

# Contents

<i>List of Tables, Figures, and Boxes</i>	viii
<i>Foreword</i>	xii
<i>Notes on Contributors</i>	xv
<b>1 Fiscal Sustainability</b>	<b>1</b>
<i>Erik Offerdal</i>	
Introduction	1
A basic accounting framework	2
What are the factors behind recent developments in debt in Central America?	5
What level of public debt?	12
Potential fiscal vulnerabilities and policy flexibility	18
How would adverse shocks impact on the need for fiscal adjustment?	26
Would fiscal rules be useful?	30
Some issues for further consideration	34
Appendix 1.1 The accounting framework	35
Notes	37
References	39
<b>2 Tax Reform: Trends and Possibilities</b>	<b>41</b>
<i>Janet G. Stotsky and Asegedech WoldeMariam</i>	
Introduction	41
General principles of tax reform	42
Structure of tax system in Central America	44
Domestic taxes on goods and services	51
Taxes on income and profits and taxes on wealth	58
Administrative issues	82
Regional tax harmonization	83
Looking to the future	84
Notes	85
References	85

<b>3 Public Expenditure and Governance</b>	<b>87</b>
<i>Ana Corbacho and Hamid R. Davoodi</i>	
Introduction	87
Economic growth, poverty, and inequality	88
Level and composition of government spending	93
Investment in education and health	97
Provision of education	98
Returns to investment in education	98
Trends in educational attainment	101
Indicators of the quality and quantity of education inputs	104
Government spending on education	105
Teacher salaries and teacher quality	110
Student–teacher ratios and schooling time	113
Provision of health services	113
Health quality indicators	117
Social safety nets	121
Governance	125
Summary and policy conclusions	134
Notes	136
References	138
<b>4 Trade Structure and Policy</b>	<b>142</b>
<i>Guillermo Perry, Daniel Lederman, and Rodrigo Suescún</i>	
Introduction	142
Trade structure	143
Trade policies	148
Tariff and nontariff barriers	148
The impact of NAFTA in Central America	151
Policy reforms and economic growth	153
The United States and Central America trade relation: further trade integration	155
A trade agreement between Central America and the United States	156
The 2002 US farm bill	157
Central America and the United States: beyond trade	159
Some other features of Central American countries	162
Implications for monetary arrangements	163

Conclusions	165
Notes	166
References	167
<b>5 Choice of Exchange Rate Regimes</b>	<b>169</b>
<i>Robert Rennhack, Erik Offerdal, and Valerie Mercer-Blackman</i>	
Introduction	169
Theoretical considerations in the choice of exchange regime	170
Overview of the economic structure of the CAC countries	171
An econometric approach to assessing exchange regimes	180
An index approach	182
Concluding remarks	186
Appendix 5.1	186
Appendix 5.2 Index of effective exchange rate flexibility (FLT)	189
Appendix 5.3 The construction of the index of suitability for a peg	190
Notes	191
References	192
<b>6 Financial Dollarization: What to Do About It?</b>	<b>194</b>
<i>Alain Ize</i>	
Financial dollarization in Central America	194
Dollarization: types and roots	196
Risks and drawbacks of financial dollarization	198
Is there a way out?	200
Conclusions	204
Notes	205
References	205
<i>Index</i>	207

# 1

## Fiscal Sustainability

*Erik Offerdal*

### Introduction

The overall theme of this chapter is: How concerned should policy-makers in Central America be about current levels of public sector debt?<sup>1</sup> The general answer is that there is reason to be quite concerned, not only because debt levels are high in some of the countries, but equally important because: (i) all Central American countries remain highly vulnerable to adverse shocks; and (ii) they are constrained in their ability to formulate effective policy responses to such shocks. Thus, the basic policy recommendation of this chapter is similar to that suggested by Fischer (2001): ‘Countries that are vulnerable because they operate in emerging markets need to make themselves less vulnerable by having smaller debts.’

The assessment of public sector debt in the Central American region focuses on five questions:

- What are the most important factors behind recent developments in public debt?
- Is there an ‘appropriate’ level of public debt for the Central American countries?
- What are the main sources of long-term vulnerability to public debt in the region?
- How would adverse shocks, given these vulnerabilities, impact on the long-term debt position and the need for fiscal adjustment?
- Would fiscal rules, similar to those in use in other countries, be helpful in addressing these vulnerabilities?

Several factors suggest the critical importance of these five questions for policy makers. One such factor is that the *current ratios of debt to Gross Domestic Product (GDP)* – while generally lower than in South America, are increasing rapidly in some Central American countries, and are large enough that interest obligations place a significant burden on the public finances (Interest obligations have averaged 3 to 7 per cent of GDP in Costa Rica, Honduras, Nicaragua, and Panamá in recent years). Related to this is the *'emerging market' status* of Costa Rica, the Dominican Republic, El Salvador, Guatemala, and Panamá, all of which have raised substantial amounts in international markets in recent years, generally at quite favorable terms.<sup>2</sup> This increased exposure to private capital markets also means that these countries are becoming more exposed to sudden *shifts in market sentiment*, and thus to 'contagion' from financial crises – contagion that may be entirely unrelated to the fundamentals of their economies. These economies are also *small and highly sensitive* to terms of trade changes (e.g. higher oil and lower coffee prices) and natural disasters such as hurricanes and earthquakes. These shocks can put a substantial strain on the public finances, partly through their adverse impact on economic activity and fiscal revenues, and partly through the need for additional capital expenditures to repair damaged infrastructure. The limited size of these economies therefore makes such shocks more difficult to absorb by the domestic economy.

The next section raises some accounting issues pertinent to an analysis of public debt, and the subsequent five sections address each of the questions above.

## **A basic accounting framework**

The accounting framework used in this chapter is 'conventional' in that it focuses on gross debt, generated through the public sector borrowing requirement. Although widely used, and chosen here primarily for reasons of comparability across countries, this framework has some important limitations.

Ideally, an assessment of public debt sustainability should be based on an analysis of the balance sheet of the public sector, defined as comprehensively as possible. Such an approach would explicitly recognize that, for the purpose of long-term sustainability, the focus should be on current and expected future changes in public sector

net worth rather than gross debt. The public sector frequently holds significant assets (buildings, infrastructure, mineral deposits, and various forms of liquid reserves), and changes in net worth could potentially be very different from changes in gross debt. Moreover, by looking at future changes in net worth one would incorporate factors such as an increase in the liabilities of public pension schemes caused by demographic changes. A balance sheet approach would also allow for a symmetrical treatment of public investment expenditures (which increases net worth) and privatization receipts (which, assuming they are converted into another asset or held as cash, do not increase net worth).<sup>3</sup> Moreover, a comprehensive definition of the public sector should incorporate all public sector entities. This is important in an analysis of public sector debt since the central government, as the majority shareholder in public enterprises and public financial institutions, has a direct fiduciary responsibility for the operating losses and for debt contracted by these entities.

In practice, however, a complete balance sheet approach – while analytically more appropriate – is fraught with data difficulties, in particular in establishing reliable estimates of the assets of the public sector. The valuations of these assets is frequently made difficult, either because they have no market price (e.g. roads and bridges) or because the market price is uncertain and subject to large fluctuations (oil prices in the case of unexplored petroleum deposits).<sup>4</sup> Moreover, the focus of this paper is on the macroeconomic vulnerabilities emanating from public debt; many public assets, such as infrastructure, cannot be easily liquidated to retire debt. The discussion that follows is therefore based on a ‘conventional’ approach in that it is focused primarily on gross debt, generated through the public sector borrowing requirement. The coverage is the nonfinancial public sector, that is, excluding operations of the central bank and public financial institutions, mainly to ensure comparability across countries.

The accounting of public sector debt dynamics simply states that the overall fiscal balance – the primary balance plus interest cost on domestic and foreign debt – is financed by increasing the stock of debt, either domestic or foreign.<sup>5</sup>

$$D + i \cdot B + i^* \cdot B^* \cdot E = \dot{B} + \dot{B}^* \cdot E \quad (1)$$

where  $D$  is the primary fiscal balance,  $i$  ( $i^*$ ) is the nominal interest rate on domestic (foreign) debt,  $B$  ( $B^*$ ) is the stock of domestic (foreign) debt,  $E$  is the nominal exchange rate, and a 'dot' over a variable indicates its (absolute) change over time. Through some straightforward transformations, detailed in the appendix, this identity can be expressed in terms of ratios to GDP:

$$d + b(r - g) + b^*(r^* - g + \hat{e}) = \dot{b} + \dot{b}^* \quad (2)$$

where lower-case letters for  $b$ ,  $b^*$ ,  $d$ , indicate the ratios to GDP of the upper-case equivalent in (1),  $g$  is the growth rate of real GDP,  $r$  and  $r^*$  are the domestic and foreign **real** interest rates, and  $\hat{e}$  is the rate of change in the real exchange rate (vis-à-vis the US dollar). This basic accounting framework directly identifies two key factors behind changes in the overall ratio of public debt to GDP:<sup>6</sup>

- *the primary fiscal balance*, where a higher primary deficit (positive  $d$ ) would increase the growth of debt (*cet. par.*), and a higher primary surplus (negative  $d$ ) would lower it;
- *the interest service* on domestic and foreign debt, where an increase in the real interest rates  $r$  and  $r^*$  or a lower GDP growth  $g$  would increase the net borrowing requirement and thus the debt stock relative to GDP. In particular, if  $g > r$ , domestic interest service will contribute negatively to the borrowing requirement as a ratio to GDP, that is, the growth in nominal GDP outpaces the interest service on domestic debt. A similar point applies to interest service on external debt: a higher real interest rate, lower growth, or real depreciation (i.e. negative  $\hat{e}$ ) would increase the net borrowing requirement.

However, equation (2) captures only changes in the ratio of debt to GDP directly related to net borrowing requirements derived from above the line. Additional changes in the debt to GDP ratio may arise from a number of 'debt stock operations', the most common of which is the assumption of contingent liabilities (private sector loan guarantees, deposit insurance schemes, bank recapitalization operations, commodity price guarantee schemes etc.), which would tend to increase the debt ratio, privatization receipts, and debt reschedulings (either debt-stock reductions or debt-service reductions/deferrals

if the latter is treated as below-the-line financing in the fiscal accounts), which would tend to reduce the debt-to-GDP ratio.<sup>7</sup>

### **What are the factors behind recent developments in debt in Central America?**

In the last three to five years, Costa Rica, El Salvador, and Guatemala have all experienced fairly substantial increases in their debt ratios (Table 1.1). These increases have largely been driven by deficits financed by private market borrowing. By contrast, in the Dominican Republic, Honduras, and Nicaragua, debt ratios have declined, mainly reflecting declines in debt to multilateral and bilateral creditors.<sup>8</sup>

The most important contributions to these changes in debt since 1998 can be assessed using the decomposition of changes in total debt into contributions from the primary balance, interest service,<sup>9</sup> and a residual as suggested in the previous section. On a cumulative basis since 1998 (Table 1.2):

- the residual was, by far, the largest contributor to changes in debt in Costa Rica, El Salvador, and Honduras, and were also significant in Nicaragua and Panamá. Except in Honduras, this residual contributed to an increasing public debt ratio;
- the primary fiscal position was the most important contributor not only in Guatemala and Panamá, but was large also in Costa Rica. In the latter two countries, however, the primary surpluses only served to offset or partially offset the negative impact of stock operations;
- in the Dominican Republic and Nicaragua, the declines in the debt ratios to GDP were primarily the result of a negative contribution from interest service, which in turn can be traced back to buoyant GDP growth, fairly low interest rates, and substantial appreciation of the real exchange rate over the period (Table 1.3). These factors also played an important role in Honduras, but their importance was outweighed by this country's debt rescheduling in 2001;
- more generally, a weakening of GDP growth for all countries in 2000 and 2001, and a weakening fiscal position, especially in Honduras and Nicaragua, have contributed to increasing the debt-to-GDP ratios.

Table 1.1 Central America: level and composition of nonfinancial public sector debt (in per cent of GDP)

	1995	1996	1997	1998	1999	2000	2001
<i>Costa Rica</i>							
Total public debt	39.7	36.8	32.4	33.6	27.7	30.3	38.6
Held by domestic residents	22.7	22.2	19.6	20.2	14.1	15.7	20.1
Held by foreign residents	17.0	14.6	12.8	13.4	13.6	14.5	18.5
Multilateral/Bilateral	16.2	13.9	12.2	11.4	10.0	9.5	11.7
Private	0.8	0.8	0.6	2.0	3.6	5.1	6.8
<i>Dominican Republic</i>							
Total public debt			29.5	28.4	26.8	26.0	23.6
Held by domestic residents			5.9	6.3	5.8	7.3	4.3
Held by foreign residents			23.6	22.1	21.0	18.7	19.3
Multilateral/Bilateral			18.2	17.8	17.2	15.1	13.9
Private			5.3	4.3	3.8	3.5	5.4
<i>El Salvador</i>							
Total public debt	26.6	27.3	28.5	24.8	25.6	27.5	31.4
Held by domestic residents	3.0	3.0	1.9	1.9	2.3	4.3	6.8
Held by foreign residents	23.6	24.3	26.6	22.9	23.3	23.2	24.7
Multilateral/Bilateral	21.3	21.6	21.6	21.2	20.4	20.0	20.2
Private	2.3	2.7	5.0	1.7	2.8	3.3	4.4
<i>Guatemala</i>							
Total public debt	15.4	15.0	15.9	15.5	18.4	18.0	19.3
Held by domestic residents	4.4	4.6	4.3	3.7	3.6	3.4	4.2

Held by foreign residents	11.0	10.3	11.6	11.8	14.8	14.5	15.1
Multilateral/Bilateral	10.1	9.7	8.8	9.6	11.8	11.3	11.3
Private	0.9	0.7	2.8	2.2	3.0	3.2	3.8
<i>Honduras</i>							
Total public debt	108.5	99.0	82.5	76.1	78.6	72.4	66.6
Held by domestic residents	8.7	6.7	5.7	4.1	2.7	3.2	2.8
Held by foreign residents	99.8	92.3	76.8	72.1	75.9	69.3	63.7
Multilateral/Bilateral	96.6	89.9	75.7	71.7	75.6	69.0	63.5
Private	3.2	2.4	1.1	0.4	0.3	0.3	0.3
<i>Nicaragua</i>							
Total public debt			330.2	340.2	324.4	303.8	311.3
Held by domestic residents			25.4	36.2	28.4	29.9	45.5
Held by foreign residents			304.9	304.0	296.0	273.9	265.8
Multilateral/Bilateral			288.8	290.7	282.7	262.5	255.9
Private			16.1	13.3	13.3	11.3	9.8
<i>Panamá</i>							
Total public debt					82.6	81.2	84.2
Held by domestic residents					21.2	22.0	19.8
Held by foreign residents					61.4	59.3	64.4
Multilateral/Bilateral					20.3	18.2	16.9
Private					41.1	41.0	47.5

Sources: National authorities; and Fund staff estimates.

