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Fiscal Performance: Should We Deepen the Adjustment?

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- ... Data unknown.
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An hyphen (-) between years (1970-1975) indicates the total of years, including the first and the last. A slash (/) between years indicates the yearly average of such years, including the first and the last, or harvest-year or agreement-year, according to the text.

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Foreword

The institutionalization of the Banco Central do Brasil Technical Notes, conducted by the Department of Economics, promotes the dissemination of works featuring economic content, attracting both theoretical and methodological interest, giving a view of the short-term developments of the economy and reflecting the work of the Bank's employees in all areas of action. Besides, other works, though external to the Banco Central, may be included in this series provided the Bank has afforded institutional support to their preparation.

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Fiscal performance: should we deepen the adjustment?

PEDRO PAULO CISESKI¹

1. Introduction

Between 1997 and 2001, an extensive set of fiscal measures taken by the Federal government affected expenses and mainly revenues. The measures ranged from social security reforms and other actions on the expenditures side to tax changes, as the establishment of the Provisional Contribution on Transactions and Transmittal of Valuables and Credits and Rights of Financial Nature (CPMF) and increased Social Security Financing Contribution (Cofins) rates.

States and Municipalities entered into renegotiations with the Federal Government that resulted in adjustment programs guaranteed by earmarking of revenues, and the Program of Incentives to the Reduction of the State Public Sector in Banking Activities (Proes), which made solvent and privatized the majority of State-owned banks, with the consequent elimination of one important source to fund fiscal unbalance. Besides, Federal Senate Resolution 78/1998 and National Monetary Council (CMN) Resolution 2,653 came into effect providing more strict criteria for the granting of loans to Brazilian political subdivisions. Last, yet not less important, in May 2000, Complementary Law 101 set rules for the responsible management of public finances.

This set of measures is positively changing fiscal results (in the primary concept) of Federal, State and Municipality governments. However, disturbances caused by the Argentine situation, the energy crisis, a persistent deficit in current transactions of the balance of payments and a decelerated world economy, which reflects on interest and foreign exchange rates, have increased the cost of financing the public debt and thrown doubts upon the sufficiency of the adjustment achieved up to this moment.

The aim of this short note is to show the results of this fiscal effort and try to answer the question mentioned in the previous paragraph. With this in mind, one used fiscal data and data from the Gross Domestic Product (GDP), published by the Department of Economics (Depec) and data from fiscal revenues² published by the National Bank of Economic and Social Development (BNDES). To avoid distortions when compared to revenues, fiscal results of State-owned corporations were excluded from the analysis.

2. Fiscal performance

We exhibit below the data related to fiscal performance, on the primary concept³, of the consolidated government, central government and regional governments.

1/ Economist of the Central Bank of Brazil and Master in Public Administration by the Getulio Vargas Foundation (FGV-SP).

2/ Broad available tax revenue = available tax revenue +/- Unrequited Federal Transfers.

3/ See enclosed tables.

2.1 – Consolidated government

The consolidated primary result of the government reveals significant fiscal effort. Over the twelve months ending in May, the primary result came from a deficit of R\$6 billion in 1998, to a surplus of R\$9 billion in 1999, R\$33 billion in 2000 and R\$32 billion in 2001. As a share of the GDP, these figures correspond to -0.6% in 1998, 1% in 1999, 3.2% in 2000 and 2.8% in 2001. As against available tax revenue, the shares corresponded to -2.3% in 1998, 3.4% in 1999, 10% in 2000 and 8.6% in 2001.

The performance over the first five months of each year is, in relative terms, even more significant. The surplus came to R\$4.6 billion in 1998, R\$10.4 billion in 1999, R\$18.2 billion in 2000 and R\$20.3 billion in 2001, from R\$1.7 billion in 1997. As a share of the GDP, these results corresponded to 0.5% in 1997, 1.2% in 1998, 2.8% in 1999, 4.3% in 2000 and 5% in 2001. As a proportion of available tax revenue, the figures corresponded to 1.8% in 1997, 4.2% in 1998, 9.1% in 1999, 13.3% in 2000 and 14.8% in 2001.

Therefore, between 1998 and 2001, over the twelve-month period ending in May, the primary result consistently improved, coming to a surplus of R\$32 billion, from a deficit of R\$6 billion, corresponding to an adjustment in excess of 3% of GDP and 11% of tax revenue. This is far from a negligible adjustment.

