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Indebtedness *and fiscal stability:* is history repeating itself?

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Public indebtedness –and especially domestic indebtedness– is steadily increasing in a number of countries of the region, despite the major fiscal adjustment processes that have been carried out since the mid-1980s. This article analyses the main problems that this raises for public policy. It first reviews the question of the sustainability of public indebtedness. It then analyses the possible effects of privatization processes, the accumulation of indebtedness against assets, the increase in indebtedness not backed up by prior financing or contingent liabilities, the sustainability of the debt in terms of the acceptable level of inflation, the factors determining expectations regarding the sustainability of fiscal policy and the effects of those expectations on interest rates and sustainable levels of indebtedness, and the extent to which the management of the debt affects its sustainability, and vice versa.

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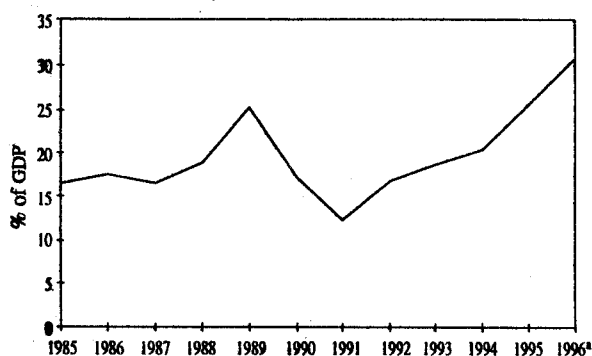
Introduction

The countries of Latin America have been engaged in a fiscal adjustment process since the mid-1980s. In most of the region, the 1995 and 1996 fiscal deficits were low (see table 1), but public indebtedness, and especially the domestic public debt, has recently increased in a number of countries, including Brazil and Costa Rica (figures 1 and 2). The authorities of these countries and international observers have begun to

show signs of concern in this regard, recalling that a similar process took place in the 1980s in a number of Latin American and Caribbean countries after the suspension of access to foreign credit as a result of the 1982 Mexican crisis, culminating in various forms of liquidation, forced conversion or repudiation of the debt (as in Mexico in 1987-1988 and in Argentina and Brazil in 1990).

FIGURE 1

Brazil: Net domestic public debt, 1985-1996



^a Preliminary figures.

FIGURE 2

Costa Rica: Gross domestic public debt, 1985-1995

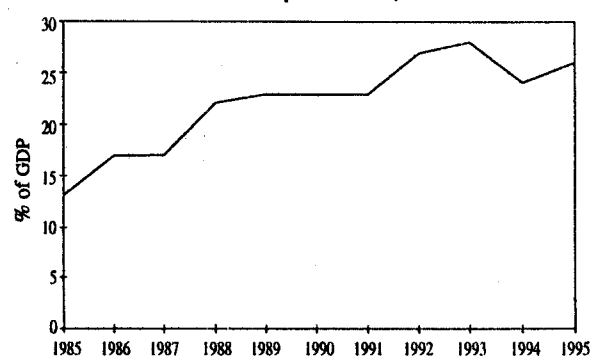


TABLE 1

Latin America: Public sector deficit (surplus)
(As a percentage of GDP)

	Average 1989-1990	1991	1992	1993	1994	1995	1996 ^a
Argentina (national non-financial public sector) ^b	-3.5	-1.6	-0.1	1.4	-0.1	-0.4	-2.0
Brazil (consolidated public sector) ^c	-2.9	-0.2	-1.8	-0.7	1.1	-4.8	-4.5
Chile (central government) ^d	3.2	1.5	2.2	1.9	1.7	2.6	1.0
Colombia (non-financial public sector)	-1.3	-	-0.2	0.3	2.6	-0.3	-1.2
Costa Rica (central government)	-4.3	-3.1	-1.9	-1.9	-6.9	-4.4	-4.5
Ecuador (non-financial public sector)	-0.7	-1.0	-1.7	-0.4	-0.2	-1.9	-3.5
El Salvador (central government)	-4.3	-5.2	-5.2	-3.3	-2.1	-1.3	-1.8
Mexico (consolidated public sector)	-3.9	-0.4	1.6	0.7	-0.4	-0.1	-0.1
Peru (central government) ^d	-5.6	-1.5	-1.5	-1.4	1.9	-1.6	2.0
Venezuela (non-financial public sector)	-0.5	-2.2	-5.9	-1.3	-13.8	-5.9	-0.0

^a Preliminary figures.