Table 1.2 Central America: contributions to changes in public debt (in per cent of GDP)

	1998	1999	2000	2001	Cumulative 1998-2001	Share of cumulative change
<i>Costa Rica</i>						
Change in debt (as per cent of GDP)	1.1	-5.8	2.6	8.3	6.2	100.0
Contribution from:						
Primary balance	-2.0	-1.4	-1.0	-1.8	-6.3	-101.7
Interest service (external and domestic)	-2.2	-0.2	0.1	0.2	-2.0	-32.9
Residual	5.4	-4.2	3.4	10.0	14.5	234.5
<i>Dominican Republic</i>						
Change in debt (as per cent of GDP)	-1.1	-1.6	-0.8	-2.4	-5.8	100.0
Contribution from:						
Primary balance	1.2	1.2	1.1	1.0	4.6	-77.8
Interest service (external and domestic)	-2.9	-4.4	-4.1	-1.1	-12.5	213.6
Residual	0.6	1.5	2.2	-2.3	2.1	-35.8
<i>El Salvador</i>						
Change in debt (as per cent of GDP)	-1.0	1.7	1.8	3.3	5.8	100.0
Contribution from:						
Primary balance	0.1	0.2	0.2	0.3	0.8	13.8
Interest service (external and domestic)	0.3	0.0	0.0	-0.1	0.2	4.0
Residual	-1.5	1.5	1.6	3.1	4.8	82.2

<i>Guatemala</i>							
Change in debt (as per cent of GDP)	-0.5	3.0	-0.5	1.4	3.4	100.0	
Contribution from:							
Primary balance	0.3	1.4	0.7	0.8	3.2	94.9	
Interest service (external and domestic)	0.0	0.2	-0.1	0.2	0.4	10.6	
Residual	-0.8	1.3	-1.1	0.3	-0.2	-5.6	
<i>Honduras</i>							
Change in debt (as per cent of GDP)	-6.4	2.4	-6.1	-5.9	-16.0	100.0	
Contribution from:							
Primary balance	-5.6	-1.8	-0.2	4.1	-3.6	22.2	
Interest service (external and domestic)	-0.8	2.8	-4.2	-1.2	-3.4	21.1	
Residual	0.0	1.4	-1.8	-8.7	-9.1	56.7	
<i>Nicaragua</i>							
Change in debt (as per cent of GDP)	0.8	-17.0	-19.1	12.5	-22.8	100.0	
Contribution from:							
Primary balance	-4.8	0.5	2.1	4.7	2.5	-11.1	
Interest service (external and domestic)	-18.6	-27.9	-23.2	-11.6	-81.3	357.0	
Residual	24.2	10.5	2.0	19.3	56.0	-245.9	
<i>Panamá</i>							
Change in debt (as per cent of GDP)			-1.4	2.9	1.6	100.0	
Contribution from:							
Primary balance			-4.1	-3.0	-7.1	-443.8	
Interest service (external and domestic)			0.2	2.1	2.3	143.5	
Residual			2.5	3.8	6.4	400.4	

Sources: National Authorities; and Fund staff estimates.

Table 1.3 Central America: key macroeconomic indicators

	1995	1996	1997	1998	1999	2000	2001
<i>Costa Rica</i>							
Real GDP growth (annual percentage change)	3.9	0.9	5.6	8.4	8.4	1.7	0.4
GDP deflator (annual percentage change)	22.2	15.8	14.9	12.3	14.1	7.1	8.1
Real exchange rate depreciation (vis-à-vis US\$)	1.9	0.7	2.5	1.6	-1.3	3.2	4.7
Nominal effective interest rate, domestic debt	16.4	18.4	17.6	14.1	22.6	19.4	16.3
Nominal effective interest rate, external debt	3.5	3.7	2.8	2.6	3.5	3.7	4.1
<i>Dominican Republic</i>							
Real GDP growth (annual percentage change)	4.7	7.2	8.3	7.3	8.0	7.8	3.0
GDP deflator (annual percentage change)	12.7	5.4	8.2	5.0	6.4	7.9	8.8
Real exchange rate depreciation (vis-à-vis US\$)	2.9	2.3	4.9	-0.6	-1.0	4.5	6.0
Nominal effective interest rate, domestic debt			2.0	2.7	2.5	3.3	5.9
Nominal effective interest rate, external debt			3.4	3.4	3.4	3.8	3.4
<i>El Salvador</i>							
Real GDP growth (annual percentage change)	6.4	1.8	4.3	3.2	3.4	2.0	2.0
GDP deflator (annual percentage change)	10.4	6.8	3.5	3.8	0.6	3.1	2.7
Real exchange rate depreciation (vis-à-vis US\$)	4.4	7.9	4.9	2.9	0.9	2.6	3.4
Nominal effective interest rate, domestic debt	20.8	26.1	32.7	35.2	23.3	14.7	6.6
Nominal effective interest rate, external debt	4.5	4.3	3.9	3.7	3.8	4.1	4.3
<i>Guatemala</i>							
Real GDP growth (annual percentage change)	4.9	3.0	4.1	5.1	3.8	3.6	1.8
GDP deflator (annual percentage change)	8.7	8.9	8.5	9.4	5.4	6.0	7.6

Real exchange rate depreciation (vis-à-vis US\$)	1.5	6.7	13.0	2.4	-9.0	1.6	5.5
Nominal effective interest rate, domestic debt	18.0	16.4	11.0	20.5	23.1	17.0	13.4
Nominal effective interest rate, external debt	5.4	5.4	3.3	3.4	3.6	4.5	5.6
<i>Honduras</i>							
Real GDP growth (annual percentage change)	4.1	3.6	5.1	2.9	-1.9	5.0	2.5
GDP deflator (annual percentage change)	31.7	22.4	24.0	9.4	6.4	16.2	7.1
Real exchange rate depreciation (vis-à-vis US\$)	8.6	-0.7	11.9	11.8	5.2	7.4	6.0
Nominal effective interest rate, domestic debt	10.6	13.0	10.3	9.6	33.6	28.9	50.5
Nominal effective interest rate, external debt	4.7	4.5	4.1	3.9	2.9	2.1	2.0
<i>Nicaragua</i>							
Real GDP growth (annual percentage change)	4.2	4.7	5.1	4.1	7.4	4.3	3.0
GDP deflator (annual percentage change)	11.0	11.6	9.2	13.0	11.2	11.9	7.9
Real exchange rate depreciation (vis-à-vis US\$)	-8.1	-1.7	2.5	2.8	0.8	8.4	3.0
Nominal effective interest rate, domestic debt			4.0	5.3	4.6	3.8	8.2
Nominal effective interest rate, external debt			1.7	1.1	1.2	1.2	1.5
<i>Panamá</i>							
Real GDP growth (annual percentage change)	1.8	2.4	4.4	4.0	4.1	2.3	2.0
GDP deflator (annual percentage change)	0.5	0.3	1.7	3.4	-0.1	1.4	1.2
Real exchange rate depreciation (vis-à-vis US\$)	-4.1	0.5	1.0	0.5	1.7	1.4	-1.9
Nominal effective interest rate, domestic debt					2.1	5.5	5.1
Nominal effective interest rate, external debt					4.7	6.0	6.5

Sources: National authorities; and Fund staff estimates.

The residual – in effect the difference between the left- and right-hand side of equation (2) earlier – clearly captures the factors mentioned in note 8; the underestimation of the GDP data in Nicaragua is part of the reason why this country has a particularly large residual. There is, however, no question that this residual also reflects a ‘real’ phenomenon, namely ‘stock operations’<sup>10</sup> such as the assumption of various forms of contingent liabilities and/or debt rescheduling (e.g. a bank resolution operation in Nicaragua in 2001).

The policy implications of these ‘stock operations’ will be explored later in the chapter, for now it suffices to conclude that (i) these stock operations have contributed significantly to recent changes in public debt ratios; and (ii) in most cases these operations seem to have a bias toward increasing, rather than reducing, the ratio of public debt to GDP.

### What level of public debt?

The fact that ratios of public debt to GDP in Central America are either increasing or already ‘high’ raises a simple question with no straightforward answer: Is there a ratio of public debt to GDP for these countries that is broadly ‘appropriate’?

From a Latin American perspective, the *external* debt ratios in our sample of countries are not particularly high (Table 1.4). In 2001, the average level of external debt to GDP in the non-Heavily Indebted Poor Countries (HIPC) Central American countries was only about half of that in the larger countries in South America and México. Debt service was also considerably lower, especially relative to exports of goods and services, but also relative to government revenues. Among the factors contributing to this is the greater openness of the Central American countries, and a larger share of debt being to multilateral and bilateral creditors, with longer maturities and less need for annual roll-overs.

Recent econometric evidence – discussed below – suggest that when *external* debt reaches a certain point, around 40 per cent of GDP, it may start to have an adverse impact on economic growth and/or represent a sharp increase in the likelihood of a debt crisis.

Patillo *et al.* (2002), using data for 93 countries, estimate that, on average, the impact of debt on per capita growth appears to become negative for debt levels around 35–40 per cent of GDP, while, on the

Table 1.4 Selected Latin American countries: public external debt and debt service

	1995	1996	1997	1998	1999	2000	2001
<i>Costa Rica</i>							
Public external debt <sup>1</sup>	22.7	22.2	19.6	20.2	14.1	15.7	20.1
Debt service							
In per cent of exports <sup>2</sup>	13.6	12.1	12.5	6.9	7.0	7.0	6.3
In per cent of government revenues <sup>3</sup>	41.3	37.1	40.2	25.7	29.7	30.8	27.9
<i>Dominican Republic</i>							
Public external debt <sup>1</sup>			23.6	22.1	21.0	18.7	19.3
Debt service							
In per cent of exports <sup>2</sup>	9.3	10.0	10.1	12.4	9.9	12.0	12.1
In per cent of government revenues <sup>3</sup>	26.7	35.2	27.1	31.0	24.9	33.4	31.3
<i>El Salvador</i>							
Public external debt <sup>1</sup>	23.6	24.3	24.1	21.7	22.5	22.9	24.1
Debt service							
In per cent of exports <sup>2</sup>	13.2	12.9	9.9	15.0	15.1	13.5	14.4
In per cent of government revenues <sup>3</sup>	18.2	17.5	17.0	24.9	23.4	19.7	20.6
<i>Guatemala</i>							
Public external debt <sup>1</sup>	11.0	10.3	11.6	11.8	14.8	14.5	15.1
Debt service							
In per cent of exports <sup>2</sup>	15.3	12.0	17.2	15.3	13.6	8.8	8.2
In per cent of government revenues <sup>3</sup>	24.2	16.3	24.6	22.0	21.3	14.2	14.0
<i>Honduras</i>							
Public external debt <sup>1</sup>		92.3	76.8	72.1	75.9	69.3	63.7

Table 1.4 Continued

	1995	1996	1997	1998	1999	2000	2001
Debt service							
In per cent of exports <sup>2</sup>	24.3	25.4	20.5	16.4	15.9	13.6	9.2
In per cent of government revenues <sup>3</sup>	46.9	56.4	43.4	28.5	24.0	19.7	14.9
<i>Nicaragua</i>							
Public external debt <sup>1</sup>		304.9	304.9	304.0	296.0	274.7	271.2
Debt service							
In per cent of exports <sup>2</sup>	133.2	38.1	30.6	27.6	19.9	18.9	17.5
In per cent of government revenues <sup>3</sup>	137.5	36.1	34.0	29.9	18.9	19.8	17.0
<i>Panamá</i>							
Public external debt <sup>1</sup>					61.4	59.3	64.4
Debt service							
In per cent of exports <sup>2</sup>	10.3	20.9	44.1	21.5	24.6	22.9	24.2
In per cent of government revenues <sup>3</sup>	13.0	29.0	60.8	25.6	27.9	24.9	31.3
<i>Argentina</i>							
Public external debt <sup>1</sup>	38.1	40.4	42.7	47.3	51.0	51.4	55.1
Debt service							
In per cent of exports <sup>2</sup>	57.1	62.9	70.2	77.5	102.3	107.9	118.1
In per cent of government revenues <sup>3</sup>	23.6	29.4	31.9	33.9	41.2	47.8	56.5
<i>Bolivia</i>							
Public external debt <sup>1</sup>	71.4	63.0	56.6	55.3	55.3	53.9	48.7
Debt service							
In per cent of exports <sup>2</sup>	42.2	25.5	25.2	28.8	19.1	18.3	16.4
In per cent of government revenues <sup>3</sup>	32.8	19.1	19.1	18.5	11.7	12.7	12.6
<i>Brazil</i>							
Public external debt <sup>1</sup>	22.6	23.2	24.8	30.7	45.6	39.8	42.1

Debt service									
In per cent of exports <sup>2</sup>									
In per cent of government revenues <sup>3</sup>									
<i>Chile</i>									
Public external debt <sup>1</sup>									
Debt service									
In per cent of exports <sup>2</sup>									
In per cent of government revenues <sup>3</sup>									
<i>Ecuador</i>									
Public external debt <sup>1</sup>									
Debt service									
In per cent of exports <sup>2</sup>									
In per cent of government revenues <sup>3</sup>									
<i>México</i>									
Public external debt <sup>1</sup>									
Debt service									
In per cent of exports <sup>2</sup>									
In per cent of government revenues <sup>3</sup>									
<i>Péru</i>									
Public external debt <sup>1</sup>									
Debt service									
In per cent of exports <sup>2</sup>									
In per cent of government revenues <sup>3</sup>									

<sup>1</sup> In per cent of GDP.

<sup>2</sup> Data refer to paid interest and amortization of public external debt in per cent of exports of goods and nonfactor services, including net maquila.

<sup>3</sup> In per cent of general government revenues and grants.

Source: World Economic Outlook.

margin, the impact on growth becomes negative at about half of these debt levels. While the transmission mechanism from levels of external debt to growth is not modeled explicitly, these authors suggest that an important part of the transmission has a fiscal component, either by 'crowding out' through the public sector borrowing or because high debt will generate expectations that future debt service will be financed with distortionary taxes and cuts in public investments.<sup>11</sup>

IMF (2002) uses data for all IMF member countries, except advanced industrialized countries, for the period 1979–2001, and estimates a 'threshold' level of external debt where the likelihood of a debt crisis or debt correction (i.e. a sudden decline in the debt-to-GDP ratio) increases significantly. They find that the conditional probability of a debt crisis or correction is typically 2–5 per cent for a debt ratio below 40 per cent of GDP; for a debt ratio above this threshold the conditional probability increases to 15–20 per cent.<sup>12</sup>

Although interesting in their own right, these empirical results do not provide much guidance to policymakers in the region as to whether current *public sector* debt ratios are broadly appropriate or potentially excessive. In particular, this does not provide much guidance on what debt ratio might be a potential 'trigger-point' for a crisis. This becomes quite evident when one looks at some summary fiscal indicators for countries that have experienced more or less severe capital account crises in recent years (Table 1.5).

