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Public external debt and dual resource transfers

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TEXTO PARA DISCUSSÃO

N.º 352

PUBLIC EXTERNAL DEBT AND DUAL RESOURCE TRANSFERS

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PUBLIC EXTERNAL DEBT AND DUAL RESOURCE TRANSFERS

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ABSTRACT

With the debt crisis, net transfers on the external debt of developing countries became negative, and between 1984 and 1990 - a period in which most developing countries had virtually no access to international capital markets and the external resource transfer was more intense - an annual average of almost 1% of developing countries' GNP was transferred to their external creditors. In addition to this change in the direction of net transfers to developing countries, there was another major development in the external debt situation over the 1980s: the share of public and publicly guaranteed debt in total external debt increased significantly. This paper studies the additional complications that arise for debt service when most of the external debt of a highly indebted country is held by the public sector.

JEL Classification Numbers:

E62, F34

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1. Introduction

For some decades following the widespread defaults of the 1930s¹, international capital markets provided only a very modest contribution for the financing of economic growth in developing countries. It was only by the end of the 1960s, when some middle-income developing countries gained access to the Eurocurrency market², that foreign private capital flows became again a significant source of funds for these countries.

The events following the first oil shock in 1973 further increased the availability of loanable funds in international capital markets. A significant proportion of those funds was absorbed by the developing world and became a crucial component of a strategy of accelerated economic growth that prevailed in many countries until oil prices further increased in 1979. During the 1970s, developing countries' GDP grew at an average rate of 5.8%³ and net transfers on external debt (new loans minus principal and interest payments) represented an average yearly inflow of 1.54% of their GNP.⁴

With the 1982 debt crisis, foreign indebtedness lost again its importance as a net source of funds for these countries. Net transfers on external debt became negative after 1982 and turned positive again only in 1992, a year in

¹ There are many accounts of the 1930s' debt crisis. See, for example, Diaz-Alejandro (1983).

² See Fishlow (1988) for a description of financial flows to developing countries in the post World War II period.

³ International Monetary Fund (1991), p. 120.

⁴ World Bank (1989), vol. III, pp. 2-3.

which there was a substantial increase in private capital flows to developing countries.⁵ Between 1984 and 1990 - a period in which the external resource transfer was more intense - an annual average of almost 1% of developing countries' GNP was transferred to their external creditors (see Figure 1).⁶

The use of averages to describe net transfers from all developing countries masks important contrasts in performance among different geographic regions. For some regions, net transfers on external debt were highly negative from 1984 to 1990, while for others they remained positive during the whole period of adjustment to the debt crisis (see Figure 2).

The countries in Latin America and the Caribbean, which held approximately 42% of developing countries' stock of external debt by the end of 1980⁷, had an average outflow of resources of more than 3% of their GNP between 1984-1990. For the countries in East Asia and the Pacific, the corresponding outflow of resources represented an average of 1.8% of their GNP. In contrast, countries in South Asia received an average yearly inflow of 0.5% of their GNP over the same period.

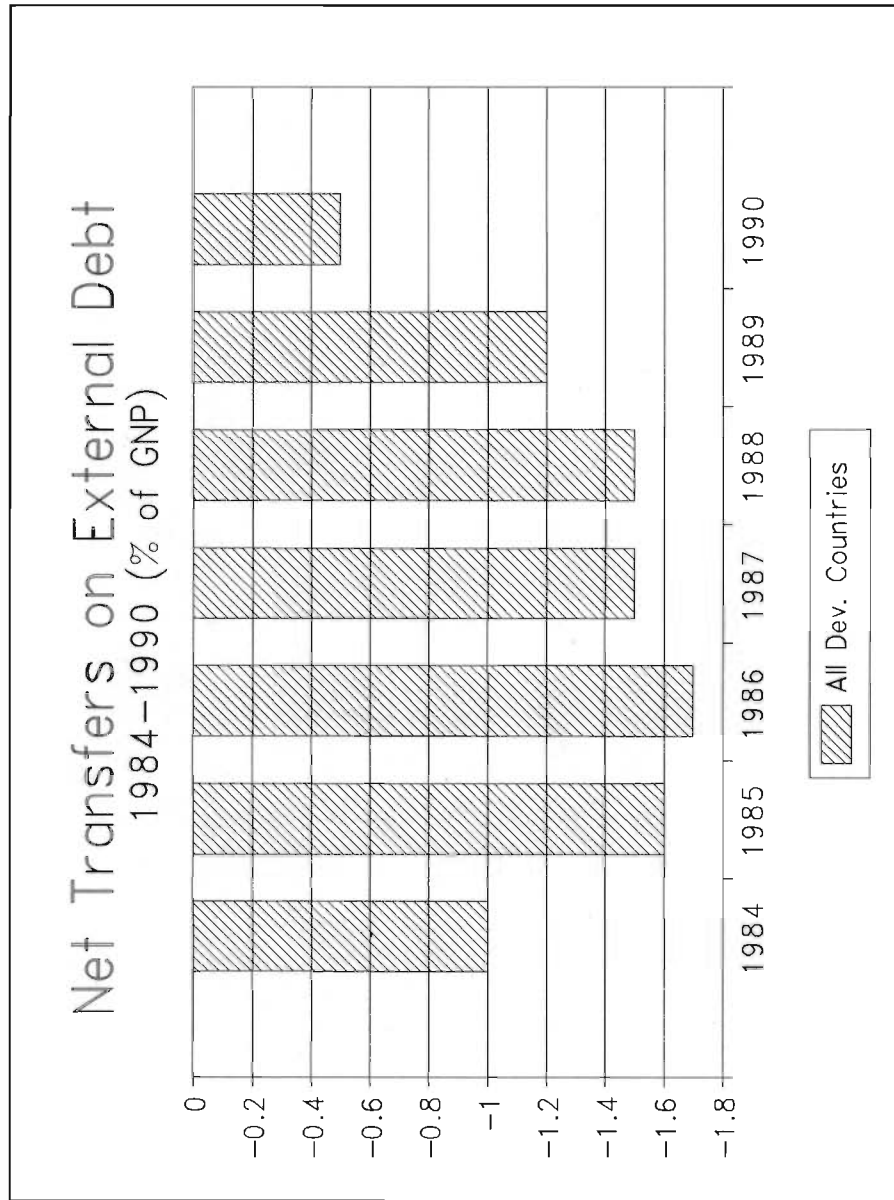
In addition to this change in the direction of net transfers to developing countries, there was another major development in the external debt situation

