturbances, the point is that anticipated real depreciation acts in a most forceful way to generate current deficits in the external balance. In addition, through the budget, current and transitory shocks to receipts and outlays tend to be translated into deficit finance and hence into external deficits. The next section discusses how these considerations help explain the current accounts and external debt accumulations of Chile and Brazil.
Application to Chile and Brazil

In Chile and Brazil external debt increases are the counterpart of current account deficits. They represent levels of spending and resource absorption in excess of current income. But the details of the process differ. In Chile overvaluation is the key, whereas in Brazil the budget deficit assumes a central role.

Chile

Following hyperinflation in the early 1970s, Chile experienced economic stabilization and a reform of fiscal and commercial policy in 1973–77. The budget deficit was moved from more than 10 percent of GNP in the early 1970s to actual surpluses in 1979–80. Tariffs were reduced from average nominal rates near 100 percent, with individual rates widely dispersed, to a uniform rate of only 10 percent by 1978. Inflation was reduced from over 500 percent a year to practically zero, and, to top it off, growth in 1977–81 averaged 8 percent a year.

Today the country’s performance bears little resemblance to that performance: output has declined since 1981 by 10 percent, and unemployment stands at 30 percent. Exchange rate policy and excessive recourse to external debt finance are at the center of the explanation.

In an effort to speed up the process of disinflation the Chilean authorities decided in early 1979 to experiment with the “law of one price.” The exchange rate was fixed at 39 pesos to the U.S. dollar, in the hope that the pegging would directly cut down the rate of inflation and also break inflationary expectations. At the time, however, Chilean inflation had still more than 30 percent, far above the rate in the United States. Moreover, formal indexing arrangements linked wage increases to past inflation. As Corbo (1983) has documented, the combination of inflation and indexation led over time to growing overvaluation as wages were pushed up relative to the prices of importables and the world prices of exportables. The growth in real wages for those employed of course implied a sharp gain in the standard of living. The loss in employment in response to overvaluation was slow to build up, and thus the period 1977–80 offered a spectacle of yet another “miracle.”

The Chilean boom conditions in the early stage of overvaluation lend support to the notion that in the short run real depreciation is deflationary. Here the real appreciation, by raising real wages, has expansionary effects on aggregate demand before the employment effects and bankruptcy start making their inroads. This point has been emphasized by Diaz Alejandro (1963) and more recently by Calvo (1982) in the Argentinian context.

Table 4.4 shows the ratio of consumption and of gross fixed investment to GDP (in constant 1977 prices), as well as the budget deficit ratio. It is clear that 1980–82 is the period to focus on, since consumption sharply rises as does the investment ratio and the budget deficit. Investment and saving behavior mirror the sharp deterioration in the current account.

![Chart showing real exchange rate](chart.png)

Figure 4.2
We now focus on the mechanism through which consumption and investment spending increased so sharply in 1980–81. Figure 4.2 shows the real exchange rate—import prices relative to the prices of nontradables—for the period. The real appreciation, on this measure, amounted to 25 percent by early 1982. Table 4.5 shows some of the implications. Imports of all goods increased very sharply over the period, peaking in 1981. As an example, the growth of imports of automobiles was immense both as a percentage of total imports and as a fraction of the existing stock. After peaking in 1981, imports fell off sharply.

Table 4.4
Consumption, fixed investment, and the budget deficit in Chile (percent of GDP)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>20.2</td>
<td>15.7</td>
<td>16.5</td>
<td>19.6</td>
<td>23.9</td>
<td>23.9</td>
<td>9.6</td>
</tr>
<tr>
<td>Consumption</td>
<td>79.7</td>
<td>75.8</td>
<td>72.4</td>
<td>71.1</td>
<td>70.5</td>
<td>76.2</td>
<td>76.1</td>
</tr>
<tr>
<td>Budget deficit</td>
<td>2.9</td>
<td>0.8</td>
<td>0.8</td>
<td>-1.7</td>
<td>-3.1</td>
<td>-1.6</td>
<td>2.4</td>
</tr>
<tr>
<td>Current account deficit</td>
<td>n.a.</td>
<td>n.a.</td>
<td>7.7</td>
<td>5.7</td>
<td>7.2</td>
<td>14.6</td>
<td>9.4</td>
</tr>
</tbody>
</table>

Sources: Banco Central de Chile and International Financial Statistics.

