PUBLIC INVESTMENT AND FISCAL ADJUSTMENT IN LATIN AMERICAN COUNTRIES

Ricardo Martner and Varinia Tromben[*]

1. Introduction

The decreasing trend in public investment in the last two decades has become a hot topic in the international debate. Government authorities, analysts and international institutions recognize that the resulting infrastructure gap has not been fulfilled in a mechanical way by the private sector. In some Latin American countries, the investment fall has taken alarming dimensions.

Servén and Calderón (2004a and 2004b) quantify the infrastructure gap by economic sectors, and estimate its effect on economic growth for a wide number of countries. Lucioni (2004) shows how the decreasing financing of the international organisms has contributed to the infrastructure gap. The International Monetary Fund (IMF) published a comprehensive study of the relationship between fiscal policy and public investment in emerging countries.[1] The IMF document explains the public investment drop essentially by the widening of the coverage of public sector targets, including all public enterprises operations. Even if this procedure was justified in the past, when they played a quasi-fiscal financing role in many countries, today it appears reasonable to exclude from fiscal targets those public enterprises that are "commercially run".

The IMF also recommend a sequence of measures in emerging economies, including paying more attention to the public investment quality, using the current balance as an additional fiscal indicator to the traditional overall balance, excluding some public corporations from the targets, enhancing the institutional capacity to develop public-private associations,[2] and last but not least, adopting structural fiscal indicators.

Nevertheless, this issue is not limited to countries that have supporting programs from IMF. There is widely a public investment bias during fiscal adjustment periods. In hard times, as the 1998-2003 episode in Latin American countries, it will always be easier to postpone investment projects than to take any other measure to reduce current expenditures. The challenge would be then to reduce this bias, which is not equivalent to benefit capital expenditures versus current expenditures, but to restore a balance between them. Occasionally, this proposal is understood as a rule that would disadvantage social expenditures. This appears to be

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[*] Authors are from Latin American and Caribbean Institute of Economic and Social Planning (ILPES), ECLAC, United Nations.

[1] International Monetary Fund (2004a). See also Hemmings and Ter-Minassian (2004).

[2] See International Monetary Fund (2004b).

a misleading dilemma, as a major part of public investment in developing countries has a high social component (hospitals, schools, housing).

There are various options to promote investment, in this kind of "pure" public goods, a number of which are reviewed in this paper. The first one, and the most radical, would be to adopt a golden rule in public finance management. Current revenues would finance current expenditures, while borrowing would finance capital expenditures. As it is the common practice in private corporations, net investment (gross investment minus consumption of fixed capital) should not be included in the balance sheet.[3] Moreover, separated budgets should be used for current expenditures, and for investments, as it is the case in the recent United Kingdom experience. Nevertheless, in spite of the concept's clearness, a generalized application of the golden rule is complex. As the public sector does not necessarily receive the financial returns of its investments (normally spread to the whole society), the analogy with the private sector looses consistency.

A second option, related to the first one, would be the broad adoption of the accounting principles of the Government Finance Statistics Manual (*GFSM 2001*) of IMF. Investment is recorded as an increase in nonfinancial assets, with a counterpart that could be for example a decrease in financial liabilities. Therefore, net worth is not affected and public investment is not considered as expenditure. Although very attractive, these accounting principles are not fully applied in Latin American countries, and it will be difficult to replace the traditional cash overall balances target used in IMF-supported or in national programs.

Other partial options aim at promoting certain types of public investment. One is to reduce the coverage of fiscal targets, eliminating completely or partially public enterprises operations. The IMF proposes to exclude from fiscal targets only "commercially run enterprises". By contrast, in Chile for example the budget covers general government operations. This is exactly what European countries do: fiscal commitments are set within the general government coverage. Recent practices in Mexico exclude from the traditional overall balance investment projects from fuel and energy. As private corporations do, the aim is to register investment expenditures during several fiscal exercises. Although private-public partnerships are another promising option, they do not eliminate the traditional anti-public investment bias in traditional public goods. Recent initiatives appoint to generalize this practice with long-term investments in education and health care sectors.

Another, more general formula, would be to adopt a structural macro-fiscal rule, reducing the adverse effects of macroeconomic cycles on public expenditures and public investment. In the case of Chile, the structural fiscal balance rule sets that public expenditure expand at the rhythm of potential economic growth. This is a solution for the public investment bias, in the sense that fiscal adjustments are avoided.

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[3] For a recent review of this proposal, see Blanchard and Giavazzi (2004).

Furthermore, the Economic Commission for Latin America and the Caribbean (ECLAC, 2004b) suggest greater fiscal flexibility concerning the role of the multilateral development banks. As Lucioni (2004) points out, the financing capacity of the multilateral banks is limited because of budget expenditure constraints. These projects could be recorded when the government realizes amortization disbursement, and not when it receives the financing funds. This would allow intertemporal distribution of the financial burden, as it is a common use in the private sector. Multilateral development banks could then represent a powerful pro-growth tool.

2. Public and private investment trends in Latin America

Two sources of information are available to evaluate trends of public and private investment in Latin American countries, coming from National Accounts and from Government Finance Statistics.[4] The definition of public investment of the 1993 System of National Accounts corresponds to general government, but a significant number of countries use the nonfinancial public sector coverage, which makes international comparisons difficult. For descriptive trends and public/private investment composition analysis, the source of information is National Accounts. For the fiscal study itself, central government statistics are useful to compare the evolution of public investment with the other components of public expenditure.

The general trend, in both the OECD countries and Latin American countries, is a decrease in public investment (see Figure 1). This trend is clear in the United States during the Seventies and in European countries and Japan from the Eighties until now. The available data for Latin America[5] covers the 1980-2003 period, showing that on average the public investment as a share of GDP reached is highest level in 1982 (7,5 per cent), and the lowest in 2002 (4,0 per cent) with a decreasing trend along the period.

In 2003, some countries had gross fixed capital formation (Figure 2) lower than 15 per cent of GDP (Argentina, Bolivia, Colombia, Guatemala, Uruguay and Venezuela), while others had levels near by or higher than 20 per cent of GDP

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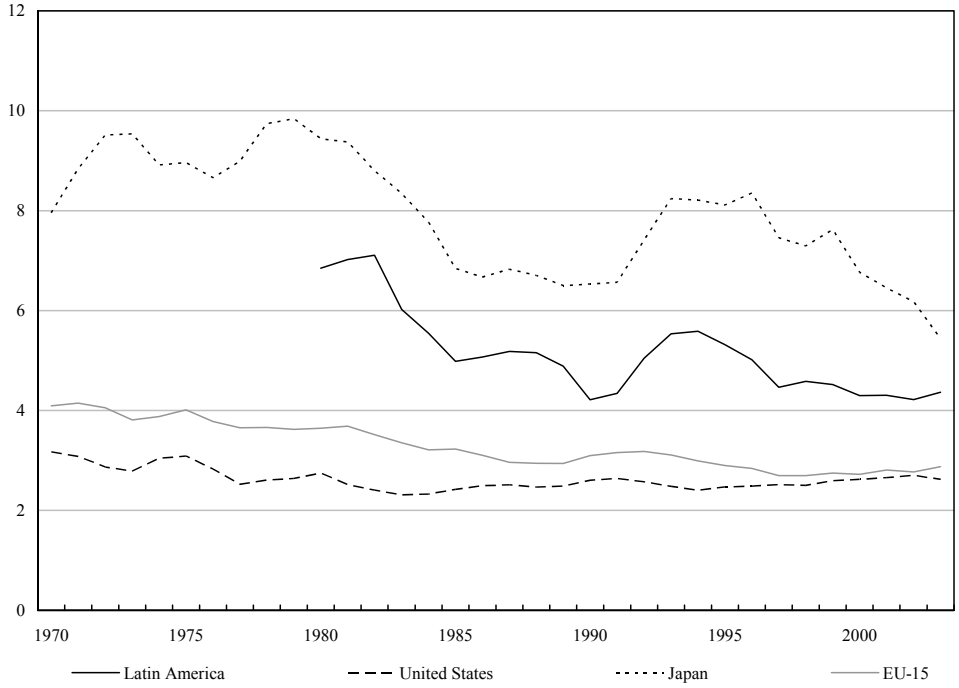
[4] The 1986 Government Finance Statistic Manual has the following definition for public investment: "This category covers payments for purchase in the market or for production within government of new or existing durable goods to be used for nonmilitary productive purpose. It encompasses only expenditure for goods with both a normal life of more than one year and more than a significant value. The kind of durable goods included are immovable fixed capital goods, including residential buildings, among them accommodations for the households of members of the armed forces, nonresidential civil buildings and other civil construction and works, and movable fixed capital goods such as transport equipment, machinery, and other equipment".

[5] Countries having information for gross fixed capital formation separating economic sectors are the following: Argentina (1993-2003), Bolivia (1980-2002), Brazil (1980-2002), Chile (1980-2001), Colombia (1980-2003), Costa Rica (1980-2003), Ecuador (1993-2000), El Salvador (1990-2002), Guatemala (1980-2002), Honduras (1980-2003), Mexico (1980-2001), Nicaragua (1990-2003), Panama (1980-2000), Paraguay (1980-2002), Peru (1991-2003), Uruguay (1980-2003) and Venezuela (1980-2002).