⁵ World Bank (1994), vol. 1, pp. 193-194.

⁶ World Bank (1991b), vol. 1, p. 152. The figures on net transfers certainly underestimate the effects of the debt crisis on developing countries. If, for example, inefficiencies introduced by the presence of a debt overhang are taken into consideration, the total costs in terms of GNP are likely to be much higher.

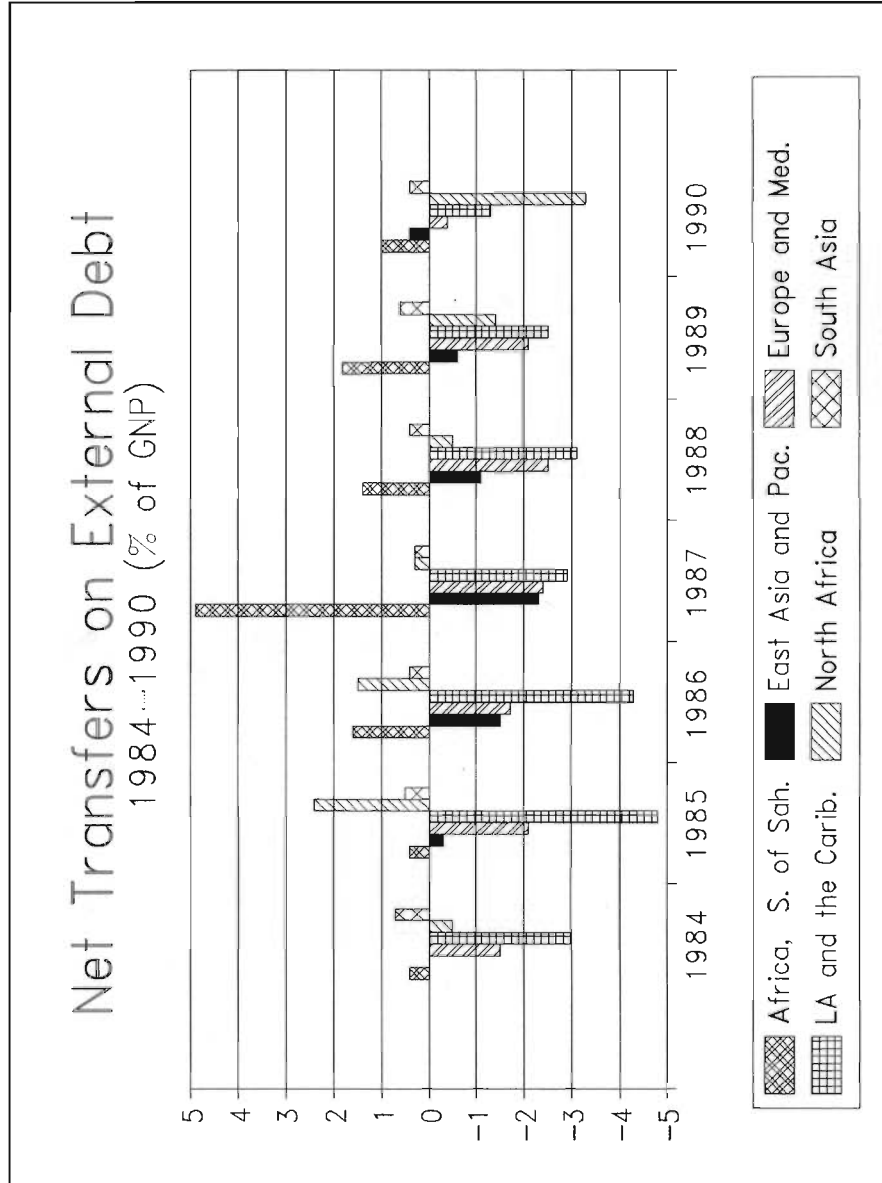
⁷ World Bank (1991b), Vol, 1, pp. 120 and 136.