^b Excluding provinces and municipalities.

^c Excluding the inflationary component of interest rates.

^d The average for 1989-1990 corresponds to the non-financial public sector balance.

This domestic debt buildup raises various queries in terms of policy. What are the similarities and differences between this process and that which occurred in the 1980s? What have we learnt since then about the sustainability of indebtedness and fiscal sustainability? What are the effects of such elements as privatization, fiscal liabilities without prior financing and contingent obligations on the sustainability of the debt? Why is it that the countries of the Organization for Economic Cooperation and Development (OECD) are apparently able to maintain a much greater volume of "sustainable" debt than the Latin American and Car-

ibbean countries? To what extent can the management of the debt condition its sustainability, and vice versa?

These are the questions that will be briefly examined below. We do not aim to give definitive answers. What we do seek to achieve is to encourage further research in a field which we believe will be of fundamental importance for the public finances of Latin America and the Caribbean in the next ten years. In order to facilitate the exposition of our views, we will begin with the simplest definition and a description of the commonest ways of determining the sustainability of a debt, subsequently moving on to some more complex theoretical and practical problems.

II

The generally accepted way of determining the sustainability of indebtedness

The most common definition of the sustainability of a debt is the following: public debt is sustainable if the updated value of the future primary surpluses is equal to or greater than the current public debt balance, so that the State will effectively be able to pay the debt from its future surpluses:

$$[1] D(0) \leq \int_0^{\infty} S(t) e^{-rt} dt$$

where $D(0)$ is the initial outstanding debt balance in real terms, $S(t)$ is the primary fiscal surplus at time t , in real terms, and r is the real interest rate on the public debt.

This definition brings out a first obvious fact: analysis of the sustainability of the debt is the same thing as the analysis of fiscal sustainability. What needs to be determined is whether the (present and expected) fiscal situation will permit repayment of the current debt balance. If the answer is no, then policy measures must be aimed above all at increasing the future primary surpluses.

If we start from the assumption that both the interest rate and the ratio of the primary surplus to GDP are constant (that is to say, if we assume that the primary surplus will grow at the same rate as GDP, with n representing the growth rate of GDP), the situation can be expressed through the very well known equation which is used in most analyses of debt sustainability:

$$[2] (r - n) D(t) \leq S(t)$$

In this equation, we see that the debt is sustainable if its ratio to GDP remains constant or goes down with time (since it is possible to pay interest rates higher than that growth rate with the current primary surpluses). In fact, equation [2] can also be deduced from that requirement.¹ It can also be interpreted as a stable equilibrium condition. In more general terms, it may be shown that maintaining a constant ratio of debt to GDP is a sufficient but not necessary condition for the validity of equation [1] (Blanchard, Chouraqui, Hagemann and Sartor, 1990). Most debt sustainability analyses therefore try to determine whether this condition is likely to be satisfied or not.

Before going any further, I should like to make it clear that this elementary formulation highlights the fact that debt (or fiscal) sustainability depends to a decisive extent on the real interest rate and the expected growth rate: the greater the difference between them (if r is greater than n), the greater are the primary surpluses needed for the initial debt balance to be sustainable.

¹ $(D/Y) = D/Y - DY/Y^2 = (rD-S)/Y - Dn/Y \leq 0$; whence $(r-n)D \leq S$.

Most debt sustainability analyses use exogenously determined interest and growth rates. Unfortunately, these rates will obviously depend on both the debt balance and the size and course of the fiscal surpluses. This is the main –though by no

means the only– disadvantage of using such simple rules. Consequently, before going into some more complex aspects, I should like to note some other limitations of the standard way of analysing debt sustainability.

III

Does privatization help debt sustainability?

One of these limitations is that this type of analysis does not take into account the possibility of reducing the debt by the sale of State assets, as various Latin American and Caribbean governments have done in recent years. It could undoubtedly be held that in principle the privatization of such assets should not have any effect on the sustainability of the debt. As the net income generated by the assets to be privatized should have been included in the primary balance, there would be no difference whatever in the debt sustainability evaluation if that income flow disappeared and the product of the privatization operation was used to reduce the debt. This principle is valid as long as the sale price of the State assets is equal to the present value of the net income

that would have been obtained if the assets in question had remained State property.