Figure 1

Latin America, United States, Japan and European Union: Gross Fixed Capital Formation, General Government, 1970-2003
(percent of GDP)



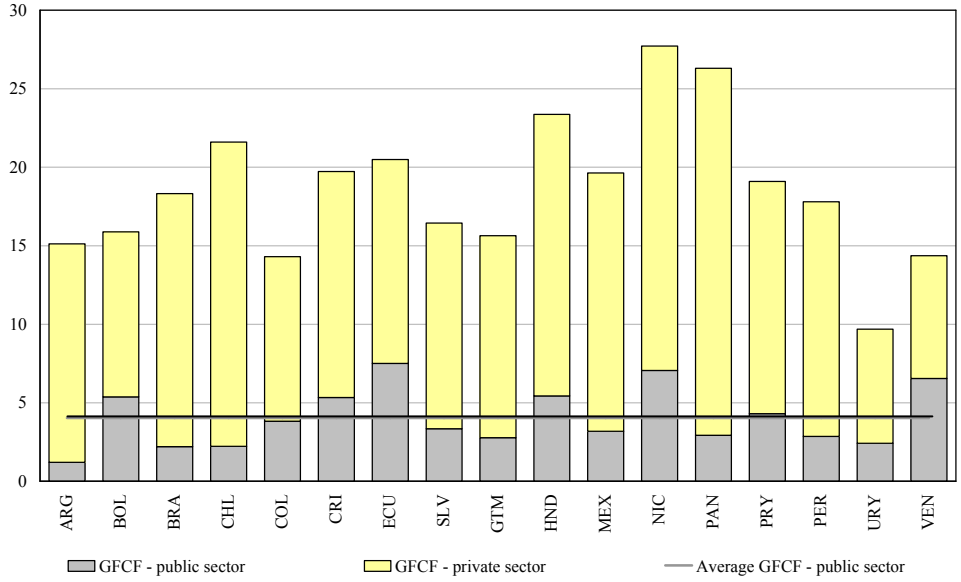
Source: ECLAC, United Nations for Latin America, European Commission, AMECO Database for the rest of the countries.

(Chile, Costa Rica, Ecuador, Honduras, Mexico, Nicaragua, Panama and Paraguay). This dispersion is even larger in public investment, although some countries include public corporations investment. Argentina and Chile have levels of public investment near 2 per cent of GDP, while for Ecuador, Honduras and Venezuela this share is above 7 per cent.

Figure 3 shows central government public investment as a share of GDP. As it can be seen, in several countries (Bolivia, Chile, Dominican Republic, Ecuador, El Salvador, Honduras, Nicaragua, Paraguay and Panama) this ratio is higher than 2 per cent of GDP. In federal countries as Argentina, Brazil and Mexico, public investment is extremely low and went along a decreasing trend during the analyzed period. This tendency can be partly explained by the transfer of some components of expenditure to sub national governments. Also, in some centralized countries (Colombia, Peru, Costa Rica and Uruguay), a systematic reduction of public investment as a share of GDP has been observed in the last years.

Figure 2

Latin America: Gross Fixed Capital Formation, 2003
(percent of GDP)



Source: ECLAC, United Nations.

In Figure 4 it can be noticed a rather small but positive correlation between public-private investment growth average in some Latin American countries. Public investment may crowd out private investment if the public sector engages activities that substitutes those normally carried out by the private sector. But public investment may exert a positive effect on private investment (crowding in) via increased productivity of private sector firms, higher expected profits and better investment opportunities. This is typically the case of public infrastructures that are used as common inputs in private sector firms' activities.

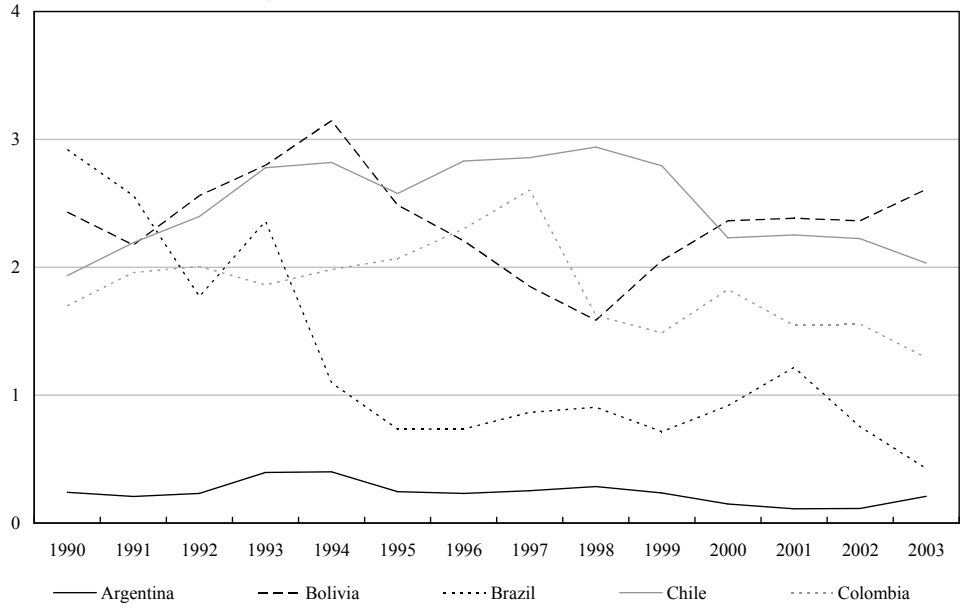
To explore the causality relation, we apply the Granger's causality test. The basic idea is to evaluate if past values of a variable can explain current values of another variable. We perform the test using annual data from selected Latin American countries, according to long-term time series availability. Following European Commission (2003) methodology, variables are expressed as first differences of their logarithm to obtain stationary time series, and we use ordinary least squares estimation. For each country, we perform the following estimation:

$$\Delta i_t^P = \alpha + \beta \Delta i_{t-1}^P + \gamma \Delta i_{t-1}^G + \varepsilon_t$$

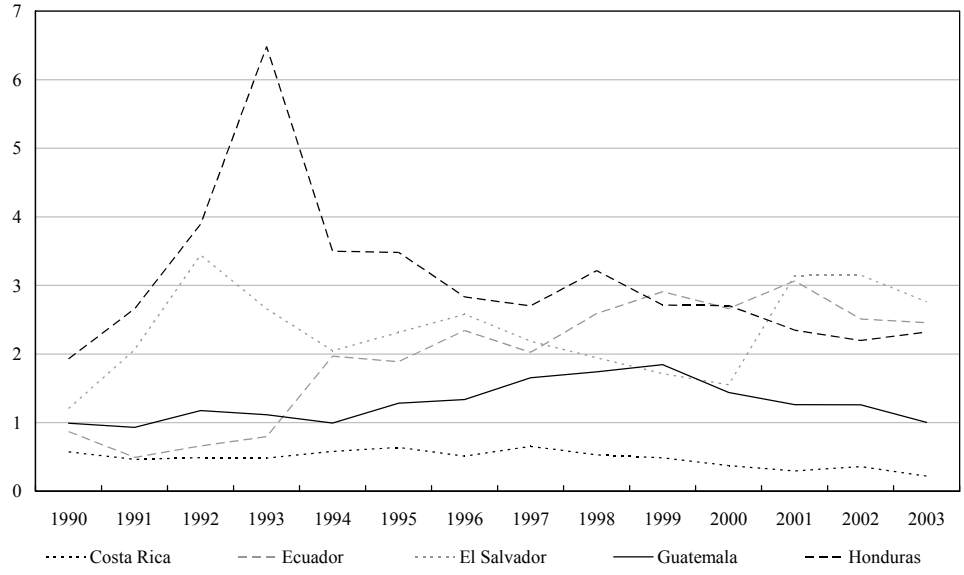
Figure 3

Central Government Real Investment, 1990-2003
(percent of GDP)

a) Argentina, Bolivia, Brasil, Chile and Colombia



b) Costa Rica, Ecuador, El Salvador, Guatemala and Honduras



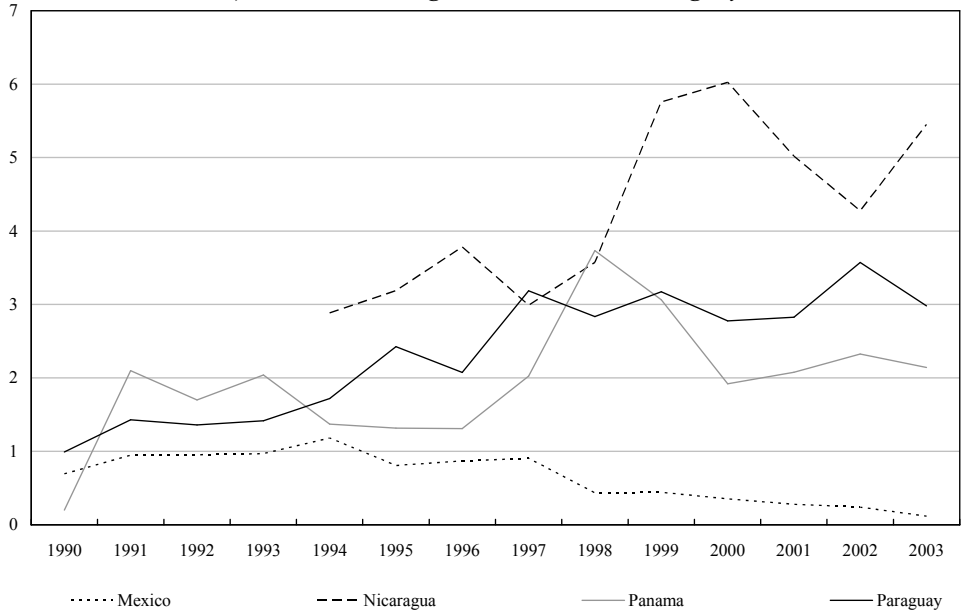
Source: ECLAC, United Nations.