Figure 1



Source: World Bank (1991b).

Figure 2



Source: World Bank (1991b).

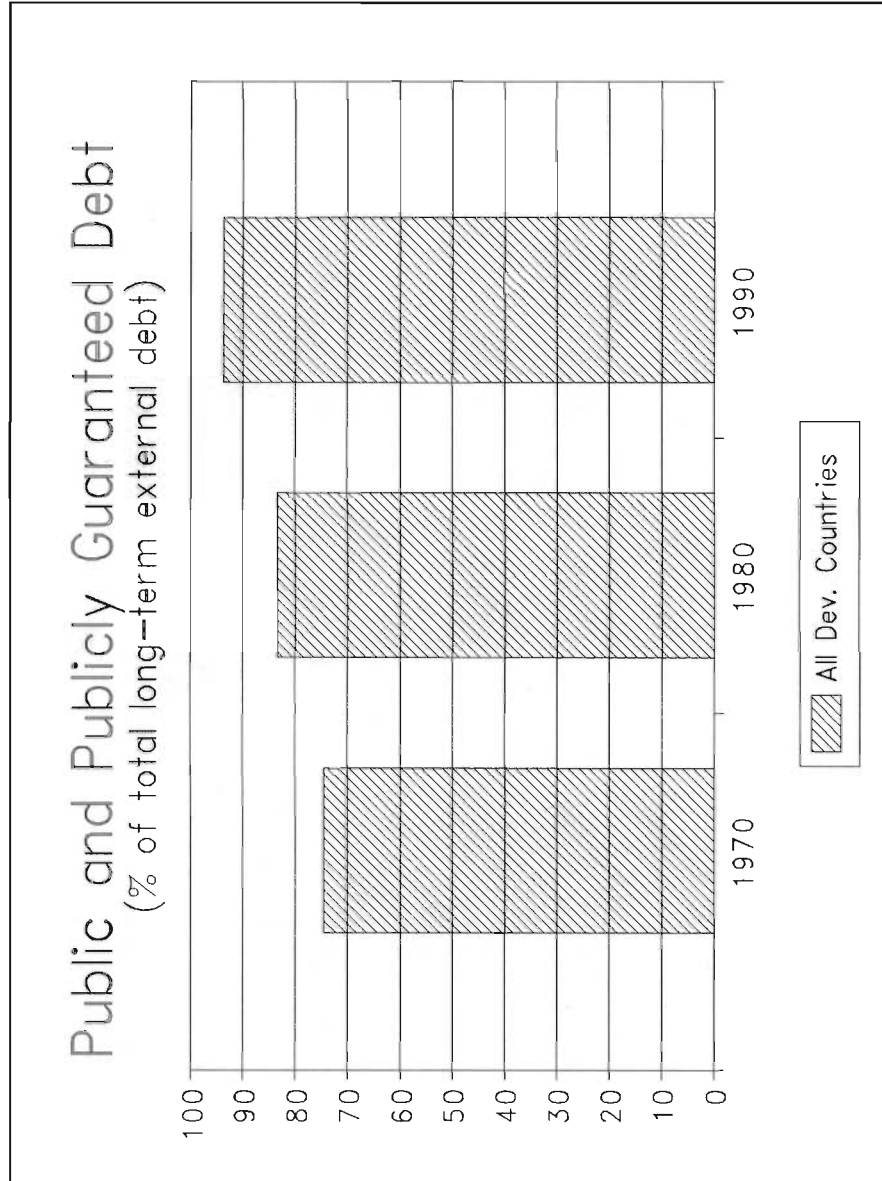
over the last two decades: the share of public and publicly guaranteed debt in total external debt increased significantly.

In 1970, about 75% of the stock of long-term external debt in the developing world was either public or guaranteed by the government of the developing countries. Commercial banks' preference for official guarantees, and the fact that these guarantees could more easily be given for public loans or loans taken by public sector enterprises, resulted in substantial increases in public debt during the lending boom of the 1970s. By the end of 1980, the share of public or publicly guaranteed debt had increased to 84% of total developing countries' long-term external debt. After the debt crisis started in 1982, commercial banks frequently required in renegotiations that the public sector assume responsibility for private sector liabilities. As a result, the share of public debt increased even more, reaching 94% of the stock of long-term external debt outstanding in 1990 (see Figure 3).