From a microeconomic standpoint, however, the principle justifying privatization is that private businessmen can run the privatized enterprises better, so that they would be willing to pay a higher price than the present value of the net income (less taxes) that the enterprises would generate if they remained in the hands of the State. In other words, the present value of the income generated by privatization, plus the taxes paid by the privatized enterprises, could be greater than the present value of the operating surpluses of the public enterprises. In such a case, the privatization of assets to reduce the debt would indeed affect the sustainability of the latter.

IV

Gross or net indebtedness?

If the Central Bank issues debt paper to sterilize capital inflows, what effect does this have on the analysis of debt (fiscal) sustainability? What would happen if debt paper were issued to provide financial assistance to banks with portfolio problems?

This is by no means a minor problem. In recent years, one way or another many Latin American countries have issued considerable amounts of debt paper in order to sterilize capital inflows. Thus, for example, much of the increase in Brazil's domestic debt in recent years has been matched by the accumulation of international reserves and, to a lesser extent, the granting of Central Bank loans to shore up Brazilian banks that were

in difficulties. Both the reserves and these loans to banks appear as assets in the Central Bank accounts.

Foreign exchange holdings must be deducted from the gross debt, since the interest earned does not come within the definition of primary surplus. It must be borne in mind, however, that the yield on them is normally less than the interest payments on the domestic debt, and this consideration must affect the interest rate used in the analysis. In other words, the accumulation of domestic indebtedness in order to increase the international reserves (or to reduce the external debt, as in Costa Rica) affects the sustainability of the debt. Even if the ratio of net indebtedness to GDP remains

constant, the average interest rate on the net debt will increase as a result of these transactions.

A similar problem arises when domestic debt paper is issued against other financial assets. Thus, for example, in Brazil, Mexico, Venezuela, Argentina, Ecuador and a number of other Latin American and Caribbean countries the Central Banks have recently

set up rediscounting mechanisms for banks experiencing difficulties. They generally sterilize the monetary effect by issuing debt paper. The loans to these banks should be deducted when calculating the net debt, assuming that the rediscounts will be paid back in full. But will this really happen? In other words: what is the real value of these assets?

V

Contingent obligations, or obligations without prior financing

Another element which must be taken into account is that the Treasury may have contingent obligations, or obligations without prior financing, such as net liabilities connected with the social security system, deposit insurance for the whole banking system, or guarantees given to private individuals investing in infrastructural works.²

In recent years praiseworthy efforts have been made to explicitly recognize and fully finance the obligations connected with the social security system. This has been the main guiding principle in the social security reform processes undertaken by various countries of the region (Chile, Argentina, Colombia, Peru and, most recently, Mexico). These measures usually increase the size of the explicit public debt, but at the same time the sustainability of the debt (or the fiscal sustainability) has obviously improved, because the debt already existed but will not increase in the future as long as financing is provided for all new commitments of public or private pension funds. In general, there continue to be some commitments without prior financing (connected with public employees, especially members of the armed forces, teachers,

petroleum sector workers and some others who have remained outside the new system), as well as some contingent liabilities, both old and new (such as guaranteed minimum pensions).

Debt sustainability analysis must take account of the net long-term commitments of the social security system (commitments not covered by the current reserves or expected contributions), either as a long-term flow projection or at their present value as a net debt. In most cases, such an approach would very quickly reveal the unsustainable nature of the present fiscal position, even though the fiscal accounts might appear to be in balance and the explicit outstanding debt is only small (as occurred in all the countries which have reformed their social security systems). This would of course bring out the critical importance of reform of the social security system in order to achieve fiscal sustainability.

How should we deal with the remaining contingent obligations? It would be best, of course, to try to estimate their size and include them explicitly in the budget estimates. This is what the United States is now doing in the case of export guarantees and what New Zealand does with all its contingent liabilities. At a recent conference sponsored by the World Bank (held late in May at Cartagena) this aspect was examined with respect to the guarantees given to private promoters of infrastructural works.

If such a process is not carried out and there are no suitable market indicators, then a good accounting procedure would be to include a percentage of these obligations in the total government debt when analysing the debt sustainability.

² The obligations in respect of some insolvent banks or enterprises which are being run by the government and federal government guarantees on states' debts should already be included in the debt balance if there is full consolidation of the public sector in the sustainability analysis.

