

## Public debt sustainability in the northern countries of Latin America

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**A**n analysis of public debt indicators in eight northern countries of Latin America reveals that Nicaragua and Honduras are the most vulnerable; Panama, the Dominican Republic, Costa Rica, and El Salvador are moderately vulnerable; while Mexico and Guatemala have debt levels that are not considered dangerous. Nonetheless, a subsequent review of four indicators of fiscal sustainability shows only Mexico to be well positioned under all criteria; Costa Rica and Guatemala display a number of minor problems, while various special circumstances explain the favourable results obtained by Nicaragua and the Dominican Republic; and El Salvador, Honduras and Panama will be unable to sustain their 2004 fiscal policy for very long. Lastly, analysis of the sensitivity of the debt to a “sudden stop” in foreign capital inflows suggests the need for a cautious attitude towards the future trend of the public debt in the face of rising international interest rates.

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# I

## Introduction

Thanks to the hopes kindled by macroeconomic and structural reforms and the resumption of growth, the fiscal sustainability of public debt has not been a prominent item on government agendas in the eight Northern Latin American countries for most of the 1990s and the first few years of the new millennium. This could change, however, given the slow pace of economic growth in 2000-2003 and the rise in international interest rates since mid-2004. It is therefore worth considering how vulnerable these eight countries (Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama and the Dominican Republic) are in macroeconomic terms.

The issue of public debt sustainability has recently regained importance worldwide following a series of debt restructurings or moratoria in countries as different as Argentina, Ecuador, Pakistan, Russia, Ukraine and Uruguay. In response to these developments, the International Monetary Fund (IMF) began to develop mechanisms to ensure an orderly resolution of future debt crises. While these will serve in post-crisis situations, an even more important task is to focus on the prevention of debt crises. To highlight a number of worrying trends in developing countries, the Fund devoted a chapter to this topic in its *World Economic Outlook, 2003* (IMF, 2003), and ECLAC included a chapter on public debt sustainability in the region in its *Economic Survey of Latin America and the Caribbean, 2003-2004* (ECLAC, 2004). The latter draws attention to the fact that the curve reflecting the behaviour of such debt has been U-shaped over the last 15 years; the debt as a percentage of GDP declined from 1990 to 1996, before rebounding as from 1997. The latter period coincided with what ECLAC has dubbed the “lost half-decade”.<sup>1</sup>

The fact that the debt is higher today than it was seven years ago is not worrying in itself. Nonetheless, the world economy is in the upswing of the business cycle, following three years of very low growth, and

this phase of the cycle is usually accompanied by a revival of inflation and a corresponding reaction by the monetary authorities, with monetary tightening reflected in a general rise in interest rates. A clear sign of this sequence unfolding is the fact that the United States Federal Reserve has been raising its benchmark interest rate since mid-2004.

The phase of very low interest rates has therefore come to an end, and the question now is how far rates will rise and what the consequences will be for the northern Latin American countries. If rates rise to a moderate level and gradually, the debt is unlikely to become a problem; but if they reach high levels and very suddenly, then debt sustainability could become a key economic policy issue.

Against this international backdrop, this article examines the following set of questions: Are the northern Latin American countries likely to suffer a debt crisis in the next two or three years? Are public finance trends in these countries sustainable? If not, what size of fiscal adjustment would be needed to make them sustainable? Given national and international circumstances, what are the prospects for those countries in terms of public debt? And lastly, which countries are most vulnerable at the present time?

Section II of the article examines the public-debt status of these eight countries and describes a number of key debt indicators. These (both stock and flow coefficients) are then compared with the international thresholds suggested in the specialist literature. The indicators, which represent *ex post* measures of indebtedness, serve as an initial approach to the subject.

Section III analyses indicators of public debt sustainability in the northern Latin American countries. Of the numerous indicators of fiscal sustainability proposed in theoretical studies, we chose four: the Blanchard (1990) indicator, the macro-adjusted deficit of Talvi and Végh (2000), the recursive algorithm of Croce and Juan-Ramón (2003), and the currency-mismatch indicator proposed by Calvo, Izquierdo and Talvi (2003). As any analysis of public debt sustainability is at the same time an analysis of fiscal policy sustainability, it will also be possible to deduce the magnitude of the fiscal adjustment needed to put public finances on a sustainable path.

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<sup>1</sup> In fact, the public debt as a percentage of GDP in 2004 was higher than the external debt as a percentage of GDP in 1982, when the debt crisis broke. Carrera Troyano (2004) analyses this point in greater detail.

Section IV places the results of the two previous sections in the broader setting of the macroeconomic situation of the northern Latin American countries and their international setting, both now and in the future. The sensitivity of the debt is calculated in the hypothetical case of a “sudden stop” in foreign capital inflows, which translates into a sudden depreciation, rising interest rates, growth slowdown, and the conversion of contingent liabilities into public debt.

This indicates the order of magnitude of the fiscal adjustments needed in the worst-case scenario, in which the four adverse effects indicated above occur simultaneously. Lastly, the paper analyses the behaviour of several major sources of foreign exchange, such as remittances, tourism and the maquila industry.

Section V sets forth conclusions and policy recommendations.

## II

### Public debt indicators in the northern Latin America countries

Public debt indicators provide initial information on debt sustainability. They are *ex post* indicators in the sense that they compare observed facts with indicators of sustainability, which in turn show *ex ante* the magnitude of the permanent fiscal adjustment needed to make the debt sustainable. The debt indicators comprise both stock and flow coefficients and assist us with international comparison. The World Bank, the IMF and other financial institutions normally define threshold values for a number of indicators, for early warning and prevention purposes.

Public external debt accounts for over half of the total external debt in all of the countries analysed (see table 1). The smallest share is in Mexico (54%), and the highest in Nicaragua (86%). What happens with public debt therefore determines the trend of external debt, and vice versa.<sup>2</sup>

Another important element is the share of short-term debt in total external debt; and it is usually considered that the economic authorities have no cause for alarm provided this indicator is below 10%. Nonetheless, the short-term debt accounts for over 10% of the total in four of the eight countries analysed, and it is approaching that level in another three, which suggests a dynamic that could be dangerous in adverse circumstances. Accordingly, bearing in mind the current and future international situation, public debt trends need to be analysed and continuously monitored.

Many debt analysts work with the net present value of the debt rather than its nominal value, arguing that this is a more precise figure since it shows how much of the debt is concessional. For the same reason, the debt is normally measured in net rather than gross terms, with the Government's liquid assets deducted. This

TABLE 1

**Northern Latin American countries: public external debt and short-term external debt as a proportion of total external debt, 2002**  
(Percentages)

| Indicator/Country                       | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Republic |
|---|------------|-------------|-----------|----------|--------|-----------|--------|--------------------|
| Total external debt                     | 64.9       | 80.9        | 77.9      | 78.1     | 54.0   | 86.0      | 77.2   | 64.5               |
| Short-term debt/<br>Total external debt | 31.0       | 17.0        | 19.9      | 9.7      | 7.0    | 8.5       | 4.5    | 32.3               |

Source: World Bank (2005).