Table 4.5
Chile: imports and the real exchange rate

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports (billions of U.S. dollars)</td>
<td>3.00</td>
<td>4.32</td>
<td>5.82</td>
<td>6.78</td>
<td>3.83</td>
</tr>
<tr>
<td>Trade balance (billions of U.S. dollars)</td>
<td>-0.52</td>
<td>-0.32</td>
<td>-0.45</td>
<td>-2.41</td>
<td>0.29</td>
</tr>
<tr>
<td>Real exchange rate (1978 = 100)</td>
<td>100</td>
<td>100.6</td>
<td>90.7</td>
<td>75.9</td>
<td>92.0</td>
</tr>
<tr>
<td>Automobiles (1,000s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock</td>
<td>335.8</td>
<td>386.0</td>
<td>458.7</td>
<td>573.8</td>
<td>n.a.</td>
</tr>
<tr>
<td>Imports</td>
<td>11.4</td>
<td>33.6</td>
<td>31.6</td>
<td>79.5</td>
<td>30.3</td>
</tr>
<tr>
<td>Production</td>
<td>17.1</td>
<td>16.5</td>
<td>25.2</td>
<td>20.6</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Sources: Banco Central de Chile and Corbo and de Meo (1983).

The pattern of strongly growing imports through 1981 reflects in part the very strong performance of the Chilean economy. In addition the increase in asset prices that took place in 1977–81 implied increased wealth and hence the allocation of part of the gain in wealth to increased consumption. Harberger (1983a) in particular has emphasized this point.

In addition to the impact of growth and wealth on consumption and investment, there appears to be a strong real exchange rate effect on the composition and level of spending. By 1981 the sustainability of the increasingly overvalued exchange rate was becoming an open question. Although the government had sworn to sustain the exchange rate, the growing problems of competing export and import firms and growing unemployment made it more and more plausible that either depreciation or a return to protection, or both, would take place. Under these circumstances it is clear that a sharp increase in purchases of importables could be expected. Tables 4.3, 4.4, and 4.5 clearly bear that out. (See, too, in figure 4.3 the trade balance for 1981, which shows an all-time high deficit.) They also show that once the overvaluation came to an end in June 1982, the import boom collapsed.

Table 4.6
Import quantity indexes for Chile (January–June of each period)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>100</td>
<td>131</td>
<td>92</td>
<td>68</td>
</tr>
<tr>
<td>Consumption goods</td>
<td>100</td>
<td>175</td>
<td>125</td>
<td>75</td>
</tr>
<tr>
<td>Automobiles</td>
<td>100</td>
<td>226</td>
<td>90</td>
<td>38</td>
</tr>
<tr>
<td>Electric domestic</td>
<td>100</td>
<td>156</td>
<td>68</td>
<td>n.a.</td>
</tr>
<tr>
<td>Capital goods</td>
<td>100</td>
<td>134</td>
<td>90</td>
<td>38</td>
</tr>
<tr>
<td>Machinery</td>
<td>100</td>
<td>128</td>
<td>119</td>
<td>52</td>
</tr>
<tr>
<td>Transport equipment</td>
<td>100</td>
<td>140</td>
<td>53</td>
<td>20</td>
</tr>
<tr>
<td>Breeding stock</td>
<td>100</td>
<td>328</td>
<td>85</td>
<td>50</td>
</tr>
<tr>
<td>Intermediate goods</td>
<td>100</td>
<td>117</td>
<td>81</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: Banco Central de Chile.

The real exchange rate directly affects saving and investment and hence the current account. But it also works through a separate channel. Overvaluation, once the short-run expansionary effects have passed, leads to a change in the composition of spending. Demand for domestic goods declines and demand for importables rises. The shift implies a reduction in domestic output and employment. The fall in income reduces saving of the private sector and it also leads to an increased

Overborrowing: Three Case Studies

111
budget deficit. Accordingly, the indirect effects cause the external balance to deteriorate.