As before, there is a marked contrast when one considers the developments in different geographic regions. For Latin America and the Caribbean, the share of public and publicly guaranteed debt increased substantially from 1970 to 1980, and from 1980 to 1990. For most of the other regions, the public sector was the main holder of the stock of long-term external debt over the entire 1970-1990 period (see Figure 4).

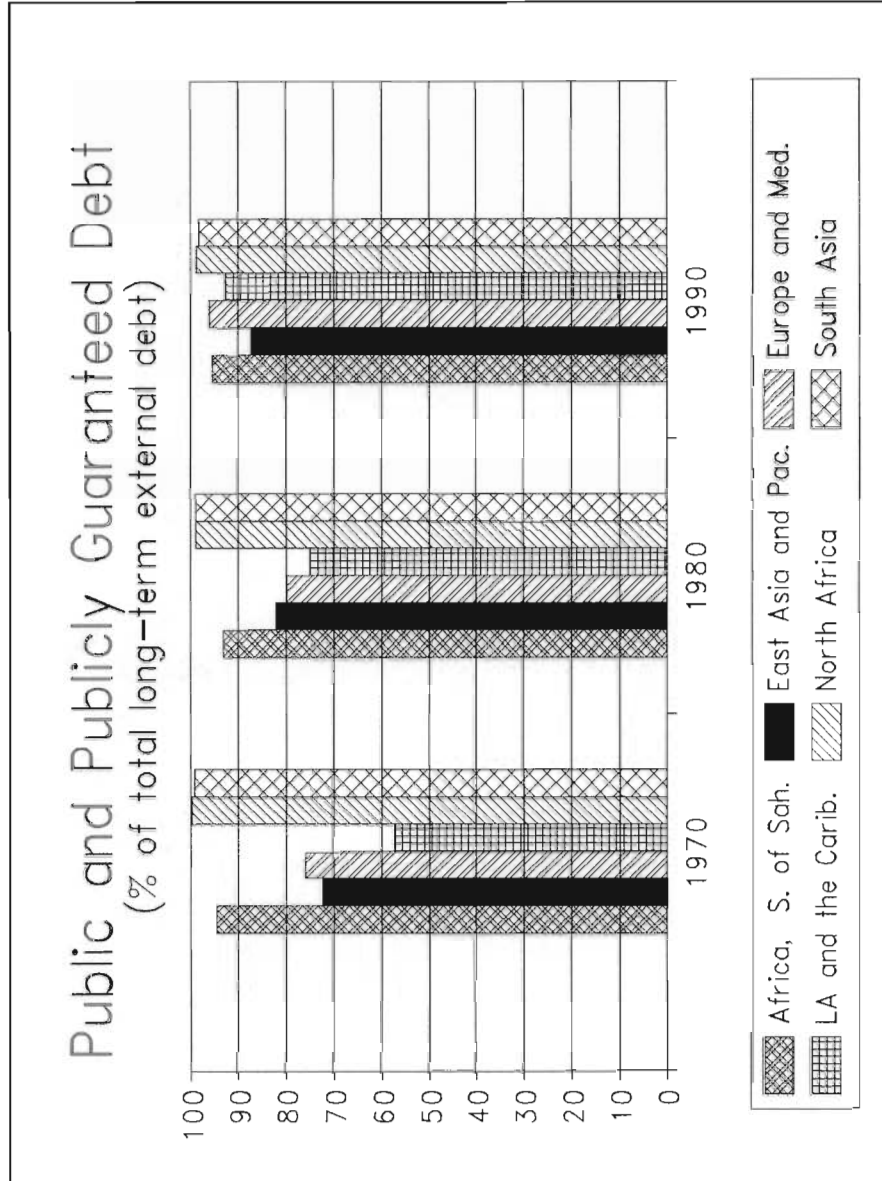
The implications for the debtors' economies of the external transfer of resources implemented after 1982 have been extensively analyzed in the

Figure 3



Source: World Bank (1991b).

Figure 4



Source: World Bank (1991b).

external debt literature. Some studies have even established parallels between the developing countries' external debt situation in the 1980s and the classical transfer problem in the context of German reparations after World War I.⁸

Rather than reexamining the external transfer question in the context of developing countries debt, the remainder of this paper focuses on a different aspect of the resource transfer problem that has recently gained more attention⁹: the additional complications that arise for external debt service when most of the debt is held by the public sector.

The next section discusses why there is a need for a dual resource transfer when there is a large public external debt. Section 3 analyzes the extent to which a constraint for external debt service arises from the fact that there are limitations to the amount of resources that domestic sources of revenue provide for public sector financing. In Section 4, it is argued that these constraints on domestic revenue sources will become more severe when the effect of external transfers on the public sector's ability to collect revenues is taken into consideration.

