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Costa Rica: Preconditions for the Establishment of a Fiscal Rule that includes a Structural Fiscal Balance Component

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Abstract

This paper discusses whether the preconditions for implementing a fiscal rule that includes a structural fiscal balance component are met in Costa Rica. It concludes that from the 11 preconditions, the country does not meet 1, and three others are fulfilled only partially: Costa Rica needs a tax reform in order to ensure debt sustainability; international reserves should be increased further; public infrastructure requires more investment; and some financial institutions need to be recapitalized to guarantee the soundness of the financial system.

JEL Codes: E62, H60
Keywords: Fiscal Policy, Fiscal Rules, Structural Fiscal Balance Rule

1. Introduction

Since the mid-Nineties the policies followed by Costa Rica have been generally prudent; this has been reflected in the relatively solid evolution of its main macroeconomic indicators. More recently, from 2004 to 2007 the economy's evolution was quite satisfactory in terms of GDP: the budget deficit declined; fiscal revenues increased while expenditures declined; public debt diminished and the economy experienced sustained growth with an inflation rate that was mostly stable (although high by international standards, with a 12 percent average).

In 2008 the Costa Rican economy was hit – as were all the countries of the region – by the crisis that affected the world financial markets and by a decline in the activity of its trading partners, events that substantially reduced both its growth and its fiscal balances. In April, 2009, the IMF approved a Precautionary Stand-By Agreement whose purpose was to provide support for the strategy the country adopted to address the adverse worldwide economic circumstances.

The 2009 crisis was not handled in an entirely adequate manner. In order to maintain aggregate demand, the country decided to embark on a permanent increase in public expenditure, instead of applying temporary tax reductions or securing resources through external financing. Besides, this expenditure increase was financed with internal debt, generating a "crowding out" of the private sector.

In 2009 the Central Government deficit reached 4 percent of GDP. The 2010 Budget predicts a negative balance of more than 5 percent of GDP; the projections contained in the Medium-Term Budgetary Fiscal Framework (MFPMP) for 2009 and 2010 expect a continuous increase in the Public Debt/GDP ratio, assuming that no changes are made to the current tax structure.

In the medium term, the country can only attain a stable Debt/GDP ratio by implementing Tax Reform. To achieve this solvency scenario, the Overall Balance would need to converge to a deficit below 2 percent of GDP, and the primary surplus must reach 1 percent of GDP. Due to public expenditure rigidities and the need for infrastructure investments, long term solvency can only be achieved through increases in tax revenues similar to those proposed in the Fiscal Reform.

The adjustments required to achieve a path compatible with solvency are quite significant: close to 3.5 percent of GDP. An adjustment of such size is not advisable in a context of recession or limited growth. Besides, it is probably unachievable, since 93 percent of current expenditures (before interest payments) consist of Wages and Salaries (50 percent) and Transfers (43 percent). It should be pointed out that a portion of this adjustment is associated with the substantial increase in current expenditures that occurred in 2009 due to the implementation of counter-cyclical measures. Regrettably, the decisions adopted led to a permanent increase in current expenditures, instead of a temporary increase that would have allowed an earlier return to a path of solvency.

If the proposed tax reforms are adopted, the country's financial stability outlook will be reasonably sound. In this context, a first measure that could be adopted would be to include a Section on Structural Fiscal Balance (SFB)[1] estimates in the MFPMP. This could be supplemented with reforms to the Financial Administration Law (LAF) in order to gradually phase in the introduction of the features required to implement a SFB type rule.

The LAF is a crucial component that could contribute to the implementation of a SFB rule. The Law establishes that indebtedness can only be incurred for the purpose of financing capital expenditures, establishing limits to the financing of current expenditures. The LAF was not complied with in 2009, or in the 2010 Budget. If no fiscal reform is implemented, this Law will also be broken during the next three years.

We must keep in mind that in a scenario in which a Tax Reform is implemented and potential growth returns more quickly, a primary surplus compatible with solvency (1 percent of GDP) or an overall deficit below 2 percent of GDP could be attained in two to three years; therefore, the implementation of a SFB rule would not require significant additional sacrifices.

The structure of this document is as follows. In Section 2 we analyze the evolution of the fiscal situation, taking into account the behavior of the main revenue and expenditure items, analyzing the recent structure of these items, the evolution of the primary and overall balances, the evolution of the Debt to GDP ratio, the composition of the Debt in 2009, the evolution of real GNP during the period and the main factors that explain its volatility, as well as the main factors that explain the volatility of revenues and expenditures. In Section 3 we present the accounting and methodological adjustments that need to be made to fiscal accounts in order to measure the Structural Fiscal Balance (SFB), as well as an estimate of

[1] The SFB topic is explained in detail in Sections 3.4; 3.5; 3.6; and in Chapter 5.

the cyclical and permanent components of GNP. In Section 4 we estimate the Structural Fiscal Balance by comparing the estimated balances with the observed data and defining a range for the SFB. Section 5 analyzes the preconditions required to reach a SFB in the medium to long term, as well as the changes that need to be made in current legislation. Finally, in Section 6 we analyze Costa Rica's outlook in terms of financial stability.

2. Evolution of the Fiscal Situation

In July, 2004, Agustin Carstens, Deputy Managing Director of the IMF, spoke to the Central American Academy at a Seminar on volatility and vulnerability, where he gave a lecture with a suggestive title: "Twenty years without crisis in Costa Rica: the IMF's perspective." Carstens emphasized the following aspects:

> "A basic principle that Costa Rica has adopted as its own is that the ultimate purpose of economic policy is the achievement of human development. The fact that this success has been achieved in a context of great regional turbulence is remarkable. A wide sociopolitical consensus has been sought on the solutions to the most important problems; therefore, economic reforms are generally applied consistently over time, since they have wide support throughout society.
>
> The second pillar of the strategy being followed is the fact that attempts have been made to maintain a reasonable degree of macroeconomic stability. Costa Rica has avoided suffering any of the financial crises that, in so many other countries, have erased the progress achieved after years of prudent macroeconomic management.
>
> The third pillar of Costa Rica's economic policy is that it is outward looking. Trade liberalization has advanced in tandem with structural adjustments, particularly with measures to dismantle import substitution industrialization policies. These adjustments have fostered investment, contributed to total factor productivity growth and promoted considerable economic diversification.
>
> In the near future, the priority macroeconomic policy measures should address the following issues:
>
> - The strengthening of public finances: the fiscal situation needs to be stronger in order to ensure medium-term fiscal sustainability and preserve the leeway necessary to maintain the option of applying anti-cyclical fiscal policies, should they be required to counteract disruptions that are negative for growth.
> - Sustained reduction of inflation: During the last two decades, annual inflation in Costa Rica has fluctuated between 10 percent and 30 percent. In order to abate inflation, a greater coordination among the country's fiscal and monetary policies is required. A consolidation of public finances could provide decisive support to monetary policy, allowing this policy to focus more on the achievement of inflationary targets.
> - Lower the dollarization of the financial system.

> Each of these macroeconomic reforms would generate their own respective and particular benefits. However, they are also all closely linked to each other, so in reality they must be implemented simultaneously. For example, inflation cannot be reduced without fiscal consolidation. Reversing the trend towards dollarization would require inflation rate stability and a greater confidence in the national currency; for these conditions to be achieved, the situation of public debt would need to be sustainable.
>
> Sources of vulnerability – such as macroeconomic imbalances, financial sector deficiencies and exchange rate rigidities – have contributed to the financial crises that have afflicted other countries in recent years. Tackling them without delay and in a coordinated and sequential manner will help guarantee that Costa Rica continues to enjoy stability and to improve the standard of living of its population. The search for consensus is an important tradition that allows the country's population to identify with programs, and that encourages social cohesion; however, this process should be carried out in ways that avoid postponing the adoption of important legislative or executive decisions."

Carstens clearly indicates that consolidating public finances is a crucial element needed to achieve coordination and success in the implementation of other policy goals: inflation abatement, less dependence on the dollar in the financial system and the adoption of anti-cyclical policies.

From 2004 to 2007 the economy's evolution was quite satisfactory in GDP terms: the budget deficit declined; fiscal revenues increased while expenditures declined; public debt diminished and the economy experienced sustained growth with a level of inflation that was mostly stable (although high by international standards, with an average of 12 percent).

In 2008 the Costa Rican economy was impacted—as were all the countries in the region—by the world financial market crisis and the decline in the activity of its trading partners, a situation that contributed to substantial reductions in its growth and its fiscal balance.

In April 2009, the IMF approved a Precautionary Stand-By Agreement to provide support for the strategy country adopted to address the adverse worldwide economic circumstances. On that occasion Murilo Portugal, Deputy Managing Director and Acting President of the Board, expressed the following:

> "Costa Rica's main economic indicators are strong and reflect years of implementation of policies that were mostly prudent. However, the global financial and economic turbulence generates risks for the country's outlook in 2009 and 2010. With this environment in mind, the authorities' economic program attempts to maintain macroeconomic and financial stability, while simultaneously sustaining growth and protecting the most vulnerable segments of the population."

As shown, the two officials, Carstens in 2004 and Portugal in 2009, agreed that the main economic indicators reflect the effects of the many years during which the country implemented reasonably prudent policies. This can be clearly appreciated in Table 1, where we list the main problems the country faced when it signed Stand-By Agreements with the IMF. At the time of the 1995 agreement the country faced important internal problems; in 2009, however, the problems were mainly external. We should also note that the second agreement is merely Precautionary, intended to strengthen expectations that the country will be able to weather the international crisis.

Table 1: Stand By Agreements with the IMF

Types of Agreement and Date	Main Problems	Period	Amount in US$ millions	Amount as Percentage of GDP
Stand By November 1995	Fiscal imbalances, growth in Expenditure, closing of a state bank, decline in external financing, loss of reserves	15 months	78	0.7 percent
Precautionary Stand-By April, 2009	Adverse global circumstances, Foreign exchange flexibility	15 months	735	2.5 percent

Source: IMF

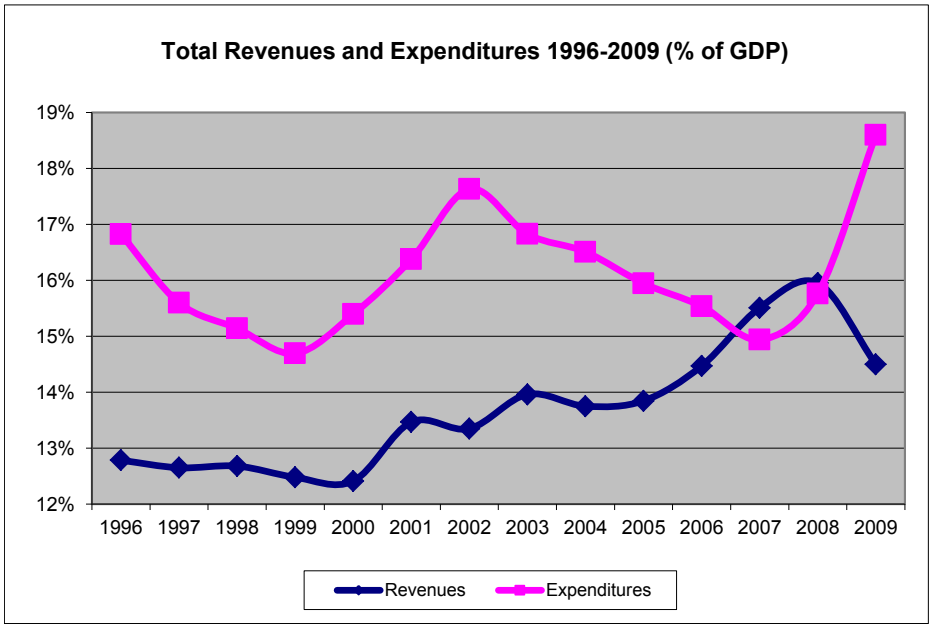
In conclusion, for many decades the policies followed and the evolution of the main economic indicators have both been reasonably adequate; however, in 2008 the positive fiscal performance that prevailed until that year was interrupted by the international crisis.

The manner in which the 2009 crisis was handled does not seem to have been entirely adequate. In order to maintain aggregate demand, the country decided to increase public expenditure substantially, instead of applying temporary tax reductions or securing resources through the use of reserves or external financing. Besides, the increase in expenditures was financed with internal debt, generating a “crowding out” of the private sector. In that context, the maximum exposure limit of pension funds vis-a-vis the State was increased, a measure also implemented in other countries that generates negative medium and long term effects (since it reduces the financing available for private sector investment) unless lifted once the crisis has passed.

2.1. Analysis of the Evolution of the Main Revenue and Expenditure Items during the 1996–2009 Period: Analysis of the Recent Structure of Revenues and Expenditures

From 1996 to 2007, the Costa Rican central government's revenues and expenditures show a favorable evolution. Fiscal revenues gradually increase during the entire period, going from less than 13 percent of GDP at the beginning of the period to 16 percent of GDP in 2008. Expenditures, on the other hand, only start being subjected to adjustment after 2002. The evolution of these series is shown in Figure 1.

Figure 1



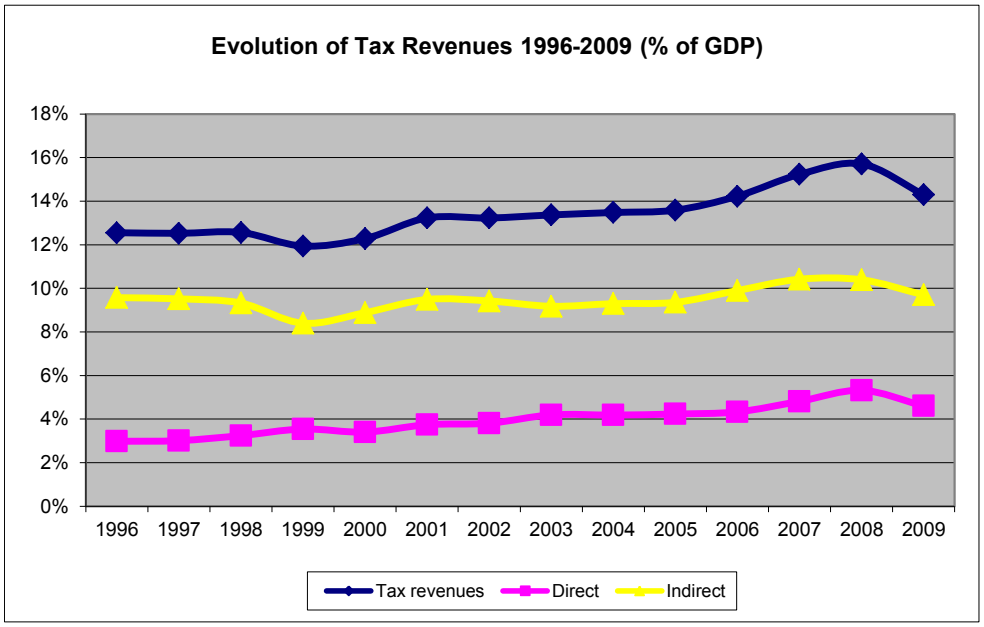
Source: Ministry of Finance.

The trends towards revenues increases and expenditures declines that are distinctly apparent after 2002 are interrupted in 2008 due to the impact on the economy of the international crisis, which caused slower growth in 2008 and a 1.5 percent contraction of GDP in 2009, with the corresponding impact on fiscal revenues and the simultaneous increase in expenditures that was embarked upon for the purpose of maintaining aggregate demand. In 2009 central government expenditures reach their highest level in the entire series: 18.6 percent of GDP.

During the years up to 2008 total revenues growth is explained basically by the evolution of tax revenues; non-tax revenues and capital revenues were mostly insignificant. This growth was due to tax reforms implemented during the period, as well to improvements in the administration of the tax agencies.

During this period tax revenues increase by 3.2 percent of GDP, due mainly to an increase in income tax collection of around 2.2 percent of GDP, and an increase in taxes on goods and services of about 1.2 percent of GDP. Figure 2 shows the evolution of total tax collections, as well as of direct taxes (the main component of which is the income tax) and indirect taxes (primarily the goods and services tax).