The steep decline in world copper prices in 1981–82 further reinforced the effect of declining income on the external balance. If the decline is perceived as transitory, it leads to dissaving both by households and by the public sector and hence enlarges the external deficit and borrowing. Although the copper price decline is often cited as an explanation for the external deficit and debt accumulation, the explanation cannot be extended too far. Even in 1982 the dollar value of copper exports exceeded the 1978 level by a large margin.⁵

One further factor, which is particularly evident in the Brazilian case, is the effect of increased interest rates in the world market. For a debtor country this implies a deterioration in the intertemporal terms of trade and hence an adverse real income effect. It is estimated that the direct contribution to the deficit of higher interest rates in the world market is $3.2 billion.

To a large extent the increase in Chile's external debt is the counterpart of a domestic accumulation of consumer and producer capital. This invites the question whether any lack of optimality is involved in what happened in 1978–82. If so, where does the ‘debt problem’ reside? Did consumers and firms benefit from the disequilibrium exchange rate, and if so, at whose expense? Furthermore, assuming that the debt ultimately must be serviced, is there a welfare loss from disequilibrium exchange rate policy, aside from the implications for financial stability and economic activity?

The welfare economics of disequilibrium exchange rates appear quite straightforward. Suppose that the government borrows in the first period in the world market and uses the proceeds to finance a transitory consumption or investment subsidy on importables. In later periods taxes are collected to discharge the external debt. This represents the public finance aspects of the overvaluation policy and neglects all macroeconomic side effects. It is shown in the appendix that a subsidy of this kind will have net adverse welfare effects. This is all the more the case when the macroeconomic effects are taken into account.

The actual story is somewhat more complicated because the private capital market must be considered. Consumers and firms perceive a net subsidy only to the extent that market interest rates do not reflect the anticipated depreciation. Since the government itself did not in fact lend at negative expected real interest rates, it must be concluded that interest rates which do not fully reflect anticipated depreciation imply disagreement in the capital market about the likely timing and magnitude of depreciation. Those anticipating large and certain depreciation borrow and import; those anticipating small and unlikely depreciation are the lenders. But the government comes back into the act when a policy of bailing out troubled banks serves as a safety net and in effect makes the whole operation almost exactly like the pure finance scheme laid out above.

Brazil

The deterioration of the Brazilian external indebtedness is largely attributable to failure to adjust the budget to the combined external shocks of higher world interest rates and increased real oil prices. Higher interest rates and increased oil prices were almost automatically reflected in larger deficits through two channels: government subsidies that maintained a low domestic price of oil and government external borrow-
The Debt Problems of Less Developed Countries

ing through state enterprises to finance the increased debt service. Domestic adjustment through tight money served to raise interest rates and stop growth, but its primarily purpose was to stimulate external borrowing to finance the current account. Failure to depreciate the real exchange rate meant that the economy stagnated despite growing external deficits and debt.

Table 4.7 shows the external shocks. The terms of trade, as a consequence of higher oil prices and the world recession, deteriorated vastly. In addition, interest rates (including spreads) nearly doubled. The combined effect immediately implied a very significant deterioration in the external balance unless drastic domestic adjustment policies were pursued. Table 4.7 indicates the cumulative actual increase in debt between 1978 and 1982 as well as a calculation of the effect of higher oil prices and interest rates.

The latter calculation cumulates the difference between the cost of servicing the 1978 debt level at actual rates rather than at the 1978 Libor (London interbank offered rates) and also the difference between the actual and the 1978 level of oil import expenditures. The sum, cumulated at actual interest rates, is reported in the last row. It measures approximately the increase in debt “due to external shocks.” It turns out to amount, cumulatively, almost exactly to the actual increase in external debt. The calculation supports the notion that the debt problem is due to the shocks, but it leaves open the question of the macroeconomic channels through which the shocks are translated into external deficits and debt accumulation. The budget deficit is an essential channel.

Table 4.8 shows the budget deficit as a fraction of GDP as well as the growth rate of real output. Budget data are not available before 1980. After that time, data are available for both the operational budget and the separate category, the inflation-indexation component of interest payments (or “monetary correction”).

The link between the budget and current account deficits stems in large part from extensive subsidies. The government subsidizes diesel oil because the supply of merchandise to the country’s interior is dependent on road transport. While the real price of oil in the 1963–82 period increased sixfold in the world market, the domestic price did not even double. Subsidies were also applied to a range of other goods, especially food products: agricultural subsidies at fixed nominal rates implied real interest rates of −60 percent and even more.