<sup>2</sup> The economics literature has attempted to provide a theoretical framework to explicate the link between public debt and external debt,

but thus far the results have only been partial. See for example Horne (1991), Parker and Kastner (1993), and Chalk and Hemming (2000).

would be correct if figures were available on unregistered liabilities that are implicit government debts – a category that includes off-budget and contingent liabilities, obligations arising from the social security system, and others.<sup>3</sup> Their effect is to raise the debt/GDP ratio, but the lack of data on unregistered liabilities in the countries analysed makes them impossible to quantify. Accordingly, we believe that gross nominal debt in relation to GDP is an indicator that is less error-prone than the net debt or the net present value of the debt.<sup>4</sup> The uncertainty surrounding the figures stems from methodological problems in the accounting records of several of the eight countries analysed. Dual accounting practices, omitting certain fiscal operations from the records or using heterodox fiscal accounting (as in Panama until recently), distort the official figures and do not faithfully reflect the fiscal reality of the public sector. Lastly, as problems of under-recording are of an unknown magnitude but probably significant, the best one can do is to draw attention to the situation and use the nominal gross debt instead of the net debt or its net present value.

One of the most widely used indicators is the total public debt (domestic plus external) of the non-financial public sector (NFPS) expressed as a percentage of GDP. There is no consensus as to what level of debt is dangerous, however, and the critical values vary widely depending on the type of economy. A level deemed acceptable for industrialized countries is considered too dangerous for developing countries. For example, one of the Maastricht Treaty criteria for European Union countries to adopt the common currency required public debt to be below 60% of GDP. In contrast, the IMF (2003) argues that the sustainable level of public debt in emerging economies is just 25% of GDP.

This very low level, while controversial, reflects the changes that have occurred in the international economy over the last 35 years. In an increasingly globalized world, in which financial capital crosses national borders without difficulty, international macroeconomic and financial stability is a global public good. Nonetheless, this public good is currently in very short supply worldwide.<sup>5</sup> As a result, the existing

international financial architecture forces countries to assume the cost of macroeconomic stability individually, a task which recently proved burdensome even for Asian countries such as the Republic of Korea, whose macroeconomic management is exemplary.

Be that as it may, we live in a world where the problem of public debt sustainability is seen as pertaining exclusively to individual countries, so almost inevitably one must accept that the critical value for such sustainability is just 25% of GDP. Another threshold level recommended by the Fund (IMF, 2002) is 40% of GDP. Below this proportion, the likelihood of a debt crisis occurring is under 5%; but when the level of the debt surpasses the equivalent of 40% of GDP, the probability of crisis climbs to a range of 15%-20%. In other words, the relation between the likelihood of a debt crisis and the level of the debt is non-linear,<sup>6</sup> which makes it even more important to analyse the level of the debt and its sustainability.

How are the northern Latin American countries placed in this regard? Figure 1 shows the debt of the non-financial public-sector as a proportion of GDP for the eight countries studied.<sup>7</sup> Three countries have a higher debt level than the average for Latin America and the Caribbean as a whole; and two of them, Nicaragua and Honduras, have been admitted to the Heavily Indebted Poor Countries (HIPC) initiative. Panama also has a relatively high level of debt. Levels of around 48% of GDP in Costa Rica and the Dominican Republic, and 42% in El Salvador, place these countries above the critical 40% mark, but below the Maastricht Treaty criterion. Mexico is the only country where a debt crisis seems very unlikely, while Guatemala is the only country that fulfils the very stringent sustainability requirement of public debt below 25% of GDP.

In addition to the proportion of GDP, another key indicator is the total public debt in relation to public-sector income (figure 2). A given level of public debt as a proportion of GDP may vary greatly in relation to public revenues. Costa Rica and the Dominican Republic clearly illustrate this with their debt/GDP ratios both around 48% in 2004, but ratios of debt/public-sector income of 136% and 294%, respectively. This reflects the different sizes of the State in the two countries, and serves to nuance

<sup>3</sup> Further details on this can be found in ECLAC (1998) and IMF (2002).

<sup>4</sup> One of the most perverse characteristics of contingent liabilities is their asymmetric occurrence. In good times they mostly remain contingent, but in bad times a high proportion of them move out of that category and become public debt. In a catastrophic crisis such as the external debt crisis of the 1980s, even private debts become public debt, especially those of the financial sector.

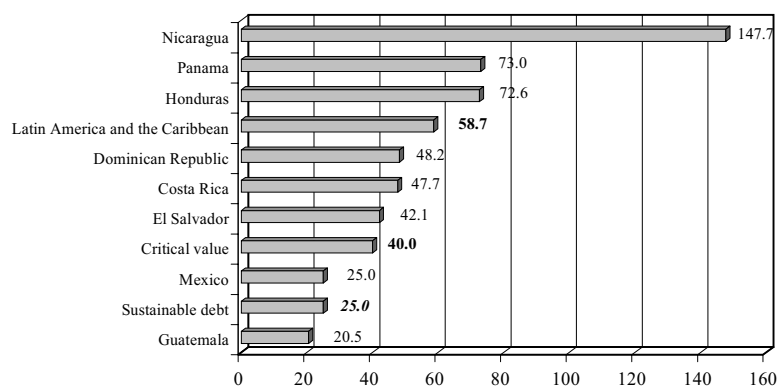
<sup>5</sup> See ECLAC (2002), for example.

<sup>6</sup> Pattillo, Poirson and Ricci (2002) also find a non-linear relation between external debt and economic growth, specifically, that the impact of the external debt on growth becomes negative above a debt level of 35%-40% of GDP and/or 160%-170% of the value of exports.

<sup>7</sup> Except for the Dominican Republic and Guatemala, which only report central government figures.

FIGURE 1

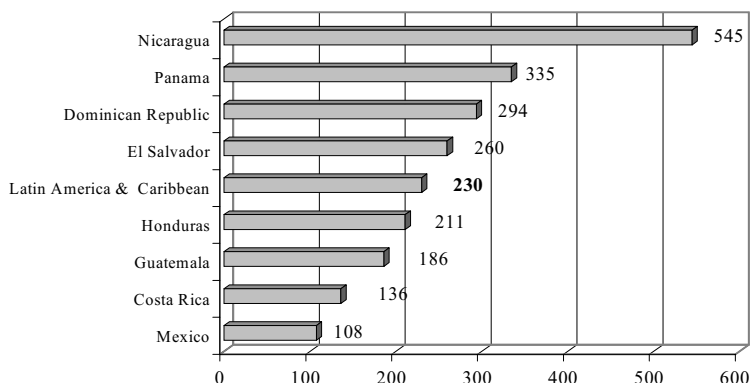
**Northern Latin American countries: debt of the non-financial public sector as a percentage of GDP, 2004**



Source: Author's calculations, on the basis of official figures.

FIGURE 2

**Northern Latin American countries: public debt as a percentage of public-sector revenue, 2004**



Source: Author's calculations, on the basis of official figures.

the debt/GDP indicator by indicating the burden on the Treasury's revenue-generating capacity.