The fact that available tax revenue increased 5% of GDP, coming to 33%, from 28% of GDP, between 1997 and 2001, was a main contribution towards this result.

2.2 – Central government

The primary result of the central government (Federal Government, National Institute of Social Security (INSS) and Central Bank) also reveals a significant effort. In the twelve-month period ending in May, the surplus came from almost R\$1 billion in 1998, to R\$9 billion in 1999, R\$28 billion in 2000 and R\$25 billion in 2001. As against the GDP, the results corresponded to 0.1% in 1998, 1% in 1999, 2.7% in 2000 and 2.2% in 2001. As against available tax revenue, they corresponded to 0.6% in 1998, 6% in 1999, 15% in 2000 and 12% in 2001.

The performance over the five first months of each year is, in relative terms, even more significant. The surplus came to R\$4.6 billion in 1998, R\$8.6 billion in 1999, R\$13.8 billion in 2000 and R\$18.1 billion in 2001, from R\$1.4 billion in 1997. As against the GDP, the results corresponded to 0.4% in 1997, 1.2% in 1998, 2.3% in 1999, 3.3% in 2000 and 3.8% in 2001. Viewed as a proportion of available tax revenue, the figures corresponded to 2.6% in 1997, 7.6% in 1998, 13.2% in 1999, 18% in 2000 and 20.3% in 2001.

Then, between 1998 and 2001, in the twelve-month period ending in May, the surplus consistently improved from R\$1 billion to R\$25 billion, corresponding to an adjustment in excess of 2% of GDP and to 11% of tax revenue. Between 1997 and 2001, over the first five months, the surplus increased to R\$18 billion, from just above R\$1 billion, corresponding to an adjustment in excess of 3% of GDP and 17% of available tax revenue.

An increase of 2.8% of GDP recorded in the available tax burden, which came to 18.6% of GDP, from 15.8% of GDP between 1997 and 2001, contributed towards these results.

2.3 – Regional governments

The primary result of regional governments (States and Municipalities) also reveals a significant effort, though less important than that of the Federal Government⁴. Considering the twelve-month period ending in May, the primary result came to an equilibrium in 1999, surplus of R\$5 billion in 2000 and R\$ 7 billion surplus in 2001, from a deficit close to R\$7 billion in 1998. As against the GDP, these results corresponded to -0.7% in 1998, zero in 1999, 0.5% in 2000 and 0.6% in 2001. Contrasted to available tax revenue, the figures corresponded to -5.8% in 1998, zero in 1999, 3.3% in 2000 and 4.4% in 2001.

The performance observed over the five first months of each year is also very significant. The surplus came to zero in 1998, R\$1.8 billion in 1999, R\$4.4 billion in 2000 and R\$5.7 billion in 2001, from just R\$0.3 billion in 1997. Taken as a share of GDP, the figures corresponded to 0.1% in 1997, zero in 1998, 0.5% in 1999, 1% in 2000 and 1.2% in 2001. Considering the figures as a share of available tax revenue, they corresponded to 0.7% in 1997, zero in 1998, 3.6% in 1999, 7.3% in 2000 and 8% in 2001.

Therefore, between 1998 and 2001, over the twelve-month period ending in May, the primary result improved persistently and came to a surplus of R\$7 billion, from a deficit of R\$7 billion, corresponding to an adjustment in excess of 1% of GDP and 10% of revenue. Between 1997 and 2001, over the first five months of each year, the surplus increased to R\$5.7 billion, from R\$0.3 billion, corresponding to an adjustment in excess of 1% of GDP and 7% of revenue. This is, also, an important adjustment.

An increase of 2.5% of GDP in available tax revenue, coming to 14.9% of GDP, from 12.4% of GDP, between 1997 and 2001 was a main contribution towards this result.

3. Equilibrium primary result

In order to assess whether the fiscal results achieved up to this moment are sustainable, one shall compare them with the long-term solvability conditions. To this

4/ Considering the smaller budget and the level of indebtedness of political subdivisions, besides the lower cost of the debt (the most part of it renegotiated with the Federal Government, at rates lower than market rates) one expects a proportionally smaller performance, as one can see by the required primary result shown in this Note.

purpose, we calculate the primary result required, in each level of government, to stabilize the relation debt/GDP or debt/revenue⁵. To calculate it, we use the equation⁶ below:

$$p_t = \frac{y-i}{1+y} d_{t-1}$$

Where:

- p = required primary surplus expressed as a GDP percentage or tax revenue percentage;
- y = GDP or tax revenue rate of growth;
- i = interest rate applicable to public debt;
- d = debt/GDP or debt/tax revenue ratio.