Since the budget deficit absorbed the external shocks, there was no automatic private adjustment in response to increased world interest rates and increased real oil prices. Nor did the increased budget deficit lead to offsetting domestic saving in the anticipation of future taxes. Thus the external shocks translated fully and automatically into the current account. The increased interest costs were financed by increased external borrowing through state enterprises, as was the increased budget deficit stemming from higher real oil prices.

Imputing the increased external debt entirely to the oil and interest rate shocks may overstate a good case. Clearly there were other elements at work in the external accounts. For example, increased oil prices led to increased import spending in oil-producing countries, and Brazil was able to secure a significant share of these new trade flows, thus dampening the impact of oil on the external balance. Another favorable influence on the current account stemmed from overvaluation in other countries of Latin America. On the other side, Brazil’s mispricing of tourist allowances led to a frivolous waste of foreign exchange. But these qualifications do not change the basic message that failure to adjust to the oil and interest rate shocks is the basic reason for Brazil’s increased foreign debt.

### Table 4.7

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Libor</td>
<td>8.9</td>
<td>12.1</td>
<td>14.2</td>
<td>16.8</td>
<td>13.2</td>
</tr>
<tr>
<td>Terms of trade (1977 = 100)</td>
<td>76</td>
<td>79</td>
<td>65</td>
<td>55</td>
<td>54</td>
</tr>
<tr>
<td>Oil price (U.S. dollars, 1977 = 100)</td>
<td>101</td>
<td>127</td>
<td>238</td>
<td>275</td>
<td>260</td>
</tr>
<tr>
<td>Actual debt decrease (cumulative, billions of U.S. dollars)</td>
<td>7.4</td>
<td>16.7</td>
<td>27.1</td>
<td>35.2</td>
<td></td>
</tr>
<tr>
<td>Oil and interest effect * (cumulative, billions of U.S. dollars)</td>
<td>3.6</td>
<td>11.7</td>
<td>23.5</td>
<td>34.8</td>
<td></td>
</tr>
</tbody>
</table>

Sources: IMF, Data Resources, Inc., and Conjuntura (Fundação Getúlio Vargas).

a. For method see text.

### Table 4.8

<table>
<thead>
<tr>
<th>The Brazilian public sector deficit and growth (percent of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Public sector deficit</td>
</tr>
<tr>
<td>Operational</td>
</tr>
<tr>
<td>Monetary correction</td>
</tr>
<tr>
<td>Real diesel price (1973 = 100)</td>
</tr>
<tr>
<td>GDP growth</td>
</tr>
</tbody>
</table>

Sources: IMF, Data Resources, Inc., Gazeta Mercantil, and Lauro Ramos.
Brazil is certainly not a case where the increased external deficit reflected an increase in investment. In 1965–77 investment as a fraction of GDP averaged 21.7 percent. In the period 1978–81 it averaged only 20.5 percent. The increased deficit thus reflects consumption and the budget, not an investment boom. In fact, the increasing monetary tightness that was pursued in order to raise interest rates and thus attract capital flows cut into investment.

The poor external performance of the country was not due entirely to a failure to adjust the budget for increased costs of debt and subsidized programs. A good part of the poor performance stems from a systematic overvaluation of the exchange rate. Figure 4.4 shows the real rate of exchange measured by noncoffee export prices relative to the domestic price level. The exchange rate policy of the post 1968 period had been to maintain a purchasing power parity relative to the U.S. wholesale price index. But that policy of course implied that there was no adjustment for increased real oil prices and interest rates, nor for the vagaries of the dollar in terms of other major currencies.

The balance of payments consequences of the external shocks were contained by increasing domestic oil production and by correcting domestic growth, thereby sharply reducing non-oil imports. At the same time, the exchange rate overvaluation of Argentina and the growth in oil-exporting countries’ imports from Brazil led to a temporary export boom. In 1979–81 export revenue grew at an average annual rate of 23 percent. The strong export growth and the poor experience with the late 1979 maxi-devaluation—inflation and no persistence of the real depreciation because of preannounced depreciation below the full, accelerated indexation—misled policymakers into maintaining a constant real exchange rate. Failure to seek a large real depreciation as the long-run adjustment to the deterioration in the external sector thus ultimately led to the 1982 debt crisis and the catastrophic collapse of activity.