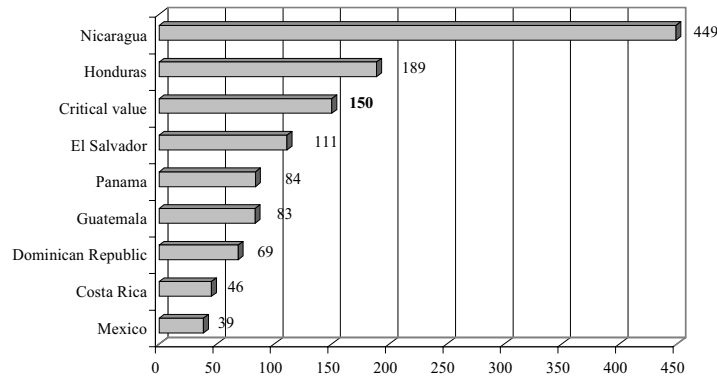
Another important indicator is the ratio between public external debt and exports of goods and services (figure 3). A threshold of 150% was used to identify countries eligible for admission to the HIPC initiative, although measured through the net present value of the public external debt. This provides an indicator of the burden on exports, i.e. on the economy's foreign-exchange-earning capacity. In this regard, the Dominican Republic is one of the countries with the greatest capacity to generate foreign exchange, in contrast to the conclusions drawn from the previous two indicators. Mexico is the best placed country, with Nicaragua and Honduras at the other extreme.

It is also necessary to compare debt amortization with new debt disbursements (figure 4). If this "revolving ratio" is above 100, existing debt is not refinanced by new borrowing; but if the indicator is below 100, old debt is being refinanced with new, thereby prolonging the prevailing debt dynamic. Unfortunately, no northern Latin American country is on the "right" side of this indicator (i.e. over 100). Mexico is best placed, almost reaching the critical value, with Costa Rica and El Salvador also relatively close. The fact that other countries are way below the threshold flags a potentially dangerous trend in the future in the absence of radical changes.

The level of interest payments on the public debt in relation to GDP shows how burdensome such payments are for the country (figure 5). The critical

FIGURE 3

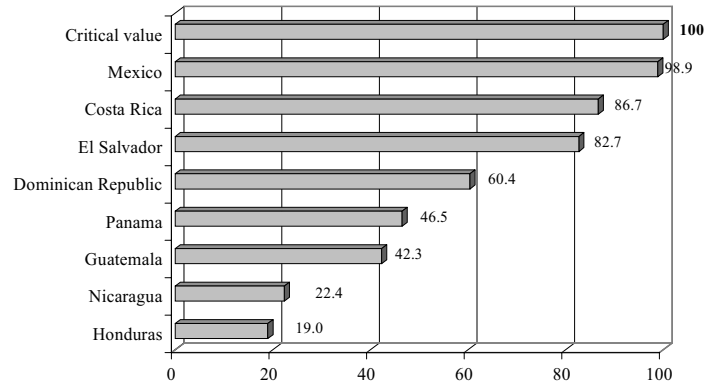
**Northern Latin American countries: public external debt as a percentage of exports of goods and services, 2004**



Source: Author's calculations, on the basis of official figures.

FIGURE 4

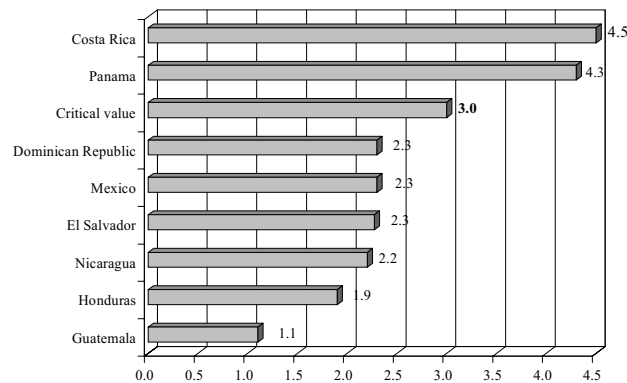
**Northern Latin American countries: ratio between debt amortization and new disbursements, 2004**



Source: Author's calculations, on the basis of official figures.

FIGURE 5

**Northern Latin American countries: interest payments on the public debt as a percentage of GDP, 2004**



Source: Author's calculations, on the basis of official figures.

value mentioned in the specialist literature is 3% of GDP. On this basis, Costa Rica and Panama are on the wrong side of the threshold. As these two countries also have the highest share of domestic debt in total public debt,<sup>8</sup> it can be inferred that the interest rates they pay on domestic debt are relatively high.

Table 2 displays the indicators analysed along with several others that may be of interest, such as the net international reserves held by central banks in relation to public external debt, public external debt service as a proportion of exports of goods and services, and others. All of these indicators provide valuable information on the scale of public indebtedness and can be used to assess potential risks in the near future.

The debt indicators of these eight countries reflect their tremendous variety. Nicaragua and Honduras would appear to be in the most problematic situation, although the rules of the game for them are different since both are already included in the HIPC initiative. These two countries also have adjustment programmes in place with the IMF, in which a major component is devoted to fiscal tightening. The second group includes Costa Rica, the Dominican Republic, El Salvador and Panama, whose indicators display major vulnerability, but not extreme as in the first group. This could become a problem if the currently favourable conditions were to worsen significantly. Lastly, Mexico and Guatemala are a group apart, given that their indicators do not indicate a dangerous level of debt.

TABLE 2

## Northern Latin American countries: indicators of public debt, 2004

|   | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Republic |
|---|------------|-------------|-----------|----------|--------|-----------|--------|--------------------|
| External debt/GDP                             | 21.1       | 30.2        | 14.3      | 68.3     | 11.5   | 118.3     | 52.6   | 33.9               |
| Domestic debt/GDP                             | 26.6       | 11.9        | 6.2       | 4.3      | 13.4   | 29.4      | 20.4   | 14.3               |
| Total public debt/GDP                         | 47.7       | 42.1        | 20.5      | 72.6     | 25.0   | 147.7     | 73.0   | 48.2               |
| Total public debt/public-sector revenue       | 135.9      | 283.2       | 186.2     | 210.9    | 107.7  | 54.0      | 334.7  | 293.9              |
| External debt/exports                         | 45.5       | 111.1       | 83.4      | 189.0    | 38.5   | 449.3     | 83.8   | 68.7               |
| Net international reserves/external debt      | 51.6       | 39.5        | 89.4      | 33.0     | 78.8   | 8.0       | ...    | 9.4                |
| External debt service/exports                 | 12.8       | 22.0        | 10.0      | 18.5     | 12.8   | 6.4       | 12.8   | 15.5               |
| External interest payments/exports            | 2.8        | 7.0         | 4.1       | 2.5      | 4.7    | 9.4       | 5.7    | 3.8                |
| Amortization/disbursements<br>(external debt) | 86.7       | 82.7        | 42.3      | 19.0     | 98.9   | 22.4      | 46.5   | 60.4               |
| External interest payments/GDP                | 1.3        | 1.9         | 0.6       | 1.2      | 1.0    | 0.6       | 3.6    | 1.9                |
| Domestic interest payments/GDP                | 3.2        | 0.4         | 0.5       | 0.7      | 1.3    | 1.6       | 0.7    | 0.4                |
| Total interest payments/GDP                   | 4.5        | 2.3         | 1.1       | 1.9      | 2.3    | 2.2       | 4.3    | 2.3                |
| Total public debt per capita (in dollars)     | 2 065      | 985         | 436       | 719      | 1 594  | 1 227     | 3 016  | 997                |

Source: Author's calculations, on the basis of official figures.

<sup>8</sup> Except for Nicaragua.

### III

## Indicators of fiscal sustainability

### 1. Theoretical issues underlying these indicators

Economic theory states that the results of current fiscal policies satisfy the solvency condition when future primary surpluses are equal to the public debt, both variables being measured in net present value terms.<sup>9</sup> This means that the Government is solvent on an intertemporal basis, since it can persist with its current policies. Nonetheless, this condition does not easily translate into an operational indicator, for future primary surpluses cannot be known in advance. Moreover, as Horne (1991) points out, government solvency is a necessary but not a sufficient condition for current fiscal policy to be sustainable. The future behaviour of the private sector is also relevant, since this determines future rates of interest and economic growth.