These indicators suggest three general points:

- crises have afflicted countries with a wide range of recorded fiscal positions, including gross debt ratios well below 20 per cent of GDP (Czech Republic, Thailand, and Korea), and fiscal balances (surplus or deficit) within 1 per cent of GDP (México, Indonesia, and the Philippines).
- several countries (México, Argentina, and the Czech Republic) had significant unrecorded fiscal deficits, mainly in the form of quasi-fiscal activities in state-owned banks.
- gross public debt increased sharply as a result of the crises, partly reflecting the assumption of various contingent liabilities and partly reflecting large nominal devaluations associated with the crises, which increased the domestic currency value of foreign currency debt.

Table 1.5 Crisis countries: selected fiscal indicators of vulnerability<sup>1</sup> (in per cent of GDP, unless otherwise indicated)

Country/date of crisis	Capital account restrictions (Index) <sup>2</sup>	Pre-crisis overall fiscal balance		Gross public debt	
		Recorded	Other <sup>3</sup>	Pre-crisis	End-2000
<i>Large recorded deficit (≥6% of GDP)</i>					
Turkey (1994 Q1)	0.26	-13	—	36	68
Russia (1998 Q3)	0.56	-8	—	46	65
Brazil (1999 Q1)	0.47	-8	—	42	47
Ecuador (1999 Q1)	0.13	-6	—	83	123 <sup>5</sup>
<i>Significant (including unrecorded) deficit</i>					
México (1994 Q4)	0.21	—	-4	41	55
Argentina (1995 Q1)	0.11	-2	-1	36	50
Czech Rep. (1997 Q2)	0.19	-2	-4	13	35 <sup>4</sup>
<i>Small deficit or surplus (≤2% of GDP)</i>					
Thailand (1997 Q3)	0.40	-2	—	5	57
Indonesia (1997 Q3)	0.34	1	—	24	102
Philippines (1997 Q3)	0.32	-1	—	57	112 <sup>5</sup>
Korea (1997 Q4)	0.40	-2	—	12	57 <sup>5</sup>

*Notes*

<sup>1</sup> Pre-crisis indicators of general government (or consolidated public sector) refer to period on, or prior to, the date of abandonment of the fixed or preannounced crawling peg, or (for Argentina, Philippines, and Turkey) of sudden and substantial private capital outflows – date of crisis shown in parentheses.

<sup>2</sup> Index value ranges from 0 (lowest) for absence of controls, to 1 (highest) for most restrictive exchange and capital controls.

<sup>3</sup> Estimates (official for México; Teijeiro (2001) for Argentina; World Bank for Czech Republic) of unrecorded balance encompassing mainly quasi-fiscal activities by state-owned banks.

<sup>4</sup> Includes World Bank estimated of unrecorded public sector liabilities mainly involving state-owned banks.

<sup>5</sup> Data for end-1999.

Source: Koptis (2002).

In general, all of these crises were triggered by *a combination of growing domestic weakness and external shocks*. As examples, in México, the domestic weakness was a rapidly growing external current account deficit; in Brazil a deteriorating fiscal position; and in Ecuador systemic banking sector problems, combined with a fiscal position excessively dependent on volatile oil prices. The external shocks were quite similar in México and Brazil – a fundamental shift in investor sentiment in México caused by a combination of higher interest rates in the United States and attractive investment opportunities in other emerging markets,<sup>13</sup> and in Brazil a drying up of financing to emerging market borrowers triggered by the Asian crisis. In Ecuador, the crisis was triggered in part by a sharp deterioration in fiscal revenues as oil prices plummeted in the wake of the Asian crisis.

The most important, and not very surprising, lesson to emerge from this discussion is that it is doubtful that one can establish any benchmarks or guidelines for an appropriate public debt ratio for the Central American countries. In particular, the experience of several countries suggests that *an external debt-to-GDP ratio well below the 40 per cent 'threshold' may be necessary, but is certainly not sufficient, to be out of the 'danger zone'*.<sup>14,15</sup> Moreover, the ability to respond to or counteract emerging domestic weaknesses and external vulnerabilities, especially with regard to debt management, is hampered by high debt and deteriorates as economic problems mount. Both México and Brazil sharply increased the share of domestic debt that were on variable interest rates or were dollar-indexed/dollar-denominated in the months leading up to the crisis. In both countries this calmed nervous financial markets for some months, but also sharply increased the vulnerability of the country to increases in public debt from exchange and interest rate increases.

Although none of the Central American countries are in a crisis, or in the 'run-up' to one, they are nonetheless vulnerable to shocks, both domestic and external. These vulnerabilities, and a policy flexibility sufficient to respond effectively to shocks are critical elements in deciding what is an appropriate ratio of public debt to GDP.

### **Potential fiscal vulnerabilities and policy flexibility**

The vulnerabilities facing Central American countries can be broadly classified into three categories: *adverse shocks to growth, interest and exchange rates; contingent liabilities; and limited fiscal policy flexibility*.

### Shocks with adverse implications for growth and interest rates

These shocks could arise from natural disasters such as earthquakes or hurricanes, or from external sources such as changes in terms of trade, decline in export demand, higher international interest rates, or shifts in investor sentiment (which would be reflected in country risk premiums). While this type of vulnerability is well known, it is still worth noting a few simple points:

- The 'price' for being a small, open economy is vulnerability to changes in terms of trade. In many of these countries (e.g. Costa Rica, the Dominican Republic, El Salvador, and Panamá), the simple correlation between such shocks and real GDP growth is about 0.65–0.95, either contemporaneous or lagged one year. This volatility reflects in part a limited diversification of the export base in Central America.
- Interest rates on domestic public debt have, over the past three to five years, been quite high in real effective terms in Costa Rica, El Salvador, Guatemala, and Honduras (Table 1.3).<sup>16</sup> Given the relatively thin domestic financial markets in the region, one would expect that domestic interest rates are significantly influenced by public sector borrowing requirements. Such high interest rates may well result in fiscal policy 'crowding out' private investment and undermining future growth.
- Market confidence in fiscal policy depends not only on the fiscal stance (e.g. the primary balance) alone but also on the gross financing requirement (i.e. the primary balance plus interest and amortization of debt). The current medium term frameworks for the seven Central American countries almost uniformly assume improved primary balances over the next five years (Table 1.6), and in most cases assume surpluses of 1–2 per cent of GDP.<sup>17</sup> At the same time, the gross financing requirement is projected to average 6 per cent of GDP in 2002 for the five non-HIPC eligible countries, declining to 4.2 per cent in 2007. Although much of current debt service is on multilateral or bilateral debt, the rapid increase in private market financing illustrated in Table 1.1 means that, in the future, these countries will be increasingly vulnerable to shifts in market sentiment.
- Related, but also distinct from this, is market confidence in the prevailing exchange rate. In the nondollarized countries, the large bulk (80–90 per cent) of total public debt is denominated in foreign

Table 1.6 Central America: primary fiscal balances and gross fiscal financing requirements, 2002–07

	2002	2003	2004	2005	2006	2007
<i>Costa Rica</i>						
Primary balance	1.8	1.9	2.0	2.0	2.1	2.2
Gross financing requirement	4.7	4.9	4.9	4.6	4.3	4.0
<i>Dominican Republic</i>						
Primary balance	0.5	0.8	1.2	1.2	1.2	1.2
Gross financing requirement	3.0	3.0	2.2	2.1	3.7	2.3
<i>El Salvador</i>						
Primary balance	-1.7	-1.0	-0.6	-0.4	0.6	0.5
Gross financing requirement	5.8	4.6	4.1	3.9	3.5	3.2
<i>Guatemala</i>						
Primary balance	1.0	1.6	1.7	1.7	1.7	1.7
Gross financing requirement	5.4	4.7	4.5	4.9	6.6	7.3
<i>Honduras</i>						
Primary balance	-3.3	-1.4	-1.1	-0.9	-1.1	-0.8
Gross financing requirement	9.9	8.7	8.4	7.7	7.4	6.0
<i>Nicaragua</i>						
Primary balance	1.1	0.8	1.5	2.0	1.3	1.2
Gross financing requirement	18.5	9.6	10.1	2.8	2.6	2.4
<i>Panamá</i>						
Primary balance	2.9	3.3	4.8	4.8	4.6	4.4
Gross financing requirement	10.9	6.7	5.1	4.8	8.5	4.3

Source: Fund staff estimates.

currencies, implying a significant vulnerability of public debt service (and debt stocks) to a depreciation in the exchange rate.

### **Stock operations that arise from the need to assume various contingent liabilities**

The Central American countries are vulnerable to this through weak public banks, underfunded or implicit deposit guarantee schemes,

quasi-fiscal losses in the central banks, and underfunded pension schemes. The size and the likelihood of such liabilities being incurred are, by their nature, difficult to assess. Over the past four years, the annual average size of this factor was 1.4 per cent of GDP in the non-HIPC countries in our sample. In recent banking crises, the fiscal cost from this factor alone has been substantially higher: in Ecuador, México, Indonesia, Korea, and Thailand, the total amount of public sector bonds issued to rescue failing banks have ranged between 17 and 38 per cent of GDP, and the interest cost of carrying these bonds between 1 and 4 per cent of GDP.

An important point in this context is that these adverse shocks rarely occur as isolated incidents; on the contrary, Hausmann (2002) finds that they tend to be positively correlated with each other.

### Limited policy flexibility

Limited policy flexibility would constrain the authorities' ability to adjust fiscal policy to various shocks. These vulnerabilities would include:

- *A narrow tax base and low yield of the tax system.* This is reflected in the ratio of tax revenues to GDP, which ranges between 10 and 15 per cent (Table 1.7).<sup>18</sup> Moreover, the elasticity of taxes to GDP is at or below unity, in particular in El Salvador, Nicaragua, and Panamá (Table 1.8). To the extent that nominal GDP is a reasonable proxy for the tax base, the implication is that actual tax collections are – at best – barely able to keep up with growth in the tax base. Indeed, only the Dominican Republic and Guatemala have managed consistent increases in tax revenues in real terms (albeit starting from low levels); most of the fiscal adjustment that has taken place in the region since 1995 has been through expenditure cuts (see Table 1.7).
- *A high degree of revenue earmarking.* An estimated 20–30 per cent of revenue earmarking in these countries, implies that there is a substantial 'leakage' of any tax increase into automatic expenditure increases.
- *A tendency toward a procyclical fiscal policy stance.* A tendency toward a procyclical fiscal policy is noted for Latin American in general in Gavin *et al.* (1996) and IMF (2002), and illustrated in Figure 1.1 for the Central American countries.<sup>19</sup> While the reasons

Table 1.7 Central America: fiscal sector developments (in per cent of GDP)

	1995	1996	1997	1998	1999	2000	2001
<i>Costa Rica</i>							
Total revenues	31.6	31.5	30.6	30.3	28.4	30.3	32.8
Tax revenues	12.3	12.6	12.5	12.6	11.9	12.3	13.3
Nontax revenues	19.3	18.9	18.1	17.7	16.4	18.0	19.6
Total expenditures	33.3	33.9	31.7	31.4	30.6	32.8	35.0
Current expenditures	29.1	29.6	27.1	26.9	26.2	28.3	31.0
of which: interest	4.3	4.6	3.8	3.2	3.6	3.6	4.0
Capital expenditures	4.2	4.2	4.6	4.5	4.3	4.5	4.0
Primary balance	2.7	2.2	2.7	2.0	1.4	1.0	1.8
Non-financial public sector balance	-1.6	-2.4	-1.2	-1.2	-2.2	-2.6	-2.2
<i>Dominican Republic</i>							
Total revenues	15.8	15.0	17.2	16.9	16.6	17.0	16.7
Tax revenues	13.4	12.9	14.7	15.0	14.7	14.8	15.9
Nontax revenues	2.4	2.1	2.6	2.0	1.9	2.2	0.9
Total expenditures	20.9	22.2	24.2	24.0	24.5	23.9	21.7
Current expenditures	18.4	19.7	21.7	21.5	22.0	21.4	19.2
of which: interest	1.3	1.2	0.9	0.9	0.9	0.9	0.9
Capital expenditures	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Primary balance	-3.7	-6.0	-6.0	-6.2	-7.0	-6.0	-4.1
Non-financial public sector balance <sup>1</sup>	-5.1	-7.2	-6.9	-7.1	-7.9	-6.9	-5.0
<i>El Salvador</i>							
Total revenues	20.9	21.4	19.7	16.8	17.1	18.0	17.6
Tax revenues	11.3	10.6	10.3	10.1	10.4	10.2	10.5
Nontax revenues	9.6	10.8	9.3	6.7	6.7	7.8	7.1
Total expenditures	19.6	21.1	19.3	18.6	18.8	20.3	21.5
Current expenditures	15.3	16.4	15.4	14.9	15.6	17.0	18.2
of which: interest	1.6	1.8	1.6	1.5	1.4	1.5	1.5
Capital expenditures	4.3	4.7	3.8	3.7	3.2	3.3	3.2
Primary balance	1.5	-0.7	-0.2	-1.1	-1.4	-1.5	-2.9
Non-financial public sector balance <sup>2</sup>	-0.1	-2.5	-1.8	-2.6	-2.8	-3.1	-4.3
<i>Guatemala</i> <sup>3</sup>							
Total revenues	8.6	9.2	9.4	9.7	10.5	10.5	11.0
Tax revenues	7.9	8.7	8.8	8.7	9.3	9.5	9.7
Nontax revenues	0.7	0.5	0.5	0.9	1.1	0.9	1.3
Total expenditures	9.5	9.4	10.1	11.9	13.3	12.4	13.8
Current expenditures	6.8	6.7	6.2	7.3	8.1	8.6	9.6
of which: interest	1.2	1.2	0.8	1.1	1.3	1.2	1.4
Capital expenditures	2.7	2.7	3.9	4.6	5.2	3.7	4.2
Primary balance	1.3	2.3	0.9	-0.4	-1.4	-0.4	-0.9

Table 1.7 Continued

	1995	1996	1997	1998	1999	2000	2001
Non-financial public sector balance	0.1	1.1	0.2	-1.5	-2.8	-1.6	-2.3
<i>Honduras</i>							
Total revenues	32.1	31.8	31.7	35.3	38.7	39.5	38.6
Tax revenues	18.0	16.8	16.9	19.0	20.0	19.1	19.6
Nontax revenues	5.7	5.2	6.0	6.4	8.3	10.7	9.5
Total expenditures	35.0	34.0	33.3	33.0	37.8	37.4	41.3
Current expenditures	22.8	23.7	23.7	23.3	24.8	26.0	28.4
of which: interest	5.6	5.0	3.7	3.2	3.1	2.4	2.7
Capital expenditures	12.2	10.3	9.6	9.7	13.0	11.4	12.9
Primary balance	3.9	2.4	2.2	5.2	3.1	3.5	-1.1
Non-financial public sector balance <sup>1</sup>	-1.6	-2.5	-1.5	1.9	0.0	1.1	-3.8
<i>Nicaragua</i>							
Total revenues	34.7	35.6	36.7	37.0	32.6	31.8	30.3
Tax revenues	26.8	27.4	30.0	31.7	30.9	30.1	28.8
Nontax revenues	7.9	8.2	6.7	5.4	1.7	1.6	1.6
Total expenditures	39.8	40.1	39.8	38.1	45.7	44.4	48.1
Current expenditures	27.3	28.5	28.8	27.0	27.4	27.5	33.1
of which: interest	4.8	3.6	5.9	4.7	4.5	4.4	7.7
Capital expenditures	12.5	11.7	10.9	11.0	18.3	16.9	15.0
Primary balance	-1.8	-3.4	1.8	4.4	-0.9	-2.2	-4.6
Non-financial public sector balance <sup>1</sup>	-6.6	-7.1	-4.0	-0.4	-5.3	-6.6	-12.3
<i>Panamá</i>							
Total revenues	29.2	28.0	28.7	28.4	29.0	28.8	27.7
Tax revenues	12.5	12.1	12.1	12.1	12.6	11.2	10.2
Nontax revenues	16.7	15.9	16.6	16.3	16.4	17.6	17.5
Total expenditures	29.0	27.5	28.9	31.3	30.4	29.5	30.2
Current expenditures	25.6	23.7	24.5	25.0	25.6	25.8	26.8
of which: interest	5.0	3.1	3.5	3.5	4.6	4.8	4.9
Capital expenditures	3.4	3.8	4.3	6.3	4.8	3.7	3.4
Primary balance	5.2	3.5	3.3	0.6	3.3	4.1	2.4
Non-financial public sector balance	0.2	0.5	-0.2	-2.9	-1.4	-0.7	-2.5

*Notes*<sup>1</sup> Before grants.<sup>2</sup> Discrepancies in the NFPS balance data are due to netting operations out within the government.<sup>3</sup> Data refer to the Central Government only.*Sources:* National authorities; and Fund staff estimates.