We shall use two scenarios in the analysis. The first one, named unfavorable, considers real GDP⁷ or tax revenue (unity elasticity hypothesis) increasing in the long term at an yearly rate of 2.5% and real long-term interest rate applicable to public debt at 12% per annum⁸. The second, named favorable, considers a rate of 4% for real GDP growth and real interest rate of 6%.

3.1 – Consolidated government

In May 2001, the consolidated net debt⁹ totaled R\$590 billion, corresponding to 50% of GDP and 150% of available tax revenue.

This way, in the unfavorable scenario, the required primary surplus corresponds to 4.6% of GDP and 14% of tax revenue. In the favorable case, it corresponds to just 1% of GDP and 3% of revenue. Over the twelve months ended in May 2001, the consolidated government generated a surplus of 2.8% of GDP and 8.6% of revenue. This performance exceeds the requirements of the second scenario, though remaining lower than the requirements of the first one.

5/ The calculation follows the same principle established in the agreement with the International Monetary Fund (IMF), of at least stabilizing this relation. In case we wished to reduce it, a component related to amortization would be added to the formula. For this, see Technical Note “Primary Result in Resolution 78 (2000) Bacen-Dedip” by Pedro Paulo Ciseski and Glaucus B. Alves.

6/ (-) surplus (+) deficit. Given the seignorage revenues received by the Federal Government related to the minting of money, the equation should contain, in its right side, an element reducing the primary result. However, given the small size, in Brazil, of the monetary base as a share of GDP (3.5%) and the low figures of current inflation, the yearly revenue of “inflationary tax” became less expressive (for an inflation of 6% it corresponds to about 0.2% of GDP), even if added to the seignorage real revenue (for a GDP real growth of 4%, it corresponds to about 0.15%). Nevertheless, as a thumb rule, one may subtract 0.35% of GDP as seignorage revenue from the primary result required from the Federal Government. The derivation of the equation including seignorage revenues may be found in the Technical Note by the same author “Fiscal performance and public debt path in Brazil (1998) Bacen-Depec”.

7/ Long-term GDP rate of increase, in the Brazilian case: 2.4% from 1980 to 2000, and 4.3% from 1970 to 2000.

8/ This assumption applies to consolidated government only. For States and Municipalities, we use, in both scenarios, the rate of 6% prevailing in debt renegotiation agreements. In the case of the Federal Government, creditor of States and Municipalities, the difference between credit and debit interest rates in the unfavorable scenario is reflected in the rate applicable to its net debt, increasing it to 15% (weighted). Although from the beginning of the Real plan to the end of 2000 the average interest rate (Selic adjusted by the implicit deflator of the product or by IGP-DI) has been around 15% per annum, we do not use it because of its relation to the cost of the stabilization process. Between 1987 and 2000, the real rate (adjusted by the IGP-DI) was close to 12% per annum.

9/ Both domestic and foreign debts (except state-owned corporations) are treated in domestic currency. The interest rate follows the same procedure. The underlying assumptions are constant level of foreign reserves and stable debt and interest mix. According to the Interest Rate Covered Parity assumption, the interest rate applicable to the foreign debt, in local currency, is equal to the one applicable to the domestic debt.

Primary result	Scenario		Actual figures
	Unfavorable	Favorable	
% of GDP	4.6	1.0	2.8
% of tax revenue	14.0	3.0	8.6

(+) surplus; (-) deficit

3.2 – Central government

In May 2001, the central government had a net debt of R\$375 billion, corresponding to 32% of the GDP and 175% of available tax revenue, as well as credits before regional governments amounting to R\$190 billion. As in the unfavorable scenario the Federal Government pays the market a real interest rate of 12% per annum and receives 6% of the same value from regional governments, its real interest rate applicable to the net debt corresponds to about 15% per annum.

This way, in the unfavorable scenario, the required primary surplus corresponds to 3.9% of GDP¹⁰ and 21% of tax revenue. In the favorable one, it corresponds to just 0.6% of GDP and 3% of revenue. Over the twelve months ending in May 2001, the central government generated a surplus of 2.2% of GDP and 12% of revenue. This performance is above the requirements for the last scenario, though below the requirements for the first one.