To avoid these problems, the specialist literature has proposed simpler indicators that have far less demanding data requirements than those based on the concept of intertemporal solvency.<sup>10</sup> Nonetheless, indicators of this type lack a clear theoretical basis for their construction. One of the most serious problems is their arbitrary nature; in general they measure the effort needed to keep the debt/GDP ratio at its current level, but that level might either be too high or too low, and these indicators provide no criteria for judging this. Accordingly, they have to be considered along with the debt indicators presented in section II.

### 2. Four fiscal sustainability indicators in the northern countries of Latin America

We now present four indicators of sustainability, each of which highlights an element that is relevant to sustainability analysis. The first is the short-term primary gap (Blanchard, 1990) which indicates the level

of the permanent primary balance<sup>11</sup> needed to stabilize the debt relative to GDP at its current level:

$$sp^* - sp = (r_t - n_t) b - sp \quad (1)$$

where  $sp^*$  is the permanent primary balance needed to stabilize the debt,  $sp$  is the existing primary balance,  $r_t$  is the trend real interest rate,  $n_t$  is the trend rate of GDP growth, and  $b$  is the debt/GDP ratio. If the permanent primary balance is larger than the current primary balance, the primary gap is positive. This means that fiscal policy is unsustainable, because it tends to increase the level of debt in relation to GDP. In the opposite situation, where the permanent primary balance is below the current primary balance, fiscal policy tends to reduce the debt/GDP ratio.

Table 3 shows data on the primary balance prevailing in 2004, the required primary balance in 2004, the trend primary balance, the trend primary gap and the required primary gap in 2004. The trend primary balance and the trend primary gap are indicators proposed by Blanchard along with the trend growth rate over the last 10 years<sup>12</sup> and the real interest rate over the last 10 years. We use the “implicit” interest rate, which is calculated as debt interest payments as a percentage of the debt balance outstanding in the previous period, as suggested in ECLAC (2004). Specifically, the real interest rate was calculated as the weighted average of interest rates on domestic and external debt:

$$r_t = r_t^D \frac{b_{t-1}^D}{b_{t-1}} + r_t^E \frac{b_{t-1}^E}{b_{t-1}} \quad (2)$$

where  $r_t^D$  is the interest rate on the domestic debt,  $b_{t-1}^D$  is the domestic debt service/GDP ratio in the previous period,  $b_{t-1}$  is the total public debt/GDP ratio in the previous period,  $r_t^E$  is the interest rate on public external debt, and  $b_{t-1}^E$  is the public external debt/GDP ratio in the previous period.<sup>13</sup>

<sup>9</sup> See for example Horne (1991), Talvi and Végh (2000).

<sup>10</sup> Another line of research on sustainability uses econometric methods. Nonetheless, there is no consensus on how the problem of sustainability should be analysed (Chalk and Hemming, 2000). Access to large amounts of data is needed to afford sufficient degrees of freedom, which is a prohibitive requirement for many developing countries. For these two reasons we do not explore that line of research here.

<sup>11</sup> The primary balance is the difference between total revenue and total expenditure excluding interest payments.

<sup>12</sup> The trend growth rate was estimated in the usual way using the Hodrick-Prescott filter with  $\alpha = 100$ .

<sup>13</sup> The real domestic interest rate was calculated using the variation in the consumer price index. To obtain the external real interest rate, we used the variation of the unit value of merchandise exports, as suggested in ECLAC (1988).



TABLE 3

**Northern Latin American countries: indicators of the primary gap and the existing primary balance, 2004**  
(Percentages and percentages of GDP)

| Indicator/country                | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Republic |
|----------------------------------|------------|-------------|-----------|----------|--------|-----------|--------|--------------------|
| Primary balance existing in 2004 | 0.5        | -0.2        | 0.2       | 0.1      | 2.5    | 2.0       | -0.7   | 3.9                |
| Trend implicit interest rate     | 4.9        | 5.4         | 5.1       | 13.2     | 1.6    | 1.4       | 6.6    | 3.0                |
| Implicit interest rate in 2004   | 2.8        | 4.7         | 1.3       | 8.8      | 1.1    | -4.6      | 4.9    | -4.4               |
| Trend growth rate                | 4.6        | 3.6         | 3.7       | 3.0      | 3.0    | 4.2       | 3.9    | 4.8                |
| Real growth rate in 2004         | 4.2        | 1.5         | 2.7       | 5.0      | 4.4    | 5.1       | 6.2    | 2.0                |
| Trend primary balance            | 0.1        | 0.7         | 0.3       | 7.4      | -0.4   | -4.1      | 1.9    | -0.9               |
| Required primary balance in 2004 | -0.7       | 1.3         | -0.3      | 2.8      | -0.8   | -14.4     | -0.9   | -3.1               |
| Trend primary gap                | -0.4       | 0.9         | 0.0       | 7.3      | -2.8   | -6.0      | 2.6    | -4.8               |
| Required primary gap in 2004     | -1.2       | 1.5         | -0.5      | 2.6      | -3.3   | -16.3     | -0.2   | -7.0               |

Source: Author's calculations on the basis of official figures.

We also made a minor change to the Blanchard indicator, by calculating the primary gap using data on economic growth and the real interest rate in 2004. We call this indicator the required primary balance in 2004. Whereas the traditional Blanchard indicator reflects the primary balance with “normalized” data over at least one business cycle, our modification captures short-term conditions prevailing in the year for which the indicator is calculated. This can be useful both to support its status as a suitable indicator for capturing specific or temporary conditions, and to compare it with more “normal” conditions reflected by the indicator of the trend primary balance.

When interpreting the results, the special characteristics of the current situation need to be borne in mind, since interest rates are at a very low level, while GDP growth is relatively high. For that reason, the trend primary gap is a better indicator than the required primary gap in 2004. For greater clarity, table 3 also presents data on the trend implicit real interest rate, the implicit real interest rate in 2004, the trend growth rate and real growth rate in 2004. As can be seen, the trend implicit real interest rate in 2004 is above the implicit real interest rate in all cases, whereas the trend growth rate is above the real growth rate in 2004 in just four countries. In the other four, the trend growth rate is below the real growth rate recorded in 2004. Lastly, the implicit real interest rate in 2004 is below the real growth rate in 2004 in six of the eight countries. For these reasons, the required primary balance in 2004 in most cases is less than the existing balance.

In the case of Costa Rica these results show that fiscal policy is tending to stabilize the level of public debt in 2004, because the current primary balance is

greater than both the trend and the required primary balances. Nonetheless, it is worrying that the country spends over 4% of GDP each year on interest payments. In 2004, El Salvador, Honduras and Panama have positive primary and required gaps, so if they persist with their current fiscal policy, public debt will grow as a percentage of GDP.<sup>14</sup> In contrast, the results for Guatemala and Mexico show that current fiscal policy is sustainable.