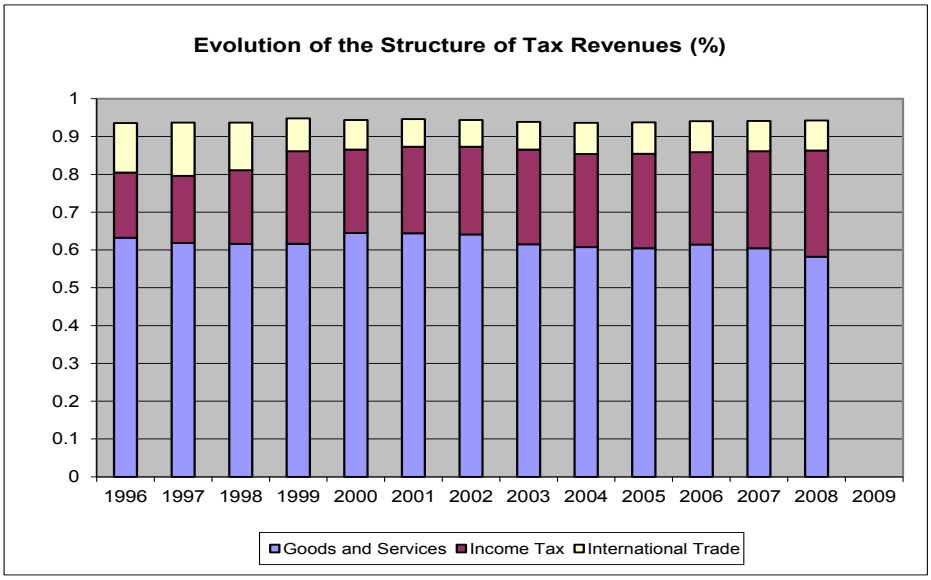
Figure 2.



Source: Ministry of Finance.

These two taxes (income tax and goods and services tax), added to taxes on international trade, constitute 94 percent of all tax collections. Of note is the low and declining collection of social security contributions, which fall from 0.5 percent of GDP in 1996 to 0.3 percent of GDP in 2008. Figure 3 presents the evolution in the structure of tax revenues, which clearly shows the increasing importance of income tax revenue (shown in red).

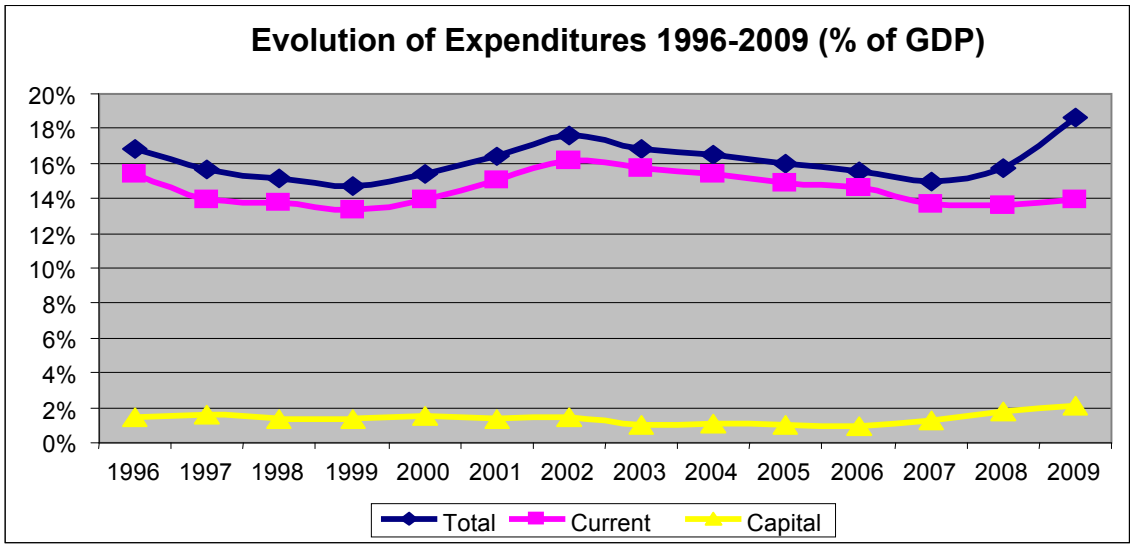
Figure 3



Source: Ministry of Finance.

During the 1996–2008 period the ratio between current and total expenditures was relatively constant, at around 92 percent. This situation changed in 2008 and 2009 due to a relative increase in capital expenditures and loans granted for bank recapitalization (0.4 percent of GDP in 2008). As mentioned above, the 2009 increase was associated with economic policy goals designed to maintain the level of aggregate demand. Figure 4 shows the increases that occurred in current expenditures and capital expenditures. From 2007 to 2009 those increases were equivalent, respectively, to 2.9 percent and 0.8 percent of GDP.

Figure 4

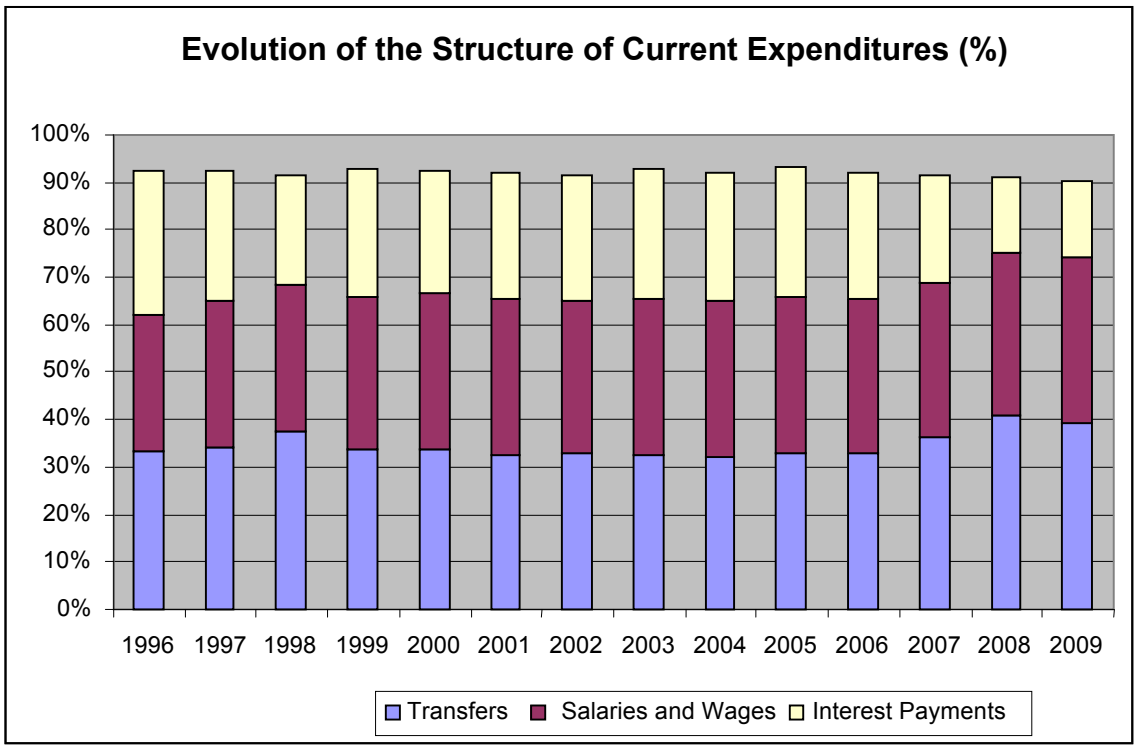


Source: Ministry of Finance.

Around 90 percent of current expenditure is associated with salaries, interest payments and transfers. During the analyzed period an evident decline is seen in the impact of interest payments on current expenditures, associated with a reduction—in GDP terms—of the debt and the burden of debt financing, which fall from 4.6 percent of GDP in 1996 to 2.6 percent of GDP in 2009.

In contrast, both current transfers and wages and salaries experienced increasing trends during the period: Transfers grew from 5.1 percent of GDP in 1996 to 6.5 percent of GDP in 2009, while Wages & Salaries increased from 4.4 percent of GDP to 5.8 percent of GDP. In both cases, the most significant increases occur in 2009 and are associated with the above mentioned policy goal. In Figure 5 these trends are apparent, with a decline in the interest payment burden and an increase in the items associated with Wages and Transfers.

Figure 5



Source: Ministry of Finance.

Again, as mentioned at the beginning of this section, the general trends are reasonable and were interrupted by the emergence of the world financial crisis. When the fiscal crisis occurs, revenues contract by 1.5 percent of GDP, while total central government expenditures

simultaneously increase by 2.8 percent of GDP; 2.9 percent of this amount is associated with a current expenditures increase, 0.3 percent with capital expenditures increases and -0.4 percent with a decline in the net granting of loans (this item is only significant in 2008, when it reaches 0.4 percent of GDP).

2.2. Evolution of Primary and Total Balances during the 1983–2009 Period

Costa Rican Public Sector Operations include the following institutions:

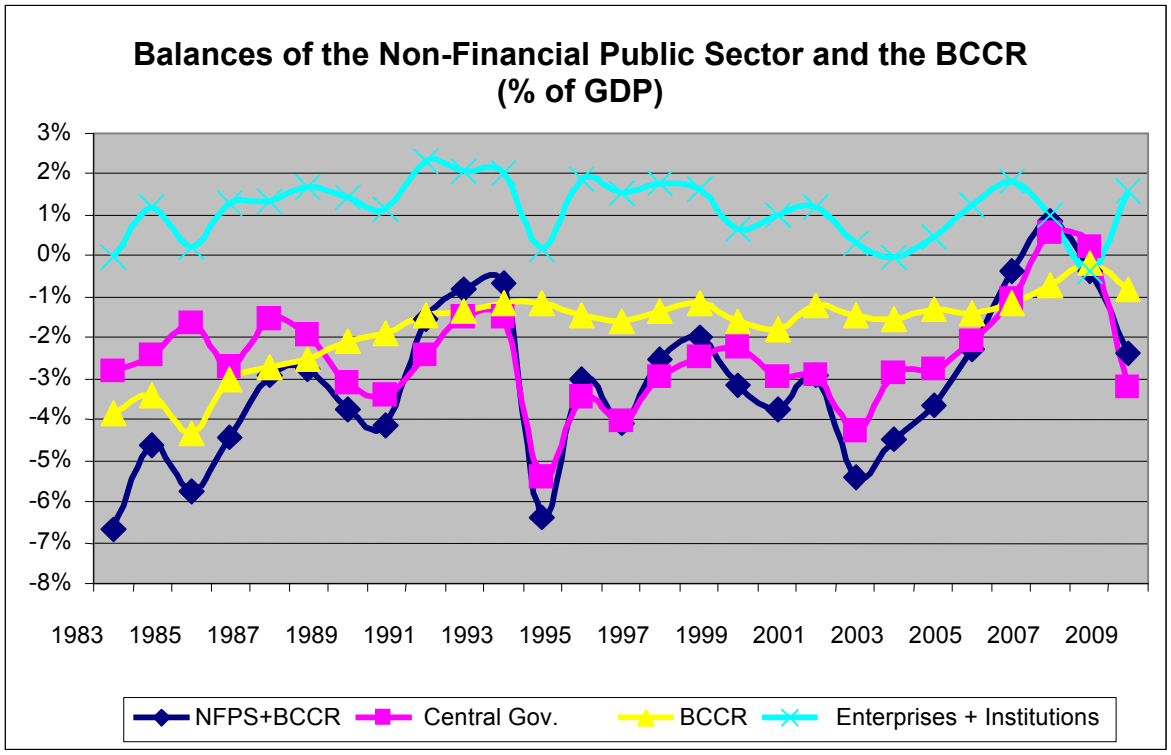
COMBINED BALANCE OF THE PUBLIC SECTOR	Obtained by adding the Non-Financial Public Sector (NFPS) Balance and the Central Bank Balance
CENTRAL BANK BALANCE	The quasi-fiscal balance of the Central Bank
NON FINANCIAL PUBLIC SECTOR	Includes the Balance of the Central Government and the Rest of the NFPS, including Public Enterprises and Decentralized Institutions
CENTRAL GOVERNMENT	
REST OF THE N.F.P.S.	Includes the Balance of Public Enterprises and Decentralized Institutions
PUBLIC ENTERPRISES	
Production Council Costa Rican Aqueducts and Sewage Institute Costa Rican Electricity Institute Costa Rican Pacific Ocean Ports Institute San Jose Social Protection Board Costa Rican Oil Refinery	
DECENTRALIZED INSTITUTIONS	
Costa Rican Social Security Fund Technical Medical and Social Assistance Council Social Development and Family Allowances Fund Costa Rican Tourism Institute Agricultural Development Institute National Learning Institute International Health Cooperation Office	

Source: Ministry of Finance.

Figure 6 presents the evolution of the Combined Balance of the Public Sector (blue series) and its main components. From 1983 to 2009 the Combined Balance of the Public Sector records a deficit; however, the deficit has been declining, although this trend was interrupted in 1994, as well as in 2002 and 2009. The reasons underlying the 1994 and 2009 balances were explained at the beginning of Section 2, where we mention the main problems that led to the IMF assistance programs. In 2002 the increase of the deficit can be explained by

cumulative imbalances from previous years, rising expenditures during times of low economic growth, and the persistence of a crawling peg policy that generated a loss in competitiveness.

Figure 6



Source: Ministry of Finance and Central Bank of Costa Rica.

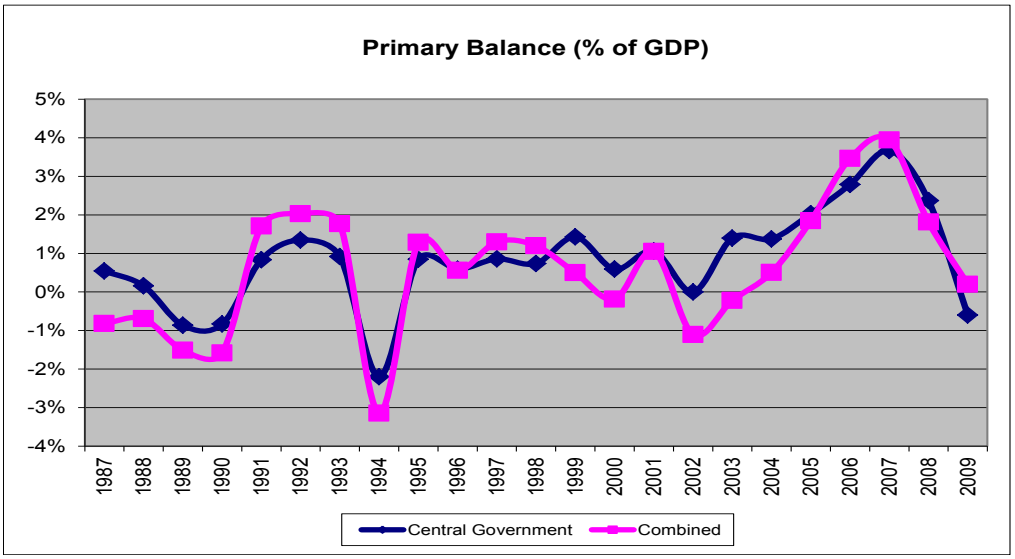
The deficit of the Central Bank of Costa Rica (BCCR) shows an evident decline, falling from nearly 4 percent of GDP in the early eighties to a situation close to balance by 2008 (and a deficit equivalent to 0.8 percent of GDP in 2009). The tendency of the overall deficit to decrease for the period as a whole is explained by this BCCR balance, since the Companies and Institutions Balance shows no definite trend, and the Central Government balance only shows significant adjustments after 2002, and the effects of the global crisis interrupted these in 2008 and 2009.

In 2008 and 2009 the combined balance declines by 3.3 percent of GDP, while financing with internal debt increases by 3.8 percent of GDP. These effects counteract each other, generating a net increase in aggregate demand.

Figure 7 shows the evolution of the Combined Primary Balance and the Central Government Primary Balance. Both balances also show an increasing trend, which, again, is

interrupted in 1994, 2002 and 2009. The Combined Balance gradually increases from a deficit of 1 percent of GDP in 2002 to a surplus of 4 percent of GDP in 2007. In 2009, year in which the Costa Rican economy experiences a contraction, the Combined Balance declines to 0.2 percent of GDP.