Required primary result

Primary result	Scenario		Actual figures
	Unfavorable	Favorable	
% of GDP	3.9	0.6	2.2
% of tax revenue	21.0	3.0	12.0

(+) surplus; (-) deficit

3.3 – Regional governments

In May 2001, regional governments net debt totaled R\$215 billion, corresponding to 18% of GDP and 125% of available tax revenue.

This way, in the unfavorable scenario, the required primary surplus corresponds to 0.6% of GDP and 4% of tax revenue. In the favorable case, it corresponds to just 0.35% of GDP and 2.5% of revenue. In the twelve months ended in May 2001, regional governments generated a surplus of 0.6% of GDP and 4% of revenue. This performance corresponds to the requirements of the unfavorable scenario and exceeds the requirements for the favorable one.

Primary result required

Primary result	Scenario		Actual figures
	Unfavorable	Favorable	
% of GDP	0.6	0.4	0.6
% of tax revenue	4.0	2.5	4.0

(+) surplus; (-) deficit

10/ About one percentage point of the GDP results from the subsidy related to the difference between credit and debit interest rates applicable to the debts of regional governments renegotiated with the Federal Government. The same does not hold in the favorable scenario, since the rates are not different from each other. This way, the larger the difference between the two rates, the larger the fiscal adjustment transferred from regional governments to the central government. From the required primary result for both the consolidated government and the central government, 0.35% of GDP may be deducted, corresponding to seignorage revenues.

4. Equilibrium interest rate

Alternatively, we may calculate the interest rate compatible with stability of the debt/GDP ratio or debt/tax revenue ratio, assuming the primary result constant. For this, we use the following equation¹¹:

$$i = y - \frac{(1+y)p}{d}$$

The results are shown in the table below for primary results actually recorded in the twelve months ending in May 2001.

Equilibrium interest rates (% per annum)

Government level	Scenario (*)	
	Unfavorable	Favorable
Consolidated	8.5	10.0
Central	9.5	11.0
Regional	5.9	7.5

* Rate of growth of GDP: favorable scenario = 4%, unfavorable = 2.5%.

The higher the GDP rate of growth, the larger the interest rate supportable by the public sector. Keeping the current primary surpluses for the years ahead, the highest practicable interest rates while maintaining stable the ratio debt/GDP or debt/tax revenue are realistic. For regional governments, besides the actual rate being close to 6% per annum, there is no fiscal risk from changes in interest rates. The same does not hold for the central government.

5. Equilibrium growth

Alternatively, one may calculate the real GDP rate of growth compatible with a stable debt/GDP ratio or debt/tax revenue ratio while maintaining constant the current primary result. To do so, one uses the equation¹² below:

$$y = \frac{p + id}{d - p}$$

The results are shown in the table below for the actual primary result recorded in the twelve months ended in May 2001.

Equilibrium interest rates (% per annum)

Government level	Scenario (*)	
	Unfavorable	Favorable
Consolidated	6.0	0.5
Central	7.5	-1.0
Regional	2.5	2.5

* Interest rate: favorable scenario = 6%; unfavorable = 12% for consolidated government; 15% for central government; and 6% for regional governments.

11/ See Note 5.

12/ See Note 5.

The higher the interest rate on the debt, the larger the required GDP growth or tax revenue growth to stabilize the debt/GDP or debt/tax revenue ratios. Keeping the current primary surpluses for the years ahead, the lowest required GDP growth rates are realistic. It is worth stressing that the higher required rate (7.5% related to the central government in the unfavorable scenario) results mainly from the subsidy that is implicit in the renegotiation of the regional government debts, implying higher interest rate (15%) on net debt.

6. Debt pattern

Assuming constant for the next ten years the same primary result recorded in the past twelve months ended in May 2001, we calculate the probable path of the debt/GDP ratio and debt/tax revenue ratio for both scenarios:

Level of government	Favorable scenario		Unfavorable scenario	
	% of GDP	% of revenue	% of GDP	% of revenue
Consolidated	75	220	33	100
Central	57	320	17	95
Regional	18	125	16	110

As a share of GDP, in the unfavorable scenario, in ten years the debt of the consolidated government would increase to 75%, from 50%. The central government debt would increase to 57%, from 32%, and that of regional governments would remain stable at 18% of GDP. In the favorable scenario, the consolidated government debt would drop to 33%, that of the central government to 17% and the regional government debt, to 16%.