Figure 3 (continued)

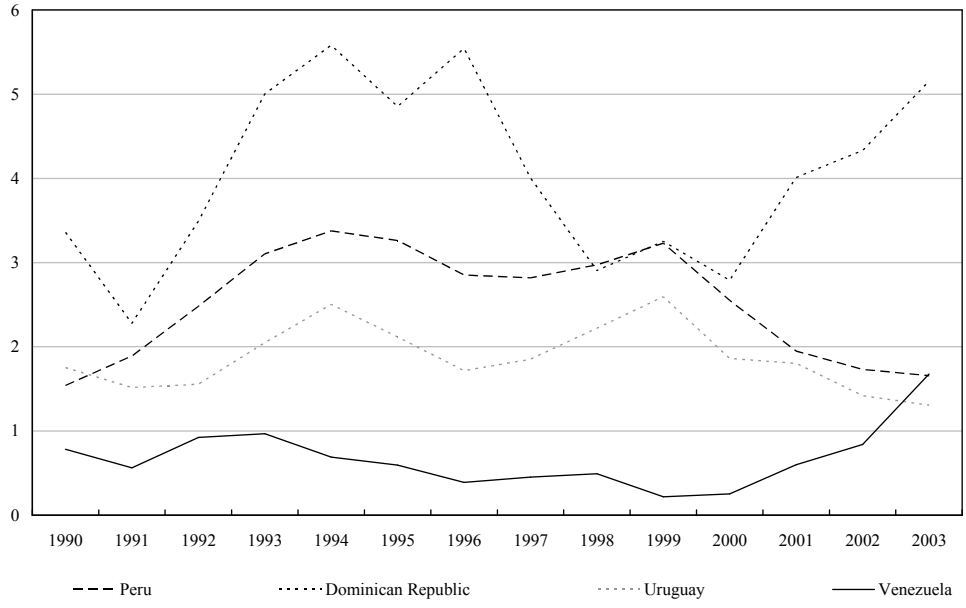
Central Government Real Investment, 1990-2003

(percent of GDP)

c) Mexico, Nicaragua, Panama and Paraguay



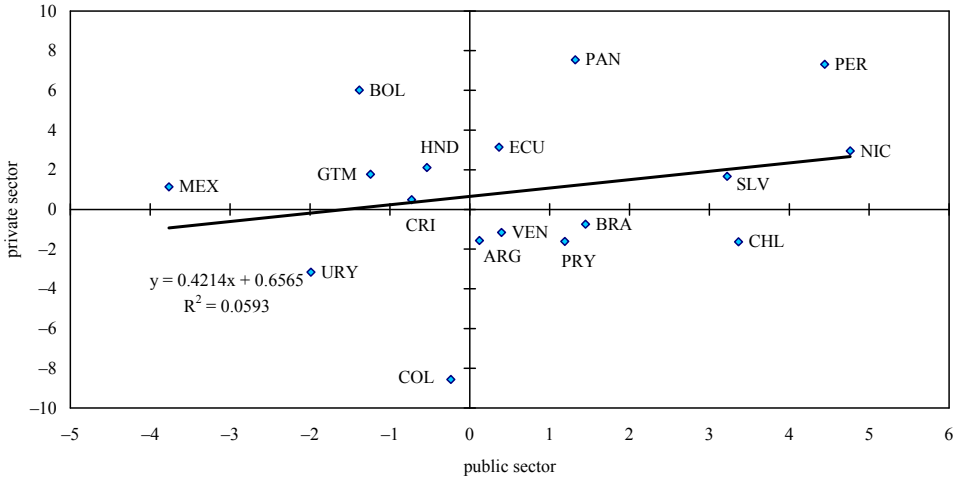
d) Peru, Dominican Republic, Uruguay and Venezuela



Source: ECLAC, United Nations.

Figure 4

Latin America: Relation Between Public and Private Investment, 1980-2003
(annual averages, percent of GDP)



Source: ECLAC, United Nations.

where superscripts G and P correspond to public and private investment respectively. Δi_t is the first difference of the logarithm of public investment or private investment in period t and t–1, ad ε_t is a random term. If public investment has an impact over private investment, then the parameter γ is significantly different from zero. A negative value should be read as "*crowding out*", a positive value as "*crowding in*". The results obtained from the estimations are summarized in Table 1. The parameters are all positive; in five countries (Costa Rica, Mexico, Panama, Peru and Uruguay) γ is significant at the 5 per cent level, showing a "*crowding in*" virtuous circle between public and private investment.

3. Fiscal adjustment and public investment: empirical evidence

Since 1998, Latin American countries are living a period of fiscal adjustment, which implied a strong recovery of the primary balance. Countries will maintain this high primary surplus in the medium term, considering that the reduction of public debt continues to be a major concern (see ECLAC, 2004b). Figure 5 show the weighted average of the central government overall fiscal balance and primary balance. Figure 6 illustrates the deterioration of the quality of public expenditure: while public investment as a share of GDP decreased, public debt interest payments increased strongly up to 1999, remaining until now a heavy burden.

Table 1

Public and Private Investment, Granger's Causality Test

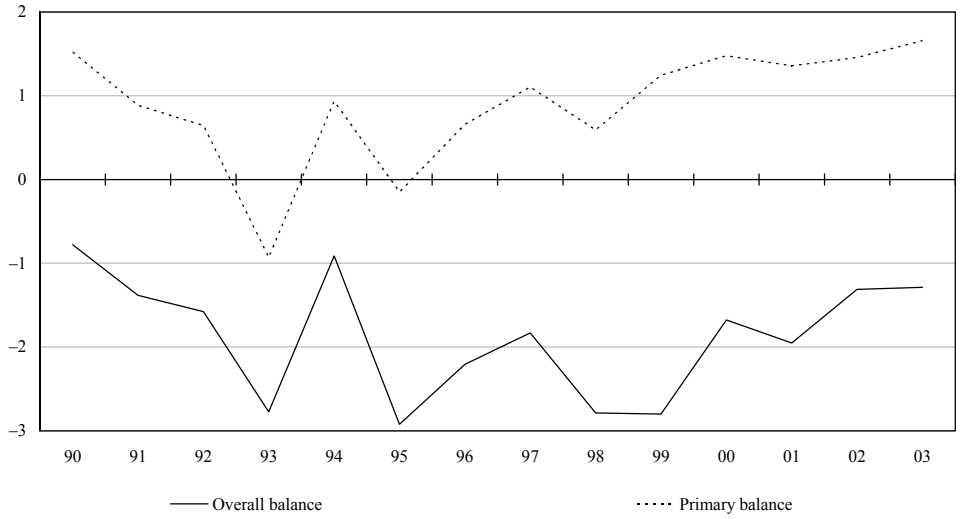
Dependent Variable: Δi_t^P	Δi_{t-1}^P	Δi_{t-1}^G	*No. Obs.*
Costa Rica	0.064	0.333 (**)	36
Colombia	0.196	0.329	27
Guatemala	0.342 (**)	0.001	52
Honduras	0.413 (**)	0.024	32
Mexico	–0.164	0.376 (**)	30
Panama	–0.245	0.528 (***)	31
Paraguay	0.427 (***)	0.119	41
Peru	0.082	0.250 (**)	32
Uruguay	0.269 (**)	0.172 (**)	47
Venezuela	0.130	0.128	33

Notes: The estimation method used is ordinary least squares including a constant term. (***) and (**) denote significance at 1 and 5 per cent respectively.

Source: Calculations of the authors based on data from ECLAC.

Figure 5

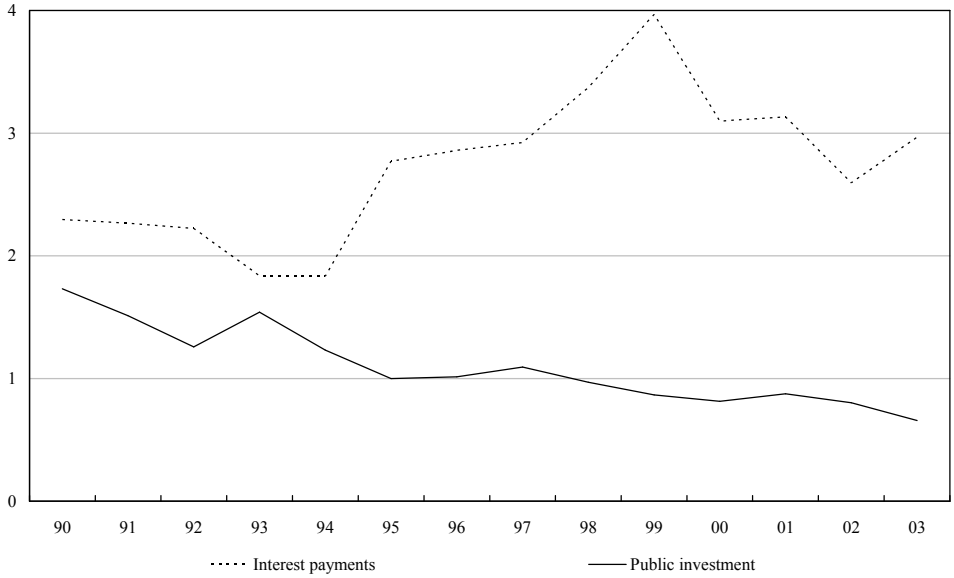
Latin America: Overall and Primary Balance
(weighted average, percent of GDP)



Source: ECLAC, United Nations.