Unlike in Chile and Argentina, there was no capital flight or flight into imported durables in Brazil. In part this is a consequence of the fact that the country is closed both on trade and on capital account. Imports are severely restricted, and thus a Chilean-style flight into imported durables is inconceivable. The only capital flight, aside from under- and over-invoicing, took place through the black market or through special accounts in the central bank where exchange rate guarantees are offered to capital importers. But on neither account does the capital flight lead to increased external indebtedness. In one case it is reflected in the increased premium in the black market. In the other case firms and banks have borrowed abroad in dollars and wish to repay their loans prior to maturity can liquidate their dollar debts by making a deposit in the central bank, with the central bank carrying the loan and the exchange rate risk to maturity. Hence capital flight takes the form of paying off dollar loans by making deposits in the central bank. There is no impact on foreign exchange reserves. The only effects are a monetary contraction and, should a devaluation take place prior to maturity, a future increase in the budget deficit as the central bank purchases foreign exchange to service the debt. (See Dornbusch and Moura da Silva 1984.)

In 1973–75 developing countries were generally applauded for sustaining growth in the face of world recession by running external
deficits financed in the world capital market. Brazil followed that pattern at the time and again in the 1978–82 period. The experience raises the question of how a country should decide between financing and adjustment in the face of transitory shocks, such as interest rate increases, or more permanent shocks, such as increased real oil prices. Moreover, in the presence of long-term domestic energy projects—such as Brazil’s alcohol program and oil production—is it sensible to sustain growth even if debt in the interim rises to a higher long-run level?

The Brazilian experience makes it particularly clear that we are only now starting to think of sensible models of the optimal level of external debt. So far models tell us mainly that debt trajectories are unsustainable if the trend growth rate of exports, say, falls short of the rate of interest. Brazil’s case suggests that the automatic capitalization of transitory interest rate shocks or terms of trade shocks runs into risks if rolling over is not automatic. In such a model the joint probability of adverse shocks and credit rationing, and their persistence, may lead to a pattern exactly the opposite of the one in 1973–75. Debt should be retired through a deflationary strategy before the costly credit rationing occurs, or aggressive export promotion and import substitution measures should accompany the continued borrowing. The Brazilian philosophy, “debt does not get paid, debt gets rolled” is then misleading.

**Argentina: Capital Flight**

In the case of Argentina external debt accumulation financed primarily capital flight, not current account imbalances. Unlike Chile, Argentina had severe political instability, continuing high protection, but completely unrestricted capital flows. For these reasons, the purchase of external assets rather than imported durables was the obvious way to escape from instability and expected depreciation. Moreover, again unlike in Chile, there was clearly no sharp increase in investment. Thus the trade deterioration in 1979–80 is not a significant part of the debt story. Nor does the $1 billion deterioration in the travel account explain much of the increased debt. The large outflow of short-term capital indicated in table 4.9 is more central to the explanation of the debt buildup. Of course the trade data to not include all military imports—as much as $7 billion are missing according to one estimate—and to that extent too much of the debt increase may be apportioned to the capital account transactions.

Figure 4.5 shows the Argentinian real exchange rate, which is central
to an explanation of the capital flows. Under Finance Minister Martinez de Hoz the exchange rate was used systematically to stabilize inflation. Initially, until December 1978, the rate was managed by the central bank’s allowing deliberate real appreciation. From December 1978 until March 1981 the rate followed a preannounced tablita. In 1980 the continued prefixing of the exchange rate became doubtful. Overvaluation was apparent, and the coming change in the presidency led to the fear of depreciation and instability. With no limitations on private capital outflows there was a massive shift into foreign assets. The flight into foreign assets included purchases of foreign currency, bank deposits, and securities as well as real estate, especially in the United States and Brazil.