Table 1.8 Central America: revenue and expenditure elasticities (in per cent)

	1996	1997	1998	1999	2000	2001	Average
<i>Costa Rica</i>							
Total revenues	0.995	0.972	0.990	0.937	1.067	1.085	1.008
Tax revenues	1.018	0.998	1.007	0.947	1.028	1.079	1.013
Nontax revenues	0.980	0.955	0.978	0.929	1.096	1.089	1.005
Total expenditures	1.019	0.936	0.991	0.972	1.074	1.066	1.010
<i>Dominican Republic</i>							
Total revenues	0.950	1.148	0.982	0.982	1.021	0.986	1.011
Tax revenues	0.964	1.140	1.021	0.982	1.005	1.071	1.031
Nontax revenues	0.874	1.200	0.761	0.979	1.138	0.406	0.893
Total expenditures	1.063	1.088	0.995	1.020	0.974	0.909	1.008
<i>El Salvador</i>							
Total revenues	1.021	0.920	0.857	1.012	1.055	0.981	0.974
Tax revenues	0.933	0.975	0.980	1.028	0.985	1.030	0.988
Nontax revenues	1.125	0.867	0.721	0.989	1.164	0.917	0.964
Total expenditures	1.075	0.912	0.967	1.012	1.079	1.055	1.017
<i>Guatemala</i>							
Total revenues	1.067	1.017	1.032	1.084	1.000	1.050	1.042
Tax revenues	1.103	1.010	0.989	1.069	1.023	1.020	1.036
Nontax revenues	0.663	1.144	1.737	1.214	0.818	1.357	1.156
Total expenditures	0.984	1.081	1.178	1.115	0.931	1.113	1.067
<i>Honduras</i>							
Total revenues	0.991	0.996	1.114	1.097	1.021	0.975	1.032
Tax revenues	0.932	1.005	1.124	1.055	0.952	1.029	1.016
Nontax revenues	0.913	1.158	1.066	1.290	1.286	0.884	1.100
Total expenditures	0.971	0.979	0.993	1.144	0.989	1.104	1.030
<i>Nicaragua</i>							
Total revenues	1.028	1.029	1.009	0.880	0.975	0.955	0.979
Tax revenues	1.024	1.094	1.055	0.976	0.975	0.955	1.013
Nontax revenues	1.042	0.812	0.802	0.313	0.975	0.969	0.819
Total expenditures	1.009	0.991	0.957	1.202	0.971	1.085	1.036
<i>Panamá</i>							
Total revenues	0.958	1.026	0.990	1.021	0.992	0.962	0.992
Tax revenues	0.965	0.998	1.002	1.041	0.889	0.912	0.968
Nontax revenues	0.952	1.047	0.982	1.007	1.071	0.994	1.009
Total expenditures	0.948	1.049	1.085	0.971	0.970	1.024	1.008

Sources: National authorities; and Fund staff estimates.

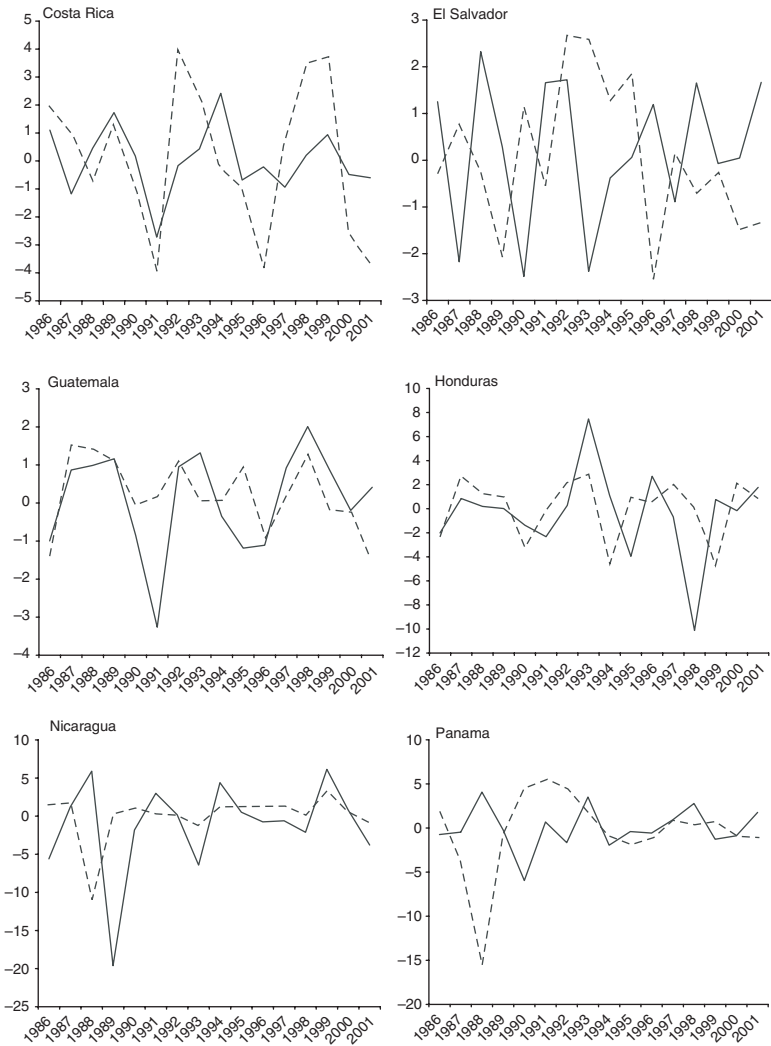


Figure 1.1 Central America: fiscal impulse and capacity utilization, 1986–2001

Source: Fund staff estimates.

for this procyclicality are not always clear, the implication is relatively straightforward: by effectively disabling the automatic stabilizers, it tends to amplify the impact of any of the above shocks to the economy.

A reflection of the last three points is the general deterioration in the fiscal stance between 1995 and 2001; the primary balance has worsened by an average of 2.6 percentage points of GDP over this period, with particularly strong deterioration in El Salvador, Guatemala, Honduras, Nicaragua, and Panamá.

### **How would adverse shocks impact on the need for fiscal adjustment?**

Some important and intuitive messages would seem to emerge from the discussion thus far. One is that adverse shocks to these economies, from domestic or external sources, are and will continue to be, a ‘fact of life’. Moreover, the ability to counteract these shocks is, to some extent, inversely related to the level of public debt and to the size of the economy. The corollary is simply that small, open economies, such as those in Central America, can generally sustain a lower debt level than larger economies.

This section will discuss some simple, partial equilibrium simulations to illustrate two points:<sup>20</sup> (i) how adverse shocks would impact on the long-term debt-to-GDP ratio if fiscal policy was completely ‘passive’ (i.e. no above-the-line fiscal adjustment in response to the shock); and (ii) what would be the fiscal adjustment necessary to fully offset the shocks (i.e. in the sense that the long-term debt-to-GDP ratio were the same as in a scenario without any shock). To avoid a cumbersome comparison of multiple medium-term scenarios for each of the seven different countries, the assessment of the impact of shocks will be done for a ‘representative’ Central American country – that is, with the relevant features equal to a rough ‘average’ of the five non-HIPC countries in the region. The main assumptions regarding this ‘representative’ country and the baseline scenario, that is, the scenario with no shocks, are summarized in Box 1.1.<sup>21</sup>

Four different adverse shocks will be simulated separately on this ‘representative’ country, each shock assumed to have a duration of

*Box 1.1* Key assumptions for 'representative' country*Initial position:*

Total public debt	50 per cent of GDP
Share of gross debt denominated in foreign currencies <sup>1</sup>	90 per cent

*Baseline assumptions:*

Domestic annual inflation rate	6 per cent
Foreign annual inflation rate	2.5 per cent
Real depreciation (i.e. annual nominal depreciation of 3.4 per cent)	0 per cent
Domestic interest rate (nominal)	14 per cent
Foreign interest rate (nominal) <sup>2</sup>	11 per cent
Annual real GDP growth rate	3–4.5 per cent
Annual primary fiscal surplus	1.2 per cent of GDP

<sup>1</sup> It is also assumed that the shares of domestic- and foreign-denominated debt in total debt remain constant at current levels.

<sup>2</sup> This interest rate implies a spread on about 600 basis points over current US Treasuries. This is somewhat on the high side relative to what countries in the region have obtained in recent years (300–500 basis points), but not so much that it biases the results.

two years, and to impact the economy in 2003 and 2004:

- *Interest rates* are assumed to increase by 5 percentage points in nominal terms, both on the foreign and domestic side;
- *Real growth* is assumed to decline by 2 percentage points, which is slightly below one standard deviation of average growth in the five countries between 1995 and 2001;
- *Real depreciation* of 5 per cent, which translates to a nominal depreciation of 8.6 per cent;
- *Stock adjustment* equal to 2 percentage points of GDP in each of the two years.

The results of these shocks are summarized in Table 1.9. When fiscal policy remains entirely passive, with no adjustment to the shocks, the end-period debt stock would be higher than in the

*Table 1.9* Fiscal adjustment and debt dynamics under adverse shocks (in per cent of GDP)

	Year	Baseline	Higher interest rate	Lower growth	Real depreciation	Assumption of contingent liabilities
Primary balance with full contemporaneous adjustment to shock	2002	1.20	1.20	1.20	1.20	1.20
	2003	1.20	3.21	1.90	3.23	3.20
	2004	1.20	3.22	1.90	3.24	3.20
	2005	1.20	1.20	1.20	1.21	1.20
Debt level no adjustment to shock	2001	50.00	50.00	50.00	50.00	50.00
	2015	50.94	57.95	53.34	55.01	65.87

*Source:* Fund staff estimates.

baseline: 3.3 percentage points higher with a lower growth shock, 5–8 percentage points higher with the higher interest or real depreciation shocks, and a full 16 percentage points higher under the stock adjustment scenario (Table 1.9, lower panel). The first three of these shocks (lower growth, higher interest rates, or real depreciation) increase the interest service term  $b(r - g) + b^*(r^* - g + \hat{e})$  in equation (2). This increased interest service in the two ‘shock years’ will be financed by additional debt in those two years, which – in turn – will require further interest service in future years. However, the stock increase of 4 percentage points of GDP early on will effectively quadruple over the simulation period because the additional interest obligation created by assuming this amount of contingent liabilities will be financed by additional borrowing, which will create further interest obligations, and so on.

The contemporaneous fiscal adjustments necessary to fully offset the shocks are substantial and very similar for three of the shocks – the higher external interest rate, the real depreciation, and the stock adjustment due to contingent liabilities.<sup>22</sup> All would require the primary surplus to increase by about 2 percentage points of GDP in the two years of the shock (i.e. increase to about 3.2 per cent of GDP). After that, the fiscal position could revert to its baseline level, and the end-period ratio of public debt to GDP would be identical to the baseline. The lower growth shock would require a far milder adjustment, by about 0.7 percentage points of GDP in the two ‘shock years’.

The end-period impact on debt levels of some of these shocks, without any fiscal adjustment, may initially seem moderate. However, two points need to be kept in mind: (i) the size of the shocks discussed above are also quite moderate; and (ii) shocks often occur in tandem, for example, a severe terms-of-trade shock that adversely affects growth and fiscal revenues may cause foreign investors to increase their perception of country risk and thus result in an increase in interest rates. In new Fund guidelines for this type of sensitivity analysis, it is recommended that individual shocks be calibrated to two standard deviations from historical averages, that combinations of shock be calibrated to one standard deviation each, and that a stock adjustment shock be calibrated to 10 percentage points of GDP. Since, to a first approximation, the impacts of the different shocks in the above simulations are additive, it follows that a

two-standard deviation deterioration in the growth rate (4 per cent) would result in an end-period debt ratio of 6.5 percentage points of GDP higher than in the baseline, and a combination of the higher interest rate and real depreciation shock would result in an end-period debt ratio about 13 percentage point of GDP higher. The fiscal adjustment necessary to offset either a larger shock or a combination of shocks would, of course, also be correspondingly higher, for example, a fiscal adjustment of about 4 percentage points of GDP in the case of a combined interest/exchange rate depreciation shock.

### **Would fiscal rules be useful?**

The discussion above raises the question of whether some form of fiscal rule, placing legal or statutory restrictions on the conduct of fiscal policy, and in particular on the policy response to shocks, would be a helpful instrument.

Such fiscal rules are currently applied, or are under consideration, in a wide range of countries. Their purpose is to address a perceived bias toward fiscal deficits and continued public debt accumulation, and thus to improve the credibility of the authorities' commitment to a disciplined fiscal policy.<sup>23</sup> The current rules generally fall within three main categories:

- Balanced-budget or deficit rules, which place a limit on either the annual or the medium-term fiscal position, either through the overall balance or through the structural deficit;
- Borrowing rules, which place limits on government borrowing from the central bank and/or other domestic sources;
- Debt rules, which place some form of limit on gross or net government debt in relation to GDP.

As examples, Canada, the Netherlands, New Zealand, and Japan all have some form of deficit rule; Indonesia, CFA franc zone countries, and many countries in Latin America have some form of borrowing rule; Panamá has recently implemented a debt rule; and the European Union imposes a combination of all three categories of rules (over the business cycle) on its member countries.