Figure 7



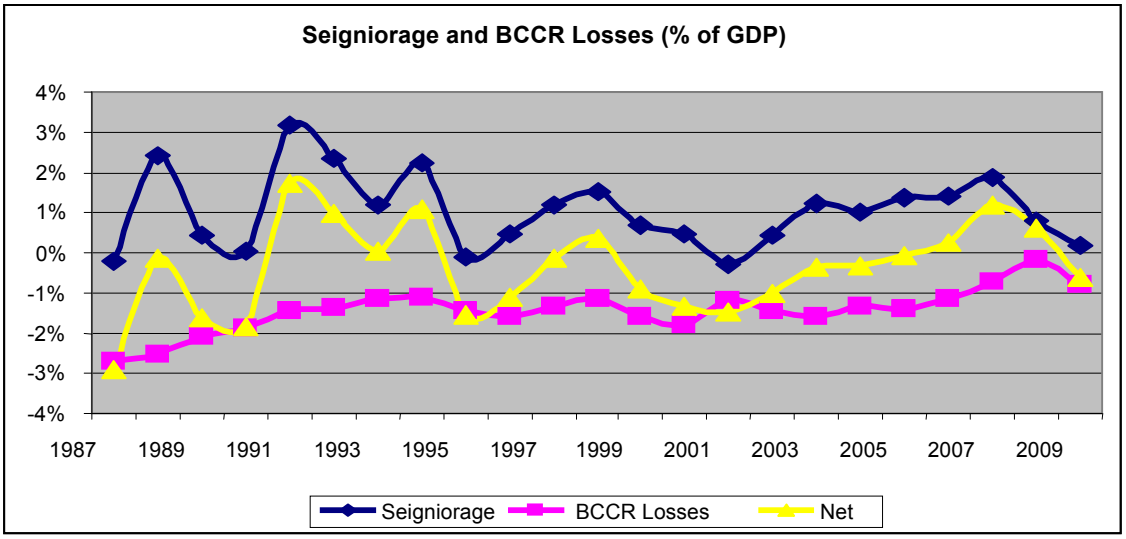
Source: Ministry of Finance and Central Bank of Costa Rica.

The combined balance of the public sector includes the quasi fiscal losses of the BCCR, but does not include the profits obtained from the issue of Monetary Base (or Seigniorage[2]), which also, along with the issue of debt and the use of international reserves, becomes a source through which these losses are financed.

During the period under examination Costa Rica's inflation rate, although declining, reached an average of 14 percent, equivalent to the imposition of an average Inflationary Tax of 0.8 percent of GDP, or to an inflationary effect on the average Monetary Base of around 6 percent of GDP. Figure 8 presents a recalculation of the BCCR's Net Losses after taking Seigniorage into account as a revenue source. During the examined period losses are close to 1.4 percent of GDP, while the net balance only amounts to 0.4 percent of GDP. Seigniorage is an important element in the determination of fiscal solvency for economies that have high or average inflation, which is Costa Rica's case for the period under consideration.

[2] The components of Seigniorage are the Inflationary Tax and the real monetization (positive or negative) of the economy.

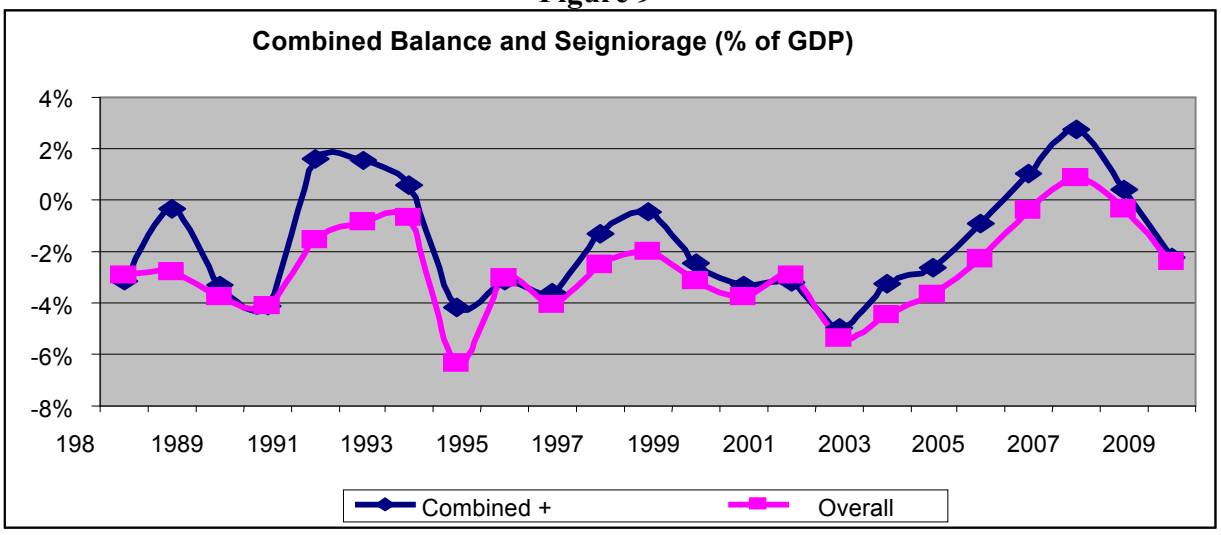
Figure 8



Source: Ministry of Finance and Central Bank of Costa Rica.

Figure 9 presents the evolution of the Combined Public Sector Balance, calculating the effects of Seigniorage, that is, the effects of BCCR financing with no effective cost. For the period, the average combined deficit is 2.7 percent of GDP; however, when the deficit is adjusted to take Seigniorage into account it only reaches 1.7 percent of GDP. This will be an important factor to take into account when examining the consistency between the evolution of debt and the fiscal balance, as we shall see in Section 2.3.1.

Figure 9



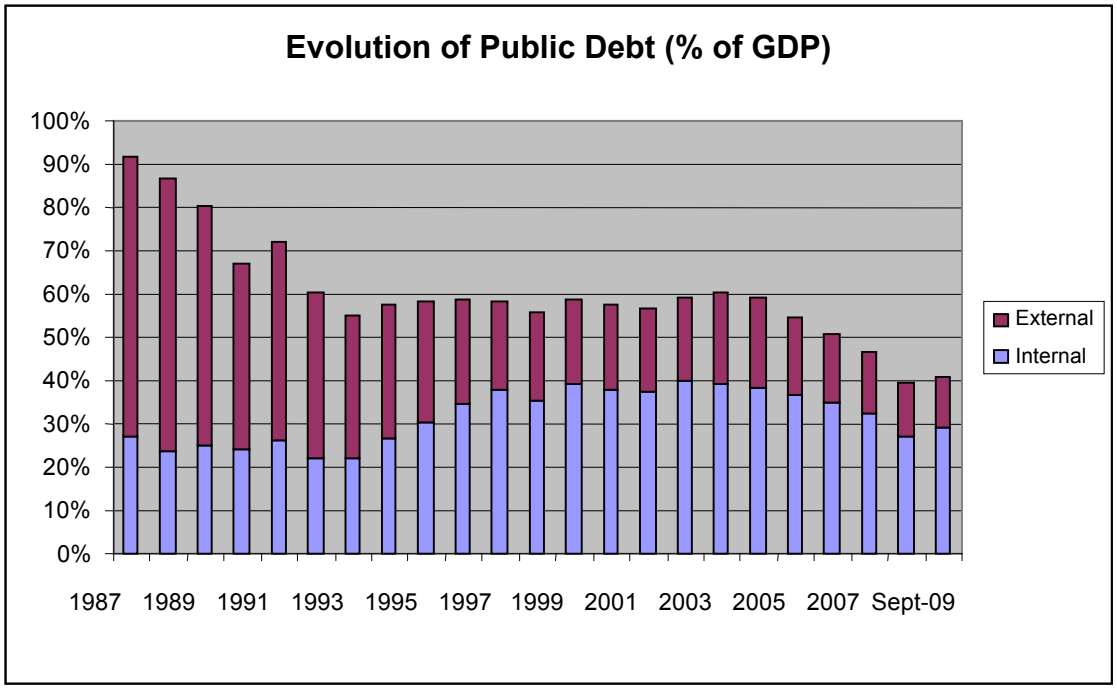
Source: Ministry of Finance and Central Bank of Costa Rica.

2.3. Evolution of the Debt/GDP Ratio: Debt Composition in 2009 *(maturity, currency, interest rates)*

2.3.1. Evolution of the Debt/GDP ratio

The evolution of the Public Debt to GDP ratio shows a trend that is clearly compatible with fiscal solvency, as can be appreciated in Figure 10. In 1987 this ratio was over 90 percent; however, by September, 2009, it had declined to 41 percent. Also noticeable was the change in the composition of public debt, where we see an increase in the size of internal debt's participation in the overall debt. Internal debt's participation increases from 30 percent at the beginning of the period to 71 percent at the end.

Figure 10



Source: Ministry of Finance and Central Bank of Costa Rica.

An important feature to be noted is the consistency of the evolution of public debt with the available data on the Public Sector Balance. In fact, we see that for any particular year the following equation must be true:

(1) Change in Public Sector Liabilities = Combined Fiscal Deficit + Change in Assets.

The Change in Liabilities is identical to the sum of the Change in the Debt Burden and the Change in the Monetary Base. For simplicity's sake, we will assume that the only asset change that occurs is the variation in the BCCR's Net International Reserves. In this case, we find that the entire Change in Public Debt (Dt - Dt-1) is equal to the Combined Fiscal Deficit minus the changes in the base (Seigniorage) plus the changes in Net International Reserves. We will call this concept the Net Financial Deficit (DNt[3]). In this case, we have the following:

(2) Dt - Dt-1 = DNt

Dividing both sides of the equation by GDP (Yt) we obtain:

(3) Dt/Yt - Dt-1/Yt = DNt/Yt = dnt[4]

Expression (3) allows us to present the dynamics of the public debt's evolution as a percentage of GDP (dt) as a function of the deficit (dnt) and the previous period's debt, as follows:

(4) dt = dt-1 / (1+g) +dnt

"g" indicates the nominal growth rate of GDP.

This equation shows that if the deficit is zero, dt will be equal to dt-1 adjusted by the growth of the product.

Based on Expression 4, we have built a new (theoretical) series of Public Debt that is compatible with the data on net fiscal balances. In Figure 11 we include two series: the actual debt and the theoretical debt derived from Expression 4.

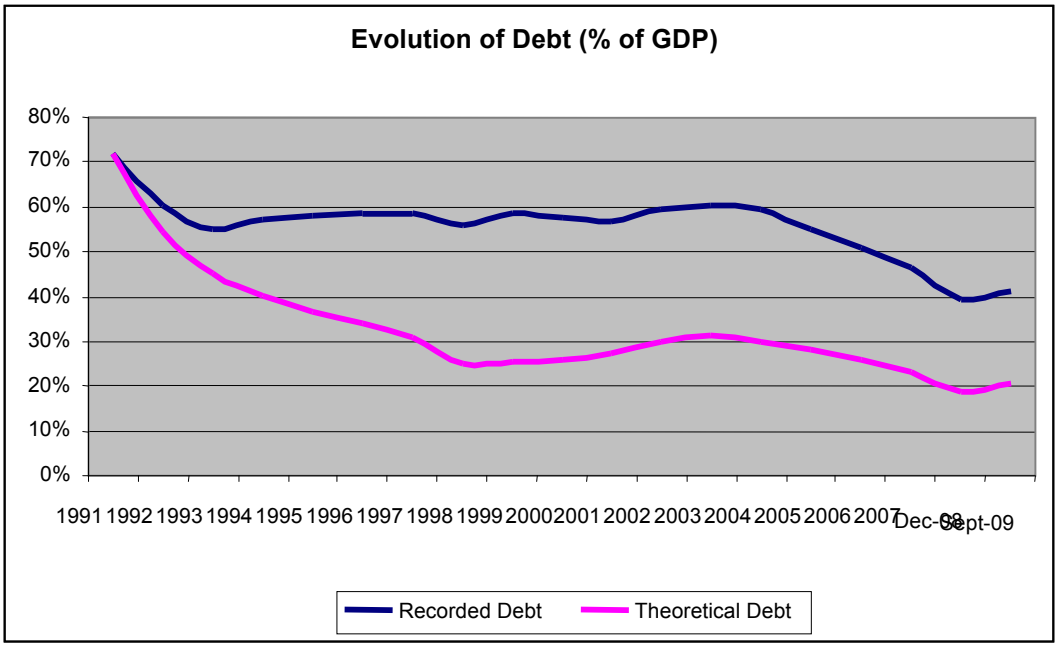
[3] "t" indicates the period in which the net deficit occurs.
[4] Lowercase letters indicate the original variable divided by GDP; for example: xt = Xt/Yt.

The cumulative difference by the end of the period is 20.6 percent of GDP. What this indicates is that the data on fiscal balances lack consistency with the evolution of indebtedness. This, in turn, can be explained in two ways:

- the public sector as a whole has accumulated overseas assets (other than BCCR reserves) or internal assets, or has paid unrecorded liabilities,
- the fiscal balances do not record all expenditures, such as, for example, the interest earnings that are not paid during each period.

This last situation is very common in public finances that keep deficit accounting records on a cash basis, without taking into account future earnings (such as those derived from indexed bonds).

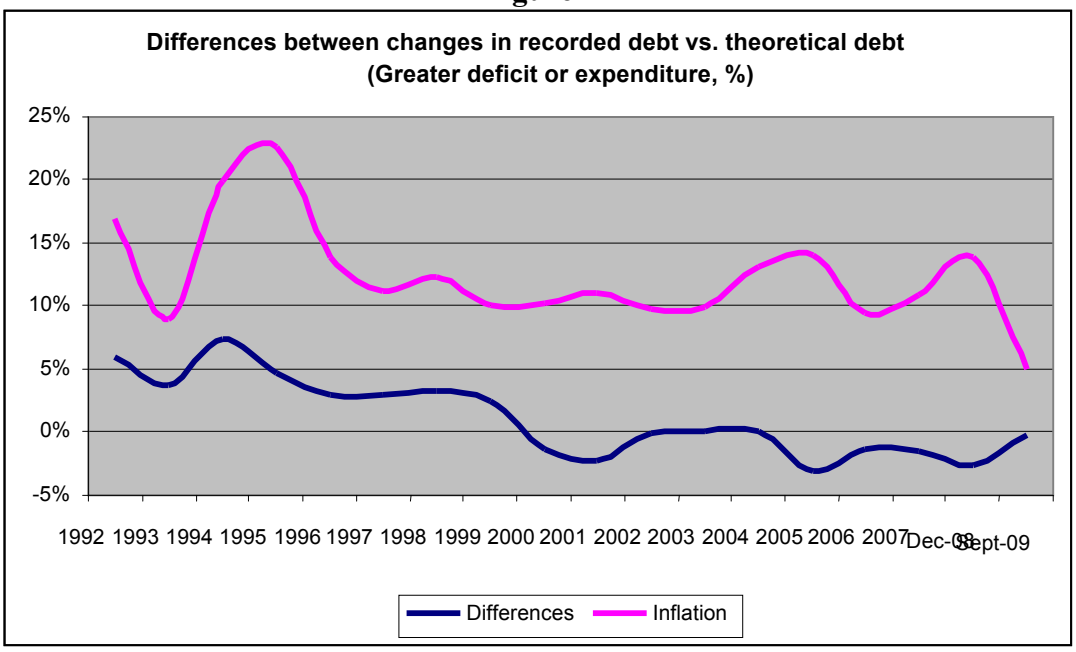
Figure 11



Source: Ministry of Finance and Central Bank of Costa Rica.

In Figure 12 we present the evolution of the differences between the changes in recorded debt and those in theoretical debt. This difference can be interpreted as a greater unaccounted deficit, or as greater expenditures for the purchase of external or internal assets (such as, for example, the credit provided to the banking sector by the BCCR). This Figure also presents the evolution of inflation (CPI). We see that a correlation exists between the two series: the differences become greater when inflation is higher suggesting that the capital adjustment associated with indexed bonds is not recorded as a deficit.

Figure 12



Source: Ministry of Finance and Central Bank of Costa Rica.

2.3.2. Debt Composition in 2009

Table 2 shows the total amount of public debt as of May, 2009 (in millions of dollars), as well as its composition. During that month the debt amounted to 40 percent of GDP. As we can see, internal debt represents 72 percent of total debt, 47.9 percent of which corresponds to the Central Government, 22.1 percent to the Central Bank and 2 percent to the rest of the Public Sector. Foreign debt constitutes 28 percent of the total; of this amount, 14.7 percent is incurred by the Central Government, 11.4 percent by the Non-Financial Public Sector, and the remainder by the BCCR and the Financial Public Sector.