Table 4.10
Argentinian financial instability

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Real exchange rate (1978-81 = 100)</td>
<td>92</td>
<td>68</td>
<td>66</td>
<td>78</td>
<td>109</td>
</tr>
<tr>
<td>Inflation (December to December)</td>
<td>176</td>
<td>160</td>
<td>101</td>
<td>105</td>
<td>165</td>
</tr>
<tr>
<td>Real interest (passive rate)</td>
<td>-15.6</td>
<td>-9.5</td>
<td>-4.4</td>
<td>6.6</td>
<td>-26.2</td>
</tr>
<tr>
<td>Budget deficit (percent of GDP)</td>
<td>10.1</td>
<td>5.0</td>
<td>11.3</td>
<td>16.4</td>
<td>17.2</td>
</tr>
<tr>
<td>Excluding debt service</td>
<td>1.8</td>
<td>2.4</td>
<td>7.2</td>
<td>8.2</td>
<td>5.3</td>
</tr>
</tbody>
</table>


The source of capital flight was the combination of currency overvaluation, the threat of devaluation, and ongoing and increasing domestic financial instability. The domestic instability derived from an inability to bring fiscal deficits under control and stop the inflationary process in a decisive way. In fact, in 1980-81 the deficit deteriorated significantly, even when debt service is excluded, as shown in table 4.10. By 1982 the Malvinas war, and the resulting inability to tap the world capital market further, combined with domestic exchange control to end the episode.

The most interesting aspect of the Argentinian public external indebtedness is that it appears to be matched, one for one or, better, by increased private holdings of external assets. But because the authorities have no access to these assets, there is nevertheless an acute debt problem. In the aftermath of these disturbances, the question remains whether any significant portion of the capital would return following

the implementation of an effective stabilization program. Experience indicates that this is not likely to be the case.

Conclusion

The popular view of growing developing-country debts is that they reflect unsound budgetary policies or unsustainable growth programs. Sachs (1981), by contrast, has argued that current account imbalances of the 1970s on average reflect high productive investment that fully justifies external borrowing. Bankers who have poured money into these countries certainly favor the view that they have supported productive investment, thus making it plausible that debts should be serviced. The present review of the debt experience of Argentina, Brazil, and Chile reveals a much more mixed story. Only in Chile does investment play any significant part in the current account deterioration. Imports of consumer goods play at least as significant a role. The burst in imports and the resulting current deterioration is due primarily to currency overvaluation.

In Argentina and Brazil increased investment plays absolutely no role in the debt increase. In the case of Brazil the budget deficit and the lack of an adjustment of the public sector to external shocks are behind the debt growth. The failure to adjust the real exchange rate in this case explains the long-term debt difficulties. In the case of Argentina, currency overvaluation in conjunction with prospects of political instability and international capital mobility explain the increased debt. Here the current account plays a small role, and capital flight is behind the rapid increase in debt.

The episodes in no way suggest that investment is unimportant in the context of current account imbalances. But whether it does play a significant role depend in part on whether trade and capital flows are unrestricted and in part on the prospects for economic stability. When trade is relatively unhampered and prospects are bright, investment may be central. In other cases public sector dissaving or capital flight are more plausible sources of external imbalance.

There are important differences in the three episodes studied. The countries differ, in the 1978-82 period, in their financial and political stability and in their openness. Argentina was the most unstable and the most open on capital account. Capital flight, therefore, was the obvious response to political uncertainty, exchange rate instability, and deteriorating expected returns on domestic assets. While some trade liberaliza-
tion accompanied the overvaluation, flight into importables, other than tourism, was still minor.

Chile was at the other extreme, with domestic political stability and, at least initially, a budget surplus. The complete liberalization of trade, together with overvaluation and the initial prosperity of households and firms, led to an incredible import boom that made up for years of high tariff walls. But because there was no expectation of a financial collapse, currency reform, wealth taxes, and so forth, capital outflows never came into play in a major way.

Brazil shared Argentina's financial instability; the budget deficit was vast and any attempt at stabilization took the form of tight money, which, in the context of indexation, aggravated the condition of the financial system by causing debt to grow more rapidly, the tax base to shrink, and firms to go bankrupt. The 1979 change in the economic team signaled a drift toward fiscal irresponsibility, but even so the Chilean- or Argentinian-style flight into foreign assets or goods was impossible because the economy was firmly closed. Financial instability could be sustained only by raising interest rates to force items into the world capital market, renewing loans, and taking fresh credit, thus financing the budget and current account deficit. With the economy closed to trade flows and with high interest rates, these policies continued until the external borrowing constraints of 1982 emerged. Because there had been no timely policy of real depreciation, the country was unprepared to absorb the drying up of external credit except through a severe and lasting depression.