Figure 6

Latin America: Interest Payments Expenditures and Public Investment
(weighted averages, percent of GDP)



Source: ECLAC, United Nations.

The idea that public investment is more sensitive to fiscal adjustments than other components of public expenditures is recurrent in the economic literature.[6] Balassone and Franco (2000) show that the introduction of a fiscal target can cause a decrease in public investment in a two period's model. Turrini (2004) demonstrates that investment levels are negatively correlated with debt and past values of the cyclically adjusted primary balance. In the case of European Union countries, since 1985 public investment decreased much more than current expenditures during fiscal consolidation periods. This trend was clear during the preceding period of the Euro launch, that is between 1994 and 1998, when public investment dropped 4 per cent a year as a share of GDP.

To identify this negative bias, we proceed in three different ways. First, following the European Commission methodology,[7] fiscal adjustment periods are classified using changes in cyclically adjusted primary balances (CAPB) of the central government as a share of GDP. A fiscal adjustment period is defined as a period (a minimum of two consecutive years) in which the change in cyclically

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[6] See, for example, Oxley and Martin (1991).

[7] See European Commission (2000). The details of the estimation for Latin American countries are described in Martner and Tromben (2003).

adjusted primary balances is positive. These changes in CAPB are then split in cyclical and structural revenues, and current and capital expenditures (see Table 2).

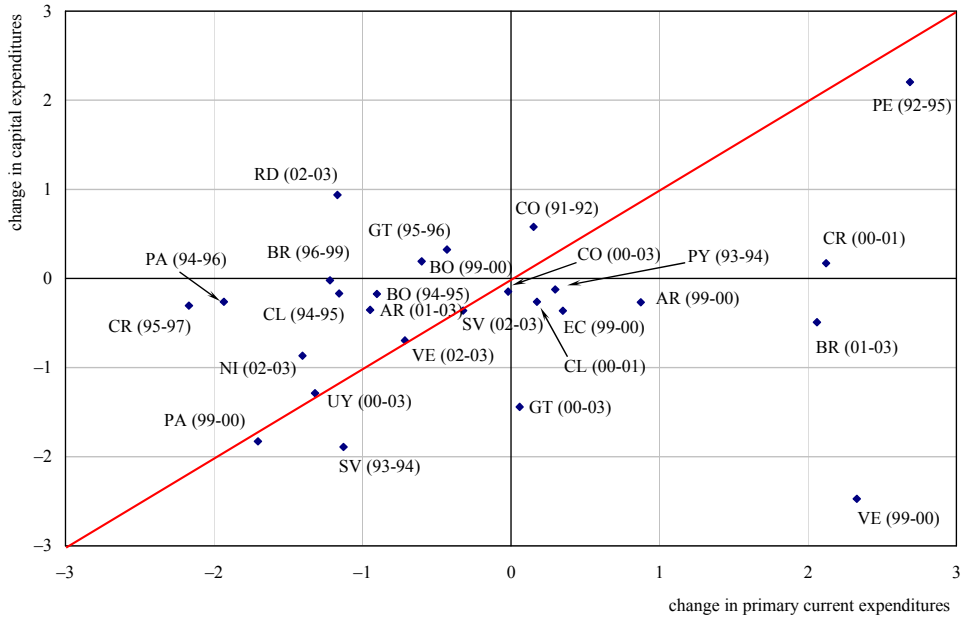
On average, during fiscal adjustment episodes revenues increased more (2,4 per cent of GDP) than the decline of primary expenditures (–1,2 per cent of GDP). The distribution of public expenditures adjustment (Figure 7) illustrates the bias against public investment. In 18 out of 24 fiscal adjustment episodes, there is a decline in capital expenditures, and in seven cases with a simultaneous rise in current primary expenditures.

A second, simpler and illustrative way to identify this bias in Latin American countries is to evaluate the share of public investment in total primary expenditures (see Figure 8).

Finally, in Table 3 the real variation of the central government expenditures components is shown for the period 1998-2003. On average, primary current expenditures increased more than 22 per cent in real and cumulative terms, while public investment level decreased 14 per cent.

Figure 7

Latin America and the Caribbean: Change in Capital and Primary Current Expenditure During Fiscal Adjustment Periods, 1990-2003
(weighted averages, percent of GDP)



Source: ECLAC, United Nations.

Table 2

Latin America: Fiscal Adjustment Composition, 1990-2003

(percent of GDP)

	Fiscal adjustment period	Change in overall balance	Change in cyclically adjusted overall balance (a)	Change in interest payments (b)	Change in cyclically adjusted primary balance (c)	Change in cyclically adjusted revenues (d)	Change in primary expenditures (e)	Change in primary current expenditures	Change in capital expenditures	Change in investment expenditures
Argentina	99-00	–0.4	1.1	1.2	2.3	2.9	0.6	0.9	–0.3	–0.1
	01-03	1.9	5.6	–1.4	4.2	2.9	–1.3	–0.9	–0.4	0.0
Bolivia	94-95	3.5	2.9	–0.1	2.7	1.7	–1.1	–0.9	–0.2	0.2
	99-00	0.1	2.0	0.4	2.3	1.9	–0.4	–0.6	0.2	0.2
Brazil	96-99	1.7	2.4	2.9	5.4	4.0	–1.2	–1.2	0.0	0.0
	01-03	0.2	1.4	0.4	1.6	3.3	1.6	2.1	–0.5	–0.5
Chile	94-95	1.7	1.6	–0.6	1.1	–0.3	–1.3	–1.2	–0.2	–0.3
	00-01	1.6	1.8	–0.1	1.7	1.6	–0.1	0.2	–0.3	–0.6
Colombia	91-92	2.2	2.5	–0.2	2.3	3.0	0.7	0.2	0.6	0.9
	00-03	1.4	1.4	1.1	2.5	2.3	–0.2	0.0	–0.1	–0.1
Costa Rica	95-97	2.4	3.1	0.6	3.7	1.2	–2.5	–2.2	–0.3	0.1
	00-01	–0.5	0.2	0.3	0.5	2.8	2.3	2.1	0.2	0.0
Ecuador	99-00	4.2	5.0	2.3	7.3	7.3	0.0	0.3	–0.4	0.1
El Salvador	93-94	2.9	2.4	–0.8	1.7	–1.3	–3.0	–1.1	–1.9	–1.4
	02-03	1.3	1.4	0.7	2.1	1.4	–0.7	–0.3	–0.4	–0.4

Notes: (a) = (c) – (b) and (c) = (d) – (e)
Source: calculations of the authors based on official data.

Table 2 (continued)

Latin America: Fiscal Adjustment Composition, 1990-2003
(percent of GDP)

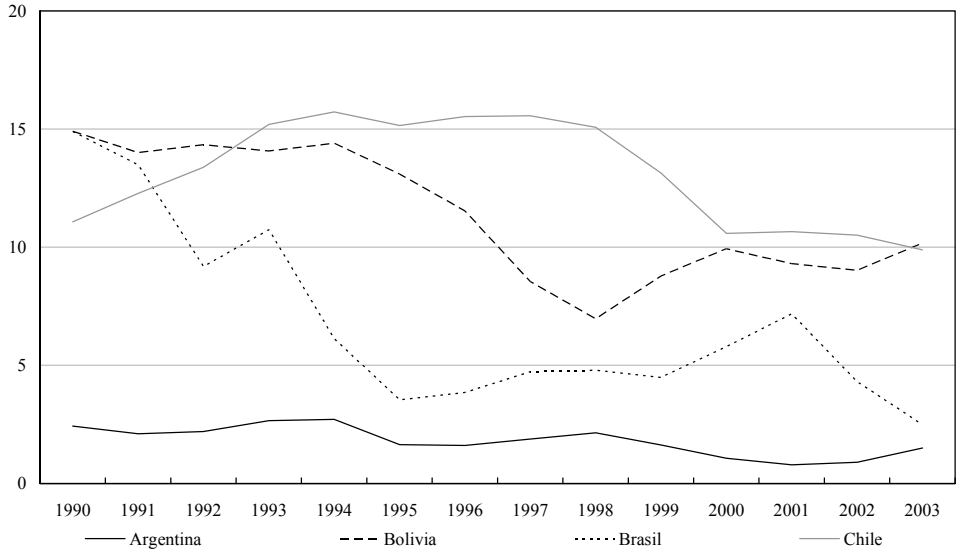
	Fiscal adjustment period	Change in overall balance	Change in cyclically adjusted overall balance (a)	Change in interest payments (b)	Change in cyclically adjusted primary balance (c)	Change in cyclically adjusted revenues (d)	Change in primary expenditures (e)	Change in primary current expenditures	Change in capital expenditures	Change in investment expenditures
Guatemala	95-96	1.4	1.4	0.2	1.6	1.5	–0.1	–0.4	0.3	0.3
	00-03	1.8	2.0	–0.1	1.9	0.6	–1.4	0.1	–1.4	–0.6
Honduras	94-95	6.1	6.7	0.3	7.0	1.7	–5.4	–5.4	0.0	–3.0
	97-98	2.3	2.0	–0.2	1.8	2.3	0.5	–5.3	5.8	0.4
Nicaragua	02-03	5.4	6.0	–0.2	5.8	–2.5	–2.3	–1.4	–0.9	0.4
Panama	94-96	3.4	4.1	–0.9	3.2	1.0	–2.2	–1.9	–0.3	–0.7
	99-00	3.4	3.6	1.0	4.6	1.1	–3.5	–1.7	–1.8	–1.8
Paraguay	93-94	1.7	1.6	–0.3	1.3	1.5	0.2	0.3	–0.1	0.4
Peru	92-95	–0.9	–2.7	–0.5	3.3	1.6	4.9	2.7	2.2	1.4
Dominican R.	02-03	–1.4	–0.8	1.0	0.2	0.1	–0.2	–1.2	0.9	–0.3
Uruguay	00-03	–0.8	2.3	3.9	6.2	3.7	–2.6	–1.3	–1.3	–1.3
Venezuela	95-96	20.1	20.0	–0.3	19.8	5.6	–14.2	–15.1	1.0	0.9
	99-00	8.6	8.9	0.0	9.0	8.8	–0.1	2.3	–2.5	–2.4
	02-03	4.6	6.3	1.8	8.1	6.7	–1.4	–0.7	–0.7	–0.7
Average		**2.8**	**3.3**	**0.4**	**4.0**	**2.4**	**–1.2**	**–1.1**	**–0.1**	**–0.3**

Notes: (a) = (c) – (b) and (c) = (d) – (e)
Source: calculations of the authors based on official data.