The main advantages of fiscal rules are that they would reduce or possibly eliminate a tendency toward a deficit-bias in a discretionary

fiscal policy stance. Moreover, if applied consistently and transparently, such rules would – over time – improve the credibility of fiscal policy and the access to and the terms of financing of the public sector. The main potential downside of the fiscal tightening implied by such rules is that – if applied rigidly and without supporting institutional reforms – they are likely to result in circumvention and ‘creative accounting’ practices which eventually will undermine rather than strengthen credibility.<sup>24</sup>

To avoid this downside, some basic criteria have been suggested for a ‘good’ fiscal rule (Kopits (2001) and Drazen (2002)): (i) it should be operationally simple to facilitate monitoring and control of compliance; (ii) it should be growth-oriented, in that it should be designed to avoid undue cuts in public investment and social safety net provisions; (iii) its legal status should be such that it is difficult to change or amend; (iv) it should be supported by procedural reforms, in particular reforms geared toward enhancing transparency in public sector accounting practices and timely provisioning of fiscal data; and (v) the rule should be sufficiently flexible, with ‘escape clauses’ to accommodate the impacts of unforeseen shocks. While all these criteria are important, the last has been emphasized since it involves a delicate trade-off. A rule that is too rigid, without escape clauses, may make it impossible to comply with over the long term, and hence fail to instill the credibility that is the purpose of the rule. A rule that is too flexible may, on the other hand, increase the possibilities for circumventing it, and thus also fail to instill the credibility of the authorities’ commitment to fiscal discipline.

In the following, we shall sidestep these criteria, and examine how two specific fiscal rules would impact on the scenarios discussed in the previous section. The two rules are:

- *A balanced fiscal position rule*, that is, zero overall deficit in each year starting in 2002, with a primary surplus in each year that equals the interest obligations on public debt;
- *A debt rule*, which limits on the growth of the public debt stock to 80 per cent of the growth in nominal GDP. Since nominal GDP grows by 9.2–10.8 per cent annually in the baseline discussed above (increasing over time as real growth increases), this is tantamount to requiring the ratio of public debt to GDP to decline by 1.7–1.9 per cent annually.

It is intuitively clear that both fiscal rules would be useful in reducing the long-term ratio of debt to GDP. Under the *balanced fiscal position* rule, net borrowing requirements are zero, so the debt ratio will decline as nominal debt is amortized and nominal GDP grows. To accomplish the balanced position would, however, require a higher primary surplus than in the baseline discussed above, about 1.2 percentage points of GDP higher in the first few years, then falling to about 0.2 percentage points higher at the end of the simulation period (Table 1.10). With this higher primary surplus, the end-period ratio of public debt to GDP would decline to 38.5 per cent, which is 11.5 percentage points below the baseline discussed in the previous section. To facilitate the discussion, we will refer to this scenario as ‘the baseline with a balanced fiscal position rule’. Similarly, *the debt rule* defines, in itself, the decline in the debt ratio, and with the particular parameters chosen here would require a path of the primary surplus almost identical to that under the balanced position rule; initially 1.2 percentage points of GDP higher than in the baseline without a fiscal rule, but with the difference gradually declining to about 0.2 percentage points. This is then ‘the baseline with a debt rule’.

The broader question of ‘Would fiscal rules be useful in protecting against shocks?’ has an ambiguous answer. It is positive in the sense that these rules would, by definition, eliminate any discretion in the policy response to the shocks, that is, whether and by how much to adjust the primary surplus. As such, these rules would protect the debt stock from rising in the event of an adverse shock. However, under these two rules the size of the required fiscal adjustment in response to shocks is significant.

*Relative to the two new baselines*, with the fiscal rules incorporated, the impact of a higher interest rate, a real depreciation, and lower growth, would be fairly similar to those above; a contemporaneous increase in the primary surplus of about 2 percentage points with the former two shocks, and an increase of about 0.7 percentage points for lower growth. The ‘stock adjustment’ shock would generate different responses under these two rules; the balanced rule would require the primary surplus to increase only to accommodate the interest on the additional debt, not the full stock increase, whereas under the debt growth rule the whole stock operation would need to be offset. Consequently, the balanced rule would require a much smaller but a sustained adjustment throughout the simulation

Table 1.10 Debt dynamics under adverse shocks with fiscal rules (in per cent of GDP)

	Year	Baseline	Higher interest rate	Lower growth	Real depreciation	Assumption of contingent liabilities
<i>Primary balance under</i>						
1. Balanced budget rule						
	2002	2.39	2.39	2.39	2.39	2.39
	2003	2.19	4.14	2.86	4.13	2.19
	2004	2.15	4.06	2.81	4.05	2.25
	2005	2.04	2.04	2.04	2.04	2.25
	2006–10	1.79	1.79	1.79	1.79	1.98
	2011–15	1.49	1.49	1.49	1.49	1.67
2. Debt growth rule						
	2002	2.37	2.37	2.37	2.37	2.37
	2003	2.14	4.10	2.67	4.09	4.14
	2004	2.09	4.01	2.62	4.00	4.09
	2005	1.97	1.97	1.99	1.97	1.97
	2006–10	1.69	1.69	1.70	1.69	1.69
	2011–15	1.35	1.35	1.36	1.35	1.35
<i>Debt level under</i>						
1. Balanced budget rule						
	2001	50.0	50.0	50.0	50.0	50.0
	2015	38.5	38.5	38.5	38.5	42.5
2. Debt growth rule						
	2001	50.0	50.0	50.0	50.0	50.0
	2015	40.3	40.3	40.5	40.3	40.3

Source: Fund staff estimates.

period, and the debt growth rule would require a one-off full adjustment to the stock increase.

*Relative to the baseline with no rule*, the required fiscal adjustment to, for example, an interest rate shock is now almost 3 percentage points of GDP; quite formidable compared to the adjustments previously undertaken in the region.<sup>25</sup>

### Some issues for further consideration

The chapter opened by making the general point that a country has reason to be concerned about the potential burden of its public debt, even if the debt is at relatively moderate levels, if it is vulnerable to adverse shocks and has limited flexibility to respond to these shocks. The subsequent sections have highlighted the sources of such shocks, including the importance of contingent liabilities, and the considerable strain such shocks could put on fiscal adjustment if the country aimed at keeping its ratio of public debt to GDP constant over the medium term.

Several topics deserve further discussion:

- The fiscal adjustment to a shock could be stretched out over three–four years. That would be a reasonable strategy if: (i) the shocks were temporary, as they are defined here; and (ii) if such shocks were rare phenomena, occurring only with long intervals between them. In practice, however, it is difficult to discern whether a shock may be temporary or permanent (the recent decline in coffee prices being a possible example), and Central America is clearly a region where various shocks are frequent phenomena (although not always of the adverse kind). In that environment, a more gradual fiscal adjustment would run the risk of not completing one round of adjustment before the next shock occurs. Although a full, contemporaneous adjustment may not be necessary or desirable, it would nonetheless seem prudent to err on the side of a shorter rather than a longer adjustment period to a shock.
- *The absence of adequate cushions* of foreign exchange reserves to confront such shocks (with the exception of Panamá). Such cushions could be built up through restrictive fiscal (and monetary)

policies, especially during the cyclical peaks, and would help in reducing the vulnerability to shocks and allow the adjustment to be more gradual. This point would be particularly important in El Salvador, which effectively has relinquished the use of monetary and/or exchange rate policies to counteract such shocks.

- *Effective structural policies* can better enable a country to carry a certain debt burden. Such policies would normally be geared toward lowering domestic interest rates (through deepening domestic capital markets and securing a viable banking system) and increasing economic growth (e.g. through increasing labor market flexibility and lowering barriers to trade, among others). It follows directly from equation (2) that, other things equal, this would lower the interest servicing burden. Moreover, structural fiscal reforms would typically be aimed at increasing the buoyancy of the tax system and reducing revenue earmarking, both of which would allow for a more effective use of automatic stabilizers and a countercyclical fiscal policy.
- *Some structural policies may result in additional pressure on the fiscal position*, at least within the time horizon being discussed here. This would hold true for trade liberalization, which would tend to reduce fiscal revenues, and poverty reduction programs, which will tend to increase expenditures. In order to allow such reforms to go forward without increasing the public sector borrowing requirement, restraint will be necessary in other aspects of fiscal policy.
- *Debt management* is clearly important to the degree of vulnerability of the economy to various shocks. In particular, a large (or increasing) share of total debt on short maturities (which implies a need for frequent roll-overs), a ‘bunching’ of maturities, a large (or increasing) share of total debt on variable interest rates and a large (or increasing) share of domestic debt denominated in foreign currencies are all factors that add to vulnerability. An active debt management policy will therefore be a helpful supplement to regular fiscal adjustment.

### **Appendix 1.1. The accounting framework**

The accounting framework underpinning the calculations used in this paper are based on an approach developed in Anand and

van Wijnbergen (1989). The starting point is the in-period budget constraint of the nonfinancial public sector:

$$D + i \cdot B + i^* \cdot B^* \cdot E = \dot{B} + \dot{B}^* \cdot E \quad (1)$$

where  $D$  is the primary fiscal balance,  $i$  ( $i^*$ ) is the nominal interest rate on domestic (foreign) debt,  $B$  ( $B^*$ ) is the stock of domestic (foreign) debt,  $E$  is the nominal exchange rate, and a “ $\dot{\phantom{x}}$ ” over a variable indicates its change over time, i.e.  $\partial x / \partial t$ . Equation (1) therefore indicates that the fiscal balance of the nonfinancial public sector – the primary balance plus interest cost on domestic and foreign debt – can be financed either by increasing the stock of domestic or foreign debt.

This can be expressed as ratios to GDP by dividing through by  $PY$  where  $P$  is the GDP deflator and  $Y$  is real GDP, and inserting the following relationships:

$$\begin{aligned} \dot{b} &= \left( \frac{\dot{B}}{PY} \right) = \frac{\dot{B}}{PY} - b(\pi + g) \\ \dot{b}^* &= \left( \frac{\dot{B}^* E}{PY} \right) = \frac{\dot{B}^* E}{PY} - b^*(\pi + g - \hat{E}) \\ \hat{E} &= \frac{\dot{E}}{E} = \hat{e} - \pi^* + \pi \end{aligned}$$

where  $\pi$  is rate of inflation in the GDP deflator  $P$  and  $g$  is the rate of growth of real GDP. By defining the real rate of interest on domestic debt as  $r = i - \pi$  and similarly the real interest rate on foreign debt as  $r^* = i^* - \pi^*$  and rearranging, this yields:

$$d + b(r - g) + (b^* - n^*)(r^* - g + \hat{e}) = \dot{b} + \dot{b}^* \quad (2)$$

For the purpose of the calculations presented here, equation (2) is converted to discrete time by defining:

$$\dot{b} = b_t - b_{t-1}; \quad r = \frac{(1 + i)}{(1 + \pi)} - 1$$

and similarly for  $\dot{b}^*$  and  $r^*$ , where  $\pi^*$  would be change in the US GDP deflator.

One additional simplifying assumption for the projections discussed in Sections 6 and 7 is that the shares of domestic- and foreign-currency denominated debt in total debt remain constant at their current levels, that is:

$$b = \alpha\Gamma, \quad \text{and} \quad (b^* - n^*) = (1 - \alpha)\Gamma, \quad \text{where} \quad \Gamma = b + (b^* - n^*),$$

which means that equation (2) can be simplified to:

$$d + \lambda\Gamma = \dot{\Gamma} \tag{3}$$

where  $\lambda = \alpha r + (1 - \alpha)(r^* + \hat{e}) - g$ .

## Notes

1. For the purpose of this paper, the region encompasses Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panamá.
2. Since 1998 both Costa Rica and El Salvador have raised about US\$1 billion in Eurobonds, amounting to 6.5 per cent and 7.2 per cent of 2001 GDP respectively, at spreads of 300–400 basis points over US Treasuries. El Salvador is expected to approach the markets for an additional US\$700 million through end-2003. Guatemala has raised a total of almost US\$500 million (2.4 per cent of 2001 GDP) since 1997 at somewhat higher spreads, and the Dominican Republic raised US\$500 million in September 2001; 2.3 per cent of GDP that year.
3. In contrast to the conventional accounting of public investment as above-the-line expenditure (thus increasing the deficit) and privatization receipts as below-the-line financing (and thus not decreasing the deficit).
4. An additional source of uncertainty in the case of petroleum reserves is the estimate of undiscovered reserves.
5. In principle, the NFPS deficit can also be financed through money creation and seigniorage, which would reduce the direct borrowing requirement. However, since two of the countries in the sample are dollarized, and several others have restrictions on government borrowing from the central bank – thus reducing the possibility of excessive monetary financing – we will disregard this element in the following.
6. Equation (2) is frequently used as a starting point for deriving various ‘sustainability indicators’, such as the primary balance necessary to maintain a constant ratio of debt to GDP (see Blanchard *et al.* (1990) and Chalk and Heming (2000)). Although useful in some contexts, this approach will not be pursued here, mainly because it does not address the more fundamental question of whether a constant (or even a declining) debt ratio may still be ‘too high’, given the vulnerabilities of a given economy.

7. Additional sources of possible discrepancies between above-the-line net borrowing requirements and changes in the debt-to-GDP ratios would be: (i) inaccuracies in data and measurement errors; (ii) revaluation of domestic debt unrelated to exchange rate changes; (iii) arrears; and (iv) the issue of money for financing of budgetary deficits.
8. The ratio of the current value of debt stock to GDP may be misleading for Honduras and Nicaragua, both eligible for debt relief under the HIPC initiative. More meaningful is the ratio of net present value of debt (i.e. future debt service, discounted at market interest rates) to GDP, which, in 2001, would be about 50 per cent for Honduras and about 175 per cent for Nicaragua. In addition, it is widely acknowledged that official statistics in Nicaragua underestimate GDP by a significant margin; forthcoming revisions to GDP data can be expected to bring the ratio of NPV of debt to GDP below 100 per cent.
9. The concept of 'interest service' used here is the sum of the last two terms on the left-hand side of (2): the ratio of domestic debt to GDP multiplied by the difference between the real domestic interest rate and the GDP growth rate *plus* the ratio of external debt to GDP multiplied by the difference between the external real interest rate, the GDP growth rate, and the rate of real appreciation/depreciation.
10. In the remainder of the chapter, I will refer to this residual as 'stock operations' while recognizing that – as a residual – it also captures measurement issues and flow operations as discussed in note 8.
11. A more indirect channel would be that a potential debt overhang implies a high marginal tax on external creditors and therefore discourages foreign investment.
12. One would expect that a country can sustain a higher level of external debt to GDP as its export-to-GDP ratio increases. When a correction is made for differing export-to-GDP ratios, this study finds that the threshold level of debt typically increases by 5–10 percentage points, that is, to 40–50 per cent for relatively open economies.
13. In addition, the political violence prior to the presidential elections in 1994 contributed to a climate of uncertainty.
14. It is also instructive to note that, for example, in México, the gross public debt ratio to GDP had been declining for several years prior to the 1994 crisis.
15. Of course, countries with high private external debt may be vulnerable to external shocks even though public debt is moderate.
16. 'Effective' defined as actual domestic interest obligations divided by the level of domestic debt. Domestic interest rates have come down significantly in El Salvador after dollarization was implemented at the beginning of 2001.
17. These medium-term frameworks are generally developed by Fund staff in consultation with country authorities.
18. In Honduras and Nicaragua the ratios are significantly higher, most likely reflecting a significant underestimation of GDP, and thus an overestimation of indicators measured as ratios to GDP.