The experiences of the three countries studied here are by no means unique. During the 1978–82 period most Latin American countries came into financial difficulties, as did other countries around the world. This raises the interesting question of the reason for the worldwide debt problem. An obvious reason is that the world recession, dollar appreciation, and unanticipatedly sharp increase in U.S. interest rates, simultaneously converted into problem cases countries that were to differing degrees in financial difficulties. But it must also be recognized that there was a common element in the policies and events: it was not only Brazil, Argentina, and Chile that had overvalued exchange rates, import sprees, or capital flight financed by external borrowing. The same occurred in 1981–83 in one form or another in Mexico, Venezuela, and Israel, to name only a few. Indeed, it may even be occurring in the United States right now.

Appendix

Investment

Significant changes in investment can come about through two channels. The first is a transitory increase in investment as a result of an increased desired capital stock; the other is a change in the timing of investment in response to intertemporal relative price variations. A standard investment model isolates these effects.

The desired capital stock \( k \) depends on the required rate of return net of capital depreciation, \( i + d - \frac{\dot{Q}}{Q} \), and on the real price of capital \((Q/P)\) as can be derived from the standard arbitrage condition:

\[
\frac{P I'(k)}{Q} = i + d - \frac{\dot{Q}}{Q},
\]

or

\[
k = g \left[ \left( i + d - \frac{\dot{Q}}{Q} \right) \left( \frac{Q}{P} \right) \right].
\]

On the investment side we assume adjustment costs and also that imports as well as domestic output are inputs in the production of investment. We assume a proportional import requirement and an increasing marginal domestic input requirement. The solution to the investment problem then is a rate of investment that depends positively on the real price of capital in terms of imports, \( Q/P_m \).

\[
I = h \left( \frac{Q}{P}, v \right), \quad v = \frac{P_m}{P},
\]

where \( v \) is the real exchange rate or the real price of domestic goods in terms of importables. The investment model is completed by the capital accumulation equation:

\[
k = h \left( \frac{Q}{P}, v \right) - \delta k,
\]

where \( \delta \) denotes the rate of physical depreciation.

The rational expectations equilibrium, given a constant real exchange rate and interest rate, can be visualized in terms of the conventional phase diagram. The equilibrium capital stock and the real price of capital follow a saddle path to the steady state.
Consider now the anticipation of an increase in the real cost of imports which acts as a temporary investment stimulus. This is shown in figure 4.6. Starting from an initial equilibrium at point \( E \), there is an expectation that the real exchange rate will depreciate or the real price of imports in terms of domestic goods will rise in the future. There is an immediate jump in the real price of assets, and that higher real price promotes a transitory investment boom. Once the real depreciation does take place (point \( E' \)) the real price of capital keeps rising, but now disinvestment takes place. With an anticipated real depreciation, therefore, investment and hence investment goods imports are expected to be high. The opposite analysis of course applies to a transitory decline in the real price of imports.

![Figure 4.6](image)

The investment effects of an anticipated real depreciation

The exposition so far assumed that capital is used to produce domestic goods but has itself import content. There is another case in which anticipated real depreciation has a significant impact on investment. In this case capital is used to produce tradables and investment has an import content. A real depreciation must in the long run raise the real price of capital, but the capital stock may rise or fall. However, with the anticipated increase in the real price of tradables, there will be an investment boom and hence a boom of investment goods imports.

Consumer Durables

Consider a much simplified model of consumer choice focusing on durables. We neglect time preference, depreciation, and resale as well as nondurables. The consumer's welfare depends on the services from durables in two periods, the second denoted by a prime:

\[
U = V(S) + v(S').
\]

(7)

Services are given by the cumulative stock

\[
S = D, \quad S' = D + D',
\]

(8)

where \( D \) denotes durable purchases and a prime denotes the second period. The budget constraint is:

\[
Y - T = PD + P'D',
\]

(9)

where \( Y - T \) denotes the present value of income net of taxes and \( P' \) is the discounted second period price. We assume \( P < P^* < P' \), where \( P^* \) is the equilibrium real price under a correctly valued real exchange rate while \( P \) is the price consumers actually face.