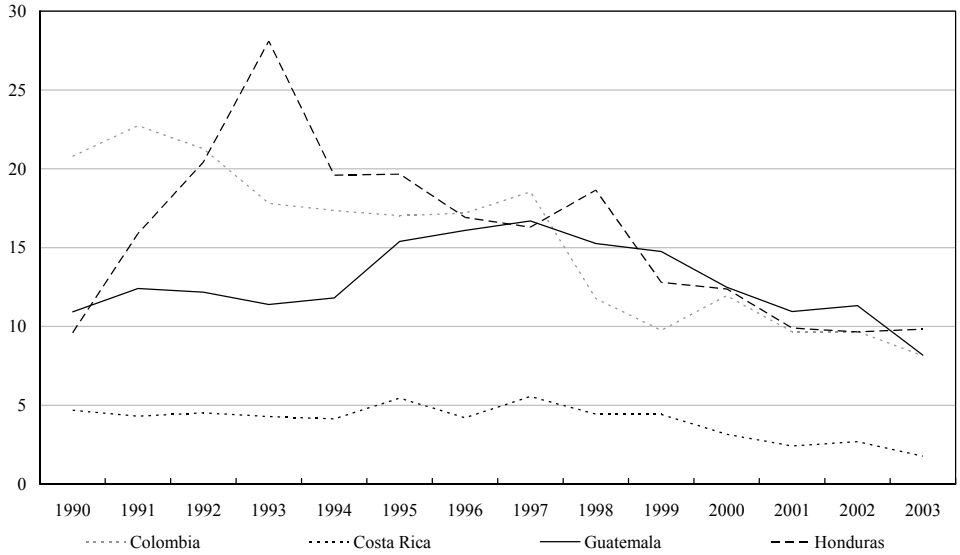
Figure 8

Latin America: Central Government Fixed Investment, 1990-2003
(percent of primary expenditures)

a) Argentina, Bolivia, Brasil and Chile



b) Colombia, Costa Rica, Guatemala and Honduras

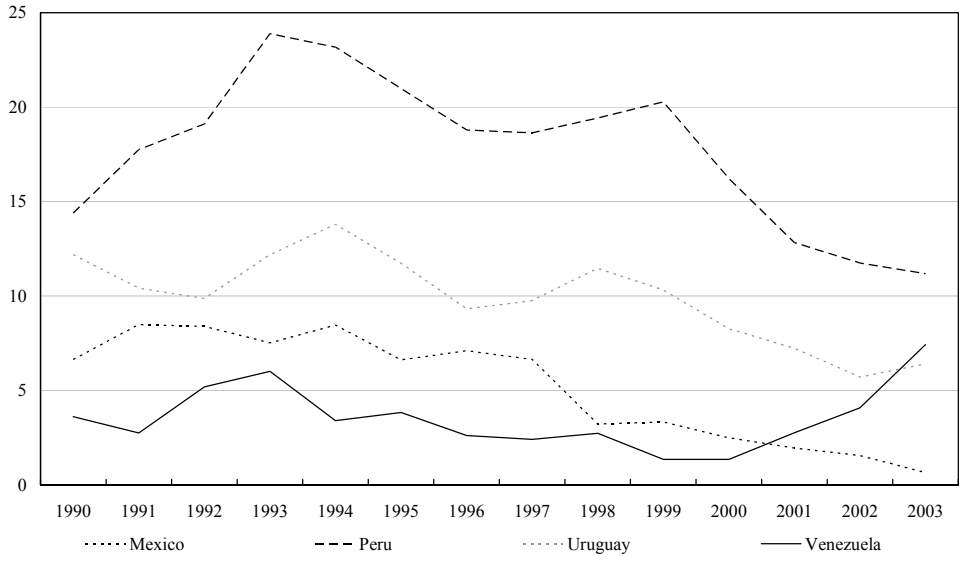


Source: ECLAC, United Nations.

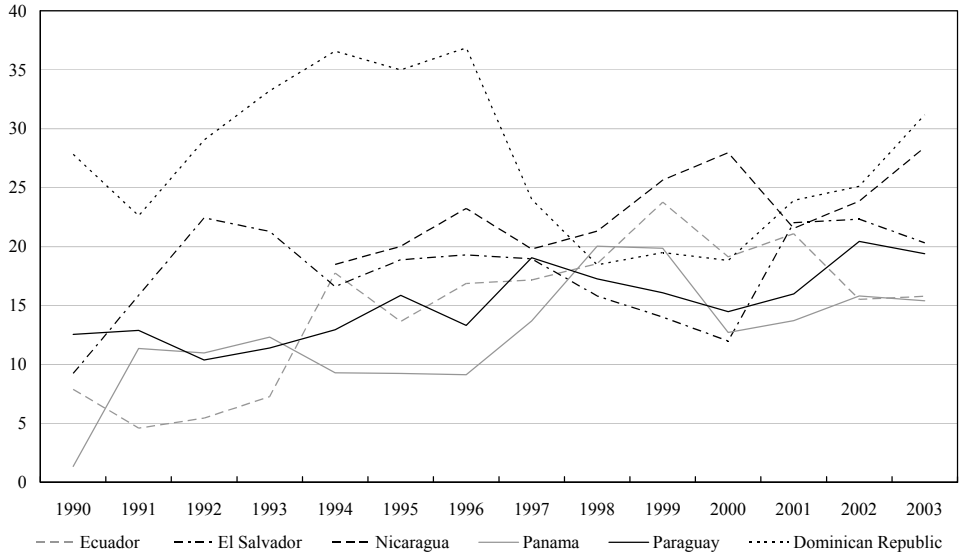
Figure 8 (continued)

Latin America: Central Government Fixed Investment, 1990-2003
(percent of primary expenditures)

c) Mexico, Peru, Uruguay and Venezuela



b) Ecuador, El Salvador, Nicaragua, Panama, Paraguay and Dominican Republic



Source: ECLAC, United Nations.

Table 3

Latin America: Central Government Expenditure Components

	2003 *(percent of GDP)*		Real Variation 1998-2003 *(percent)*	
	Primary Current Expenditures	**Investment**	**Primary Current Expenditures**	**Investment**
Nicaragua	10.8	5.4	30.3	81.1
Dominican Republic	12.9	5.2	11.8	123.3
Paraguay	14.3	3.1	–6.6	–1.6
Haiti	8.9	3.0	20.5	54.3
El Salvador	9.9	2.8	17.4	59.2
Honduras	17.7	2.8	69.6	–18.4
Bolivia	21.5	2.6	15.2	80.7
Ecuador	10.7	2.5	19.8	0.7
Panama	11.6	2.1	0.2	–28.2
Chile	17.2	2.0	21.0	–51.2
Venezuela	15.7	1.7	–4.1	180.5
Peru	12.9	1.7	22.4	–36.9
Uruguay	19.1	1.3	–6.1	–50.4
Colombia	14.6	1.3	26.7	–15.8
Guatemala	7.8	1.0	30.8	–33.8
Brazil	9.9	0.4		–58.3
Costa Rica	11.5	0.2	32.9	–48.7
Argentina	13.2	0.2	–2.2	–34.8
Mexico	16.9	0.1	64.9	–69.7
Latin America(1)	**13.7**	**1.8**	**22.4**	**–14.1**

(1) Unweighted average excluding Haiti, Dominican Republic and Venezuela.

Source: calculations of the authors based on official data.

There has been a negative bias for public investment in recent years, although this trend cannot be generalized to all countries and all episodes. Making room to public investment in Latin America, while ensuring fiscal sustainability, is undoubtedly a puzzle for fiscal authorities. We analyze different options in the rest of the document.

4. A radical option: the golden rule in public finance

4.1 General considerations

In formal terms, the golden rule arithmetic is the following (see Blanchard and Giavazzi, 2004):

$$\dot{b} = g - t + i + (\delta - \vartheta)k + (r - n)b \, .$$

Where b is public debt stock, t represents government revenues, g current expenditure, i net investment, and k is the capital stock. All variables are expressed as a share of GDP, and there is no inflation. Also, r is real interest rate, n the economic growth rate, δ the capital depreciation rate and ϑ the public capital return rate. The novelty of this definition of the change in public debt stock is the inclusion of incomes of public capital stock.[8] If the rule is a balanced budget, we would have:

$$g - t + i + (\delta - \vartheta)k + rb = 0$$

Changes in public debt stock would depend on its initial value and the rate of growth of the economy:

$$\dot{b} = -nb$$

With a positive growth rate of the economy, the public debt-to-GDP ratio will converge to zero. If the rule is to have a current account balance, then:

$$g - t + (\delta - \vartheta)k + rb = 0$$

and:

$$\dot{b} - \dot{k} = -n(b - k)$$

Defining $i = \dot{k} + (n + \delta)k$, public debt stock has its counterpart in the public capital stock. If capital stock is constant as a share of GDP, the government can have a deficit equal to nk. Public debt stock would then converge to the amount of public capital stock.