19. Figure 1.1 uses a fairly standard methodology and illustrates the correlation between the fiscal impulse (that is, the change in the cyclically adjusted fiscal balance from one year to the next) and cyclical swings (measured as the deviation between actual and trend GDP, where a Hodrick-Prescott filter is used to derive the underlying trend GDP).
20. It is worth reiterating that these sensitivity simulations are partial equilibrium in that, for example, the response to import demand to a growth shock or the response of exports and imports to a real depreciation, are not taken into account.
21. The baseline assumes a primary surplus of 1.2 per cent of GDP every year, and, by construction, that the ratio of public debt to GDP remains practically constant at 50 per cent throughout the simulation period, which runs from 2001 to 2015.
22. Implicit in the calculation of the impact of higher interest rates is an assumption that the entire stock of debt is on floating rates. In practice, a substantial share of debt in Central America is on fixed rates, and the impact would thus generally be smaller than indicated here. However, how much smaller would be different between the countries in the region. The country potentially most vulnerable to interest rate shocks is Costa Rica, which has above 20 per cent of GDP in domestic public debt; much of it with a short tenor. An abrupt increase in foreign interest rates, which would quickly translate to higher domestic interest rates, would therefore rapidly result in increased gross financing needs, which again could have an adverse impact on market assessment of Costa Rican country risk.
23. A number of related political-economy explanations have been suggested as the reasons for a possible deficit bias (Drazen (2002) and Hausmann (2002)): (i) a 'deficit illusion', where economic agents overestimate the value of today's fiscal expenditures but underestimate the associated future tax burden; (ii) a generational conflict over who should pay to reduce the deficit (i.e. a variant of a free rider problem); (iii) a 'common pool' problem, where government expenditures benefit specific (and powerful) constituencies while tax revenues have a broader base; and (iv) electoral budget cycles, where politicians are inclined to raise expenditures prior to elections but not to reduce them again afterwards.
24. For a more comprehensive review of fiscal rules, see Kopits and Symansky (1998).
25. The largest one-period improvement in the primary balance since 1995 among the non-HIPC countries was in the Dominican Republic in 2001, with an increase of 1.9 percentage points. Honduras and Nicaragua implemented larger increases in 1997/98.

## References

- Anand, R. and S. van Wijnbergen (1989) 'Inflation and the Financing of Government Expenditure: an Introductory Analysis with an Application to Turkey', *The World Bank Economic Review*, Vol. 3, No. 1, pp. 17–38.

- Blanchard, O., J. C. Chouraqui, R. Hagemann, and Nicola Sartor (1990) 'The Sustainability of Fiscal Policy: New Answers to an Old Question', *OECD Economic Studies*, No. 15.
- Buti, M. and G. Giudice (2002) 'EMU's Fiscal Rules: What Can and Cannot Be Exported', *Mimeo*. Paper for Conference on Rules-Based Fiscal Policy in Emerging Market Economies.
- Chalk, N. and R. Hemming (2000) 'Assessing Fiscal Sustainability in Theory and Practice', *IMF Working Paper, WP/00/81*.
- Drazen, A. (2002) 'Fiscal Rules From a Political Economy Perspective', *Mimeo*. Paper for Conference on Rules-Based Fiscal Policy in Emerging Market Economies.
- Edwards, S. (2002) 'Debt Relief and Fiscal Sustainability', *NBER Working Paper No. 8939*.
- Fischer, S. (2001) 'Farewell to the IMF Executive Board', Address given on August 30, 2001.
- Fischer, S. and W. Easterly (1990) 'The Economics of the Government Budget Constraint', *The World Bank Research Observer*, Vol. 5, No. 2, pp. 127–44.
- Gavin, M., R. Hausmann, R. Perotti, and E. Talvi (1996) 'Managing Fiscal Policy in Latin America and the Caribbean: Volatility, Procyclicality, and Limited Creditworthiness', *IDB Working Paper No. 13*.
- Hemming, R. and M. Petrie (2000) 'A Framework for Assessing Fiscal Vulnerability', *IMF Working Paper, WP/00/52*.
- Hausmann, R. (2002) 'Unrewarded Good Fiscal Behavior: The Role of Debt Structure', *Mimeo*. Paper for Conference on Rules-Based Fiscal Policy in Emerging Market Economies.
- International Monetary Fund (2002) 'World Economic Outlook', May.
- International Monetary Fund (2002) 'Assessing Sustainability', *Mimeo*.
- Kopits, G. and S. Symansky (1998) 'Fiscal Policy Rules', *Occasional Paper No. 162, IMF*.
- Kopits, G. (2001) 'Fiscal Rules: Useful Policy Framework or Unnecessary Ornament?', *IMF Working Paper, WP/01/145*.
- (2002) 'Fiscal Policy Under High Capital Mobility' *Mimeo*. Paper for Conference on Rules-Based Fiscal Policy in Emerging Market Economies.
- Pattillo, C., H. Poirson, and L. Ricci (2002) 'External Debt and Growth', *IMF Working Paper, WP/02/69*.
- Spaventa, L. (1987) 'The Growth of Public Debt. Sustainability, Fiscal Rules, and Monetary Rules', *IMF Staff Papers*.
- Van Wijnbergen, S., R. Anand, A. Chhibber, and R. Rocha (1990) 'External Debt, Fiscal Policy, and Sustainable Debt in Turkey', John Hopkins University Press.

# Index

- accountability
  - governance, 131, 132, 133, 136
  - public spending, 131
  - social safety nets, 124
  - see also* transparency
- accounting
  - creative, 31
  - public debt accounting
    - framework, 2–5, 35–7
- agricultural trade, 156–9, 165
- Anand, R., 35–6
- Antigua and Barbuda, exchange rate regime, 172, 177
- Argentina
  - capital gains, 76
  - currency board collapse, 199
  - education spending, 108
  - enterprise income tax, 62, 66
  - external debt, 14
  - fiscal crisis, 16, 17, 199
  - health system, 117
  - net worth or assets tax, 80
  - nontariff measures, 151
  - personal income tax, 68, 72
  - returns to education, 100
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- Asian financial crisis, 18, 125
- assets
  - dollarization, 162, 163, 198–9, 201, 202, 205n2
  - liquidity risk, 198–9
  - public debt accounting, 3
  - tax on, 77, 80–1
- Australia, exchange rate regime, 175
- Bahamas, exchange rate regime, 169, 172, 177, 184
- balance sheet approach, 3
- balanced-budget rule, 30, 31, 32–4
- banking
  - consolidated supervision, xiii
  - contingent liabilities, 20–1
  - currency devaluations, 199–200
  - dollar liabilities, 198, 199, 201
  - lender of last resort, 163, 165, 199
  - liquidity risk, 198–200, 201–2
  - state-owned banks, 16
  - viable, 35
- Barbados
  - exchange rate regime, 169, 172, 177, 184
  - value-added tax, 55
- Bedi, Arjun S., 99, 110–11
- Behrman, Jere R., 99
- Belize, exchange rate regime, 169, 172, 177, 183, 184
- Birdsall, N., 99
- Bolivia
  - capital gains, 76
  - dollarization, 198, 205n8
  - enterprise income tax, 62, 66
  - external debt, 14
  - net worth or assets tax, 80
  - personal income tax, 67, 68, 72
  - returns to education, 100
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - US remittances, 160
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- borrowing
  - dollarization, 196, 197, 199–200, 201

- borrowing – *continued*
  - fiscal rules, 30
  - public debt, 2, 3–4, 5, 16, 29, 35
- Bosnia-Herzegovina, dollarization, 205n9
- Brazil
  - capital gains, 76
  - enterprise income tax, 62, 66
  - external debt, 14–15
  - fiscal crisis, 17, 18
  - health system, 117
  - net worth or assets tax, 80
  - nontariff measures, 151
  - personal income tax, 68, 72
  - returns to education, 99, 100
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - teacher wages, 111
  - US remittances, 160
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- Canada
  - deficit rule, 30
  - exchange rate regime, 175
- capital account crises, 16
- capital controls, 176–8, 179, 180–1
- capital gains tax, 74, 75, 76
- capital market deepening, 35
- capital mobility, 159–60, 170, 174, 180, 181, 182
- Card, David, 98
- Caribbean
  - exchange rate regimes in CAC region, 169–86
  - health system, 117
  - tax system, 51
  - value-added tax, 55, 83
- Caribbean Basin Initiative (CBI), 142, 152, 156, 166n4
- Case, Anne, 99
- cash transfers, 124–5, 126–9, 130
- CBI *see* Caribbean Basin Initiative
- Central American Common Market, 41
- Central American Monetary Council, xii
- Chile
  - capital gains, 76
  - enterprise income tax, 62, 66
  - external debt, 15
  - net worth or assets tax, 80
  - nontariff measures, 151
  - personal income tax, 68, 72
  - returns to education, 100
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- Colombia
  - capital gains, 76
  - education spending, 108
  - enterprise income tax, 62, 66
  - net worth or assets tax, 80
  - nontariff measures, 151
  - personal income tax, 67, 68, 72
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - US remittances, 160
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- consumption
  - government, 96
  - poverty measurement, 136n7
  - value-added tax, 55, 57
- contagion, 2
- Corbacho, Ana, 87–141
- corporate (enterprise) income tax, 48, 58, 62–7, 71, 74–5, 77, 84
- corruption, 42, 125, 131, 132–4, 136
- Costa Rica
  - dollarization, 162, 195
  - education: attainment, 101, 103; drop-out and repetition rates, 106; government spending on, 105, 107, 108, 109, 110; returns to investment, 100; student–teacher ratios, 113;

- Costa Rica – *continued*  
 teacher quality, 112, 113  
 emerging market status, 2  
 Eurobonds, 37n2  
 exchange rate regime, 169, 171, 172, 175, 177, 182, 183  
 financial openness, 160  
 fiscal impulse and capacity utilization, 25  
 foreign exchange deposits, 195  
 governance indicators, 132, 133  
 gross national income, 88, 89  
 health: government spending on, 119, 121, 123; system, 117, 118, 121, 122; trends in health status, 115, 116  
 poverty and inequality, 89, 90, 91, 92, 93  
 public debt: external, 13; fiscal sector developments, 22; GDP–debt ratio, 2, 5, 6, 8; interest rates on, 19; key macroeconomic indicators, 10; primary balance and gross financing requirement, 20; revenue and expenditure elasticities, 24; vulnerability to shocks, 19, 39n22  
 public expenditure, 94–5, 96  
 response to US growth rate, 161  
 social safety nets, 124, 126, 130  
 taxation: capital gains tax, 75, 76; enterprise income tax, 62–3, 65, 66; excise taxes, 59–61; exemption levels, 71; on interest, 75 net worth or assets tax, 77, 80; personal income tax, 68–9, 71, 72–3; tax structure, 45–6, 49–50; value-added tax, 51–6, 57; withholding taxes on foreign remittances, 78  
 trade: estimated fiscal effect of FTA with United States, 164; exports, 143–5, 146; foreign investment flows, 153, 154; and growth, 153, 155; imports, 147; indicators, 143, 144; NAFTA, 151, 152; nontariff measures, 151; tariffs, 148, 149, 150, 158  
 creative accounting, 31  
 credibility  
 currency, 202, 203  
 fiscal rules, 31  
 monetary, 143, 162, 163  
 credit risk, 199, 200  
 Cuba, US remittances, 160  
 currency  
 de-dollarization, 198, 202  
 devaluations, 16, 162, 199–200, 201  
 dual-currency regime, 195, 204  
 market acceptance of local currency, 203  
 Optimum Currency Area, 142–3, 159, 163  
 substitution, 171  
*see also* depreciation;  
 dollarization; exchange rate  
 currency boards, 170, 171, 199, 204  
 customs  
 tax harmonization, 41  
 weak administration, 42  
 Czech Republic  
 dollarization, 198  
 fiscal crisis, 16, 17  
 Davoodi, Hamid R., 87–141  
 De Ferranti, D., 155  
 De Nicolo, Gianni, 205n3  
 de-dollarization, 198, 202  
 debt, xii, xiii, 1–40  
 accounting framework, 2–5, 35–7  
 adverse shocks impact on fiscal adjustment, 26–30  
 crisis, 16  
 debt management policy, 35  
 debt rule, 30, 31, 32–4  
 external, 12, 13–15, 16, 38n12  
 factors behind recent developments, 5–12

- debt – *continued*
    - fiscal rules, 30–4
    - fiscal vulnerabilities, 18–26
    - interest service, 2, 4, 5, 29, 35, 38n9
    - level of, 12–18
    - rescheduling, 4, 5, 12
  - debt stock operations, 4–5, 12, 20–1, 32–4
  - deficit rules, 30
  - depreciation
    - adverse shocks and fiscal adjustment, 27, 28, 29, 30, 32–3
    - dollarization, 197, 199, 201, 202, 203
    - see also* currency
  - discretion
    - fiscal rules, 30–1, 32
    - governance issues, 131, 132, 136
    - tax system, 42
  - diversification
    - exchange rate regimes, 171, 174, 176–9, 180, 181, 182
    - export, 19, 143, 155, 174
  - dividends, 74–5, 77
  - Doha Round, xiii, 142, 158
  - dollarization, xiii, 37n5, 143, 194–206
    - asset, 162, 163
    - CAC exchange rate regimes, 170, 171, 174
    - El Salvador, 38n16, 169, 174, 179, 195
    - financial, 196–7, 198–200
    - liability, 162–3
    - monetary integration, 162, 164, 165
    - Panamá, 162, 169, 171–4, 179, 195
    - payments, 196, 198
    - real, 196, 197–8, 199
    - types and roots, 196–8
  - Dominica, exchange rate regime, 172, 177
  - Dominican Republic
    - education: attainment, 101, 103; drop-out and repetition rates, 106; government spending on, 105, 107, 109, 110; teacher quality, 112
  - emerging market status, 2
  - Eurobonds, 37n2
  - exchange rate regime, 171, 173, 175, 178, 183
  - financial openness, 160
  - governance indicators, 133, 134
  - gross national income, 88, 89
  - health: government spending on, 119, 121, 123; system, 118, 122; trends in health status, 115, 116, 117
  - IMF emergency assistance, 90
  - poverty and inequality, 89, 90
  - public debt: external, 13;
    - fiscal sector developments, 22
    - GDP–debt ratio, 5, 6, 8; key macroeconomic indicators, 10; primary balance and gross financing requirement, 20, 39n25; revenue and expenditure elasticities, 24; vulnerability to shocks, 19
  - public expenditure, 94–5, 96
  - response to US growth rate, 161
  - social safety nets, 124–5, 127
  - taxation: capital gains tax, 75, 76; enterprise income tax, 62–3, 65, 66; excise taxes, 59–61; on interest, 75; low revenues, 21; net worth or assets tax, 80; personal income tax, 68–9, 72–3; tax structure, 45–6, 49–50; value-added tax, 51–6, 57; withholding taxes on foreign remittances, 78
  - trade: exports, 144–5, 146; foreign investment flows, 153, 154; imports, 147; indicators, 143, 144; NAFTA, 151; tariffs, 148, 149, 150
  - US remittances, 159, 160
- double taxation, 74, 75