⁸ See, for example, Diaz-Alejandro (1984), Fraga (1986), and Schuker (1988). In fact, for many developing countries the resource transfer was more intense than in Germany in the 1920s (See Reisen and van Trotsenburg, 1988).

⁹ See Cohen (1987), Fishlow (1988), Reisen and van Trotsenburg (1988), Easterly (1989), Reisen (1989), Rodrik (1990), and van Wijnbergen et al. (1992), among others.

2. Public Debt and External Debt Service

In order to understand how the presence of a large public debt affects external debt service, it is convenient to discuss the financing options available for the public sector in a country that suddenly has to transfer a large percentage of its GDP abroad. A useful starting point is the derivation of the government budget constraint for a case in which all external borrowing is done by the public sector. The overall budget deficit¹⁰ can be financed by external borrowing, domestic borrowing, or domestic credit creation¹¹:

$$(1) G_t + e_t j_t^* D_{t-1} + i_t B_{t-1} = (B_t - B_{t-1}) + e_t (D_t - D_{t-1}) + (C_t - C_{t-1})$$

where G_t is the primary budget deficit, $i_t^* D_{t-1}$ are interest payments on the external debt, $i_t B_{t-1}$ are interest payments on the domestic debt, and e_t is the exchange rate defined as domestic currency per units of foreign currency.

Domestic credit creation can be expressed as the increase in the monetary base (H_t) in excess of foreign reserves (F_t) accumulation:

$$(2) (C_t - C_{t-1}) = (H_t - H_{t-1}) - e_t (F_t - F_{t-1})$$

The balance of payments identity states that, ignoring other net capital inflows such as foreign direct investment, current account deficits can be

¹⁰ The overall budget deficit is obtained by adding interest payments to the primary budget deficit.

¹¹ Buiter (1985), and Fischer and Easterly (1990) provide detailed discussions of the analytics of government budget constraints.

financed by external borrowing or by foreign reserves decumulation:

$$(3) \quad NX_t - i_t^* D_{t-1} = (F_t - F_{t-1}) - (D_t - D_{t-1})$$

where NX_t are net exports.

During most of the 1980s, developing countries had very little or no voluntary access at all to international capital markets and were required to keep external debt service primarily out of domestic resources. Therefore, it is useful to write the public sector budget and balance of payments constraints in a way that emphasizes the restrictions with respect to external borrowing. Equations (1) and (2) can then be restated in terms of the sources of finance for the net transfers on external debt according to each one of the two constraints:

$$(4) \quad e_t [D_{t-1} (1 + i_t^*) - D_t] + e_t (F_t - F_{t-1}) = [B_t - B_{t-1} (1 + i_t)] + (H_t - H_{t-1}) - G_t$$

and

$$(5) \quad [D_{t-1} (1 + i_t^*) - D_t] + (F_t - F_{t-1}) = NX_t$$

According to equation (4), net transfers on debt to external creditors (net of foreign reserves decumulation) must be financed by a primary budget surplus of the same magnitude, or, in the absence of that, by a combination of increases in domestic debt (net of interest payments) and money creation that finances the resulting overall deficit.

Equation (5) describes the other constraint faced by an economy that has

to repay its external debt: in the absence of any other capital inflows, net transfers on debt to external creditors (net of foreign reserves decumulation) must be financed out of net exports.

Therefore, when most of the debt is public, external debt service requires a dual resource transfer. The economy has to implement an external transfer, since in the absence of external finance, trade surpluses are needed in order to make foreign exchange available for debt service. But an internal transfer also has to be accomplished. With the external debt being largely a public liability, while foreign exchange revenues are predominantly generated by the private sector¹², resources for debt service need to be transferred from the private to the public sector.

As a result, in addition to being constrained by the economy's ability to generate trade surpluses, external debt service will be constrained in an economy that has no voluntary access to international capital markets by the public sector's ability to collect resources domestically.

3. Public Debt and Fiscal Constraints

Depending on the magnitude of the resource transfer and on the size of the existing primary budget deficit, the fact that most of the external debt is

¹² There are, of course, exceptions to that; in some developing countries the public sector holds a monopoly in the production and commercialization of the main export product.

public need not pose any difficulties for debt service. However, the extent of the required net transfers on external debt after 1982 and the large budget deficits prevailing in many developing countries at the beginning of the 1980s, indicate that the necessary degree of public sector adjustment to the turnaround in foreign capital flows was far from trivial.¹³

Given the bias towards growth of the public sector presence in the developing economies validated by an abundant supply of funds and very high willingness to lend existing in international capital markets during the 1970s, moderate budget deficits or budget surpluses were very rare at the beginning of the 1980s¹⁴. But even if countries had surpluses or more moderate deficits at the time, they would certainly end up facing limitations in trying to generate the required resources for debt service via adjustments in the primary budget.