VI

Monetary demand and the debt-inflation tradeoff

Another limitation of traditional debt sustainability analysis techniques, such as that represented by equations [1] and [2], is that such analysis takes it for granted that all fiscal deficits will be financed through indebtedness. In practice, however, governments may choose between financing deficits by contracting debts or by issuing money. How will this affect the standard debt sustainability analysis?

The answer is very simple: public debt is sustainable if the updated value of the future primary surpluses, plus seigniorage, is equal to or greater than the current size of the public debt.

According to this definition, seigniorage includes both the money tax implicit in inflation and the income from money creation due to bigger demand in real terms (for example, as a result of the increase in real income). The concept of money applicable to this definition is the total amount of non-interest-bearing public sector obligations (generally speaking, primary money). This approach permits full consolidation of the non-financial public sector with the Central Bank.

As noted earlier, a sufficient condition for the debt to continue to be sustainable in accordance with this definition is that the course of future primary surpluses plus seigniorage (as a proportion of GDP) should lead to a level of indebtedness (as a proportion of GDP) which is constant in the long term (a stable state).

When matters relating to seigniorage are taken into account and it is assumed that there is a constant ratio of debt to primary money, the corresponding equation is as follows:

$$[1'] \quad d = (r - n)d - s - (p + n)(1/V)$$

where d is the debt/GDP ratio;

s is the primary surplus/GDP ratio;

p is the rate of inflation, and

V is the income velocity of primary money.

Consequently, the condition for the debt/GDP ratio to remain constant ($d = 0$) is:

$$[2'] \quad (r - n)d - s = (p + n)(1/V)$$

The right-hand part of [2'] represents the seigniorage, which is the result of inflation and the growth of real GDP.

This expression can be reformulated to express inflation as a function of the other variables:

$$[3] \quad p = d/b(r - n) - s/b - n$$

In this context, analysis of debt (fiscal) sustainability becomes a debate on the rate of inflation a country is willing to tolerate. If the other factors remain unchanged, different levels of d (constant long-term debt/GDP ratio) or s (primary surplus/GDP ratio) would mean different levels of inflation. The higher the debt with respect to the monetary base (Vd), the higher the stable-state rate of inflation (provided the real interest rate is higher than the growth rate of the economy).³

Note the fundamental role played by the income velocity of money. Given levels of debt and/or primary deficits will be compatible with levels of inflation that will be lower to the extent that the income velocity of money is lower. In contrast, the higher the demand for primary money (the opposite to the income velocity of money), the higher will be the "sustainable" level of public indebtedness for a given acceptable level of stable-state inflation.⁴

The foregoing clearly shows that there are no magic ratios (debt/GDP or debt/primary surplus) that can be used as international standards for giving warning of the existence of a state of fiscal unsustainability. The great discrepancies observed between the different countries as regards real interest rates, growth rates and income velocity of money show that there are in fact various different levels of sustainable indebtedness.

³ This result coincides with Sargent and Wallace's "unpleasant arithmetic" (1981).

⁴ Naturally, debt sustainability analysis becomes more complex when the income-velocity of money is itself a function of the rate of inflation.

VII

Fiscal sustainability, uncertainty and the real interest rate of the debt

As already noted, in all debt sustainability analyses the main problem is to select the "right" real interest rate. In the models analysed so far, exogenous interest rates are used. In fact, however, the interest rate depends both on the level of indebtedness and on the size and structure of the surpluses.

Ghani and Zang (1995) give a very good description of this problem: the sustainability of both domestic and foreign debt is an integral part of macroeconomic stability; the interaction of different policy variables (such as financial policy and policy on indebtedness and interest rates) and the variables of the results (such as GDP and export growth), together with international economic conditions (international interest rates), together determine whether a country has a sustainable level of indebtedness or not.

For example, in an extreme case using pure Ricardian equivalences, the decisive variable conditioning the real interest rate on the public debt would not be the fiscal surplus or deficit but total public expenditure.⁵ Public expenditure would represent the amount of resources actually transferred to the private sector. The way that expenditure was financed (through the issue of debt paper or through taxes) would not have much importance with respect to the real variables. Consequently, the total amount of public expenditure could be a variable of critical importance (because of its repercussions on interest rates) for determining the sustainability of the debt (or fiscal sustainability). This is a question that warrants further empirical research.