Table 2: Public Debt in May 2009 *(in millions of dollars)*

TOTAL PUBLIC DEBT	**11,737.81**	**Percent Structure**
1. INTERNAL PUBLIC DEBT	**8,451.61**	**72.0 percent**
Central Government [1/]	**5,623.75**	**47.9 percent**
Basic Rate	754.43	**6.4 percent**
Zero Coupon	772.14	**6.6 percent**
Zero Coupon in Dollars	137.19	**1.2 percent**
TUDES	1,382.38	**11.8 percent**

Adjustable in Dollars	63.86	**0.5 percent**
Fixed Dollars	907.57	**7.7 percent**
Fixed Interest in Colons	1,596.09	**13.6 percent**
Adaptable Dolec	0.00	**0.0 percent**
Subtotal of debt in instruments	**5,613.66**	
Debt with BCCR (colons)	0.00	**0.0 percent**
Class 374 FODESAF Debt	0.00	**0.0 percent**
Class 355 INVU CCSS Debt	1.13	**0.0 percent**
BANHVI Debt	8.96	**0.1 percent**
Subtotal of other debts with third parties	**10.09**	**0.1 percent**
Central Bank [2/]	**2,594.47**	**22.1 percent**
National currency BEMs	2,070.41	**17.6 percent**
Foreign currency BEMs	6.36	**0.1 percent**
CERTD$	187.34	**1.6 percent**
Fixed-term and Overnight deposits [4/]	330.36	**2.8 percent**
Financial Public Sector [3/]	**113.07**	**1.0 percent**
Non-Financial Public Sector [5/]	**120.32**	**1.0 percent**
II. EXTERNAL PUBLIC DEBT	**3,286.20**	**28.0 percent**
Central Government	**1,721.96**	**14.7 percent**
Bilateral	112.05	**1.0 percent**
Bonds	1,250.00	**10.6 percent**
Multilateral	359.90	**3.1 percent**
Central Bank	**68.03**	**0.6 percent**
Bilateral	62.06	**0.5 percent**
Bonds	0.00	**0.0 percent**
Commercial	0.00	**0.0 percent**
Multilateral	5.97	**0.1 percent**
Financial Public Sector	**159.67**	**1.4 percent**
Bilateral	0.07	**0.0 percent**
Commercial	40.50	**0.3 percent**
Multilateral	119.10	**1.0 percent**
Non-Financial Public Sector	**1,336.54**	**11.4 percent**
Bilateral	153.74	**1.3 percent**
Bonds	100.00	**0.9 percent**
Commercial	15.36	**0.1 percent**
Multilateral	1,067.44	**9.1 percent**

Source: Ministry of Finance and Central Bank of Costa Rica.
1/ Includes issuance of instruments, bonds and debts recognized by the Central Government.
2/ Includes the Central Bank's national currency BEMs and other foreign currency obligations, such as fixed term certificates of deposit in dollars (CERTD$) and foreign currency deposits by Commercial Banks in the Central Bank (excluding minimum reserve requirements).
3/ Refers to Bank Debt capitalization instruments valued at 3156.80 million colons, plus the internal debt of institutions from the rest of the public sector, obtained through surveys carried out up to December, 2007.
4/ Refers to Central Direct and Overnight placements.
5/ Presents the internal debt of public institutions, obtained through surveys carried out by the Finance Ministry up to December, 2007.

We estimate (from data to the end of 2008) that 61 percent of the debt is denominated in dollars, while the remaining 39 percent is denominated in local currency. Regarding the composition in terms of maturities, the only data we have refers to the Central Government's internal debt up to December 2008. At that time, that debt was equivalent to 18 percent of GDP; instruments with maturities of less than one year constituted 25 percent of the total. This information is presented in Table 3.

Table 3: Central Government Internal Debt *(by period)*

Total by period of maturity	Millions of colons		
	2,752,828.42	Percent	Cumulative
0 to 30 days	109,385.06	4.0 percent	4.0 percent
31 to 60 days	71,818.88	2.6 percent	6.6 percent
61 to 90 days	145,753.17	5.3 percent	11.9 percent
91 to 120 days	36,235.75	1.3 percent	13.2 percent
121 to 180 days	73,069.44	2.7 percent	15.8 percent
181 to 190 days	24,288.75	0.9 percent	16.7 percent
191 to 240 days	8,271.93	0.3 percent	17.0 percent
241 to 360 days	218,141.51	7.9 percent	25.0 percent
361 to 720 days	333,938.88	12.1 percent	37.1 percent
721 to 1440 days	600,866.57	21.8 percent	58.9 percent
1441 or more days	1,131,058.48	41.1 percent	100.0 percent

Source: Ministry of Finance and Central Bank of Costa Rica.

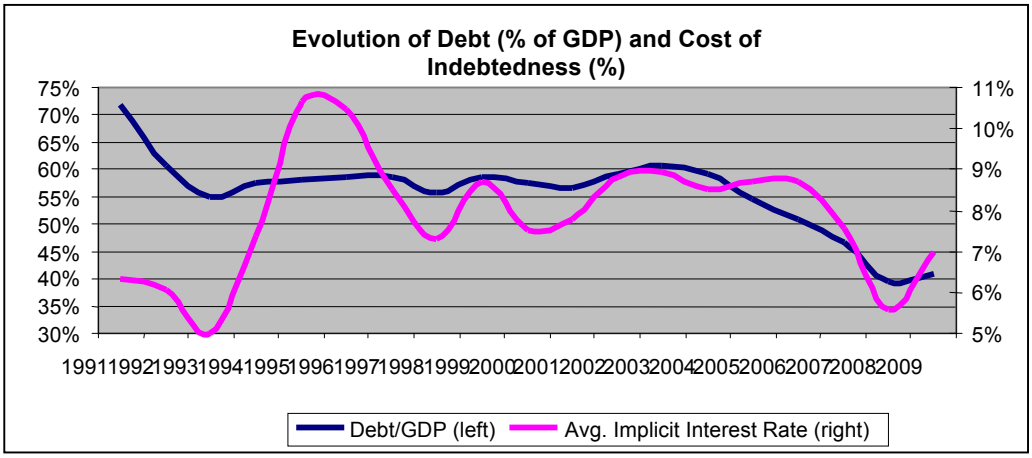
In December, 1995, short term debt represented about 70 percent of the total. Since December, 1998, it has been fluctuating at levels close to 30 percent of the total.

2.3.3. Evolution of the Cost of Indebtedness

Figure 13 shows the simultaneous evolution of indebtedness (Debt/GDP on the left axis) and the cost of the debt (right axis). The cost was obtained through calculations derived from the national accounts item regarding total interest paid, and must therefore be interpreted as an implicit cash basis cost. Since the middle of the Nineties, a substantial reduction has occurred in the implicit cost of indebtedness, which has declined from around 11 percent a year to

levels close to 5.5 percent in 2008. This trend has been facilitated by the decline in indebtedness, since its composition (with a larger proportion of internal debt) has had a negative effect due to the higher cost of internal debt. For example, for 2010 the average internal debt rate (12.8 percent) is almost double that of the average external debt rate (6.8 percent).

Figure 13



Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

2.4. Evolution of Real GDP during the 1991–2009 Period: Main Factors Explaining its Volatility

The rate of change in GDP can be explained by the following factors:

- A change in the exports/GDP ratio, which is an indicator of greater world demand for Costa Rican products.
- The level of the real exchange rate, measured by the ratio between the internal prices of tradables and non-tradables.
- The combined fiscal balance, which is an indicator of fiscal solvency and the macroeconomic business environment.

In Table 4 we present the outcome of the regression. The dependent variable is the growth rate of GDP. The results of the F test (8.8) indicate that the entire set of variables can satisfactorily explain the dependent variable for the 1992–2009 period.

Table 4

Regression Statistics	
Multiple Correlation Coefficient	81 percent
R^2 Determination Coefficient	65 percent
Adjusted R^2	58 percent
Standard error	2 percent
Observations	18

VARIANCE ANALYSIS					
	Degrees of freedom	*Sum of squares*	*Average of squares*	*F*	*Critical value of F*
Regression	3	0.011	0.004	8.849	0.002
Residuals	14	0.006	0.000		
Total	17	0.016			

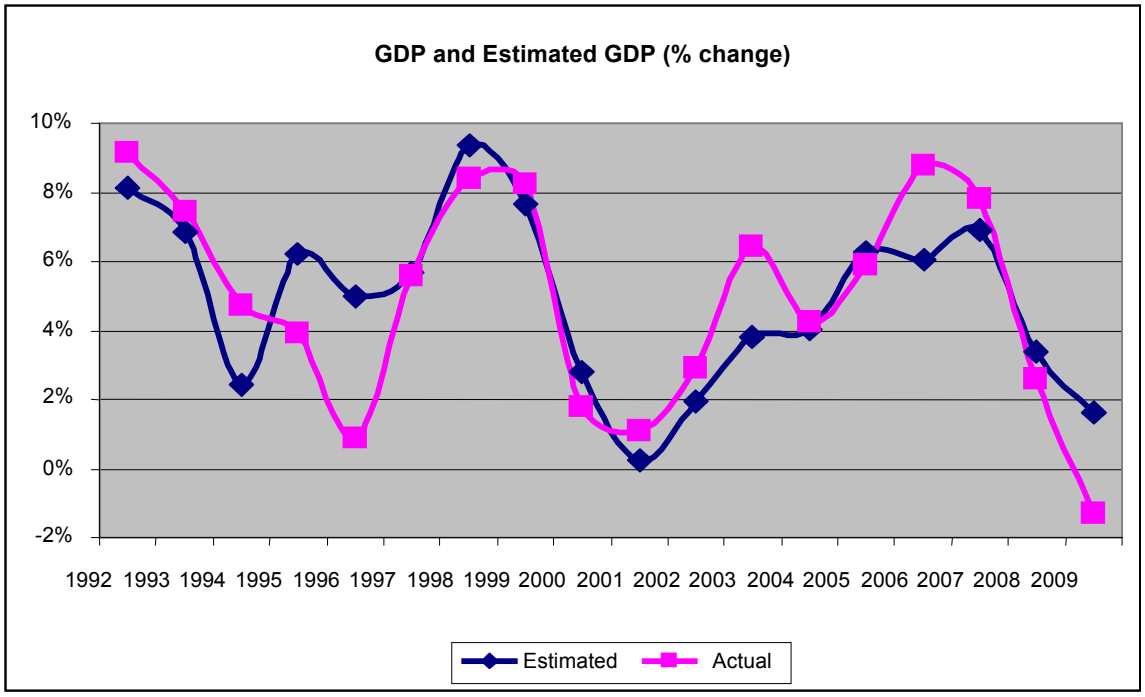
	Coefficients	*Standard error*	*t-statistic*
Intercept	0.000	0.044	0.004
Change in Exports/GDP	0.607	0.171	3.548
T/NT	0.060	0.044	1.387
Balance/GDP	0.756	0.266	2.841

Source: Author's calculations

The signs of the coefficients are those that were expected, indicating that GDP growth increases when purchases from the rest of the world increase, the relative price of tradables vis-a-vis non-tradables increases and the combined fiscal balance improves. The t test for the ratio between tradables and non-tradables indicates that this variable is not statistically significant.

Figure 14 shows the original series, as well as the estimates according to the regression parameters. We can see there is a "good" correlation, except for the years 1995, 1996 (which could be explained by other internal factors), and 2009.

Figure 14



Source: Central Bank of Costa Rica and Author's calculations.

2.5. Main Factors that Explain Volatility of Revenues and Expenditures during the 1998–2008 Period

We have explored the determining factors of the evolution of fiscal revenue as a proportion of GDP, with the following results:

- The combined balance/GDP ratio increases, providing an indication of the business climate.
- The participation of exports in GDP declines, indicating that the tax base becomes relatively more oriented towards collecting revenues from non-tradable activities, a trend consistent with an economy that is open to international trade.
- The output gap[5] diminishes, meaning that GDP growth is greater than potential GDP growth.
- The efficiency of tax collection increases, according to estimations based on a trend series.

[5] Section 3.2 and Appendix 1 provide greater detail on the calculation of the output gap: the difference between

Table 5 presents the results obtained, finding that they are statistically adequate. In Figure 15 we show the real and estimated values of the Revenue/GDP series.

Table 5

Regression Statistics	
Multiple Correlation Coefficient	0.96
R^2 Determination Coefficient	0.93
Adjusted R^2	0.91
Standard error	0.0035
Observations	18

VARIANCE ANALYSIS					
	Degrees of freedom	*Sum of squares*	*Average of squares*	*F*	*Critical value of F*
Regression	4	0.0021379	0.0005345	42.42	0.0000002
Remainders	13	0.0001638	0.0000126		
Total	17	0.0023016			

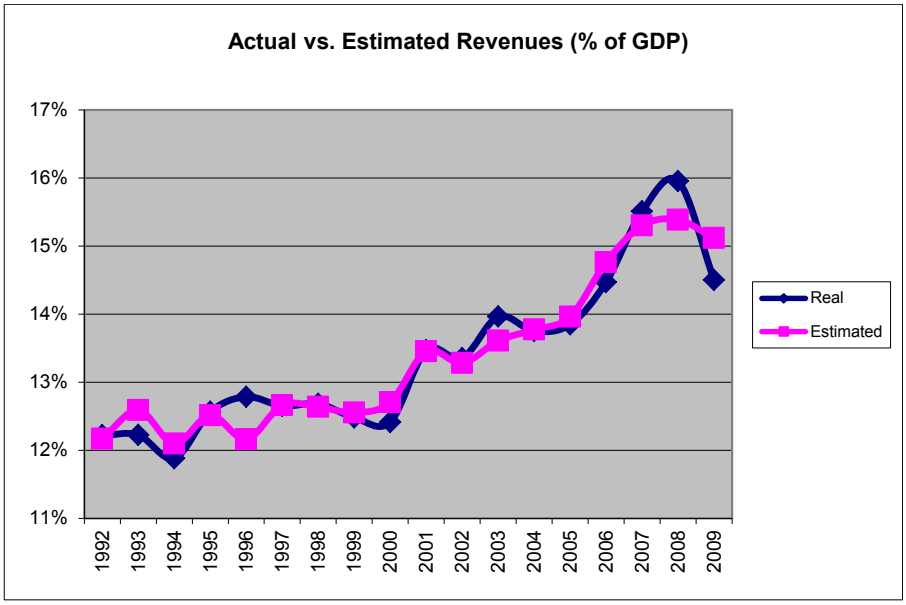
	Coefficients	*Standard error*	*t-statistic*
Intercept	0.170	0.018	9.687
Balance/GDP	0.134	0.054	2.492
Exports/GDP	-0.106	0.035	-3.001
Output gap	0.102	0.055	1.840
Trend	0.003	0.000	7.492

Source: Author's calculations

The Combined Balance/GDP coefficient is positive and statistically significant; this indicates that revenues improve when the consolidated fiscal situation improves, suggesting the presence of a counter-cyclical effect.

actual GDP and potential GDP.

Figure 15



Source: Ministry of Finance.

On the expenditure side (in terms of GDP), we find the following:

- Expenditures increase when the output gap diminishes, suggesting the implementation of a pro-cyclical expenditure policy.
- There is a secular trend towards growth in expenditures.

The results of the adjustment are presented in Table 6 and can be visualized in Figure 16.