- drop-out rates, 104, 105, 106  
dual-currency regime, 195, 204  
*see also* dollarization
- economic growth *see* growth
- Ecuador  
capital gains, 76  
enterprise income tax, 62, 66  
external debt, 15  
fiscal crisis, 17, 18, 21  
net worth or assets tax, 80  
personal income tax, 68, 72  
tariffs, 149, 150  
tax structure, 45–6, 49–50  
US remittances, 160  
value-added tax, 52, 56  
withholding taxes on foreign remittances, 78
- education, 98–113  
attainment, 101–4, 135  
drop-out rates, 104, 105, 106  
governance issues, 131  
poverty reduction, 91  
public spending on, xii, xiii, 97–8, 105–10, 134, 135  
quality and quantity of inputs, 99, 104–5  
repeater rates, 104–5, 106  
returns to investment, 98–101  
student–teacher ratios, 112, 113  
teacher quality/wages, 99, 110–13, 135
- efficiency  
public spending, 134, 135  
tax, 42, 43, 55, 57
- Egypt, dollarization, 194, 198
- El Salvador  
dollarization, 38n16, 169, 174, 179, 195  
education: attainment, 101, 103; drop-out and repetition rates, 106; government spending on, 105, 107, 109; returns to investment, 100; teacher quality, 112, 113; teachers' second jobs, 137n20
- emerging market status, 2
- Eurobonds, 37n2
- exchange rate regime, 169, 172, 177, 183, 191n3
- financial openness, 160
- fiscal impulse and capacity utilization, 25
- foreign exchange deposits, 195
- governance indicators, 133
- gross national income, 89
- health: government spending on, 119; system, 118, 122; trends in health status, 115, 117
- poverty and inequality, 89, 90, 91
- precautionary fund, 163  
public debt: external, 13; fiscal sector developments, 22; GDP–debt ratio, 5, 6, 8; interest rates on, 19; key macroeconomic indicators, 10; primary balance and gross financing requirement, 20, 26 revenue and expenditure elasticities, 24; vulnerability to shocks, 19, 35
- public expenditure, 94–5, 96
- social safety nets, 124, 127, 130
- taxation: capital gains tax, 75, 76; enterprise income tax, 62–3, 66, 67; excise taxes, 59–61; on interest, 75; low revenues, 21; net worth or assets tax, 77, 80; personal income tax, 68–9, 72–3; tax structure, 45–6, 49–50; value-added tax, 51–6, 57; withholding taxes on foreign remittances, 78
- trade: estimated fiscal effect of FTA with United States, 164; exports, 143, 144, 146; foreign investment flows, 153, 154; and growth, 153, 155 imports, 145, 147; indicators, 143, 144; NAFTA, 152; nontariff measures, 151; tariffs, 148, 149, 150, 158

- El Salvador – *continued*  
 US remittances, 159, 160  
 employment programmes, 124, 126–9  
 enterprise (corporate) income tax, 48, 58, 62–7, 71, 74–5, 77, 84  
 equity  
   education impact on, 97  
   taxation, 41, 42, 43, 74, 83  
   *see also* inequality  
 Espinosa Ferrando, Jaime, 114  
 European Union (EU)  
   fiscal rules, 30  
   subsidies, 158  
   tax harmonization, 42, 83  
 exchange rate, xiii, 169–93  
   active monetary policy, 202–3  
   dollarization, 162–3, 196–7, 199, 200, 201, 203–4  
   econometric approach, 180–2, 186  
   flexible, 170, 171, 174, 179, 182, 184  
   floating, 169, 173, 174, 176–7, 190, 191n7, 203  
   index approach, 182–5, 190–1  
   pegged, 170, 171, 179, 189:  
     crawling peg, 169, 170, 172, 182, 186; dollarization, 162, 163, 197; fixed peg, 169, 172, 174, 176–7, 189; suitability  
     for, 182, 184, 190–1  
   public debt, 4, 19–20, 36  
   purchasing power parity, 136n3  
   theoretical considerations, 170–1  
   trade liberalization, xiii  
   volatility, 196–7, 200, 204  
   *see also* currency; depreciation  
 excise taxes, 43, 48, 58, 59–61, 83, 84  
 exports, 143–5, 146, 165  
   adverse shocks, 19  
   agricultural, 156–9  
   competitiveness, xiii  
   diversification, 19, 143, 155, 174  
   exchange rate regimes, 171, 174  
   foreign direct investment, 152–3  
   GDP ratio, 38n12  
   taxes on, 43, 51  
   *see also* trade  
 FDI *see* foreign direct investment  
 financial crises, 16–18, 21  
   Asian, 18, 125  
   contagion, 2  
   social safety nets, 121  
   *see also* shocks  
 fiscal balance, 3–4, 19, 20, 26, 36  
 fiscal policy  
   adverse shocks, 26, 27–30  
   countercyclical, 35, 164, 165  
   dollarization, 163–4, 165  
   exchange rate regimes, 170  
   fiscal rules, 30–4  
   government consumption, 96  
   limited flexibility, 21–6, 34  
   procyclical, 21–6, 164  
   public debt, xii, xiii, 1–40  
   *see also* monetary policy  
 Fischer, S., 1  
 flexibility  
   exchange rate, 174, 175, 180, 182, 189  
   fiscal rules, 31  
   limited policy flexibility, 21–6, 34  
   tax harmonization, 83  
 food transfers, 124–5, 126–9  
 foreign direct investment (FDI), 152–3, 154, 160, 165, 167n9  
 foreign exchange reserves, 34–5, 201  
 free trade, xii, xiii, 157  
 free trade zones, 65  
 Funkhouser, E., 159  
 Gavin, M., 21  
 GDP *see* Gross Domestic Product  
 gender inequalities, 101–4  
 globalization, 84  
 GNI *see* gross national income  
 governance, 88, 125, 131–4, 135, 136  
 government effectiveness, 132, 133

- government spending *see* public expenditure
- Grenada, exchange rate regime, 172, 177
- Gresham's Law, 198
- Gross Domestic Product (GDP)
- contingent liabilities, 21
  - debt ratio, 2, 5–9, 12–16, 18, 93:
    - accounting framework, 4, 36;
    - adverse shocks, 26, 29–30, 34;
    - export-to-GDP ratio
    - relationship, 38n12; fiscal rules, 31–2, 34; interest service, 38n9
  - education spending, 105
  - exchange rate regimes, 171, 174, 176–9, 180–1, 182, 190
  - export trade, 144–5
  - health spending, 119
  - mismeasurement, 85n3
  - nominal, 31–2, 174, 176–9, 181
  - public expenditure, 93
  - tax exemption levels, 71, 72–3
  - tax revenue ratio, 21, 44, 51, 65–7
- gross national income (GNI), 88
- growth
- adverse shocks and fiscal:
    - adjustment, 27, 28, 29, 30, 32–3; education influence on, 97, 98
  - elasticities, 92
  - health improvement influence on, 97
  - human capital improvement, 135, 136
  - macroeconomic stability, 41
  - poverty and inequality, 88–93
  - public debt, 12–16, 35
  - tax policy, 42
  - trade policies, 153–5
- Guatemala
- dollarization, 195
  - education: attainment, 101, 103; drop-out and repetition rates, 106; gender inequality, 104; government spending on, 105, 107, 108, 109; returns to investment, 100
  - student–teacher ratios, 113
  - teacher quality, 112, 113
  - teachers' second jobs, 138n20
- emerging market status, 2
- Eurobonds, 37n2
- exchange rate regime, 171, 173, 175, 178, 183
- financial openness, 160
- fiscal impulse and capacity utilization, 25
- foreign currency, 162
- foreign exchange deposits, 195
- governance indicators, 132, 133, 134
- gross national income, 89
- health: government spending on, 119; system, 121, 122; trends in health status, 115, 116, 117
- IMF emergency assistance, 90
- poverty and inequality, 89, 90
- public debt: external, 13; fiscal sector developments, 22–3; GDP–debt ratio, 5, 6–7, 9, 93; interest rates on, 19; key macroeconomic indicators, 10–11; primary balance and gross financing requirement, 20, 26; revenue and expenditure elasticities, 24
- public expenditure, 94–5, 96
- response to US growth rate, 161
- social safety nets, 125, 127–8
- taxation: capital gains tax, 75, 76; enforcement, 82; enterprise income tax, 62–3, 65, 66, 67; excise taxes, 59–61; on interest, 75; net worth or assets tax, 77, 80; personal income tax, 67, 68–9, 72–3; revenue, 21, 44; tax structure, 45–6, 49–50; value-added tax, 51–6; withholding taxes on foreign remittances, 78
- trade: estimated fiscal effect of

Guatemala – *continued*

- FTA with United States, 164;
- exports, 144–5, 146; foreign investment flows, 154;
- imports, 147; indicators, 143, 144; NAFTA, 151, 152;
- nontariff measures, 151;
- tariffs, 148, 149, 150, 158
- US remittances, 159, 160
- wage bill, 137n16
- Gupta, Sanjeev, 108, 111, 119–20
- Guyana
  - exchange rate regime, 171, 173, 175, 178, 182, 183, 184
  - health system, 117
  - low AGSIZE value, 191n9
- Haiti
  - exchange rate regime, 171, 173, 174, 175, 178, 183
  - exports, 191n4
  - health system, 117
  - US remittances, 160
- Hanushek, Eric A., 98, 111
- Harbison, Ralph W., 111
- harmonization, tax, 41, 42, 83–4
- Hausmann, R., 21
- health, 113–21
  - governance issues, 131
  - organization of health systems, 117–18
  - poverty reduction, 91
  - public spending on, xii, xiii, 97–8, 118–21, 123, 134, 135
  - quality indicators, 121, 122
  - returns to investment, 114
  - trends in health status, 114–17, 135
- Heavily Indebted Poor Countries (HIPCs), 12
- Hernández Alvarez, C., 114
- HIPCs *see* Heavily Indebted Poor Countries
- Hoekman, B., 157
- Holden, P., 189, 191n5

## Honduras

- dollarization, 162
- education: attainment, 101, 103; drop-out and repetition rates, 106; government spending on, 107, 108, 109, 110; student-teacher ratios, 113; teacher quality, 99, 110–11, 112, 113
- exchange rate regime, 169, 171, 172, 175, 177, 182, 183
- fiscal impulse and capacity utilization, 25
- foreign exchange deposits, 195
- governance indicators, 132, 133
- gross national income, 88, 89
- health: government spending on, 119, 121, 123; system, 121, 122; trends in health status, 115, 116, 117
- poverty and inequality, 89, 90, 91, 92–3
- Poverty Reduction Strategy Paper, 97, 98, 130, 137n18
- public debt: external, 13–14; fiscal sector developments, 23; GDP–debt ratio, 2, 5, 7, 9, 38n8, n18, 93; interest rates on, 19; key macroeconomic indicators, 11; primary balance and gross financing requirement, 20, 26, 39n25; revenue and expenditure elasticities, 24
- public expenditure, 94–5, 96
- Report on the Observance of Standards and Codes, 131
- response to US growth rate, 161
- social safety nets, 124, 128, 130
- taxation: capital gains tax, 75, 76; enterprise income tax, 58, 62–3, 65, 66;

- Honduras – *continued*  
 excise taxes, 59–61; on  
 interest, 75; net worth or  
 assets tax, 77, 80; personal  
 income tax, 68–9, 72–3;  
 tax structure, 45–6, 49–50;  
 value-added tax, 51–6;  
 withholding taxes on  
 foreign remittances, 78  
 trade: estimated fiscal effect of  
 FTA with United States, 164;  
 exports, 144–5, 146; foreign  
 investment flows, 154; and  
 growth, 153, 155; imports,  
 147; indicators, 143, 144;  
 NAFTA, 151, 152; nontariff  
 measures, 151; tariffs, 148,  
 149, 150, 158  
 US remittances, 159, 160  
 Honohan, Patrick, 205n3  
 human capital, 114, 135, 136  
 investment in, 97–8  
 social safety nets, 124,  
 126–9, 130  
 Hungary, dollarization, 195,  
 198  
 Hurricane Mitch, 93, 130  
 hysteresis, 197  
 IDA *see* International Development  
 Association  
 IFIs *see* International Financial  
 Institutions  
 IMF *see* International Monetary  
 Fund  
 immunization, 121, 122  
 imports, xiii, 145, 147  
 NAFTA, 156  
 protection, 152  
 sensitive commodities, 157  
 taxes on, 51  
*see also* tariffs; trade  
 income  
 economic development, 88  
 gross national income, 88  
 health relationship, 114  
 inequality, 90–1  
 World Bank classification,  
 136n4  
 income tax, 43, 48, 51, 58–82  
 capital gains, 74, 75, 76  
 enforcement, 82, 83  
 enterprise (corporate), 48, 58,  
 62–7, 71, 74–5, 77, 84  
 harmonization, 83–4  
 on interest and dividends, 74–5,  
 77  
 joint filing, 75–7  
 net worth or assets, 77, 80–1  
 personal, 48, 67–73, 74, 84–5  
 withholding taxes on foreign  
 remittances, 77, 78  
 Indonesia  
 borrowing rule, 30  
 fiscal crisis, 16, 17, 21  
 inequality, 87, 88–93, 134–5  
 education, 99, 101–4  
 gender, 101–4  
 measuring, 137n9  
 social safety nets, 124, 125  
*see also* equity  
 infant mortality, 114, 116, 117,  
 120–1  
 inflation: dollarization, 196–7, 203;  
 exchange rate regimes, 170,  
 174, 176–9, 180–1, 182, 184;  
 income tax, 77; targeting, 198,  
 202, 204  
 infrastructure  
 health, 116, 117  
 public debt accounting, 3  
 social safety nets, 124, 125,  
 126–9  
 institutional quality, 88  
 Inter-American Development Bank,  
 xii, 118, 134  
 interest income tax, 74–5, 77  
 interest rates  
 adverse shocks and fiscal  
 adjustment, 19, 27–9, 30,  
 32–3, 34, 39n22  
 El Salvador, 38n16