Apart from the usual social and political constraints to taxation, there are other concrete limitations to the quantity of resources that the public sector can secure through this mechanism in any economy. Even when there are very efficient tax systems, uncommon in the developing countries, revenue is constrained, not only for incentive reasons but also because of the structure of the economy. The level of economic development, the relative share of the

¹³ Easterly and Schmidt-Hebbel (1991) present data on budget deficits during the 1980s for a large number of developing countries.

¹⁴ There are many accounts of the experience of developing countries with public debt accumulation during the 1970s. For the Latin American countries, for example, a useful reference is the collection of studies presented in Larrain and Selowski (1991).

primary sector in production, and the degree of openness of the economy have been found to be important determinants of the maximum amount of taxes that can be raised in a country.¹⁵ The structural characteristics of the developing economies make these constraints especially binding. Also, the highly unequal distribution of income that exists in some of these countries compounds the problem by generating a tax base where many potential taxpayers are below the poverty line.¹⁶

From the spending side of the public sector budget, there is certainly more room to generate additional resources. But there are also limitations to the amounts that can be obtained. Again, political resistance is not the only important constraint to fiscal retrenchment. Even if one discounts all inefficiencies that normally exist in public spending, the usual demand for resources is significantly increased in developing countries by the fact that their incipient degree of economic development requires the public sector to make substantial investments in infrastructure, health, and education, among other things.

To the usual political constraints to fiscal adjustment that exist in any country, one should add the fact that for many developing countries, especially

¹⁵ See Tait et al. (1979) for a cross-country study of the determinants of tax levels in developing countries. For a description of the characteristics of tax systems in developing countries see Newberry and Stern (1987), World Bank (1988), and Tanzi (1991), among others.

¹⁶ Recent figures on income distribution in developing countries can be found in World Bank (1990).

in Latin America, the adjustment to the debt crisis coincided with a period of remarkable political changes. Democratic regimes were implemented in a number of countries, and social demands postponed during the previous authoritarian period emerged very strongly during the 1980s. Political stability required that some of these demands were satisfied, regardless of the need for fiscal adjustment.

If external debt service exceeds foreign capital inflows and the remaining balance cannot be financed by primary budget surpluses, countries must resort to domestic financing in order to obtain the required resources. Domestic financing basically originates from two sources: issuing of interest-bearing domestic debt or money creation. Both sources of revenue face limits with respect to the maximum amount of resources that can be collected in any economy.

The relative size of domestic capital markets and the share of domestic savings in GNP offer explicit ceilings to domestic debt possibilities. In the few developing countries where domestic debt is a viable alternative, thin and underdeveloped capital markets and low domestic saving rates restrict to relatively small amounts the resources that can be obtained¹⁷. When countries resort to excessive borrowing, that decreases the amount of credit

¹⁷ Many developing countries have laws requiring that institutions such as pension funds, for example, use a fraction of their revenues to buy government bonds. In this case, the limit to the amount of resources that can be obtained is ultimately given by the revenues of these institutions.

available to the private sector, puts pressure on real interest rates, and reduces the rate of growth of the economy.

When money creation is used for domestic financing, there are also explicit limits to be faced. The total revenue from money creation, or *seignorage*, can be expressed as a proportion of nominal GDP as¹⁸

$$(6) s = \frac{dH}{dt} \frac{1}{PY} = \left(\frac{dH/dt}{H} \right) \left(\frac{H}{PY} \right) = \theta h$$

where H is base money, P is the price level, Y is real GDP, θ is the rate of monetary expansion, and h represents real balances as a proportion of real GDP.

Total differentiation of the identity $h = H/PY$ gives

$$(7) \frac{dH}{dt} = \frac{dPY}{dt} h + \frac{d(H/PY)}{dt} PY$$

Using (7) and (6) allows for expressing seignorage as

$$(8) s = (\pi + n)h + \frac{dh}{dt}$$

where π is the rate of inflation, n is the rate of growth of real GDP, and dh/dt is the change in the real stock of base money as a proportion of real GDP.

Equation (8) separates the total revenue from the creation of base money

¹⁸ Drazen (1985) discusses alternative definitions of seignorage.

into two components. Assuming no GDP growth, the first component of (8), πh , is the inflation tax. The second, dh/dt , represents the portion of seignorage derived from changes in the real stock of base money as a proportion of real GDP.

The inflation tax arises from the attempt of money holders to keep their balances constant in real terms. As (8) indicates, the inflation tax is a tax levied at the rate π on the tax base represented by the real balances h . Changes in the real stock of base money as a proportion of GDP normally occur in response to changes in output, inflation, changes in interest rates, innovations in financial intermediation, or any other factors that affect the demand for base money in the economy.