For the aggregate economy, tax payments are \( T = (P^* - P)D \), but the individual household takes taxes as unrelated to purchases. The individual faces the budget line obtained by adding \( D \) to both sides of (9) to obtain:

\[
S' = \left( \frac{Y - T}{P} \right) + \left( 1 - \frac{D}{D'} \right) S.
\]

(9a)

Figure 4.7 shows the consumer equilibrium. The consumer views the budget line as having a slope \( \frac{dS'}{dS} = 1 - P/P' \), which is flatter than the slope of the social budget line \( \frac{dS'}{dS} = 1 - P^*/P' \). Consumer equilibrium, including the subsidy distortion owing to overvaluation, is at point \( A' \) on indifference curve \( U \), with excessive purchases of durables in the first
Notes

1. For a discussion see Sachs (1982a), United Nations (1964), and the annual reports of the Foreign Bond Holders Protective Council.

2. Let \( A/P^* \) be net real foreign assets measured in terms of world prices. Then the change in net foreign assets is:

\[
\frac{\Delta A}{P^*} = \frac{dA}{P^*} - \frac{dA^*}{P^*} = \frac{CA}{P^*} - \frac{CP^*}{P^*},
\]

which is the inflation-adjusted current account.

3. Wealth taxes or levies as a way of responding to shocks have been insufficiently considered in the recent deficit finance literature, though not of course in the interwar writings.

4. In interpreting these numbers, it is necessary to bear in mind that from 1980 to 1981 industrial production was approximately flat, while from 1981 to 1982 it declined by around 20 percent. GDP growth in 1981 was 5.7 percent, -14.3 percent in 1982, and -0.5 percent in 1983.

5. The dollar value of copper exports and the real price of copper (1980 = 100) show the following pattern:

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports (billions of U.S. dollars)</th>
<th>Real price (1980 = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>1.27</td>
<td>91</td>
</tr>
<tr>
<td>1979</td>
<td>1.39</td>
<td>103</td>
</tr>
<tr>
<td>1980</td>
<td>1.52</td>
<td>100</td>
</tr>
<tr>
<td>1981</td>
<td>1.72</td>
<td>82</td>
</tr>
<tr>
<td>1982</td>
<td>1.73</td>
<td>83</td>
</tr>
</tbody>
</table>

The real price of copper here is measured in terms of the unit value of industrial countries' exports.

6. Suppose firms in the investment business maximize the value of profits

\[ Z = Qf - aPm - Ph(I) \]

with \( b', b'' > 0 \). The coefficient \( a \) denotes the constant unit import cost of investment. The first order condition is

\[ b'(I) = (Q/P - \omega) \]

or

\[ I = h(Q/P, \omega) \]

References

The Debt Problems of Less Developed Countries


Murphy, R. 1984. "Essays on macroeconomic adjustment in open economies." Unpublished manuscript, MIT.


5

The World Debt Problem: 1980–84 and Beyond

External debt problems, like wars, are common occurrences in a broader historical perspective. They occur every 30 or 50 years, much in the same circumstances. And when they do occur, they put at odds the bond holder and the debtor and leave fundamental imprints on history. Hitler’s Germany or Latin America’s import substitution policy were the outgrowth of the last world debt crisis. Today Latin America is once again in a debt crisis, and the debate confronts those who call for dramatic action, including even repudiation, and others who suggest the problem is minor and can be solved by time, adjustment, and some tying-over finance—the “muddling through” strategy.

In fact not much has changed from the debt crisis of the 1930s: today the International Monetary Fund (IMF) plays the role of the League of Nations Financial Committee, the Bank Steering Committee replaces the Foreign Bank Holders Protective Council, and Bill Rhodes plays the role of Sir Otto Niemeyer.

Surprisingly, there was very little memory of debt history when the lending splurge of the 1970s got underway. Few remembered the terrible reputation of the United States in European credit markets following the defaults of the early 1840s which history relates as follows: “The vitriolic London Times indiscriminately denounced all Americans; and prophesied that the American name would not recover for half-a-century from the slur which had been cast upon it by the temporary or complete failure of some of the states to pay their debts.”

1