Table 6

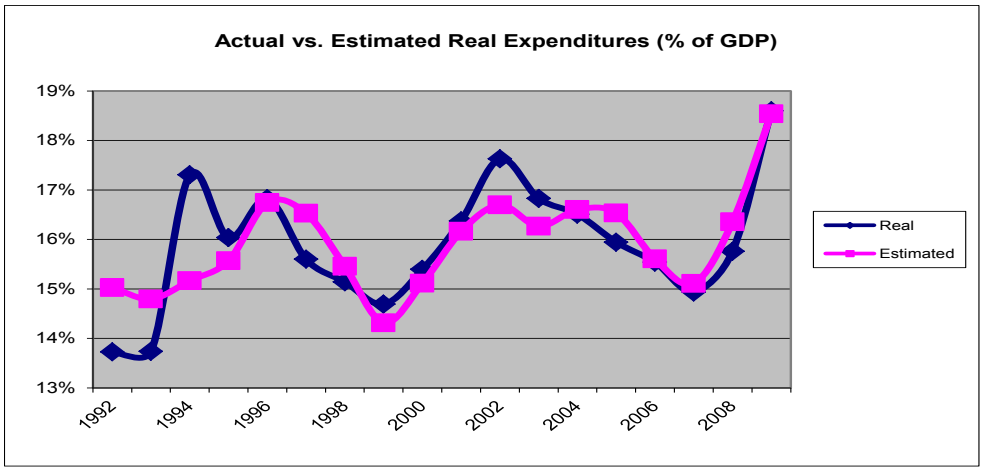
Regression Statistics	
Multiple Correlation Coefficient	0.78
R^2 Determination Coefficient	0.61
Adjusted R^2	0.56
Standard error	0.008
Observations	18

VARIANCE ANALYSIS					
	Degrees of freedom	*Sum of squares*	*Average of squares*	*F*	*Critical value of F*
Regression	2	0.0017	0.0008	11.61	0.0009
Remainders	15	0.0011	0.0001		
Total	17	0.0027			

	Coefficients	*Standard error*	*t-statistic*
Intercept	0.1093	0.0107	10.17
Output gap	-0.3413	0.0829	-4.11
Trend	0.0026	0.0006	4.70

Source: Author's calculation.

Figure 16



Source: Ministry of Finance.

An element that will undoubtedly require additional study is the pro-cyclicality of expenditures, which will constitute the basis for the establishment of a fiscal rule. This issue shall be addressed in greater detail in Section 4.

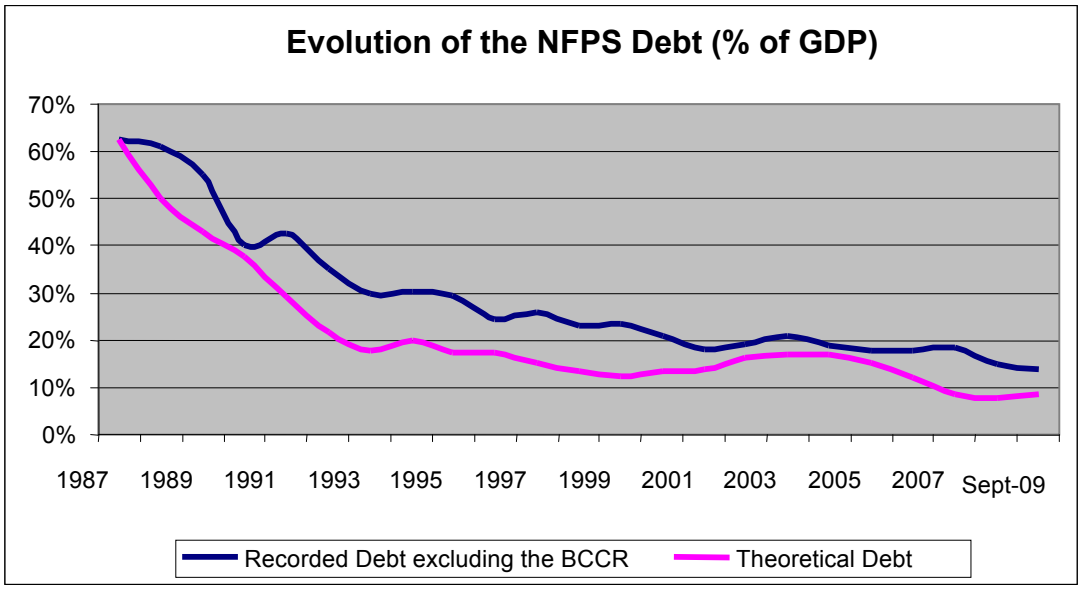
3. Methodological Considerations

3.1. Accounting and Methodological Adjustments to the Fiscal Accounts that Will Be Required to Measure the Structural Fiscal Balance (SFB)

The main change that needs to be made in Costa Rica's fiscal accounts is the adjustment of the public sector's combined deficit to take accrued interest into account, as suggested in Section 2.3.1 when we analyzed the consistency between the evolution of indebtedness

and the combined fiscal balance. This difference persists even when we exclude the BCCR from the fiscal accounts, as can be appreciated in Figure 17.

Figure 17



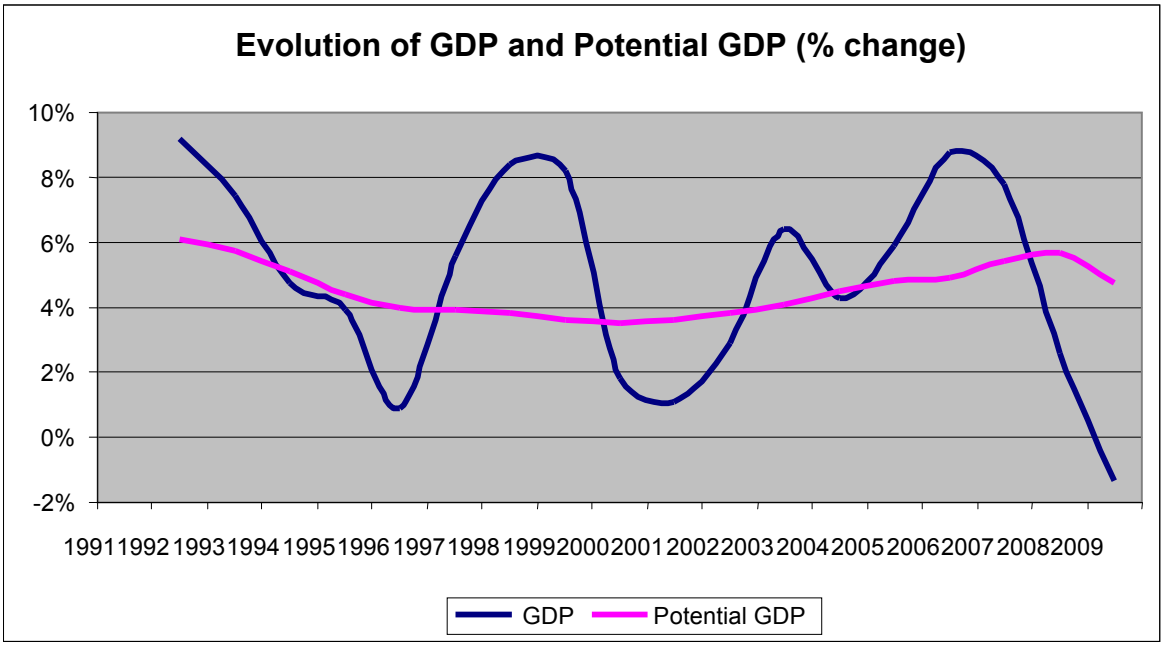
Source: Ministry of Finance and Central Bank of Costa Rica.

As we can see, by the end of the period the accumulated difference is lower than the difference discussed in Section 2.3.1. Here the difference is only of about 5.2 percent of GDP, while in the previous case it was over 20 percent of GDP.

3.2. Cyclical and permanent components of GDP (1991–2009)

During the period under examination Costa Rica's average GDP grew at an annual accumulated rate of 4.9 percent, while potential GDP grew at an annual rate of 4.5 percent. This growth is explained by a 5.1 percent annual average increase in capital stock; a 2.6 percent annual average increase in the labor force; and a 1 percent annual increase of total factor productivity. In Figure 18 we show the growth rates of GDP and potential GDP. The cyclical component is the difference between the two, which, as we shall see, experiences significant volatility.

Figure 18

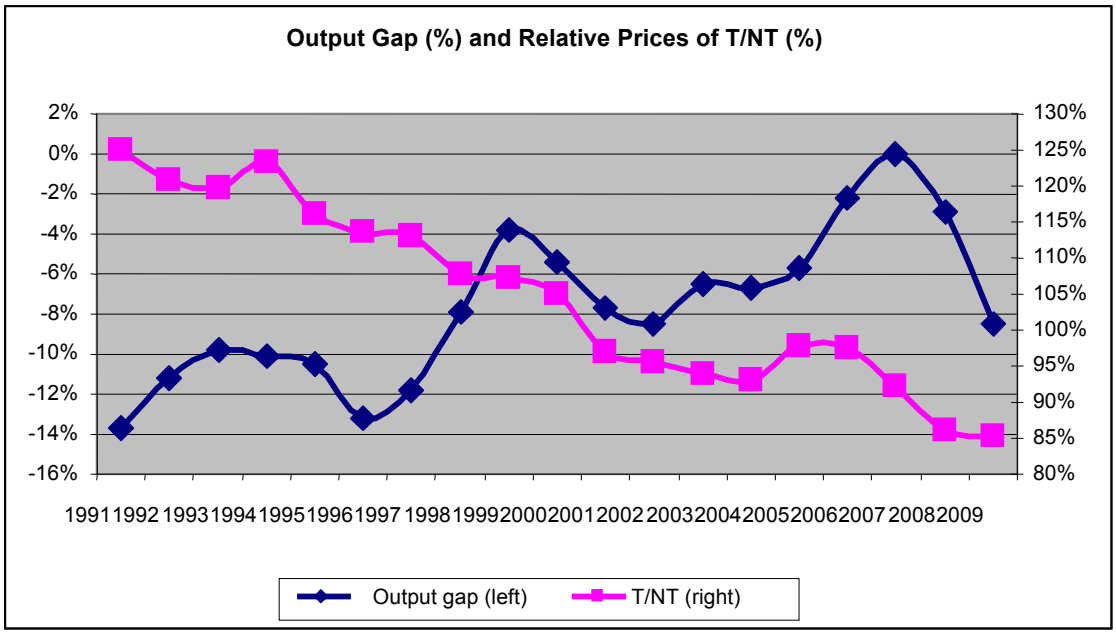


Source: Central Bank of Costa Rica and Author's calculations.

As a secular trend we find that the Output Gap[6], i.e., the difference between actual GDP and potential GDP (as a percentage of actual GDP), has tended to decline, meaning that aggregate demand is growing faster than aggregate supply. This phenomenon helps explain the trend in the relative prices of tradables and non tradables, which has tended to decrease during the period: the relative increase in aggregate demand in relation to supply makes this ratio decline, and reflects a loss of competitiveness in sectors involved in the production of tradable goods. Figure 19 illustrates these issues. In Appendix 1 the corresponding calculations are presented in detail for potential GDP and the output gap; the potential GDP calculation is also compared with the adjustment obtained by applying a Hodrick and Prescott filter to the GDP.

[6] The output gap was estimated on the basis of the document: Manfred Esquivel Monge and Mario Alfredo Rojas Sanchez: ESTIMATION OF A PRODUCTION FUNCTION FOR COSTA RICA: 1991Q1-2006Q4 PERIOD. COSTA RICAN CENTRAL BANK. ECONOMIC DIVISION. DEPARTMENT OF ECONOMIC RESEARCH. Research Document DIE-08-2007-DI, December, 2007.

Figure 19



Source: Central Bank of Costa Rica and Author's calculations.

3.3. Elasticity of the main revenue and expenditure items in relation to GDP

In order to calculate the elasticities of the main revenue and expenditure items, we have followed the standard methodology proposed by the IMF for the calculation of the SFB[7]. To that end, the following steps were followed:

We assumed that revenue obtained from collecting a particular tax (T) can be divided into a structural component (Te) and a cyclical component (Tc), so that for each period we have the following:

(5) $T = Te \times Tc$

The methodology used suggests that the cyclical component (Tc) is a function of the gap between actual GDP (Y) and potential GDP (Yp), both in real terms:

(6) $Tc = a\,(Y/Yp)^{\eta}$

[7] Robert Hagemann: "The Structural Budget Balance. The IMF's Methodology." IMF Working Paper, July, 1999.

Where η indicates the elasticity of Tc in relation to the revenue gap or, in other words, to the cyclical component of GDP.

On the other hand, it is reasonable to postulate that:

(7) $Te = b\ Yp^{\varepsilon}$

ε represents the elasticity of the fiscal revenue's structural component (Te) in relation to potential GDP (Yp). Therefore, and based on (5), (6) and (7), we can state the following:

(8) $\ln T = A + \eta \ln (Y/Yp) + \varepsilon \ln Yp$

Where A = (ln a + ln b). The parameters of expression (8) can be estimated by MCO. Additionally, and based on the definition of the cyclical component, we obtain the following:

(9) $\sum \ln Tc = 0$

Which implies that:

(10) $\text{Ln } a = - \eta (\sum \ln (Y/Yp))/n$

From expression (10), we can then estimate parameter b as:

(11) $\ln b = A - \ln a$

Table 7 presents the elasticities calculated for the most significant tax items.

Table 7: Revenue Elasticities

Series	T/Y (2008)	η	t-statistic	ε	t-statistic
Tax on Goods and Services	9.1 percent	0.86	1.33	1.62	13.25
Income Tax	4.4 percent	1.66	2.72	2.16	18.71
Tax on International Trade	1.3 percent	2.52	4.16	1.49	11.75
Property Tax	0.4 percent	**-0.20**	**-0.12**	1.23	3.96
Social Security Contributions	0.3 percent	**-1.84**	**-0.68**	1.32	2.57
Tax Revenues	15.7 percent	0.61	1.56	1.43	19.52

Source: Author's calculations.

For the goods and services tax, the income tax, and the international trade tax, the estimated elasticities (η) are positive and statistically significant[8]. We therefore use the parameters estimated for these taxes in the calculation of the structural fiscal balance. In the cases of Property Taxes and Social Security Contributions, the estimated elasticities are negative and not statistically significant. Therefore, they were not used for the calculation of the SFB.

It should be noted that the values of ε are, in all cases, statistically significant and greater than 1. This may indicate the presence of significant improvements in the efficiency of tax collections. These elasticities should therefore not be used for long-term projections, since by doing so we would tend to overestimate revenue growth.

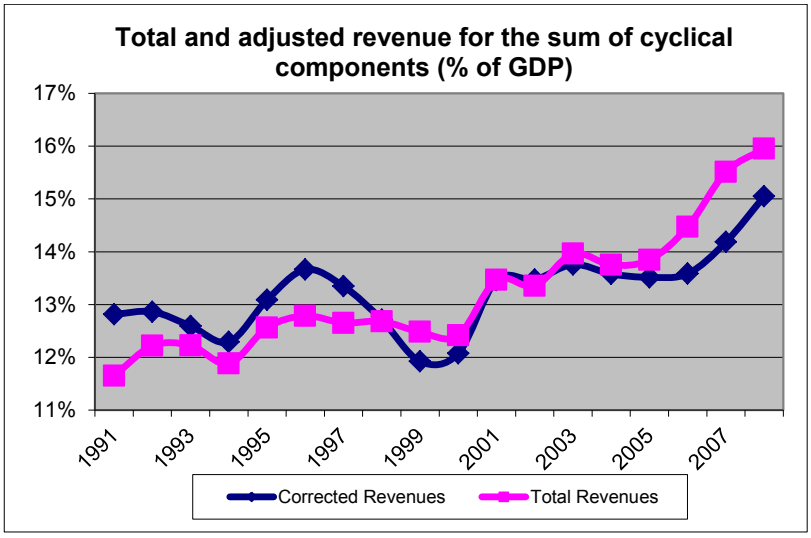
The cyclical adjustments of the respective revenue items were calculated on the basis of the following expression:

(12) Cyclical adjustment of Tax Revenues = T (1 - 1/Tc)

Figure 20 presents the original revenue series and the corrected series based on the estimates made, both in relation to GDP.

[8] We have also calculated η by filtering the relevant series with the Hodrick and Prescott method. The results obtained for each tax's elasticities are similar, as is the calculation of the cyclical adjustment of tax revenues.

Figure 20



Source: Ministry of Finance and Author's calculations.

In Figure 20 we see that the adjustments are significant for 1996, 1997, 1999, 2000, and 2006 to 2008. The greatest difference in value between both series occurs in 2007: 1.3 percent of GDP. It should be noted that the results obtained are very similar when making the adjustment on the basis of Tax Revenue estimates instead of analyzing each component individually. Table 8 presents the elasticities estimated for the most significant expenditure items.