Nicaragua and the Dominican Republic are to some extent special cases. The required primary balance in 2004 for Nicaragua is heavily biased by the real interest rate, which is negative as a result of the country's minimal interest payments, given debt payment arrears and payments condoned under the HIPC initiative. Another significant factor is the relatively high growth rate (5.1%), which is reflected in the negative required primary balance. Both factors also appear in the case of the trend primary balance. In contrast, in the Dominican Republic the positive primary balance recorded in 2004 stems from the inadequate coverage of the country's published fiscal data, which only reports the result of central government and excludes the central bank's quasi-fiscal deficit. As the latter was around 4% of GDP in 2004, a broader coverage of fiscal policy results would prove less flattering. Nonetheless, the country made major efforts to regain macroeconomic policy credibility following the banking crisis of May 2003. The required primary

<sup>14</sup> Panama partially escapes this conclusion with the negative required primary gap in 2004. Nonetheless, the growth rate in 2004 was 6.2%, higher than the implicit interest rate (4.9%); so the question is for how long this situation can last, given the fact that interest rates are rising.

balance in 2004 is also negative because the real interest rate paid by the country on its domestic debt was negative. Inflation, which had reached the annual rate of 60% at the start of 2004 and has been decreasing since then, was the cause of the real negative interest rate in 2004. Lastly, with the more usual parameter values (the very high growth in the 1990s), the Dominican Republic should not have debt sustainability problems: figures for the trend primary surplus suggest that it could indulge in negative primary balances of up to 4.8% of GDP and still maintain the level of its debt as a proportion of GDP.

This indicator therefore suggests that fiscal policy is sustainable in Costa Rica, Mexico and Guatemala.<sup>15</sup> The cases of Nicaragua and the Dominican Republic should be interpreted with care, bearing in mind their special circumstances. According to the Blanchard indicator, the other countries analysed need to take action to return to a fiscal sustainability path.

The second indicator of fiscal sustainability explored in this paper is the macro-adjusted primary deficit proposed by Talvi and Végh (2000). The underlying motivation for this indicator is the great volatility displayed by macroeconomic variables in Latin America, which means that the deficit at a given moment may differ greatly from what it would be under normal macroeconomic conditions. To solve this problem, the authors propose calculating a macro-adjusted primary deficit, which reflects what would occur if the economy followed its long-term path (i.e. GDP at its potential level, fiscal revenues unaffected by short-term situations, etc).

The basic idea behind this indicator is to contrast the macro-adjusted deficit with the deficit that results from considering interest payments actually accruing at a given moment, in conjunction with the country's debt level and growth rate at that moment. The indicator is defined as:

$$I_t^M \equiv \frac{(r-g)}{(1+g)} b_{t-1} + d_t^M \quad (3)$$

where  $r$  is the real interest rate for the year being analysed,  $g$  is the real growth rate in that year, and  $d_t^M$  is the macro-adjusted primary deficit, i.e. the deficit that would result under normal macroeconomic conditions.<sup>16</sup> The problem with this indicator is deciding

what exactly are the "normal" conditions for an economy. The authors suggest identifying such conditions through a very detailed analysis performed by experts. We, however, employ a relatively simple procedure for the eight economies studied: as a proxy for normal conditions, we use the indicators of the trend GDP gap for each country to identify years when the gap between real GDP and trend GDP was smallest. We then take the primary balance of that year and enter it as the macro-adjusted primary balance in table 4. We also include data on interest payments as a percentage of GDP for illustrative purposes.

As equation (3) shows, fiscal policy sustainability requires this indicator to be no larger than zero, otherwise the debt will be unsustainable through time.

The indicator of the adjustment needed in 2004 is negative in all countries except Honduras, which was therefore the only country in which fiscal policy was unsustainable in that year. The special conditions that gave rise to these results (low interest rates and relatively high growth) were explained previously with the results obtained using the Blanchard indicator. The burden of debt service, even at times of low interest rates, is thus important. Nonetheless, thanks to the fiscal consolidation efforts that have been made, most countries are in a sustainable situation under current conditions.

The third indicator of fiscal responsibility, proposed by Croce and Juan-Ramón (2003), is based on a recursive algorithm derived from the pattern of movement of the debt/GDP ratio, given the reaction function of the fiscal authorities. In simple terms, the fiscal authorities decide upon a certain level of public debt in relation to GDP, and calculate the primary surplus needed to achieve it. This indicator is calculated as follows:

$$I_{sf} = \frac{1+r_t}{1+n_t} \frac{sp-sp^\circ}{b_{t-1}-b^\circ} \quad (4)$$

where  $I_{sf}$  is the indicator of fiscal sustainability,  $sp^\circ$  is the primary balance that will prevail once the target debt/GDP ratio is attained, and  $b^\circ$  is the level of the debt/GDP ratio that the authorities want to achieve. As the debt levels desired by the fiscal authorities in the eight countries are unknown, we decided to set a uniform target for all countries of lowering the debt/GDP ratio by 10 percentage points. This is obviously excessively restrictive in the case of Guatemala, and too lax in the case of Nicaragua, apart from being entirely arbitrary. Nonetheless, the exercise gives an idea of how the fiscal sustainability indicator works (table 5).

<sup>15</sup> These conclusions need to be nuanced by the previous note on data quality. If the data used do not faithfully and fully capture the country's fiscal reality, sustainability indicators tend to be less useful. Unfortunately, there is no way to quantify the discrepancy between the official figures and fiscal reality.

<sup>16</sup> Exclusively for the purpose of constructing this indicator, we define the deficit as the difference between expenditure and revenue, such that when the difference is negative there is a surplus.

TABLE 4

**Northern Latin American countries: macro-adjusted primary deficit and required deficit, 2004**  
(Percentages and percentages of GDP)

| Indicator/country              | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Republic |
|--------------------------------|------------|-------------|-----------|----------|--------|-----------|--------|--------------------|
| Interest payments/GDP          | 4.5        | 2.3         | 1.1       | 1.9      | 2.3    | 2.2       | 4.3    | 2.3                |
| Macro-adjusted primary deficit | -4.5       | -3.1        | -0.3      | 0.0      | -3.5   | -2.3      | -3.4   | 0.0                |
| Value of the indicator in 2004 | -5.12      | -1.75       | -0.58     | 2.66     | -4.32  | -20.19    | -4.18  | -3.38              |

Source: Author's calculations on the basis of official figures.

TABLE 5

**Northern Latin American countries: indicator of fiscal sustainability, 2004**  
(Percentages of GDP)

| Indicator/country                | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Republic |
|----------------------------------|------------|-------------|-----------|----------|--------|-----------|--------|--------------------|
| Target total debt/GDP ratio      | 37.7       | 33.0        | 10.3      | 62.6     | 15.0   | 138.0     | 63.0   | 38.1               |
| Target primary balance/GDP ratio | 0.1        | 0.6         | 0.1       | 6.2      | -0.2   | -3.7      | 1.6    | -0.7               |
| Fiscal sustainability indicator  | 0.96       | 1.09        | 1.00      | 1.62     | 0.74   | 0.87      | 1.52   | 0.68               |

Source: Author's calculations on the basis of official figures.

What is important is that this indicator should have an absolute value of less than 1. If this condition is fulfilled, the country will be in a position to reduce its public debt/GDP ratio to the proposed level, in our case a reduction of 10 percentage points. Consequently, Costa Rica, Dominican Republic, Mexico and Nicaragua could achieve this target without major changes in their fiscal policy, while the other countries could not. Guatemala, with an indicator of exactly 1, is a borderline case. The proponents of this indicator suggest calculating it every three months, once the Government decides the level of public debt it wishes to achieve, to be able to adjust fiscal policy. This would make it possible to track the trend of sustainability on a quarterly basis, taking account of the public debt target, and make timely adjustments.