We apply this rule for Latin American countries using: $\delta = 0.05$ and $k = 30$. Probably this last number is lower in Latin American countries, so we also estimate "the admissible deficit" under a golden rule applied to net investment ($i - \delta k$) with a public capital stock equal to 20 (Table 4).

If we accept these parameters as realistic, especially the capital depreciation rate, we can observe that public investment deficit is very significant: nine countries would have nil or negative net investment (second column of Table 4). These simple estimations confirm a key intuition: countries can have bigger deficits without compromising fiscal sustainability if we take into account public investment returns. Considering in addition the positive impact of public investment on economic growth, a special treatment of public investment should result in welfare improvements. Infrastructure deficiencies compromise economic growth and contribute negatively to the public debt-to-GDP ratio evolution.

Objections to a generalized application of the golden rule are numerous. In a discussion referred to the European Union, Buti, Eiffinger and Franco (2003)

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[8] Although it is not precised by the authors, we can imagine two sources of public capital returns: the first would be a direct source proceeding from public corporations investment; and the second an indirect source proceeding from a higher tax collection due to an increased overall economic activity.

Table 4

"Admitted" Deficit in Latin American Countries, According to Central Government Investment Level

	Gross Investment 2003	"Admitted" Deficit k = 30 per cent	"Admitted" Deficit k = 20 per cent
Nicaragua	5.4	3.9	4.4
Dominican Republic	5.2	3.7	4.2
Paraguay	3.1	1.6	2.1
Haiti	3.0	1.5	2.0
El Salvador	2.8	1.3	1.8
Honduras	2.8	1.3	1.8
Bolivia	2.6	1.1	1.6
Ecuador	2.5	1.0	1.5
Panama	2.1	0.6	1.1
Chile	2.0	0.5	1.0
Venezuela	1.7	0.2	0.7
Peru	1.7	0.2	0.7
Uruguay	1.3	–0.2	0.3
Colombia	1.3	–0.2	0.3
Guatemala	1.0	–0.5	0.0
Brasil	0.4	–1.1	–0.6
Costa Rica	0.2	–1.3	–0.8
Argentina	0.2	–1.3	–0.8
Mexico	0.1	–1.4	–0.9
Latin America(1)	**1.8**	**0.3**	**0.8**

(1) Unweighted average excluding Haiti, Dominican Republic and Venezuela.

Source: calculations of the authors based on official data.

suggest that the gains of adopting that kind of rule would be limited in countries where infrastructure is already well developed. Net investment levels are very low, and not necessarily inconsistent with the actual rule. In addition, empirical evidence shows that public infrastructure investment have decreasing returns. From an intergenerational point of view, a combination of high public investment with high borrowing is not necessarily superior to a situation with low public investment and low borrowing. Finally, separate budgets could bias public expenditure in favor of non-financial assets, disadvantaging human capital and other intangibles that contribute to economic growth.

Turrini (2004) adds up some other arguments against the golden rule. First, there is no clarity in respect to the optimal rate of public investment. Therefore, situations where a golden rule could be counterproductive can exist. Perhaps the most criticized aspect of the golden rule's rationality is the analogy made with the private sector. In general, private enterprises take possession of the majority of their project returns, which represents a justification of the multi-annual accounting treatment for those investment projects. In the case of public investment, these returns benefit the whole society and are not necessarily transformed into revenues for the public treasury. The proper investment accounting is indeed difficult: some outlays that have future returns are not classified as investment (education), whereas some outlays classified as investment do not have substantial future returns (social housing). Finally, the estimation of crucial parameters as depreciation and public capital stock remain very difficult.

If we were to apply the golden rule in its traditional form in Latin America and the Caribbean, an unsolved problem would be the absence of limits in the overall fiscal deficit. The application of the golden rule would lead to a kind of "structural" heterogeneity of the overall fiscal deficit goals. While in some countries (Argentina, Brazil, Colombia, Costa Rica, Mexico and Uruguay) capital expenditure represents less than 2 per cent of GDP, in other countries (Bolivia, Chile, Ecuador, Paraguay, Peru, Dominican Republic and Venezuela) the amount is much larger and could justify bigger deficits.

The conclusion is that, although the idea of a golden rule is very interesting and addresses a true problem, its application is far from being universal. It seems better to leave room to discretional decisions, depending on the initial situation, the budget restrictions and the dimension of infrastructure gap. Also, its implementation would require key institutional adaptations, as explained in Toigo and Woods (this issue).

4.2 The Government Finance Statistics Manual 2001 (GFSM 2001)

As it is well known, in most Latin American countries accounting rules are defined in a cash basis (flows are recorded when cash is received or disbursed) and rarely in an accrual basis (flows are recorded when economic events occur irrespective of whether cash was received or paid). The combination of a cash basis accounting and explicit fiscal rules may lead to an intensive use of creative accounting. A budget can appear to be balanced in the short-term, but at the same time it can produce unsustainable obligations for the future or it can be financed by net worth reduction (through sales of non-financial assets or through the reduction of public investment), that would imply a progressive decrease for future financing. A fundamental difference is that accrual based accounting distinguishes between expenses and acquisitions of nonfinancial assets (recorded separately): the expenses of using non-financial assets in operating activities are matched with the period of their use and not with the period of their acquisition.

In 2001, the IMF published the new Government Finance Statistics Manual (*GFSM 2001*), establishing new standards in the structure, coverage and accounting rules for fiscal statistics. The *1986 GFSM* concentrated in governments' cash problems, considering that liquidity or finance restrictions of the governments were the best way to evaluate country's fiscal policy. The *GFSM 2001* introduces accrual basis accounting and balances with the coverage of economic and financial activities of general government. There are many analogies with the private sector financial statements. Hence, this new accounting structure should allow evaluating general government financial strength according to the same criteria applied to the other economic agents.

The *GFSM 2001* analytical framework is constructed over the principle that "all changes in stocks can be fully explained by the flows" and it is based on the same accounting rules than the 1993 System of National Accounts. Double-entry accounting is used for recording flows (every economic event should have a credit entry and a debit entry),[9] which implies a simple definition of what are government revenues and expenditures. Revenue is an increase in net worth resulting from a transaction, whereas expense is a decrease in net worth resulting also from a transaction. In the *GFSM 2001*, public investment is recorded as an increase in nonfinancial assets and its counterpart is a decrease in financial assets (double-entry accounting). Therefore, net worth is not affected and public investment is not considered as an expense.

In the *GFSM 2001*, there are three financial statements: the statement of government operations, the statement of other economic flows and the balance sheet. The balance sheet records the stocks of assets, liabilities and net worth of the government at the end of each accounting period, which is also the beginning of the next accounting period. By breaking down the total of assets and liabilities into their constituents and establishing the sources of their changes from one period to another in terms of transactions and other economic flows, the framework provides statistical explanation of the factors that cause the changes in net worth:

$$W = pK + FA - FL$$

Net worth (W) is equal to the sum of all assets (pK corresponds to public capital stock or, in other words, to nonfinancial assets and FA corresponds to financial assets) minus liabilities (FL corresponds to financial liabilities). This framework would allow evaluating, for example, if fiscal adjustments have been accompanied by a decrease in net worth. Milesi-Ferretti and Moriyama (2004) made such an exercise for European Union countries, seeking to determine if the decrease in public debt was "genuine", leading to an increase in net worth or a decline in non-financial assets through privatizations and reduction of public investment. In this study, the authors divided the sample into two adjustment periods: in the first period (1992-97) they found a positive correlation between changes in assets and

[9] A debit is an increase in an asset, a decrease in a liability, or a decrease in net worth. A credit is a decrease in an asset, an increase in a liability or an increase in net worth.

liabilities with a reduction in net worth; in the second period (1998-2002), the reduction observed in liabilities was accompanied by a substantive increase in net worth. Despite the importance of that kind of diagnosis, the lack of information in Latin American countries makes this type of evaluation impossible for the time being.

5. Options for greater fiscal flexibility

5.1 The coverage of fiscal statistics and rules

In the public sector area, the observance of procedures contained in the recently published manuals by the IMF and the OECD is part of the integration of emerging countries that have access to international capital markets. Even if countries made notorious progress in the application of standards and codes in public accounting, some recent practices are rather controversial and even misleading.

Government finance statistics should refer in priority to the general government, as ministries and agencies are essentially providing public goods, financed primarily by taxation. In spite of its straightforwardness, this kind of rule could lead to small or big revolutions in fiscal institutions. On one hand, several countries in Latin America have extra-budgetary mechanisms, special funds and stabilization funds. On the other hand, countries organized politically as federal states cannot establish fiscal rules for the whole *Estados* or *Provincias*. For example, the fiscal responsibility law of 1999 in Argentina only encompassed the federal government.