- interest rates – *continued*
  - exchange rate regimes, 174, 175
  - local currency management, 203
  - public debt, 4, 18, 35, 36, 39n22
- interest service, 2, 4, 5, 29, 35, 38n9
- International Development Association (IDA), 90
- International Financial Institutions (IFIs), 90
- International Monetary Fund (IMF)
  - Code of Fiscal Transparency, 131
  - external debt, 16
  - financial openness, 160
  - Latin American procyclical fiscal policies, 21
  - Poverty Reduction Growth Facility, 90
  - Western Hemisphere Department, xii
- investment
  - education, 97, 98–101
  - health, 97, 98, 114
  - human capital, 97–8
  - public, 3, 96–7
  - tax incentives, 65
  - trade, 152–3, 154, 156
  - see also* foreign direct investment
- investor sentiment, 18, 19
- Israel
  - dollarization, 195, 198
  - exchange rate regime, 175
- Ize, Alain, 194–206
- Jamaica
  - exchange rate regime, 171, 173, 175, 178, 183
  - tariffs, 149, 150
  - US remittances, 160
  - value-added tax, 55
- Japan
  - deficit rule, 30
  - exchange rate regime, 175
  - subsidies, 158
- joint filing, 75–7
- Juhn, G., 170, 182, 186
- Kain, J. F., 111
- Kaufmann, Daniel, 125
- Kim, D., 98
- Korea, fiscal crisis, 16, 17, 21
- Krueger, A., 98, 99
- labour market flexibility, 35, 159
- Lederman, Daniel, 142–68
- legal system, 44
- Levy Yeyati, Eduardo, 191n5, 205n3
- liabilities
  - contingent, 4–5, 12, 16, 20–1, 28, 29, 33
  - debt stock operations, 4–5, 12, 20–1
- liability dollarization, 162–3
- Liang, Xiaoyan, 111
- liberalization
  - dollarization, 195, 198
  - financial intermediation, 203
  - trade, xiii, 35, 51, 142, 152, 153, 165
- liquidity risk, 198–9, 201–2
- Lithuania, dollarization, 205n9
- Lora, E., 153
- Maloney, W., 155
- market confidence, 19
- market imperfections, 42, 43, 119
- Marshall, J. H., 99, 110–11
- maturities, 35
- Mauro, P., 170, 182, 186
- Mercer-Blackman, Valerie, 169–93
- México
  - capital gains, 76
  - dollarization, 195, 196, 198
  - education spending, 108
  - enterprise income tax, 62, 66
  - external debt, 15
  - fiscal crisis, 16, 17, 18, 21, 199
  - GDP–debt ratio, 12, 38n14
  - NAFTA, 151, 152, 156–7
  - net worth or assets tax, 80
  - nontariff measures, 151
  - personal income tax, 68, 72
  - returns to education, 100
  - tariffs, 149, 150

- Mexico – *continued*  
 tax structure, 45–6, 49–50  
 trade, 145  
 US remittances, 160  
 value-added tax, 52, 56  
 withholding taxes on foreign remittances, 78
- migration, 159
- monetary integration, xiii, 142–3, 159–61, 162–4
- monetary policy  
 countercyclical, 197, 202  
 dollarization, 196, 197, 199, 200, 203, 204–5  
 exchange rate regimes, 169–93, 204  
 vulnerability to shocks, 34–5  
*see also* fiscal policy
- money creation, 37n5
- Monge-Naranjo, A., 153
- moral hazard, 119, 197, 200, 201, 204
- multinational corporations, 82, 84
- Mussa, M., 170
- NAFTA *see* North American Free Trade Agreement
- natural disasters, 2, 19, 125  
*see also* Hurricane Mitch
- Netherlands, deficit rule, 30
- New Zealand  
 deficit rule, 30  
 exchange rate regime, 175
- Nicaragua  
 dollarization, 162, 195  
 education: attainment, 101, 103–4; drop-out and repetition rates, 106; government spending on, 105, 107, 108, 109, 110; returns to investment, 100; teacher quality, 111, 112, 113  
 exchange rate regime, 169, 171, 172, 175, 177, 182, 183  
 fiscal impulse and capacity utilization, 25  
 foreign exchange deposits, 195  
 governance indicators, 133, 134  
 gross national income, 88, 89  
 health: government spending on, 119, 121, 123; system, 118, 121, 122; trends in health status, 114, 115, 116, 117  
 poverty and inequality, 89, 90, 91
- Poverty Reduction Strategy Paper, 97–8, 130–1, 137n18
- public debt  
 external, 14  
 fiscal sector developments, 23  
 GDP–debt ratio, 2, 5, 7, 9, 12, 38n8, n18, 93  
 key macroeconomic indicators, 11  
 primary balance and gross: financing requirement, 20, 26, 39n25; revenue and expenditure elasticities, 24
- public expenditure, 94–5, 96
- Report on the Observance of Standards and Codes, 131
- social safety nets, 124, 128–9, 130–1
- taxation: capital gains tax, 75, 76; enterprise income tax, 62–3, 65, 66; excise taxes, 59–61; exemption levels, 71; on interest, 75; net worth or assets tax, 77, 80; personal income tax, 68–9, 71, 72–3; revenue, 21, 44; tax structure, 45–6, 49–50; value-added tax, 51–6, 57; withholding taxes on foreign remittances, 78
- trade: estimated fiscal effect of FTA with United States, 164; exports, 144–5, 146; foreign investment flows, 153, 154; and growth, 153, 155; imports, 147; indicators, 143, 144; NAFTA, 151, 152; nontariff measures, 151; tariffs, 148, 149, 150, 158

Nicaragua – *continued*

- US remittances, 159, 160
- wage bill, 137n16
- nontariff barriers, 148, 151
- North American Free Trade Agreement (NAFTA), 142, 148, 151–3, 156, 166n4
- OCA *see* Optimum Currency Area
- OECD *see* Organization for Economic Cooperation and Development
- Offerdal, Erik, 1–40, 169–93
- Optimum Currency Area (OCA), 142–3, 159, 163
- Organization for Economic Cooperation and Development (OECD)
  - education, 99, 100
  - enterprise income tax, 65
- Panamá
  - dollarization, 162, 169, 171–4, 179, 195
  - education: attainment, 101, 104; drop-out and repetition rates, 106; government spending on, 107, 109, 110; returns to investment, 100; student–teacher ratios, 113; teacher quality, 112, 113
  - emerging market status, 2
  - exchange rate regime, 169, 172, 177, 183, 184
  - fiscal impulse and capacity utilization, 25
  - foreign exchange reserves, 34
  - governance indicators, 133, 134
  - gross national income, 88, 89
  - health: government spending on, 119; system, 118, 122; trends in health status, 115, 116
  - poverty and inequality, 89, 91
  - public debt: debt rule, 30; external, 14; fiscal sector developments, 23; GDP–debt

- ratio, 2, 5, 7, 9; key macroeconomic indicators, 11; primary balance and gross financing requirement, 20, 26; revenue and expenditure elasticities, 24; vulnerability to shocks, 19
- public expenditure, 94–5, 96
- social safety nets, 124, 129
- taxation: capital gains tax, 75, 76; enterprise income tax, 62–3, 65, 66, 67; excise taxes, 59–61; on interest, 75; net worth or assets tax, 77, 80; personal income tax, 67, 68–9, 72–3; revenue, 21, 44; tax structure, 45–6, 49–50; value-added tax, 51–6; withholding taxes on foreign remittances, 78
- trade: exports, 144, 146; foreign investment flows, 153, 154; and growth, 153, 155; imports, 145, 147; indicators, 143, 144
- Panizza, U., 153
- Paraguay
  - capital gains, 76
  - enterprise income tax, 62, 66
  - health system, 117
  - net worth or assets tax, 81
  - personal income tax, 68, 72
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - US remittances, 160
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- Pattillo, C., 12
- Perry, Guillermo, 142–68
- personal income tax, 48, 67–73, 74, 84–5
- Peru
  - capital gains, 76
  - dollarization, 198, 205n8
  - enterprise income tax, 62, 66
  - external debt, 15

- Peru – *continued*  
 net worth or assets tax, 81  
 personal income tax, 68, 72  
 returns to education, 100  
 tariffs, 149, 150  
 tax structure, 45–6, 49–50  
 US remittances, 160  
 value-added tax, 52, 56  
 withholding taxes on foreign remittances, 78
- Philippines, fiscal crisis, 16, 17
- Poirson, H., 170, 189, 191n6
- Poland, dollarization, 195, 198
- policy flexibility, 21–6
- political stability, 132, 133, 134, 136, 171, 191n7
- poverty, 87, 88–93, 134–5  
 health spending, 119–21, 135  
 human capital influence on, 97  
 measuring, 136n7  
 rural, 158–9  
 social safety nets, 121–5, 126–9, 130–1
- Poverty Reduction Growth Facility (PRGF), 90, 96
- Poverty Reduction Strategy Paper (PRSP), 90, 96, 97–8, 130, 136n6, 137n18
- PPP *see* purchasing power parity
- PRGF *see* Poverty Reduction Growth Facility
- price-indexed financial instruments, 203
- prices, dollarization, 196, 197, 199
- privatization receipts, 3, 4
- productivity  
 education impact on, 97  
 enterprise income tax, 65–7  
 health impact on, 97, 114  
 value-added tax, 55–7
- property taxes, 42, 51, 77–82, 85
- PRSP *see* Poverty Reduction Strategy Paper
- public debt *see* debt
- public expenditure, xii, xiii, 87–141  
 education, xii, xiii, 97, 98–113, 135  
 and governance, 125, 131–4, 136  
 health, xii, xiii, 97, 98, 113–21, 123, 135  
 level and composition of, 93–7  
 social safety nets, xii, 121–5, 126–9, 130–1  
*see also* debt
- public insurance, 123
- purchasing power parity (PPP), 88, 136n3, 137n19, 138n22
- regulation  
 dollarization risks, 200–1  
 regulatory quality, 132, 133, 136
- Reinhardt, C., 180
- Rennhack, Robert, 169–93
- Report on the Observance of Standards and Codes (ROSC), 131
- risk  
 credit, 199, 200  
 liquidity, 198–9, 201–2  
 local currency, 199, 202
- Rivkin, S. G., 111
- Rogoff, K., 180
- ROSC *see* Report on the Observance of Standards and Codes
- rule of law, 84, 132, 133, 136
- rural areas  
 agricultural trade, 157, 158–9  
 health status, 117  
 social safety nets, 125
- Russia, fiscal crisis, 17
- St. Kitts and Nevis, exchange rate regime, 172, 177
- St. Lucia, exchange rate regime, 172, 177
- St. Vincent and the Grenadines, exchange rate regime, 172, 177
- securities, 203
- seigniorage, 37n5, 162, 164
- self-employment, 83
- self-insurance, 123
- shocks  
 dollarization, 202, 204, 205n2

- shocks – *continued*  
 and fiscal adjustment, 26–30,  
 32–4  
 fiscal rules, 30–4  
 monetary integration, 160–1  
 public debt, 1, 26–30  
 social safety nets, 121–5  
 vulnerability to, 1, 2, 19–20, 34–5,  
 39n22  
*see also* depreciation; financial  
 crises
- Slovenia, dollarization,  
 195, 205n9
- social insurance, 123, 124
- social safety nets, xii, 121–5,  
 126–9, 130–1, 134–5
- social security taxes, 51
- spending *see* public expenditure
- stock adjustment, 27, 28, 29, 30,  
 32–3
- stock operations, 4–5, 12, 20–1,  
 32–4
- Stotsky, Janet G., 41–86
- Sturzenegger, Federico, 191n5
- subsidies, 96, 124, 157–8
- Suescún, Rodrigo, 142–68
- supervision, dollarization, xiii,  
 163, 165
- Suriname, health system, 117
- sustainability of public debt,  
 2–3, 37n6
- tariffs, xiii, 83, 148–51, 154, 157
- tax incentives, 43, 65, 83–4, 153
- tax policy, xii–xiii, 41–86  
 administrative issues, 42, 43,  
 82–3, 84, 85  
 distortionary taxation, 96  
 double taxation, 74  
 enforcement, 82–3  
 excises, 43, 48, 58, 59–61, 83, 84  
 exemptions, 57, 65, 71, 72–3,  
 85n8, 153  
 general principles of tax reform,  
 42–4  
 harmonization, 41, 42, 83–4
- income tax, 43, 48, 51, 58–82:  
 capital gains, 74, 75, 76;  
 enforcement, 82, 83; enterprise  
 (corporate), 48, 58, 62–7, 71,  
 74–5, 77, 84; harmonization,  
 83–4; on interest and  
 dividends, 74–5, 77; joint  
 filing, 75–7; net worth or assets,  
 77, 80–1; personal, 48, 67–73,  
 74, 84–5; withholding taxes on  
 foreign remittances, 77, 78  
 limited flexibility, 21  
 property taxes, 42, 51, 77–82, 85  
 structural reforms, 35  
 structure of Central American tax  
 systems, 44–51  
 trade, 48–51, 84, 164  
 value-added tax, 41, 43, 48,  
 51–8, 74, 82, 83
- teachers: quality of, 99, 110–13;  
 wages, 111, 112, 113, 135
- terms of trade: adverse shocks, 19,  
 29; exchange rate regime, 171;  
 variability in, 174, 176–8, 179,  
 180, 181  
 vulnerability to changes in, 19
- Thailand, fiscal crisis, 16, 17, 21
- trade, 142–68  
 agricultural, 156–9, 165  
 barriers to, 35, 148  
 globalization, 84  
 impact of NAFTA, 151–3  
 integration with United States,  
 155–61  
 liberalization, xiii, 35, 51, 142,  
 152, 153, 165  
 nontariff barriers, 148, 151  
 openness to, 174, 176–8, 179, 180,  
 181  
 policy reforms and economic  
 growth, 153–5  
 structure, 143–7  
 tariffs, xiii, 83, 148–51, 154, 157  
 taxes, 48–51, 84, 164  
*see also* exports; imports;  
 terms of trade

- transfer pricing, 82, 84
- transparency
  - fiscal rules, 31
  - governance issues, 131–2, 135, 136
  - risk management in banking, 201
  - social safety nets, 124
  - tax system, 42, 43–4
  - see also* accountability
- Trinidad and Tobago
  - exchange rate regime, 171, 172, 175, 177, 183, 184, 191n2
  - tariffs, 149, 150
  - value-added tax, 55
- Turkey, fiscal crisis, 17
  
- United Kingdom, exchange rate regime, 175
- United States
  - exchange rate regime, 175
  - Farm Bill, 157–9, 166n7
  - monetary integration with Central America, xiii, 159–61, 162, 163
  - returns to investment in education, 98–9
  - teacher quality, 110
  - trade with Central America, xiii, 142–7, 151–2, 155–9, 164–5, 172–3
  - see also* dollarization
- Uruguay
  - capital gains, 76
  - enterprise income tax, 62, 66
  - health system, 117
  - net worth or assets tax, 81
  - personal income tax, 68, 72
  - returns to education, 100
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
- value-added tax (VAT), 41, 43, 48, 51–8, 74, 82, 83
- van Wijnbergen, S., 36
- VAT *see* value-added tax
- Venezuela
  - capital gains, 76
  - enterprise income tax, 62, 66
  - net worth or assets tax, 81
  - personal income tax, 68, 72
  - tariffs, 149, 150
  - tax structure, 45–6, 49–50
  - US remittances, 160
  - value-added tax, 52, 56
  - withholding taxes on foreign remittances, 78
  
- wages
  - dollarization, 196, 197, 198, 199
  - public spending on, 93–6, 137n16
  - teachers, 111, 112, 113, 135
- Wang, Limin, 117
- WHO *see* World Health Organization
- WoldeMariam, Aseggedech, 41–86
- women, health status, 114, 121
- World Bank, xii
  - governance indicators, 132
  - gross national income, 88
  - income classification, 136n4
  - International Development Association, 90
- World Development Indicators, 137n19, 138n22
- World Health Organization (WHO), 138n22
- World Trade Organization (WTO)
  - Doha Round, xiii, 142, 158
  - tax rules, 65
  
- Yogo, M., 99
- Yúñez-Naude, A, 156