The fourth and last indicator of fiscal sustainability presented in this paper is the currency-mismatch indicator proposed by Calvo, Izquierdo and Talvi (2003). These authors start from the fact that macroeconomic variables in Latin America are extremely volatile, and capital flows even more so. Accordingly, a key factor in debt sustainability is its composition (which currencies it consists of and in what proportion) compared to the composition of national output (tradable vs. non-tradable). The authors claim that this indicator is essential for understanding the

crisis of 1998-2002 in Argentina, which triggered the debt default.

The mismatch indicator compares the ratio of external to domestic debt with the ratio of tradable and nontradable goods production in the economy. At one extreme the result is a perfect match (the indicator has value of 1), when the share of tradables in GDP is the same as the share of external debt in total public debt. At the other extreme there is total mismatch, with an indicator of 0. The indicator is constructed by breaking down the debt into its domestic and external components, and GDP into tradable and nontradable sectors:

$$b = \frac{B + eB^*}{Y + eY^*} \quad (5)$$

where  $B$  is the debt in terms of nontradables,  $e$  is the real exchange rate,  $B^*$  is the debt in terms of tradables,  $Y$  is the GDP of nontradable goods,  $Y^*$  is the GDP of tradables.<sup>17</sup> Calculating the ratio between nontradable debt/tradable debt and nontradable GDP/tradable GDP, gives the indicator of currency mismatch ( $I_{dm}$ ) which takes values between 0 and 1:

$$I_{dm} = \frac{B}{B^*} / \frac{Y}{Y^*} \quad (6)$$

<sup>17</sup> The proponents of this indicator suggest representing the latter variable by exports of goods and services.

For El Salvador and Panama, which use the dollar as their currency, this indicator clearly makes no sense, because public-sector revenue is in the same currency as most of its debt (table 6). For other countries, however, it is very important. Costa Rica is best placed, thanks to its larger share of domestic debt in total public debt and the fact that it is more open to trade than the other countries. The indicator is also at an acceptable level in Mexico.<sup>18</sup> In contrast, the Dominican Republic, Guatemala, Honduras, and Nicaragua display significant or even serious currency mismatch. In the case of Guatemala, however, this is not a major problem, thanks to the low level of its public debt in relation to GDP.

### 3. What conclusions can be drawn from the review of various indicators of fiscal sustainability?

Of the Northern Latin American countries, only Mexico is well placed under all criteria.<sup>19</sup> In that country, the primary balance recorded in 2004 was greater than that needed to keep public debt/GDP ratio at the same level, currency mismatch is acceptable, and fiscal policy is sustainable according to the macro-adjusted primary deficit indicator. The results in other countries are less encouraging, however.

A second group of countries consists of Costa Rica and Guatemala. In the former, the problem is the size

of the debt stock, rather than the flow of debt, and the high level of interest payments. In Guatemala on the other hand, the only problem is the serious currency mismatch.

Special circumstances, including negative interest rates, explain the favourable results displayed by the Dominican Republic and Nicaragua. In the former case, with the parameters recorded over the last 15 years, the country could overcome problems of public debt sustainability without major difficulty. Nonetheless, it remains to be seen whether its high GDP growth rates can be repeated in the future. It is therefore hard to correctly evaluate sustainability in these two countries.

El Salvador, Honduras and Panama cannot sustain the fiscal policy prevailing in 2004 for very long, as this would raise the public debt/GDP ratio. Honduras and Nicaragua also display significant currency mismatch, which could be a further aggravating factor in any future debt crisis. The fact that Honduras and Nicaragua are included in the HIPC initiative softens these conclusions, however, since their debt is subject to different rules of the game.

Lastly, four countries would need to take additional measures if they wanted to reduce their public debt/GDP ratios by 10 percentage points. Overall, the public debt sustainability situation is not alarming, but there are amber lights suggesting the need for permanent monitoring.

TABLE 6

**Northern Latin American countries: indicator of currency mismatch, 2004**  
(Percentages and ratios)

| Indicator/country              | CostaRica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | D. Republic |
|--------------------------------|-----------|-------------|-----------|----------|--------|-----------|--------|-------------|
| B/eB*                          | 2.90      | ...         | 0.60      | 0.15     | 1.14   | 0.42      | ...    | 1.03        |
| Y/eY*                          | 3.70      | ...         | 7.90      | 4.70     | 2.20   | 5.30      | ...    | 4.00        |
| Indicator of currency mismatch | 0.78      | ...         | 0.08      | 0.03     | 0.51   | 0.08      | ...    | 0.26        |

Source: Author's calculations on the basis of official figures.

<sup>18</sup> Martner and Tromben (2004) suggest that a level of about 0.5 for this indicator can be considered reasonable.

<sup>19</sup> Once again, these conclusions need to be nuanced for all countries, to take account of problems such as the under-recording as mentioned above.

## IV

### Sensitivity of public debt to external shocks

Macroeconomic volatility in Latin America means that fiscal sustainability indicators can change abruptly in a very short space of time. For example, public debt in the Dominican Republic doubled as a percentage of GDP in 2003 as a result of the banking crisis and its effects on macroeconomic variables, such as recession, depreciation of the real exchange rate, interest rate hikes and bailout of the banking system. Similar elements can be seen in the crises suffered recently by Argentina (Calvo, Izquierdo and Talvi, 2003) and Uruguay (Rial and Vicente, 2004). Accordingly, it is of paramount importance to analyse the sensitivity of the public debt to external shocks such as those suffered, for example, by Argentina: i.e. “sudden stop” in external capital flows, to use the terminology of Calvo, Izquierdo and Talvi (2003).

These authors define “sudden stop” as an unexpected and prolonged halt to capital flows. One such episode followed the Russian crisis of August 1998, with major repercussions especially in southern cone countries. One of the effects of sudden stop is usually a significant depreciation of the real exchange rate, which raises the public external debt/GDP ratio and consequently the total public debt/GDP ratio, thereby complicating debt service. Negative shocks are particularly intense in countries that have a significant currency mismatch between debt and income, which can even trigger a cessation of debt payments. The shock is propagated in the economy through a rise in interest rates, and translates into low economic growth or even recession. At the same time, the fiscal situation worsens because of the increase in debt service, reduction in fiscal revenues and conversion of contingent liabilities into public debt. This dangerous mix can have catastrophic consequences, as happened in Argentina in 2002.

Although this section will analyse the effects of a catastrophic “sudden-stop” shock, the analysis should not be confused with real events. The fact that international interest rates have started to rise does not mean that we foresee a sudden stop in the region. Rather, the rise in interest rates is a sign that the macroeconomic environment is becoming less benign. In this new environment there could be other positive or negative factors that are unrelated to sudden stop. One such is

the high price of oil, which has particularly harmful effects in seven of the eight countries analysed. Another could be the rise in commodity prices, which is likely to cause an additional deterioration of the terms of trade, or slower growth than that recorded in the 1990s. All of this makes the ensuing analysis somewhat hypothetical. Nonetheless, it provides us with the order of magnitude of the fiscal adjustment needed in the worst-case scenario, i.e. when the four adverse effects of sudden stop occur simultaneously.