Table 8: Expenditure Elasticities

Series	T/Y (2008)	η	t-statistic	ε	t-statistic
Wages and Salaries	4.6 percent	-0.34	-0.54	1.43	11.89
Public Sector Transfers	2.8 percent	0.96	0.36	1.22	2.44
Private Sector Transfers	2.8 percent	-0.63	-0.60	1.21	6.14
Capital Expenditures	1.8 percent	0.50	0.24	0.84	2.10
Social Security Contributions	0.7 percent	-2.40	-0.85	2.93	5.51
Purchases of Goods and Services	0.6 percent	-0.47	-0.44	0.92	4.49
Non interest paying expenditures	13.6 percent	-0.23	-0.31	1.32	9.52

Source: Author's calculations.

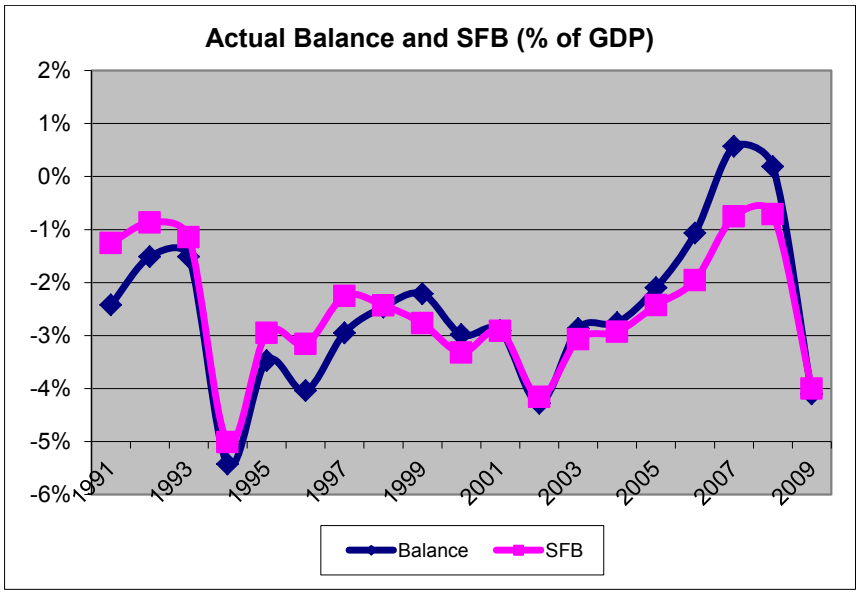
The estimated values of η are not statistically significant in any of these cases, although the values of ε are; besides, (except in the case of Capital Expenditures) they are also greater than

1, suggesting a secular trend towards an increase in current expenditures (excluding interest payments). These outcomes lead us to conclude that no corrections need to be made on the expenditure side for the calculation of the SFB.

3.4. Projection of the SFB for the 1996–2009 Period

The results obtained in Section 3.3 indicate that the calculation of SFB projections is feasible for the period under consideration. The respective estimations are presented in Figure 21, which also includes an estimate for 2009. Specifically, we see that during the 2005-2008 period the SFB is lower than the actual Balance; this indicates that, once revenues are adjusted to take the cyclical component into account, the Central Government incurred in a deficit.

Figure 21



Source: Ministry of Finance and Author's calculations.

The first thing that needs to be highlighted is that the Central Government's SFB has always been in deficit. These estimates indicate that, to take an example, in 2007 and 2008 the surplus balances obtained were due exclusively to a favorable cyclical effect that allowed greater tax collection; therefore, once the economy returns to the growth trend of its potential GDP the economy would again be in deficit. Similarly, the SFB observed in 2009 indicates a structural deficit lightly below the recorded balance.

Although it may be redundant to say so, we should clarify that the SFB will not become an independent policy rule unless an adequate range or target (TSFB) for that balance has been defined. This range or target would then, in effect, constitute the policy rule, providing indications on the size of the revenue or expenditure adjustments that would be required to comply with the rule. For example, in Figure 21 we see that from 2001 to 2005 the recorded Balance is practically equivalent to the SFB. This does not mean that no adjustments are needed, but rather that the size of the adjustment required is about the same if calculated on the basis of the SFB or on the basis of the actual Balance.

3.5. Appropriate Range for the SFB, Taking into Account the Level of Debt

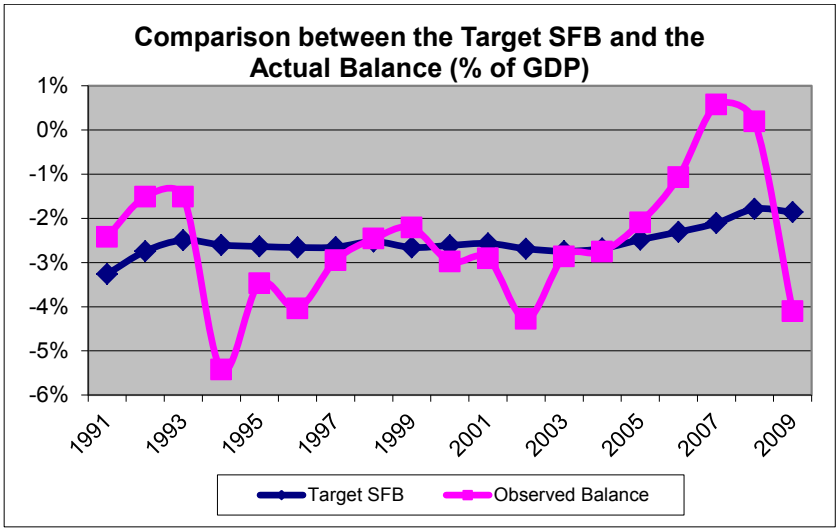
In Figure 22 we present an estimate of the SFB that is compatible with the sustainability of the debt levels recorded each year during the 1991-2009 period. A target SFB was estimated using the "Blanchard" method, that is, calculating, for each year, the Balance (in GDP terms) associated with a constant level of debt (in GDP terms), on the assumption that the economy will grow at the pace indicated by its potential GDP.

(1) $sp = d\,(i - g)$

sp represents the primary surplus that is compatible with inter-temporal solvency; d is the Debt/GDP ratio; i is the debt's average interest rate; and g is the long term level of potential growth: 4.5 percent in Costa Rica's case. Alternatively, expression (13) can be presented in terms of the target SFB, as follows:

(2) $\text{Target SFB} = sp - id = -dg$

Figure 22



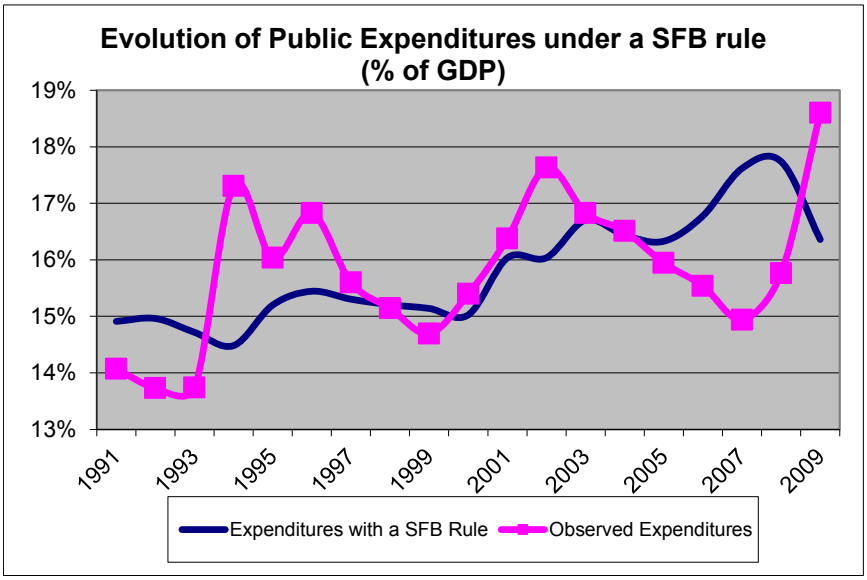
Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

The estimated target SFB is compatible with the actual evolution of deleveraging, in which debt has declined from 72 percent of GDP in 1991 to 41 percent of GDP in 2009. Should attempts be made, beginning in 2010, to stabilize the debt at around 40 percent of GDP, the target SFB would be compatible with a deficit of around 1.9 percent of GDP. This would require a Primary Surplus of about 1 percent of GDP. These estimates do not take into account the revenue derived from Seigniorage, which will be mostly insignificant (0.17 percent of GDP) if the domestic inflation rate remains close to 3 percent.

3.6. Comparison between projections and actual data: volatility and actual level of indebtedness. Outcomes that would have occurred with a SFB

In Figure 23 we show the evolution that Central Government Expenditures would have had should they have followed a Target SFB rule similar to the one shown in Figure 22. In this case, all the adjustment is made at the expenditure level, so that the Actual Balance is equivalent to the target SFB.

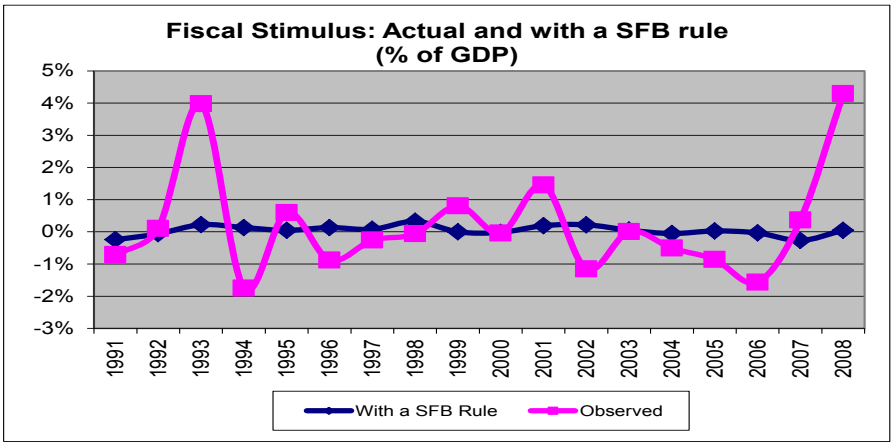
Figure 23



Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

We can see that this rule would have generated lower volatility in the expenditures, which would therefore have led to lower volatility in the macroeconomic aggregates.

Figure 24

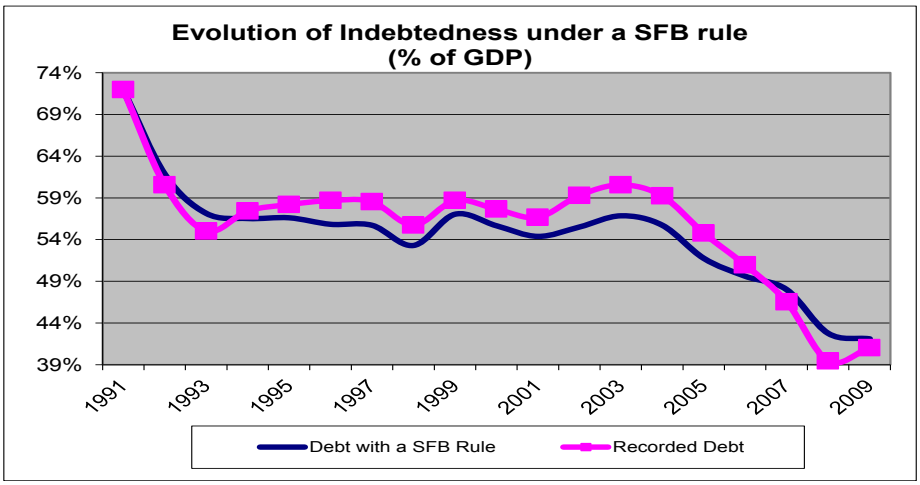


Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

This can be seen more clearly in Figure 24, where we show the yearly fiscal stimulus associated with changes in actual expenditures and in the expenditures that would occur under a BCE rule. The fiscal stimulus is defined, for each particular year, as the changes in expenditure minus the changes in revenue, in GDP terms. We can clearly see that when applying the rule aggregate demand would have been less volatile. In fact, the standard deviation of the actual fiscal stimulus is 1.64 percent, 11 times greater that the deviation seen

in the data series associated with a SFB rule. Similarly, the evolution of debt in relation to the GDP would have also been less volatile, as can be seen in Figure 25.

Figure 25



Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

The levels of initial and final indebtedness are the same in both cases. This occurs because Costa Rica's fiscal behavior has been compatible with inter-temporal solvency, allowing us to calculate a Target SFB (equation 14) that assumes that the indebtedness incurred for each year (in GDP terms) maintains the level recorded for that year.

4. Compliance with the Preconditions to Achieve an SFB and the Need for Legal Reforms

4.1. Dynamics of Indebtedness

As mentioned in Section 3.5, if attempts are made, beginning in 2010, to stabilize total debt at around 40 percent of GDP, the target SFB would be compatible with a consolidated deficit of around 1.9 percent of GDP. This would require a Primary Surplus of about 1 percent of GDP.

The Medium Term Fiscal Budget Framework for 2009-2013 (MFPMP) includes an explicit analysis of the sustainability of the Central Government's debt (excluding the debt of the rest of the NFPS and of the BCCR).

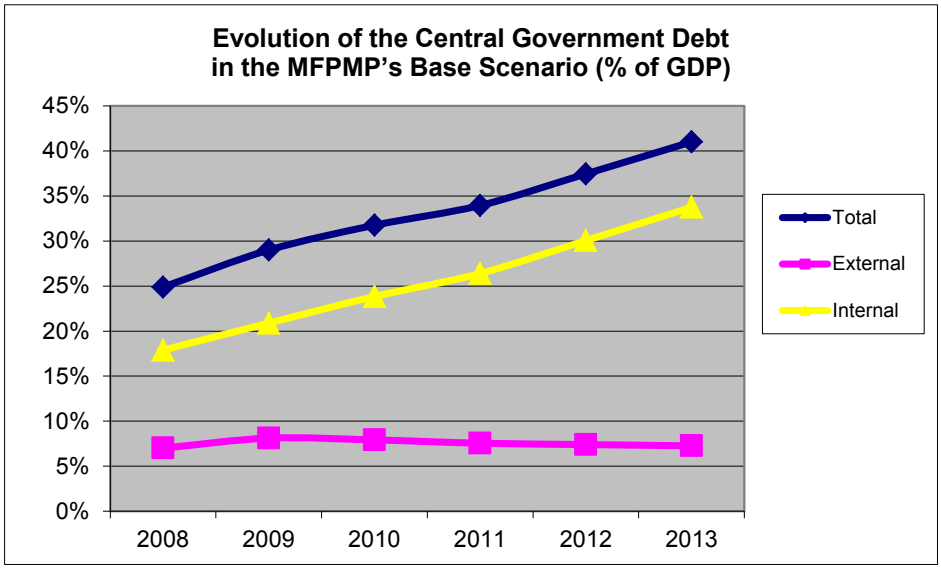
This framework defines a sustainable fiscal policy as a policy in which the country's deficit and debt levels do not require the implementation of drastic adjustments in expenditures and revenues, recognizing that: "in order to be considered sustainable, a fiscal policy must generate an adequate debt to deficit ratio." The MFPMP also recognizes that:

> "From a fiscal responsibility perspective, establishing a fiscal policy threshold is vitally important. This must be done by projecting a base scenario that quantifies the effects of maintaining the policies contemplated in current legislation, and also, for the purpose of comparing fiscal measures, by developing a scenario with fiscal adjustment measures that would allow the achievement of fiscal sustainability within a fiscal framework developed through the definition of a set of macroeconomic assumptions."

Figure 26 shows the evolution the Central Government's debt would have according to the MFPMP's Base Scenario. We can see that these projections are inconsistent with a path towards solvency, and that the dynamics of indebtedness show no convergence.

The figure also shows that, in the context of these projections, internal debt would grow by 13 percentage points of GDP, increasing from 21 percent in 2009 to 34 percent in 2013. In a manner consistent with this increase, the implicit rate of the internal debt also increases (from 12.8 percent in 2010 to 17.8 percent in 2013) reflecting the "*crowding out*" effect on the private sector. In fact, if the debt increase is financed through the national banking system, the financing available to the private sector would decline by 19 percentage points of GDP, from 40 percent of GDP in 2009 to 21 percent of GDP in 2013.