Under what circumstances will the amount of seignorage as a proportion of GDP described by equations (6) or (8) achieve a maximum? An answer to this question was provided by Cagan (1956) in his classic analysis of hyperinflations. The money demand function assumed by Cagan has the form

$$(9) \quad h = a \exp(-b\pi^*)$$

where a is a constant term and b is a parameter describing the sensitivity of the demand for base money to the expected rate of inflation π^* .

Using the money demand equation, the definition of seignorage given by (6), and the fact that in steady state when there is no output growth $\pi^* = \theta$, seignorage will be maximized when $\theta = 1/b$. Taking into consideration that in

steady state the elasticity of the demand for base money with respect to the rate of inflation is $-b\theta$, the maximum revenue from seignorage will be collected when this elasticity is equal to -1 .

The specific results from the preceding analysis rely on the particular functional form assumed for the demand for base money and were obtained for steady state seignorage. Therefore, they will not hold in every possible situation. However, there are basic implications from the analysis of inflationary finance that can be taken into consideration in assessing the limits that exist on the use of money creation as a source of revenues for the government.

As discussed above, the amount of revenue from money creation is determined by the demand for base money in the economy and by how this demand reacts to changes in inflation and real income, among other factors. For a given demand for base money, equation (8) shows that seignorage will be collected even if there is no inflation, since increases in GDP allow the government to obtain resources just by meeting the increase in real balances that results from a higher GDP. Assuming a stable demand for money, if money creation occurs at a rate higher than the one required to maintain a constant ratio of base money to GDP, more resources can be obtained, but inflation will occur.

However, as the rate of inflation increases, the demand for base money declines. In order to continue to collect the same revenue, the government has

to expand the monetary base more rapidly. Inflation then rises even more and after a certain point increases in the rate of money creation can result in lower revenues and even higher rates of inflation.

The limitations in the use of money creation apply both to developed and developing economies. However, in the latter the amount of resources that can be generated is even more restricted, since this source of revenues was overused before the debt crisis.¹⁹

Therefore, as the analysis in this section indicates, all possible sources of finance for a government that has to make net payments on its external debt face clear constraints with respect to the maximum amount of resources that can be collected.

4. Fiscal Constraints and External Transfers

The above discussion deals with fiscal constraints from a static viewpoint and does not take into consideration further complications for debt service that arise from the interaction of the two resource transfers over time. A likely consequence of making vast external transfers during successive years, starting from a situation in which large budget deficits exist, is a decline in economic growth and an increase in the inflation rate. Additional limitations to the public sector's ability to collect revenues will arise when economic growth

¹⁹ See Fischer (1982).

is sluggish and inflation is high.

In the early 1980s increased oil prices and a recession in industrialized economies sharply moved the terms of trade against many developing countries.²⁰ In order to convert trade deficits into substantial surpluses in a short period of time, large exchange rate devaluations and substantial reductions in imports were undertaken.

Depending on the degree of stickiness of wages and prices, nominal exchange rate devaluations can have a significant impact on the real exchange rate in the short-run. Real exchange rate devaluations have a perverse effect on the "transferring" economy by increasing the cost of external debt service in domestic currency. Unless the public sector itself is a very important exporter, as in the case of Mexico and Venezuela, for example, the net effect of a real devaluation on the budget is likely to be negative. As long as the non-traded goods sector is a net source of revenues for the public sector, real devaluations introduce a secondary burden for the domestic economy. In addition to the transfer itself, there is an additional burden represented by the deterioration of the internal terms of trade against the public sector.²¹ Fiscal adjustment then becomes more costly.

Apart from this direct impact on the domestic cost of external debt

²⁰ See Cuddington (1989) for an analysis of the developments that precipitated the debt crisis.

²¹ Reisen (1989), Rodrik (1990), and van Wijnbergen et al. (1992), study the fiscal effect of real exchange rate devaluations in the context of external debt service.

service, exchange rate devaluations also have important indirect effects. The impact of devaluations on the domestic price of intermediate and final imported goods, combined with the high degree of indexation existing in some developing economies, increases inflation²². That undermines the impact of the initial devaluation and makes additional devaluations necessary. Successive devaluations result in additional pressure on inflation that, in a vicious cycle, make additional devaluations necessary in order to preserve countries' external competitiveness. A secondary burden originates just from the increases in inflation and the negative effects that they have on the economy. However, when the inflation rate rises, additional costs are introduced since it becomes more difficult for the public sector to obtain revenues.

On the expenditure side, large recessions occurred in the highly indebted countries in response to the contractionist policies implemented in order to generate sizable trade surpluses and transfer resources abroad. Imports fell by 17.8% in 1982 and 23.7% in 1983 in these countries, and from 1980 to 1983, GDP declined by an average of 1.3% a year. Most of this decline in spending fell in investment. Between 1981 and 1983 the share of gross domestic investment in GDP in highly indebted countries dropped from 24.5 to 18.9%.²³ The reduction in economic activity produced by the need to meet debt service can be considered a burden in itself. But as in the case of

²² See Calvo et al. (1995) for an analysis of the impact of undervalued real exchange rates on domestic prices in highly-indebted countries.