To ascertain the possible effects of shocks of this type in the northern Latin American countries, we performed four simulations whose results are presented below. The individual effects of each shock should be added together, because in the event of a sudden stop in external capital flows the four usually occur together. The specialist literature makes various assumptions in calculating the sensitivity of the debt. Melhado (2003), for example, calculates the effects on public debt assuming a real depreciation of 30%, lower growth (the historical rate of GDP growth minus two standard deviations) and a rise in interest rates (the historical average plus 2 standard deviations). Yamauchi (2004) visualizes GDP growth decreasing by two percentage points, and the interest rate rising by 200 basis points. Calvo, Izquierdo and Talvi (2003) use a real depreciation of 50%, which is more consistent with the experience of southern cone countries over the last seven years. They also calculate changes assuming a 200 basis-point rise in interest rates and a one-percentage-point reduction in the growth rate.

We wanted to gauge the sensitivity of public debt in response to a 50% depreciation of the real exchange rate. Our second assumption is a reduction of the growth rate by two standard deviations in relation to the rates recorded from 1980 to the present. The third assumption is a 200 basis-point rise in the implicit interest rate - not particularly extreme since this was the norm in many Latin American countries between 1998 and 2002. The fourth and last assumption is an increase in public debt equivalent to 10 percentage points of GDP, resulting from the conversion of contingent liabilities into public debt. We calculate all of these effects with Blanchard indicators in their original form (using the trend growth rate and real interest rate over the last 10 years) and

with the required primary balance using real data for 2004, in both cases adjusted for the various assumptions.

Table 7 shows the impact of a real depreciation of 50% on the public debt. In the case of El Salvador and Panama there are clearly no changes since they are dollarized economies. We then calculated the primary balance needed to maintain this level of debt under the conditions prevailing in 2004, and the average conditions of the last 10 years (the required trend primary balance).

These results replicate the pattern noted in the previous section. Costa Rica, Guatemala and Mexico recorded primary balances in 2004 that are sufficient to overcome the effects of a real depreciation of 50%. El Salvador, Honduras and Panama are at the other extreme, since the required balances are greater than those recorded in 2004. Lastly, Nicaragua and the Dominican Republic have positive results, but the warning made at the end of section III is again valid here.

The effects of a sudden stop in foreign capital flows would be more than just a change in relative prices in the form of a steep depreciation. There would also be a slowdown in GDP growth which might even be dramatic, as happened in Argentina where GDP shrank by roughly 11% in 2002. We use a less drastic assumption, in which growth declines by two standard deviations.<sup>20</sup> Growth is calculated using the rate recorded in 2004 and trend growth as the base. Given that the GDP growth slowdown compounds the effect of the real depreciation, the magnitude of the necessary fiscal adjustment increases with the calculations shown in table 8.

An additional effect suffered by countries in crisis is a rise in interest rates (table 9). As Calvo, Izquierdo and Talvi (2003) note, a 200 basis-point rise in interest rates lasting several years cannot be considered an isolated event. In fact, spreads in the emerging markets bond index (EMBI)<sup>21</sup> stayed more than 200 basis points above their pre-1998-Russian-crisis level throughout

TABLE 7

**Northern Latin American countries: sensitivity of public debt to a real depreciation of 50%**  
(Percentages and percentages of GDP)

| Indicator/country                         | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Rep. |
|---|------------|-------------|-----------|----------|--------|-----------|--------|----------------|
| Imputed public debt with 50% depreciation | 59.5       | 43.0        | 27.5      | 106.8    | 30.8   | 207.3     | 73.0   | 65.1           |
| Primary balance observed in 2004          | 0.5        | -0.2        | 0.2       | 0.1      | 2.5    | 2.0       | -0.7   | 3.9            |
| Required primary balance                  | -1.3       | 2.3         | -0.6      | 4.0      | -3.5   | -22.1     | -0.2   | -8.1           |
| Trend required primary balance            | -0.3       | 0.9         | 0.2       | 10.7     | -2.9   | -7.8      | 2.7    | -5.1           |

Source: Author's calculations on the basis of official figures.

TABLE 8

**Northern Latin American countries: sensitivity of the public debt to a growth slowdown amounting to two standard deviations**  
(Percentages and percentages of GDP)

| Indicator/country                          | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Rep. |
|--|------------|-------------|-----------|----------|--------|-----------|--------|----------------|
| Growth in 2004 minus 2 standard deviations | 2.4        | -1.9        | 0.0       | 4.4      | 2.8    | -0.7      | 3.8    | 0.0            |
| Trend growth minus 2 standard deviations   | 2.8        | 0.3         | 1.0       | 2.4      | 1.4    | -1.6      | 1.5    | 2.9            |
| Required primary balance                   | -0.3       | 3.0         | 0.2       | 4.6      | -3.0   | -10.2     | 1.5    | -6.8           |
| Trend required primary balance             | 0.7        | 2.4         | 0.9       | 11.4     | -2.4   | 4.2       | 4.4    | -3.8           |

Source: Author's calculations on the basis of official figures.

<sup>20</sup> The standard deviation was calculated for the period 1980-2003.

<sup>21</sup> EMBI: Emerging Markets Bond Index.

TABLE 9

**Northern Latin American countries: sensitivity of public debt to a rise in interest rates**  
(Percentages and percentages of GDP)

| Indicator/country                                 | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Rep. |
|---|------------|-------------|-----------|----------|--------|-----------|--------|----------------|
| Implicit interest rate in 2004 + 200 basis points | 4.8        | 6.7         | 3.3       | 10.8     | 3.1    | -2.6      | 6.9    | -2.4           |
| Real (implicit) interest rate +200 basis points   | 6.9        | 7.4         | 7.1       | 15.2     | 3.6    | 3.4       | 8.6    | 5.0            |
| Required primary balance                          | 0.9        | 3.8         | 0.7       | 6.8      | -2.4   | -6.0      | 3.0    | -5.5           |
| Trend required primary balance                    | 1.9        | 3.2         | 1.5       | 13.5     | -1.8   | 8.3       | 5.9    | -2.5           |

Source: Author's calculations on the basis of official figures.

2001. We added 200 basis points to the implicit interest-rate in 2004 and to the trend implicit interest-rate. With this modification we then calculated the required primary balance and the required trend primary balance, which, as expected, continue to rise.

The final calculation involved adding in the effect of contingent liabilities (table 10). In a crisis situation, a high proportion of contingent liabilities become public debt. For that reason we assumed an increase in public debt of 10 percentage points of GDP. The fact that bank bailouts are very costly (in the Dominican Republic in 2003 they absorbed 20% of GDP) means that our assumption is not exaggerated. As before, this is added to the previous adverse effects.

This simultaneity of adverse effects is crucial to an understanding of how dangerous sudden stops in foreign capital inflows can be. If all macroeconomic variables deteriorate at the same time, the authorities have very little room for manoeuvre. It is therefore important to try to avoid events of this type, among other things through a prudent borrowing policy. For the countries analysed, the total adjustment of public finances (i.e. the balance required to keep the public debt/GDP ratio at the same level, and also deal with the

four effects of a potential sudden stop) vary between -1.6% of GDP in Mexico to 14.8% of GDP in Honduras, taking account of the trend primary balance. Once again, the data for the Dominican Republic, which did not include the enormous central bank quasi-fiscal deficit, heavily bias the result. When that deficit is included, the required trend primary balance becomes positive (1.7% of GDP). In the end, taking the four effects into account, only Mexico is unequivocally in a satisfactory situation; the Dominican Republic escapes thanks to the circumstances described, but Nicaragua is unlikely to escape because its balance is below the trend balance required.