Figure 26



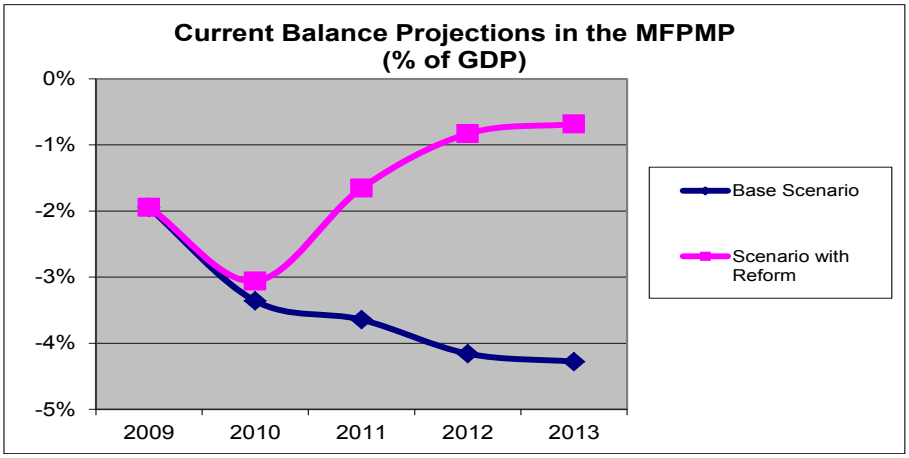
Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

This situation is recognized in the MFPMP document. Fiscal policy actions are therefore recommended which again bring to the fore the debate on the need to implement a fiscal reform in order to "prevent a permanent deterioration of public finances as a long term goal."

With the reforms that are being proposed (VAT, income tax, taxes on corporations and casinos) fiscal revenues would increase from 0.3 percent of GDP in 2010 to 2.9 percent in 2013. Under this scenario, the Central Government's debt does not grow exponentially; however, it also does not tend to stabilize in relation to GDP. The scenario also predicts a "*crowding out"* of the private sector from 2010 to 2013 that would be equivalent to 10 percent of GDP. These effects could be reduced if a decision were made to finance deficits with higher levels of external debt, since the interest rates in international capital markets are lower than the prevailing rates of local indebtedness. The evolution of expenditures (excluding interest payments) is identical in both scenarios. Only the assumptions on tax revenues change. It should be noted that neither of these two scenarios would comply with the stipulations of the Financial Management Law[9] (LAF), since both would require the approval of budgets from 2010 to 2013 with current deficits.

Figure 27 presents the evolution of the current balance under the two scenarios that are being examined. We conclude that the trajectory of total expenditures (excluding interest payments) is incompatible not only with current legislation, but also with an indebtedness dynamic capable of leading to solvency.

Figure 27



Source: Ministry of Finance and Central Bank of Costa Rica and Author's calculations.

[9] ARTICLE 6. – Financing of current expenditures. For the purpose of achieving an adequate financial management, current expenditures cannot be financed with capital revenues.

It is worth noting, however, that if the projections had been made on the basis of the average historical growth of potential GDP (4.5 percent per year), the (Central Government) debt to GDP ratio would have converged to a level of around 30 percent.

4.2. Legal or Economic Restrictions on Public Expenditure that Can Affect an SFB Rule

The LAF is a key element for the achievement of a SFB rule. In fact, this law stipulates that the only expenditures that can be financed by incurring in debt are capital expenditures, limiting the financing of current expenditures. Therefore, debt operations would be limited exclusively to public investment projects, and to the extent that these investments are reasonable they should contribute to maintain or sustain long term potential growth.

However, neither of the Budget Laws approved for 2009 and 2010 comply with the stipulations of the Financial Administration Law. My understanding is that this legal conflict cannot be solved by the Court's Constitutional Hall, since what is involved is not a question of legality but of administrative procedure, although the General Comptroller's Office of the Republic's position is that a Budget Law cannot modify an Ordinary Law. As discussed in Section 4.1, and even if fiscal reform can be implemented, applying the MFPMP would require a systematic non-compliance with the LAF from 2010 to 2013.

Evidently, progress on a SFB rule cannot be achieved unless the conflict between these laws can be resolved. It should be noted that a rule requiring a primary surplus of 1 percent of GDP—level compatible with debt sustainability—is, in the present circumstances (2010 Budget) practically equivalent to the LAF's requirements, as can be seen in Table 9.

Table 9: Adjustments to the 2010 Budget that Are Compatible with the LAF or an SFB Rule

	Budget Items	2010 Budget	Adjustments compatible with the LAF	Adjustments compatible with a SFBR
1	Total Revenues	14.47 percent	14.47 percent	14.47 percent
1,1	Current Revenues	14.46 percent	14.46 percent	14.46 percent
1,2	Capital Revenues	0.01 percent	0.01 percent	0.01 percent
2	Total Expenditures	19.81 percent	16.45 percent	16.12 percent
2,1	Current Expenditures	17.82 percent	14.46 percent	14.13 percent
2,1,1	**Current Expenditures excluding interest payments**	**15.18 percent**	**11.82 percent**	**11.49 percent**
2,1,2	Interest Payments	2.64 percent	2.64 percent	2.64 percent
2,2	Capital Expenditures	1.98 percent	1.98 percent	1.98 percent
1,1 - 2,1	Current Balance	-3.36 percent	0.00 percent	0.33 percent
1-2,1,1-2,2	Primary Balance	-2.69 percent	0.67 percent	1.00 percent
1-2	Overall Balance	-5.34 percent	-1.98 percent	-1.64 percent

Source: Ministry of Finance and Author's calculations.

Compliance with the LAF would require a Current Expenditure adjustment (excluding interest payments) of close to 3.4 percent of GDP in order for the Current Balance to reach a zero value. This would require a Primary Balance equivalent to 0.67 percent of GDP and an Overall Balance deficit of -1.98 percent of GDP, values that would be compatible with long term solvency. Similarly, a SFB Rule would require a Primary Balance of 1 percent of GDP, for which an adjustment of Current Expenditures (excluding interest) in the order of 3.7 percent of GDP would be needed, an amount very close to the number obtained from the LAF's stipulations. These outcomes suggest that before discussing a SFB rule the conflicts between the two laws must be resolved, so that the Budget Law and the LAF are mutually compatible. Another key element of this precondition is the limitation associated with possible adjustments in Public Expenditures. As we have seen, the adjustments required are quite significant, reaching levels close to 3.5 percent of GDP.

An adjustment of this size is not advisable in a context of recession or limited growth. Besides, it is probably unachievable, since 93 percent of current expenditures (before interest payments) consist of Wages and Salaries (50 percent) and Transfers (43 percent). However, part of this adjustment is associated with the substantial increase in current expenditures incurred in 2009 due to the implementation of counter-cyclical measures. Regrettably, the decisions adopted led to a permanent increase in current expenditures, instead of a temporary increase that would have allowed an earlier return towards a path of solvency.

For the calculation of current and capital transfers, the MFPMP assumed a growth in line with the growth of inflation. However, certain transfer items have higher growth rates because they are bound by legal and constitutional mandates, such as:

- Special Fund for Higher Education: 1.05 percent of GDP
- The Judiciary: 6.0 percent of Current Revenue
- CONAVI for the maintenance of Cantonal Roads: specific tax allocation
- CONAVI for the maintenance of the National Road Network: specific tax allocation
- Municipalities: specific tax allocations
- Technical Civil Aviation Council: specific tax allocation
- Expenditures on Elections: 0.11 percent of GDP
- Expenditures on Education: a floor of 6 percent of GDP (some existing legislative proposals seek to increase this mandate to 8 percent of GDP).

All these factors contribute to make short-term expenditure adjustments very difficult to achieve; therefore, substantial prudence and a medium-term perspective are needed when adopting decisions to introduce permanent increases.

4.3. Discipline and Transparency

Discipline

The 2008 Budget was the first to introduce multiannual fiscal scenarios with several predictions regarding Central Government's revenues and expenditures. The 2009 Budget proposal presented an update of the budgetary scenarios on fiscal revenues and expenditures, incorporating projections to 2012.

The 2010 Budget Proposal included the presentation of a Medium Term Fiscal Budget Framework for 2009-2013 (MFPMP), which includes projections from a base scenario that maintains the respective budgetary classifications – functional, economic, and institutional – and is based on the numbers included in the 2010 budget proposal. The Budget also included a scenario that takes into account various policy considerations associated with fiscal reform proposals that the Finance Ministry has been working on for the past few years.

The National Budget Bureau developed a series of modules, one for each title of the Agencies included in the National Budget, that include a definition of the general parameters associated with the expected levels of the macroeconomic variables, as well as features

specific to each Ministry and Branch of Power in the Republic, which contributed to the calculation of the 2011-2013 projections that, along with revenue projections, show the trends for the expected fiscal balances. The Public Credit Bureau participated in this process by providing data on external revenues projections, debt service and an analysis on debt sustainability.

The general objective of the MFPMP is to show the future trends of the main fiscal aggregates for the 2010-2013 period, to project current trends so that – on the basis of the obtained results – potential fiscal imbalances that can impact the economic goals of the Government of the Republic may be identified, fiscal policy alternatives may be presented, and medium term sustainable approaches may be examined for the purpose of directing efforts towards priority areas, as well as towards areas of higher social vulnerability. Additionally, the MFPMP also seeks to achieve the following complementary goals:

- Obtain an instrument with which to measure the impact of policy proposals.
- Preserve an appropriate link between decisions on expenditure policy and the availability of revenue, through the adoption of a medium term perspective.
- Make policy changes based on multiannual fiscal forecasts on revenues, expenditures, and potential deficit financing, so that fiscal imbalances or surpluses can be quantified and the future fiscal impact of new programs can be assessed.
- Formalize and publish debt sustainability analyses on foreign and internal debt.
- Provide greater transparency on the policies of the Government of the Republic in the medium term vis-a-vis Central Government agencies, comptrolling actors, the citizenry, and other interest groups.
- Establish budget policy scenarios in order to provide various options through which fiscal sustainability can be generated in the medium term.

The parameters used for the projections derive from coordinated efforts between the Finance Ministry (National Budget Bureau) and the Central Bank of Costa Rica. Real growth projections are moderate, estimating growth rates below the levels of potential growth for 2010 to 2013. Inflation projections are also moderate, with a decline from a 6 percent annual rate in 2010 to a 4 percent rate in 2013.

Expenditures for interest payments and internal and external amortization were calculated by the Public Credit Bureau, taking into account balances owed, interest rate

behavior, markets in which the instruments are procured, future projections of interest rate behavior and the government's medium term financing requirements.

For the determination of investment expenditures, the calculations included the financing of projects with external resources as reflected in the programs of the Public Credit Bureau, taking as a basic criteria for inclusion the loans already approved by the Legislature that have been included or will soon be included in the National Budget. Revenue collection estimates for the 2010–2013 period indicate that the tax burden will increase slightly, assuming that the current tax structure is maintained.

Remuneration payments represent a significant portion of current expenditures. They include the government payroll reflected in the National Budget; in addition to wages and salaries, they also include the payment of social security benefits. It is estimated that for 2009 these items will constitute 42 percent of current expenditures; calculations predict that by 2013 their relative participation will diminish slightly to 36.8 percent, since they are expected to adjust in accordance with estimated inflation.

Expenditures on goods and services are not significant, since their average participation in total current expenditures is close to 4.4 percent. Interest payments represent 17.0 percent of current expenditures for 2010. Projections show that these payments tend to increase and are expected to reach 21.2 percent in 2012 and 23.3 percent in 2012.

Transfer payments constitute about 36.4 percent of current expenditures for the 2010-2013 period. Through this item, the Government of the Republic channels resources towards certain national sectors it deems should receive priority attention. Of these the most substantial are the transfers to the public sector, which comprise 17.0 percent of total expenditures. Another significant component of this item is transfers to the private sector, which for the period averages 16 percent of total expenditures. The item also includes the pensions contemplated in the National Budget, as well as other contributions to Private Sector foundations.

As mentioned in Section 4.2, the Base Scenario projections are inconsistent with the Financial Administration Law. Similarly, the Budget Laws of 2009 and 2010, as well as the projections contained in the MFPMP, contradict the stipulations contained in the LAF. A scenario that includes tax reforms greatly improves the results, but even in this case the LAF is not being complied with. The MFPMP is undoubtedly helpful by providing discipline and transparency. It should, however, include specific recommendations on how current legislation will be complied with.

Transparency

Regarding the issue of Transparency, a recent IMF Report (February, 2010) highlights the country's good performance in the compliance with codes and standards related to dissemination, quality of information, integrity, appropriate methodology, reliability, accessibility and regularity of reporting, both when compared with other countries in the region and from the users' point of view.

4.4. Financial System Risk Factors that Can Affect the SFB

In 2009 the General Superintendency of Financial Institutions (SGEF) set up an early warning system to detect stress problems in the banking system, while simultaneously introducing more flexibility in the debtor classification rules in order to ease access to credit in during recessions. Simultaneously, the BCCR established a line of systemic liquidity designed to address the possible effects of a crisis on the financial system.

The SGEF is improving its information systems on the correspondence between the maturities of assets and liabilities, as well as on the financial institutions' liquidity policies. The SGEF is also providing public access to CAMEL type indicators for all regulated entities, although some key indicators are not included, such as the capital/asset ratio adjusted by risk, liquidity indicators, or the correspondence of maturities. Offshore banking activities were subjected to greater control by introducing stricter regulation in a context of consolidated supervision.

The most recent review of the Stand-By Agreement (January, 2010) detected no particular risks arising from the financial system, although it naturally suggested that supervision should be strengthened. Table 10 presents indicators on the individual capitalization of the Costa Rican banks, whose assets represent 85 percent of the entire financial system's assets.

We find that only 3 of the entities have capitalization levels below 9 percent (measured by the ratio between Net Worth and Assets). These entities constitute 7 percent of the entire system, and their total liabilities are equivalent to 39 percent of the BCCR's International Reserves. This would indicate that in the case of an eventual run against these entities the BCCR would have a reasonable room for maneuver.

On the other hand, the BCCR's options would be more limited if a systemic event should occur, since its International Reserves are only equivalent to 20 percent of the

system's liabilities. This explains the authorities' decision to negotiate a Precautionary Stand-By with the IMF. A medium term economic program should consider the possibility, as a precautionary measure, of increasing the BCCR's International Reserves, as well as of adopting a scheme to capitalize the banking system so it is better prepared to weather any possible future crisis.

Table 10: Net Worth/Assets Ratio
and Market Participation as of December 2009

Entity type	Net worth/assets	Percent of total assets in the system
Governmental	6.4%	4.1%
Private	7.4%	1.2%
Private	8.4%	1.9%
Private	9.1%	7.6%
Private	9.2%	5.7%
Private	9.7%	8.3%
Governmental	9.9%	23.9%
Private	10.1%	1.7%
Private	10.9%	0.9%
Governmental	11.8%	15.8%
Private	14.1%	0.9%
Private	15.1%	2.9%
Private	17.6%	0.3%
Special laws	19.1%	9.3%
Private	51.8%	0.2%
Special laws	54.3%	0.6%

Source: SUGEF.

5. Fiscal Rules and Definition of the SFB in the Medium and Long Term

5.1. Choosing the Appropriate Opportunity to Implement Fiscal Rules

As we saw in Section 4, the MFPMP's projections predict paths towards increasing indebtedness for the scenarios in which no Tax Reform is implemented. Additionally, for 2010 the country's growth remains below its long term growth potential. I therefore believe the moment is still not appropriate for the introduction of a fiscal rule through legislation, since the Parliament's debates will probably be more focused on examining the appropriateness and necessity of Tax Reform. However, what could be done at this time is to include a Section containing the calculation of a SFB in the MFPMP, and to present an estimate of the Target SFB that would be compatible with fiscal solvency.

Under the current circumstances, a premature introduction of a SFB rule might lead to it quickly being discarded; should this happen an opportunity to introduce it permanently would therefore be lost. On the other hand, if the preparation of the MFPMP 2010-2014 includes a Section on the SFB, this would represent progress by introducing the issue to the various economic actors, while simultaneously contributing to strengthen the debate on the need for Reform and the need to resolve the conflicts between the LAF and the Budget Laws.

5.2. Institutional Preconditions

As we also saw in Section 4, the legal foundations, the preparation of a MFPMP and Costa Rica's budget institutions are sufficiently mature for the country to begin discussing the implementation of a SFB rule. Additionally, this debate would allow certain features of the LAF to be redefined in order to take into account situations of recession such as those faced during 2009 and 2010. In this regard, Article 6 could be modified to stipulate that current expenditures cannot be financed with debt, but directing that this be done from a structural perspective, that is, by calculating the budgeted current revenue on the expectation of a return to potential growth. Consequently, debt could not be incurred to finance the gap between budgeted expenditures and the potential current revenue (instead of the actual projected revenue).