Nevertheless, IMF-supported programs have tended to widen institutional coverage of overall fiscal balance and public debt stock targets, including in most cases public enterprises and Central Bank. For developed countries, IMF staff reports, in the framework of Article IV consultations, focus at the general government level. For Latin American countries, the coverage is eighty five per cent nonfinancial public sector, including then non-financial enterprises. Moreover, compared to other geographical areas, Latin America is clearly in disadvantage (see IMF, 2004a).

This trend is not arising only from the IMF. In the case of regional agreements, common goals refer to overall fiscal balance and public debt stock of the non-financial public sector (this is the case for the Andean Community and the Common Central American Market), or to the new concept of change in net public debt stock (MERCOSUR). In this last example, international reserves are included in the common goal, contributing to give to that norm another pro-cyclical characteristic. A broad coverage seems to be necessary when it is clear that countries have important off-budget activities. But these practices should not represent the norm for medium-term macro-fiscal rules, as it leads to magnifying fiscal deficits.

The inclusion of nonfinancial enterprises in a consolidated basis with the general government may induce to artificial adjustments; it will always be easier to cut investments in public enterprises than reducing programs from the general government, or than increasing tax rates. When the target is non-financial public sector balance, any public enterprise investment will aggravate deficit. With this institutional coverage, analysts and financial agencies would see a worsening of the fiscal stance, rising country risk and punishing infrastructure investments with high interest rates.

In a medium term perspective, the broad approach magnify fiscal deficit and induce artificial adjustments, reducing investments from public enterprises rather than evaluating expenditure programs from the general government, or increasing tax collection. Analysts would observe a worsening of the fiscal stance with public enterprises investment expenditures, elevating the country-risk and punishing infrastructure. If public enterprises do not have quasi-fiscal activities and if transfers from central government are properly recorded in the budget, it makes no sense to include their operations in fiscal goals. It has been argued that, as guarantees for public enterprises are contingent liabilities for the Treasury, coverage for fiscal statistics should be nonfinancial public sector. Nevertheless, contingent liabilities do not represent certain obligations and should have then a different treatment.

As emphasized in the IMF paper (2004a), it is important to exclude from fiscal indicators public enterprises that are commercially run. The controversy remains in how to define them. As a general criterion, the IMF suggests that public enterprises must perform nine criteria, falling into four broad categories: managerial independence (prices and employment policies), relations with government (subsidies and transfers, and regulatory and tax regime), financial conditions (profitability and creditworthiness) and governance structure (stock listing, outside audits and shareholders' rights). As these criteria may be too restrictive, it is recommended to focus on managerial independence and relations with government.

Within this framework, a set of public enterprises has been identified in Turkey that have compulsory goals for the program 2002-04, while others only have indicative goals (47 public enterprises are still included in the principal fiscal indicator). In Brasil, with the 2002-05 arrangement, Petrobras was classified as a commercially run enterprise, and therefore Petrobras' investments were excluded from the fiscal primary surplus calculation. More recently, some "strategic" investments are not included in the target. In Colombia, the framework was applied to 14 public enterprises, but only one performed the established criteria.

This "case-by-case" approximation has to be considered as a first step, considering that, in most cases, the framework does not notably reduce the coverage of fiscal indicators. Moreover, the case-by-case approach is a little confusing when countries need harmonized criteria in their relationships with International Financial Institutions. A proper accounting of general government operations would be a better option, considering that only four out of twenty countries of Latin America and Spanish Caribbean do so; all the rest have available data for central government and non financial public sector coverages.

5.2 Public-private Partnerships: the Mexican experience

The interest for public-private partnerships (PPP) is growing in Latin American countries. But the concept of PPP is not easy to define. Most of the time, there is some confusion between PPP's and privatizations or concessions that can lead to contingent liabilities. In a recent report published by the IMF (2004b), PPP's are defined as "arrangements where the private sector supplies infrastructure assets and services that have been traditionally provided by the public sector." These operations include the construction and management of hospitals, schools, prisons, highways, tunnels, bridges, railways, air traffic control systems, etc.

The United Kingdom is a pioneer in PPPs: its Private Finance Initiative (PFI)[10] allowed materializing more than 600 investment projects since 1992, including 34 hospitals and 200 schools. Once constructions are engaged, the government makes annual cash payments covering all costs, including capital costs (for infrastructure assets) and services. In the case of a hospital, for example, services payments (maintenance, catering, cleaning and others) represent up to 40-50 per cent of the total unit cost. As these costs are easy to quantify, they can be included in a transparent way in future budgets. Still 85 per cent of public investment in the United Kingdom is "traditional", and there is no generalization of this type of contract in the rest of OECD countries.

In the case of Mexico, the institutional coverage used for the presentation of the traditional fiscal balance is the central nonfinancial public sector. It includes the federal government and nonfinancial entities that produce goods and services for the market and/or nonprofit enterprises. Beginning the first semester of 2001, the *Secretaría de Hacienda y Credito público* calculates two fiscal indicators: the "traditional fiscal balance" and the "public sector borrowing requirements" (PSBR). The latter include, among other things, the traditional fiscal balance, the financing needs of public investment projects in oil and energy sectors (PIDIREGAS) and the borrowing requirements of the toll road rescue program (FARAC). In 2003, while the traditional deficit was 0.3 points of GDP, the wider indicator climbs to 2.5 per cent of GDP. The PSBR indicator is only indicative; Mexican authorities continue using the traditional public balance as the relevant fiscal indicator to budgetary commitments. Moreover, internal and external net indebtedness ceiling authorized by the congress are consistent with the traditional measure of fiscal balance.

Borrowing requirements for long-term infrastructure projects (PIDIREGAS, for PEMEX and CFE, state-owned enterprises of oil and electricity).) are derived from projects that can be financed by themselves and have an economic impact once they are realized. Their budgetary registration is deferred across time according to legal arrangements (article 18 of the General Law of Public Debt and article 30 from the Budget Law). The private sector executes these projects on behalf of the public sector and frequently obtains financial resources covering the costs during the project execution period. Infrastructure projects realized under this modality

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[10] See HM Treasury (2003): *PFI: Meeting the Investment Challenge*.

correspond to strategic activities and should have a demonstrated income-yield capacity, in the sense that future revenues generated from sales of goods and services should be sufficient to cover financial obligations.

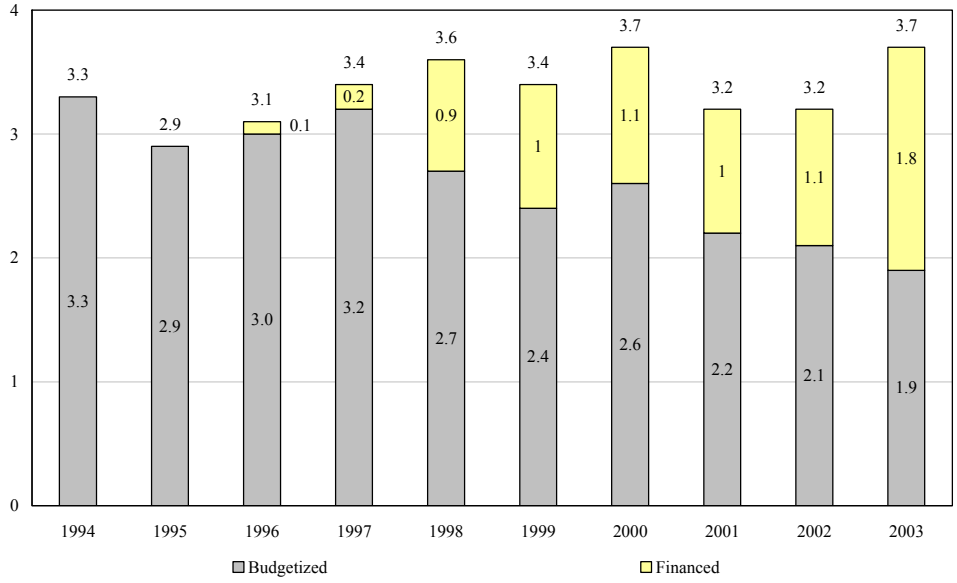
The PIDIREGAS's scheme is based on a simple formula; the private sector has the mandate of the execution of the project, with the obligation to restitute ownership to the public entity once the works have ended. Once the ownership's transfer is realized the government assumes as a direct liability payments realized in advance and the rest is assumed as a contingent liability.

The extent of this practice is illustrated in Figure 9 for the period 1998-2003, representing in this last year the same amount than traditional public investment. For this reason, the downward trend of budgeted public investment is misleading. Nevertheless, fiscal authorities consider that Pidiregas does not represent an advantage anymore, since amortization is similar to new investment. In the future, the budgetary channel should be used to keep in line traditional balance.

A particular case of PPPs is constituted by those long-term projects related to the rendering of services (PPS). Mexican authorities have launched this kind of PPP's in the education and health sectors. The objective is to establish long-term contracts to private suppliers who are in charge of the building infrastructures

Figure 9

Public Investment in Mexico
(percent of GDP)



Source: Ibarra (2003).

operated by public employees. Based on the experience of the United Kingdom (PFI), PPS's basic characteristics are: i) the government assign a contract to the private investor who have to provide services for a period superior to 15 years; ii) assets' ownership could be from private investor or from a public entity; iii) once services have been supplied with satisfaction, the government realizes the corresponding payments. The investment potential amount is quite important: US$ 780 million in projects in Transport and Communications sector, US$ 300 million in Health sector; US$ 230 million in Education sector.

Within the PPS scheme the accounting is similar to the private sector: once a year one part of the investment is recorded in fiscal accounts, including maintenance expense. As this initiative concerns "pure" public goods investments, it represents a real and attracting alternative to reduce anti-public investment bias.