What other alternatives do the economic authorities have available to them? The answer depends on the individual circumstances of each country, but our sensitivity analysis of the debt can provide some clues. Table 11 shows the relative importance of each of the four adverse effects discussed above. Specifically, we subtract the trend primary balance in 2004 in the absence of sudden stop from the trend primary balance indicated in table 10. As the difference represents the result of the four effects analysed, we then calculate the percentage contribution made by each one.

TABLE 10

**Northern Latin American countries: sensitivity of the public debt to an increase in debt arising from contingent liabilities**  
(Percentages of GDP)

| Indicator/country                              | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Rep. |
|--|------------|-------------|-----------|----------|--------|-----------|--------|----------------|
| Debt with contingent liabilities (+10% of GDP) | 69.5       | 52.1        | 37.5      | 116.8    | 40.8   | 217.3     | 83.0   | 75.1           |
| Required primary balance                       | 1.2        | 4.7         | 1.1       | 7.4      | -2.4   | -6.2      | 3.3    | -5.7           |
| Trend required primary balance                 | 2.3        | 3.9         | 2.1       | 14.8     | -1.6   | 8.8       | 6.6    | -2.3           |

Source: Author's calculations on the basis of official figures.

TABLE 11

**Latin America (eight northern countries): contribution to the deterioration of public finances made by the four adverse effects of sudden stop**  
(Percentages of GDP and percentages)

| Indicator/country                                  | Costa Rica | El Salvador | Guatemala  | Honduras   | Mexico     | Nicaragua   | Panama     | Dominican Rep. |
|--|------------|-------------|------------|------------|------------|-------------|------------|----------------|
| Required trend primary surplus with sudden stop    | 2.3        | 3.9         | 2.1        | 14.8       | -1.6       | 8.8         | 6.6        | -2.3           |
| Required trend primary surplus without sudden stop | -0.4       | 0.9         | 0.0        | 7.3        | -2.8       | -6.0        | 2.6        | -4.8           |
| <i>Difference caused by the sudden stop</i>        | <i>2.7</i> | <i>3.0</i>  | <i>2.1</i> | <i>7.6</i> | <i>1.2</i> | <i>14.8</i> | <i>3.9</i> | <i>2.5</i>     |
| Contribution of depreciation                       | 1.7        | 0.0         | 6.6        | 46.1       | -11.7      | -11.7       | 1.4        | -12.4          |
| Contribution of lower growth                       | 39.4       | 47.7        | 36.8       | 8.9        | 41.7       | 80.4        | 43.4       | 51.4           |
| Contribution of the rise in interest rates         | 43.9       | 28.3        | 26.7       | 28.2       | 51.7       | 27.9        | 37.1       | 52.5           |
| Contribution of contingent liabilities             | 15.0       | 24.0        | 29.9       | 16.9       | 18.2       | 3.3         | 18.0       | 8.5            |
| <i>Total of the four adverse effects</i>           | <i>100</i> | <i>100</i>  | <i>100</i> | <i>100</i> | <i>100</i> | <i>100</i>  | <i>100</i> | <i>100</i>     |

Source: Author's calculations on the basis of official figures.

The data vary enormously from country to country;<sup>22</sup> the difference caused by sudden stop is just 1.2% of GDP in the case of Mexico, but almost 15% of GDP in the case of Nicaragua. In most cases, sudden stop would require a fiscal adjustment of between 2% and 7% of GDP. Given their relative weight in the deterioration of the fiscal situation, two of the four adverse effects of sudden stop play a leading role. The first is slower growth, which is the most important variable in all the countries analysed apart from Honduras. The second most important is the rise in interest rates, which is particularly relevant since we are in a period of rising international interest rates. The other two effects are less important.

How can this public-debt sensitivity analysis be placed in a broader macroeconomic setting? As we have

seen, economic growth is one of the most important variables for public-debt sustainability. In that regard, the situation of the eight countries is neither one of exuberance nor is it critical. According to projections contained in the *Economic Survey of Latin America and the Caribbean 2004-2005* (ECLAC 2005), these economies are likely to record moderate growth on average in 2005-2006 (table 12), albeit below the average for Latin America and the Caribbean as a whole, which is enjoying an economic boom following six years of sluggish growth. Two of the eight countries studied (El Salvador and Guatemala) are growing moderately, barely enough to keep pace with demographic expansion. In contrast, Honduras, Nicaragua and Panama display higher growth rates, which should help reduce the indicators and improve the sustainability of their public debt.

TABLE 12

**Northern Latin American countries: projected GDP growth for 2005 and 2006**  
(Percentages)

| Year/country | Costa Rica | El Salvador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Dominican Rep. |
|--------------|------------|-------------|-----------|----------|--------|-----------|--------|----------------|
| 2005         | 3.0        | 2.5         | 3.0       | 4.5      | 3.6    | 4.0       | 4.5    | 3.5            |
| 2006         | 3.0        | 2.5         | 3.0       | 4.0      | 3.5    | 4.0       | 4.0    | 4.0            |

Source: ECLAC (2005).

<sup>22</sup> The table contains three items with negative signs that could be considered aberrations. Moreover, in the case of Panama, rounding

makes the figure for the effect of depreciation slightly positive when it should be zero.



Other important factors in the context an analysis of public debt sustainability are family remittances, tourism and the maquila industry. Current transfers continue to grow strongly, thanks mainly to the buoyancy of family remittances. This source of foreign exchange contributes the equivalent of 10%-20% of GDP to all the countries analysed, except Costa Rica, Mexico and Panama. This means that those remittances could be a source of foreign currency that is possibly independent, and perhaps stable and growing, even in the event of a sudden stop in foreign capital inflows.

The tourism and maquila industries are also dynamic. Both suffered setbacks between 2001 and 2003, but they are now recovering strongly in several countries. Nonetheless, there are significant differences between them. While the maquila industry was the engine of growth in the 1990s, it does not look like repeating that role in the new decade. Competition from China and high production costs in some of the countries analysed have reduced its viability. In contrast, tourism is booming in nearly all these countries, specially in Honduras and Nicaragua. This means a large inflow of foreign exchange through foreign direct investment and tourist arrivals.

## V

### Conclusions

The macroeconomic setting in 2005-2006 is likely to be relatively benign, but with a clear tendency to deteriorate. The fact that economic growth is moderate or even high in some countries facilitates debt service. The rise in international interest rates is a risk factor but, if this occurs gradually as it has thus far, it should not be an insuperable obstacle for economic policy. On the positive side, there is a stable and growing supply of foreign exchange stemming from family remittances, tourism and the maquila industry. This eases the problem of currency mismatch in several of the countries studied considerably.

The analysis above suggests caution with regard to the future trend of the public debt.

Several countries are vulnerable in this respect, even apart from the two most heavily indebted, namely Honduras and Nicaragua. Economic policy needs to give greater priority to public-debt management over the next few years. Permanent monitoring would help identify potential problems early and make it possible to take corrective measures. It would also be advisable to put an end to the under-recording that conceals the true dimensions of the public debt and the fiscal reality of government finances. Lastly, and perhaps most importantly, fiscal policy should continue to work towards consolidation through reforms that strengthen public revenues.

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