In more general terms, in view of all the theoretical and empirical problems raised by "proper" measurement of the debt and primary surpluses and the way they influence interest rates, the real interest rate on the public debt can be a useful summary indicator of

the market's expectations regarding the government's solvency.

Indeed, it is quite possible that the main limitation of the customary method of analysing debt sustainability lies in the fact that it does not take account of the degree of uncertainty. Explicit consideration of this element would not only enormously complicate equation [1] but would also call into question the very concept of sustainable indebtedness. Lenders may form different ideas of fiscal sustainability. The more likely they think it is that payment commitments will not be met (i.e., an impression of "fiscal unsustainability"), the higher the interest rates they will demand and the shorter the maturities they will be willing to give.

Since it is impossible to predict the future with total security, the expectations of "unsustainability" of the debt (or fiscal unsustainability), and hence the real interest rates demanded, will depend not only on the fundamental factors of the economy but also on the credibility of the government.⁶ The fact that some countries of the region have ceased payments on their domestic (and foreign) debt in the past in one form or another undoubtedly influences current expectations. If all other factors are equal, then in these cases the sustainable debt level will be lower. This is another reason why a given level of public debt or deficit (as a proportion of GDP) might be sustainable in some countries but not in others.

Nevertheless, problems are also raised by the use of the prevailing interest rates on domestic public bonds as a way of determining the debt (or fiscal) sustainability. It may happen that the Central Bank is currently applying restrictive policies, so that the interest rate may not reflect its long-term level, taking into account the parameters of the economy in question. Likewise, the "risk premium" of the government might be affected by transitory forces.

⁵ Ricardian equivalences would apply if taxes were only collected once, capital markets were perfect, and all persons acted unselfishly with regard to their inheritances. Under these assumptions, if the level of expenditure were constant, then the debt financing and taxes would be equivalent.

⁶ The margins of sovereign indebtedness with respect to U.S. Treasury bonds do in fact reflect these two circumstances.

VIII

Debt management and development of capital markets

When domestic debt securities are issued (the same is true of the foreign debt), various policy decisions need to be taken on such aspects as: more or less long-term maturities, fixed or variable interest rates, nominal or inflation-linked rates, and the frequency and form of their issue (agents, auctions, etc.). These decisions affect the expected real interest costs (which will be higher when the maturities are longer) and their variation (since the refinancing cost will be higher when the maturities are shorter). They will also affect the levels of liquidity and development of the domestic bond markets, which will in turn affect the interest rates.

As a general rule, the government is the biggest and most credit-worthy debtor, so that Treas-

ury bonds are usually the biggest and most liquid segment of domestic bond markets. The interest rate on Treasury securities naturally tends to serve as a reference rate for other forms of indebtedness, both semi-sovereign and private. Determining the prices of these securities is therefore important not only in connection with the direct costs of a public loan but also those of private loans on both domestic and foreign markets.

In order for there to be efficient long-term bond markets, consolidated yield curves for Treasury securities are needed, so that public debt management is of fundamental importance for the evolution of long-term capital markets.

IX

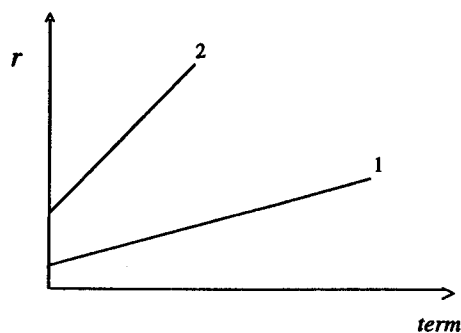
Debt management and sustainability

Debt management is therefore an important element in the sustainability of the debt, since it affects the real interest rate on the public debt. What happens in the case of the reverse relationship, however?

When a debt is considered to be unsustainable, the options for its management rapidly shrink. In practice, this perception will shift the interest-maturity demand curve upwards and –what is more important– inwards (figure 3).

Consequently, the issue of longer-term debt securities will become an increasingly costly, if not an impossible, option. Not only will the average real interest rate on public bonds increase, but their maturities will also tend to shorten. Debt management will run into serious difficulties, and the situation may turn into a veritable nightmare until inflation breaks loose or the debt is repudiated. In this context, the development of capital

FIGURE 3
Effects of "unsustainable" debt expectations on
interest rate and term of debt



markets becomes one more victim of an unsustainable fiscal position.

(Original: Spanish)

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