5.3 Structural balance rules: the Chilean experience

Ideally, public spending should be acyclical, rather neutral in the business cycle, or countercyclical, with explicit policies aimed at reducing public debt during good periods and hence confronting in better conditions cyclical downturns. In OECD countries, it has been widely accepted to leave automatic fiscal stabilizers operate, as a leading criterion for fiscal policy. This principle has been supported by ECLAC (1998) for its full application in Latin American countries, recommending the use of structural fiscal indicators instead of the traditional fiscal balance. Other international organizations have also promoted the application of macro fiscal rules, not only with the idea to protect public investment, but also to enforce the countercyclical role of the fiscal policy. The IMF report (2004a) also emphasize the importance of managing boom periods (keeping public expense growth rate under control and reducing debt during those periods) with cyclically adjusted indicators. Putting into practice this kind of policy represents a huge step toward macroeconomic stability.

Unfortunately, there is ample empirical evidence of the pro-cyclicality of fiscal policies in Latin American countries.[11] For this reason, applying counter-cyclical fiscal rules is crucial to ensure a stable path of public spending. Many countries have made improvements; the fiscal responsibility Laws launched in the beginning of the decade succeeded to stop ever-growing debt dynamics. Nonetheless, there are few experiences where the explicit goal of fiscal rules is counter-cyclical.[12]

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[11] See for example Martner and Tromben (2003) for a recent analysis.

[12] The tax stabilization funds (Argentina, Peru), or commodities stabilization funds (Chile, Venezuela, Ecuador, Mexico) are in fact anti-cyclical policies. In Peru, the resources of the Fondo de Estabilización Fiscal (the fiscal surplus of public sector at the end of the year) will be used to pay external debt when their amount is superior to 2 per cent of GDP; in Ecuador, 70 per cent of the resources of the Oil Stabilization Fund will be used to pre-pay debt and cancel liabilities with the Institute of Social Security; in Chile, non-expected incomes from copper sales are accumulated in the Fondo de Compensación, that can either increase international reserves or be used to pre-pay external debt (see ILPES, 2004, for more

(continues)

The Chilean experience is valuable in that sense. With the 2001 budget law, the Chilean government made official the decision of driving a fiscal policy rule based on the achievement of a structural budget surplus equivalent to 1 per cent of GDP. The rule imply fixing the public expenditure growth of central government in terms of trend GDP, regardless effective GDP fluctuations. This in theory ensures a neutral and stable multiannual path to public expenditure, reducing the probability of severe adjustments and bringing in practice some certainty to the execution of public projects and programs.

This rule was first applied in a period of negative output gap (the cyclical component of the budget was negative until 2003 with a maximum level of 1,7 per cent of GDP in 2002. See Table 5). From 2004, the rule is being applied in the upper size of the business cycle, when pressures to spend are bigger. A basic requirement is then fulfilled: fiscal policy's neutrality throughout the complete business cycle. The authorities anticipate that the sum of fiscal surpluses for the period 2004-05 will be greater than fiscal deficits for the period 2000-03, which confirms that the rule is operating symmetrically within the cycle. Resources not budgeted are accumulated in the Copper Compensation Fund (CCF), and used in part to reduce external public debt. At the end of 2005, the CCF should recover the same level than before Asian crisis, being able to finance budget in case of a reversion of the present phase of high prices of copper.

The basic idea of a structural budget balance is to exclude cyclical components of the budget in order to restore to the fiscal policy its stabilization function. To achieve the implementation of the rule the government needs:

- the estimation of the potential output. This is done through a Cobb-Douglass production function. Since 2002, a committee of 14 external experts has been created and each member gives annually an estimation of the growth of the inputs for the production function (the gross fixed capital formation and the labour force) for the next three years. The average of the experts' estimations, excluding extreme values, is the potential GDP growth used to estimate the output gap. In order to ensure transparency to the process, the Budget Direction publishes in its web site the meeting reports;
- the estimation of the long-term copper price. This estimation is also made through a committee, formed by 10 external experts. The average, excluding the extreme values, is the long term price;
- the estimation of the cyclical components of the budget. The calculation of the cyclically adjusted tax revenues is completed using the output gap and the income elasticity of taxes, estimated at 1.05. The copper cyclical component ($IC_{s,t}$), is estimated considering physical sales from CODELCO (the copper state enterprise) and the price cyclical variations.

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details). But the existence of these funds is not enough to ensure neutral or anti-cyclical policies. As a matter of fact, legislative limitations of public expenditure growth (3.5 per cent per year in real terms in Ecuador and Peru, for example) tend to impose a descendent path to public expenditure in terms of GDP, if trend growth is higher, and hence these kind of policies are not neutral.

Table 5

Chile: Central Government Traditional and Structural Balances
(percent of GDP)

	1997	1998	1999	2000	2001	2002	2003	2004[(e)]	2005[(b)]
Traditional balance	2.0	0.4	–2.1	–0.7	–0.6	–1.3	–0.4	1.9	1.2
Total cyclical component	1.2	–0.2	–1.3	–0.8	–1.4	–1.7	–1.2	1.0	0.2
of which:									
Tax revenues	1.0	0.5	–0.4	–0.3	–0.4	–0.7	–0.8	–0.6	–0.5
Copper	0.2	–0.7	–0.9	–0.4	–1.0	–1.0	–0.4	1.6	0.7
Structural balance	0.8	0.6	–0.8	0.1	0.9	0.5	0.8	1.0	1.0

(e): estimated; (b): budgeted.

Source: DIPRES (2004): *Informe de finanzas públicas. Proyecto de Ley de Presupuesto del sector público para el año 2005*, Santiago de Chile.

There is no cyclical component of the budget for expenditures. The calculation of the so-called structural budget balance is obtained from the conventional balance, deducting the cyclical components of tax revenues and copper revenues. Based on the projections of structural revenues it is therefore possible to fix the rate of growth of expenditures for the next budget.

The 2000-01 adjustment period (when the official structural balance went from –0.8 per cent of GDP to 0.9 per cent) implied a substantial decrease in public investment, much bigger than in the case of current expenditures. Public-investment-to-GDP ratio has not improved until 2003; growing public expenditure components are essentially current transfers and capital transfers. Both of them are associated to massive employment programs (including direct and indirect subsidies to the private sector). In the case of Chile the application of a structural macro fiscal policy rule, although ensuring an important stabilization role, has not proven to be sufficient to enhance public investment. If public authorities want to eliminate the anti-public investment bias, the tools should be more specific, combining a structural rule and a golden rule, as it the case in the United Kingdom.

Chile has recently implemented the GFSM 2001 framework for its fiscal statistics. Although the gross operating balance will probably be soon a familiar indicator for analysts and public opinion, it is doubtful that it will be an explicit fiscal goal. Rules covers General Government operations, as public enterprises accounting are presented separately. The NFPS coverage is not published as such, but all the information is available to proceed to consolidation.

6. Towards an integrated agenda

The Cusco's final Declaration of the XVII Rio Group Summit, in May 2003, ratified the urgent need for establishing innovating financial mechanisms appointing to enforce democratic governance and the struggle for poverty eradication through new resources for productive investment and pro-employment programs. In order to fulfill these targets, stimulating infrastructure expenditures is crucial. For Latin American countries, it would be necessary to invest around 3 per cent of GDP annually in infrastructure – the equivalent of US$ 70 billion – to achieve a sustainable rate of 3 per cent annually.

We showed evidence that during the years 1998-2002, there was once again a bias against public investment in fiscal adjustment episodes. It will always be easier to suspend public works than cutting off current expenditures. It has been estimated that reductions of investment in infrastructure accounted for half of the fiscal adjustments made in Argentina, Bolivia, Brazil, Chile and Peru during the Nineties. Introducing greater fiscal flexibility and promoting a growth-oriented fiscal policy leads to recognize that investment and current expenditure are different economic phenomena.

This is why it is urgent to confront this issue adopting an integrated approach. ECLAC (2004) has made a set of concrete proposals on this issue. A first group of proposals revolves around the use of specific taxes to finance infrastructure projects, in particular fuel taxes to pay for road projects. In addition, fuel consumption is a good proxy indicator of demand for roads. These proposals are inspired by the experience of the United States, where taxes on fuel used to finance highways. The experience in Argentina is another example. For decades, taxes on fuels were used to finance companies engaged in the development of road infrastructure.

Public-private partnerships have become an important alternative, allowing governments to create new infrastructure without immediately adding capital outlays to the budget. This mechanisms facilitate distribution of investments costs over time, as the investment is amortized with the outlays that the government pays periodically to the operators of the service.

In view of the need to combine public and private efforts to meet the growing demand for infrastructure services, some steps will have to be taken to strengthen the financing and implementation capacity of the public sector and to promote greater participation by the private sector. For the former, accounting instruments that offer more flexibility in the administration of public investment are required. As for private sector involvement, it is necessary to ensure a relatively stable economic and political environment and to enhance current regulation mechanisms.

A third way of increasing fiscal flexibility in to enhance the role played by multilateral development banks, especially in low income countries. The capacity of these institutions to disburse approved loans at present is being diminished by budgetary practices, subject to the limitations imposed by the countries' fiscal targets. At the same time, such loans normally require national counterparts or

matching funds, which also counted as expenditures and exert additional pressure on fiscal accounts. For this reason, the IADB, for example, disbursed 60 per cent of its approved budget for investment projects in the year 2000, and only 30 per cent in 2003. Clearly, this kind of investment, in principle accurately evaluated, should have a different accounting treatment.

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