In this way, the introduction of a structural fiscal rule would be achieved through the stipulations contained in the LAF. The following step would be to establish that the positive gaps between budgeted revenues and structural revenues (those that occur during favorable moments of the cycle) cannot be used to pay for current expenditures. The introduction of these two gaps into the LAF's stipulations through legislative amendments to the Law would solve the existing conflict between the LAF and the Budget Laws, allowing current deficits faced today to be financed with anticipated future surpluses. This simple reform of the LAF would contribute to achieve stability in current expenditures; this would consequently be beneficial for macroeconomic stability.

5.3. Toward a more Ambitious SFB Rule

The next step would be achieved through the continuous process of preparation of the MFPMP. In fact, the calculations on debt sustainability could lead, through natural progression, towards the implementation of a Target SFB rule requiring that the Debt/GDP ratio be stabilized in the medium term. This rule would evidently be closely linked with the adoption of policy decisions regarding the composition of expenditures (current vs. investment), the composition of indebtedness (internal vs. external) and the rules to be applied for the use of the surpluses accumulated during periods of expansion. Regarding this last issue, it is important to note that the presence of surpluses naturally leads to increases in assets or the payment of financial liabilities. An accumulation of—mainly external—assets would allow these to later be used during recessive periods; on the other hand, paying liabilities would contribute to improve access to financing (both in terms of accessibility and of cost).

These policies (assets accumulation or payment of liabilities) could be criticized from a perspective that focuses on the country's public investment needs, arguing that the investments made in external funds offer low returns, at a time when the country's public infrastructure has substantial deficiencies that conspire against potential growth. Also, it could be argued that promoting a policy of increasing savings or paying liabilities would be difficult in a context of substantial poverty and extreme poverty. These criticisms could of course be answered; however, we must recognize that public opinion is not easily persuaded. From this perspective, paying liabilities during expansions and allowing indebtedness to increase during recessions would seem to be a more sustainable option.

We must keep in mind that in a scenario in which Tax Reform is implemented and there is a swifter return to potential growth (as the IMF predicts)[10], a primary surplus compatible with solvency (1 percent of GDP) or a global deficit below 2 percent of GDP can be achieved in two or three years; this would mean that implementing a SFB rule would not require significant additional sacrifices.

Costa Rica is mature enough to begin these discussions, although the implementation of the legal adjustments required will still take a few more years. A push to prematurely define a legal framework that includes fiscal rules could also lead to these changes being prematurely discarded.

6. Country Outlook in Terms of Financial Stability

If Tax Reform is implemented, the country will be able to reach a stable Debt/GDP ratio in the medium term. This level of indebtedness (below 35 percent of GDP) would be similar to that prevailing in countries with BBB/A credit ratings, and would allow greater access to international markets should future contingencies occur (such as those faced in 2009 and 2010).

To achieve this solvency scenario, the Overall Balance would need to converge to a deficit below 2 percent of GDP, and the primary surplus must reach 1 percent of GDP. Due to public expenditure rigidities and the need for infrastructure investments, long term solvency can only be achieved through increases in tax revenues such as those proposed in the Fiscal Reform.

Additionally, Costa Rica needs a stock of liquid international financial assets that is sufficient to face any volatility in the international demand for traded goods. The size of these assets should allow them to be capable of absorbing effects equivalent to those of the 2009-2010 crisis. To this end, the country's international reserves need to be increased; at this time, reserves are below the levels held by the countries that qualify for BBB/A credit ratings.

Our SFB estimates indicate that from 2005 to 2008 the SFB was below the actual Balance. In other words, when revenues were adjusted for the cyclical component, the Central Government was in deficit, a situation that indicated that once the economy returned to the growth trend associated with its potential GDP the economy would be in deficit.

[10] IMF. Country Report No. 10/2 Costa Rica: Staff Report for the Second Review Under the Stand-By Arrangement; Press Release on the Executive Board Discussion; and Statement by the Executive Director for Costa Rica. January 2010.

Evidently, if these estimates had been available they would have helped to limit the expenditure increase experienced in 2009.

The MFPMP for 2009-2013 includes an explicit analysis of the sustainability of the Central Government's debt. According to its projections, internal debt would grow by 13 percentage points of GDP, increasing from 21 percent in 2009 to 34 percent in 2013. Consistently with this increase, the implicit interest rate of the internal debt also increases (from 12.8 percent in 2010 to 17.8 percent in 2013) reflecting the "*crowding out"* effect on the private sector. In fact, if the debt increase is financed through the national banking system, the financing available to the private sector would fall by 19 percentage points of GDP, declining from 40 percent of GDP in 2009 to 21 percent of GDP in 2013. This situation is recognized in the MFPMP document, and therefore fiscal policy actions are recommended that again bring to the fore the debate on the need to implement fiscal reforms in order "to prevent a permanent deterioration of public finances as a long term goal."

The reforms that are being proposed (VAT, income tax, taxes on corporations and casinos) would generate an increase in fiscal revenues that would take them from 0.3 percent of GDP in 2010 to 2.9 percent in 2013. Under this scenario, the Central Government's debt avoids growing exponentially. These effects could be reduced if a decision is made to finance the deficits with higher levels of external debt, at interest rates that are lower than those that prevail in the local debt market.

Neither of these two scenarios (with or without reforms) would comply with the stipulations of the Financial Management Law (LAF), since both would require the approval of budgets from 2010 to 2013 that include current expenditure deficits. It is worth noting, however, that if the projections had been made on the basis of the average historical growth of potential GDP (4.5 percent per year), the (Central Government) debt to GDP ratio would have converged to a level of around 30 percent.

The LAF is a key element for the achievement of a SFB rule. In fact, this law stipulates that the only expenditures that can be financed by incurring in debt are capital expenditures, limiting the financing of current expenditures. Therefore, debt operations would be limited exclusively to public investment, and to the extent that these investments are reasonable they should contribute to maintain or sustain long-term potential growth.

Evidently, progress on a SFB rule can only be achieved if the conflict between laws can be resolved. It should be noted that a rule requiring a primary surplus of 1 percent of GDP – level compatible with debt sustainability – is, in the present circumstances (2010 Budget), practically equivalent to the LAF's requirements. The adjustments required to

achieve a path compatible with solvency are quite significant: close to 3.5 percent of GDP. An adjustment of this size is not advisable in a context of recession or limited growth. Besides, it is probably unachievable, since 93 percent of current expenditures (before interest payments) consist of wages and salaries (50 percent) and Transfers (43 percent). However, a portion of this adjustment is associated with the substantial increase in current expenditures that occurred in 2009 due to the implementation of counter-cyclical measures. Regrettably, the decisions adopted led to a permanent increase in current expenditures, instead of a temporary increase that would have allowed an earlier return towards a path of solvency.

The general goal of the MFPMP is to show the future direction of the main fiscal aggregates for the 2010-2013 period, projecting current trends so that – on the basis of the obtained results – potential fiscal imbalances that can impact the economic goals of the Government of the Republic may be identified, fiscal policy alternatives may be presented, and medium term sustainable approaches may be examined, so as to direct efforts towards priority areas, as well as towards areas of greater social vulnerability. The MFPMP is undoubtedly helpful by providing discipline and transparency. It should, however, include specific recommendations on how current legislation will be complied with.

Regarding the vulnerability of the financial system and its possible effects on fiscal accounts, we find that only 3 entities have capitalization levels below 9 percent. These entities constitute 7 percent of the entire system, and their total liabilities are equivalent to 39 percent of the BCCR's International Reserves. This would indicate that in the case of an eventual run against these entities the BCCR would have a reasonable room for maneuver. On the other hand, the BCCR's options would be more limited if a systemic event should occur, since its International Reserves are only equivalent to 20 percent of the system's liabilities. This explains the authorities' decision to negotiate a Precautionary Stand-By with the IMF.

A medium term economic program should consider the possibility, as a precautionary measure, of increasing the BCCR's International Reserves, as well as of adopting a scheme to capitalize the banking system so that it is better prepared to weather any possible future crisis. The country's prospects for financial stability are reasonable if the tax reforms that have been proposed are adopted. In this regard, a first step that could be taken would be to include a Section on SFB estimates in the MFPMP. This could be complemented with reforms to the LAF that tend towards gradually introducing elements associated with a SFB type rule.

The LAF could be modified so that it forbids the use of debt to finance the gap between budgeted expenditures and potential current revenues (not actually projected

revenues). A later step would be to establish that the positive gaps between budgeted revenues and structural revenues cannot be used to finance current expenditures. The introduction of these two gaps into the LAF's stipulations through legislative amendments to the Law would solve the existing conflict between the LAF and the Budget Laws, allowing current deficits faced today to be financed with anticipated future surpluses.

The next step would be achieved through the continuous process of preparation of the MFPMP. In fact, the calculations on debt sustainability could lead, through natural progression, towards the implementation of a Target SFB rule requiring that the Debt/GDP ratio be stabilized in the medium term. This rule would evidently be closely linked with the adoption of policy decisions regarding the composition of expenditures (current vs. investment), the composition of indebtedness (internal vs. external) and the rules to be applied for the use of the surpluses accumulated during periods of expansion. These surpluses naturally lead to the establishment of a Stabilization Fund. Such a Fund could be created from the onset with external long term debt; alternatively, it could be built gradually, increasing whenever surpluses are available. The establishment of a fund with external long term debt could counter arguments that highlight the differences between the profitability of the fund's investments in external assets and that of public investments of greater economic and social profitability.

We must keep in mind that in a scenario in which tax reform is implemented and there is a swifter return to potential growth (as the IMF predicts), a primary surplus compatible with solvency (1 percent of GDP) or a global deficit below 2 percent of GDP can be achieved in two or three years. This would mean that implementing a SFB rule would not require significant additional sacrifices. Table 11 presents, as a conclusion, Costa Rica's status in terms of its compliance with the preconditions required to achieve a SFB rule. We conclude that the prospects are favorable as long as the country promptly implements a Tax Reform such as the one described in the MFPMP for 2009–2013.

Table 11: Compliance with the Preconditions Required for Achieving SFB Rule

	Preconditions	Compliance	Observations
1	Debt sustainability	No	Tax Reform is needed
2	Compatibility with other fiscal rules	Yes	The LAF can be reformed gradually to include a SFB rule
3	Compatibility with transfers	Yes	There are no significant problems with sub-national entities
4	Consistency with stabilizers	Not Applicable	
5	Consistency with the budget of a commodity exporting country	Partial	International Reserves need to be increased
6	Fiscal Lags	Not Applicable	
7	Transparency and Credibility	Yes	
8	Policy Coordination	Yes	
9	Preparedness for Contingencies	Partial	Public infrastructure requires more investment
10	Coverage of public sector transactions	Yes	
11	Soundness of the banking system	Partial	The BCCR's International Reserves must be strengthened and some entities need to be capitalized

Appendix 1: Estimation of Potential GDP and the Output Gap–

Manfred Esquivel Monge and Mario Alfredo Rojas Sanchez' document: ESTIMATION OF A PRODUCTION FUNCTION FOR COSTA RICA: 1991Q1 – 2006Q4 PERIOD, provides the elements required to calculate potential GDP during the period under examination. Based on data collected on employment and capital stock, the authors estimate a production function for Costa Rica, proposing, as many studies do for other countries, a Cobb-Douglas production function with constant returns to scale. The authors find participations of 65 percent for labor and 35 percent for capital.

For the 1992–2006 period, the authors calculate an annual accumulated average growth of potential GDP of 4.4 percent, explained by average annual growths of 3.5 percent in labor, 4.6 percent in capital, and 0.5 percent in total factor productivity (TFP). For the 2003-2006 period, the numbers obtained were 3.2 percent for labor, 4.3 percent for capital and 0.9 percent for TFP. I have estimated the data for the 2007–2009 period, based on the following assumptions: The labor grows at the same rate as it did during the 2003-2006 period.

Capital stock was estimated on the basis of data on gross formation of fixed capital (or of gross investment) contained in the national accounts, assuming a capital stock depreciation rate of 7.4 percent[11].

We also estimate potential GDP for the 1991-2009 period based on a Hodrick and Prescott filter. In Figure 28 we present the results obtained through the use of these two methods. We can see that the two series are practically identical, differing only in their origin on the Y axis.

Based on these two series, we also estimate an output gap as the difference between Actual GDP and Potential GDP, divided by actual GDP. This is calculated using both methodologies. The outcomes are again identical, differing once again only in their origin on the Y axis. The results obtained can be seen in Figure 29.

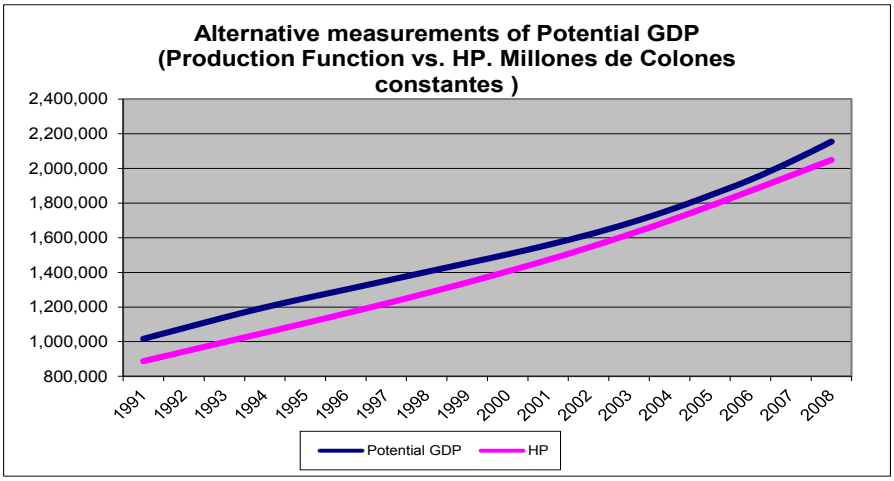
Since these two representative series on potential GDP are identical (the correlation coefficient between the series is 0.998) we chose to work with the series estimated with data derived from the national accounts and the estimated production function, since their economic interpretation is of a direct nature; besides they also allow us to avoid the "tail end

[11] This depreciation rate was estimated as equal to that in which, after adding the annual gross investment to the initial year's capital (1991) and subtracting the aforementioned annual depreciation of 7.4%, we obtain the capital stock for the final year (2006).

data" problems encountered with the HP filter. Nevertheless, as discussed in footnote 8, the results obtained in both cases are very similar.

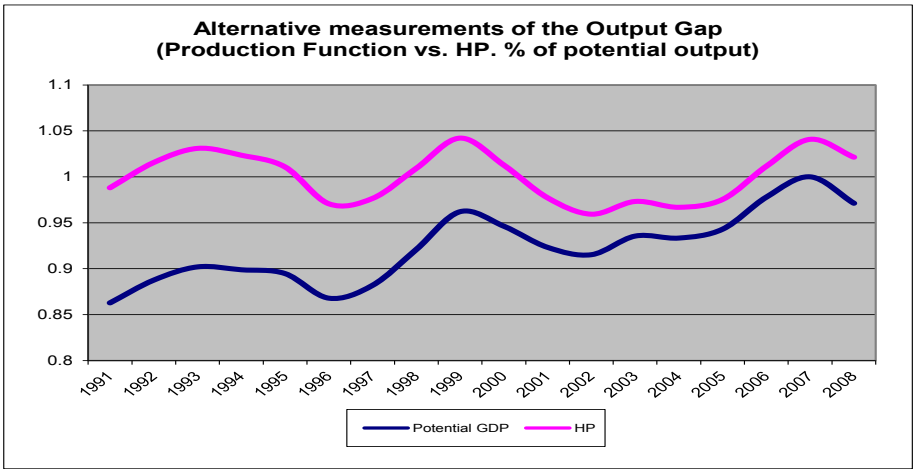
A last consideration that should be mentioned is that when calculating the output gap with the HP filter the resulting values are positive; this differs from the calculation of potential GDP using the production function, which only generates negative values. This last result provides a more satisfactory explanation for the gap, since Potential GDP can only be achieved when all factors are used to their maximum capacity and in a consistent manner; therefore, a positive gap would indicate an overuse of productive factors.

Figure 28



Source: Central Bank of Costa Rica and Author's calculations.

Figure 29



Source: Central Bank of Costa Rica and Author's calculations.

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