As against tax revenue, in the unfavorable scenario, in ten years the consolidated government debt would increase to 220%, from 150%. The central government debt would reach 320%, from 175%, and that of regional governments would remain stable at 125% of tax revenue. In the favorable scenario, the consolidated government debt would drop to 100%, that of the central government, to 95%, and regional governments debt to 110%.

7. Sensitivity analysis

In order to test the change in the primary effort required to make changes in its main determinants (interest rates and GDP growth), we display below the result of comparative static exercises:

Level of government	1% change in the rate of interest		1% change in the GDP rate of growth	
	% of GDP	% of revenue	% of GDP	% of revenue
Consolidated	0,5	1,5	-0,5	-1,5
Central	0,3	1,7	-0,3	-1,7
Regional	0,2	1,2	-0,2	-1,2

13/ The primary result is more sensitive to changes in the GDP rate of growth than to changes in the interest rate. However, as the difference is small, we selected to use the same figure for simplicity.

For each percentage point increase in the rate of interest, the consolidated government needs to increase the primary effort in 0.5% of GDP, distributed into 0.3% to the central government and 0.2% to regional governments. The converse occurs for the GDP rate of growth. For each percentage point increased in the rate, the consolidated government may reduce its primary effort in 0.5% of GDP, distributed into 0.3% to the central government and 0.2% to regional governments¹⁴.

For each percentage point increase in the interest rate, the consolidated government needs to increase the primary effort in 1.5% of revenue, the central government in 1.7% and the regional governments in 1.2%. The converse occurs with the GDP rate of growth.

8. Final comments

Between 1997 and 2000 the Brazilian public sector performed an expressive primary fiscal effort, equivalent to 3% of GDP and to 11% of the tax revenue, with emphasis to the central government. The major part of this effort was directed to the revenue side, which increased its proportion to GDP in almost five percentage points.

The current levels of the primary effort are within realistic parameters and situated in the middle point between the favorable and unfavorable scenarios. This way, we understand that there is no need for strong additional adjustments (fiscal overkill) to respond to transitory difficulties. In the long term, it is more important to concentrate efforts to secure the maintenance of this already attained level. Complementarily, it would be interesting to calculate the fiscal result cyclically adjusted (structural) to be able to compare it to the current one, since, the same way the budget deficit affects aggregate demand (active effect resulting from discretionary changes in the budget policy), aggregate demand affects the budget deficit (passive effect resulting from changes in the components of revenues and expenses sensitive to the business cycle).

The renegotiation of regional government debt shifted to the central government the responsibility for part of that level's adjustment, in addition to the fiscal risk associated to changes in interest rates. The more the rate set by the Central Bank shifts above the interest rates prevailing in renegotiation agreements, the higher the subsidy assumed by the central government, and therefore, the stronger the fiscal adjustment needed to finance such subsidy. As the Federal Government has, in last instance, the (residual) responsibility for compliance with the consolidated fiscal target, any contribution by regional governments, as it is recently happening, reduces its adjustment burden. For this reason, measures such as, in the case of municipalities, intensifying efforts to explore potential tax collection or, in the case of the government as a whole, making collection of government credits more effective, make all sense.

Summarizing, we shall stress the sensitivity of the primary effort required for changes in interest rates and GDP rates of growth. For a real interest rate of 6% per annum and a 4% GDP yearly rate of growth, the primary result required to stabilize the

14/ Since the interest rate applicable to most part of the regional government debt is fixed under the renegotiation agreement struck with the Federal Government, the adjustment required in the primary result is restricted to the central government and the sensitivity (as a percentage of GDP) is equal to the one calculated for the consolidated government.

debt path drops to just 1% of GDP. Therefore, the faster the Brazilian economy turns towards a virtuous cycle of sustained growth and convergence of interest rates to international levels, the lower will be the welfare cost required to secure a fiscal situation sustainable in the long term. In this sense, the experience of the United States during the nineties is emblematic. The combination of economic growth with reduced interest rates has contributed expressively to change large deficits into sizeable surpluses, not to mention similar experiences lived by Asian countries in the seventies and eighties.

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