²³ See World Bank (1991a), pp.25, 52, and 81.

inflation, additional adverse effects are introduced by the decrease in economic growth because it becomes more difficult for the public sector to service its external debt.

With slow growth and high inflation, tax revenues decrease. Part of the decline results from the contraction in the tax base. Another part comes from the reduction in the real value of receipts induced by the existence of collection lags.²⁴ In addition, the inequality in income distribution increases and the tax base shrinks even more. Public expenditures are also adversely affected, since the demand for social spending and the political resistance to any spending cuts considerably increase in periods of economic difficulties. Thus, the net effect on the budget is likely to be negative.

In a dynamic setting, the rise in interest rates that occurs when the public sector increasingly resorts to domestic borrowing in limited capital markets, depresses capital formation and reduces future economic growth. Higher domestic interest rates will also cause an additional cost to debt service when more expensive internal debt substitutes for foreign debt. Finally, reduced economic growth will result in less domestic savings available for domestic debt finance.

An additional complication that arises when large amounts of resources have to be transferred in the context of little economic growth, is that high

²⁴ See Olivera (1967), and Tanzi (1977).

interest rates will undermine the sustainability of a large internal debt.²⁵ In order to understand why this happens, it is useful to divide equation (4) through by nominal GDP and restate it as

$$(10) \Delta b = g + (r-n)b + ntd - s$$

where Δb is the change in the domestic debt to GDP ratio, g is the primary budget deficit to GDP ratio, ntd is the ratio of net transfers on public external debt to GDP, r is the real interest rate on the domestic debt, n is the growth rate of real GDP, and s is seignorage as a proportion of GDP.

Assuming a constant net transfers to GDP ratio, equation (10) states that if the primary budget deficit cannot be financed by the amount of seignorage that the public sector can collect, the dynamics of domestic debt accumulation can be stable only if the real interest rate is less than the growth rate of real GDP. In this case, economic growth will cause an erosion of the domestic debt to GDP ratio over time.

However, when real interest rates exceed the rate of economic growth, the debt to GDP ratio will increase continually and the dynamics of domestic debt accumulation will become unstable. There will be a debt to GDP ratio at which the government, even at very high real interest rates, will not be able to sell any additional debt. The earlier the public recognizes that the economy

²⁵ Debt sustainability is discussed in Buiter (1985), Morley and Fishlow (1987), and Spaventa (1987), among others.

may be getting to this point, the sooner it will get there. Higher real interest rates will be required in order to convince the private sector to hold additional amounts of public debt in their portfolios. These same high rates will signal the imminent prospect of a collapse and a regime change will have to occur.²⁶

A regime of slow economic growth and high inflation also reduces significantly the possibility of obtaining resources through money creation. The demand for base money declines as GNP decreases and as high inflation persists, there is a flight away from domestic currency since agents find alternative ways of dealing with their money holdings. Therefore, the limitations in the public sector's ability to collect revenues become more severe as the economy, starting from significant primary budget deficits, implements policies designed to transfer a sizable amount of resources abroad. The same policies that allow the external transfer to be effectively accomplished, make it more difficult for the public sector to obtain resources domestically.

²⁶ An interesting implication of equation (10) was pointed out by Sargent and Wallace (1981). Suppose that the government decides to adopt a more contractionary monetary policy by reducing the rate of money growth and increasing the stock of domestic debt. When the interest rate exceeds the rate of economic growth, an increase in the stock of debt will imply that in the future either primary deficits will have to be reduced or the rate of growth of money will have to be increased. If primary deficits are expected to be kept constant in the future, future inflation will increase because of the higher rate of money growth in the future. The anticipation of higher inflation in the future will, in general, increase current inflation. There is a possibility that current inflation will be more affected by the expected increase of inflation in the future than by the lower rate of money growth in the present. In this special situation a tighter monetary policy today will actually result in an increase in the current rate of inflation.

5. Conclusions

After 1982, net transfers on the external debt of developing countries became negative and the share of public and publicly guaranteed debt in total external increased significantly. The presence of a large public external debt introduces additional complications for debt service in a developing economy. In addition to being constrained by the economy's ability to generate trade surpluses, debt service is constrained by the public sector's ability to collect resources domestically, which is limited.

When the difficulties for obtaining resources for external debt service increase, a substantial external transfer can only be internally financed in a fiscally constrained economy at the expense of higher inflation and reduced rates of economic growth. Over time, the interaction of the two transfers can lead to a situation in which the domestic cost of debt service in terms of high inflation and low growth is too high. When repayment becomes too costly, interruptions in debt service become a more convenient financing alternative.

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