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FISCAL IMPULSE IN THE BRAZILIAN ECONOMY, 1989-1996

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1. INTRODUCTION[1]

After several failed attempts since the mid-eighties, the Real Plan may now be considered a highly successful stabilization experience. During the second half of 1994, the monthly inflation rate was brought down from almost 50 percent in June to about 1 percent in December and has remained at very low levels since then. A downside of the stabilization program was a critical deterioration of the fiscal accounts. The successful launching of the Plan was partly assured by relatively favorable fiscal conditions that allowed the public-sector to generate a primary surplus of about 5.3 percent of GDP in 1994. In 1995, in contrast, there was a primary surplus of only 0.3 percent of GDP. In only one year, the public-sector primary balance showed a deterioration of 5 percent of GDP. That deterioration went on in 1996 when the public-sector generated a primary deficit of about 0.1 percent of GDP. Reverting such trend has become the main challenge of the current stabilization effort.

Such a sharp and fast turnaround in a widely accepted indicator of fiscal policy has raised questions about the soundness of the fiscal stance before 1995, a period marked by very high inflation rates and uneven GDP growth performance. As it is well known, fluctuations in these macroeconomic variables impact public-sector's revenues and expenditures, having important effects on the observed changes in the fiscal deficit.

This paper develops an alternative indicator of fiscal policy which allows a more accurate picture of the underlying fiscal trend in the Brazilian economy over the recent period. This indicator corrects conventional fiscal-stance measures for the effects of the

economic cycle, and yields a measure of the discretionary change in the budgetary position of the public-sector, known as the "fiscal impulse".

Section 2 briefly examines the evolution of traditional fiscal policy indicators over the recent period, detecting the bottom line of the changes in the fiscal stance. The details of the estimation of the fiscal impulse measure for the Brazilian economy are presented in Section 3. Section 4 concludes the paper with a reassessment of recent fiscal policy episodes, using the data generated in the previous section. The resulting fiscal-impulse measure indicates that, on average, the fiscal stance during 1989-96 was more expansionist than suggested by traditional fiscal policy indicators.

2. TRADITIONAL FISCAL POLICY INDICATORS: HISTORICAL RETROSPECTIVE[2]

No more than a glance at Figure 2.1 is needed to grasp the extent of the variations in fiscal indicators observed since the mid-eighties in Brazil, as the country lived through a period of great macroeconomic instability. Understanding the ups and downs of those indicators, in the wake of five failed stabilization attempts and the Real Plan, is less interesting for the purpose of this paper than detecting the bottom line of the fiscal-stance changes over the period.[3]

Figure 2.1
Brazil - Fiscal Deficits and Interest Payments, 1985-1996
(In percent of GDP)

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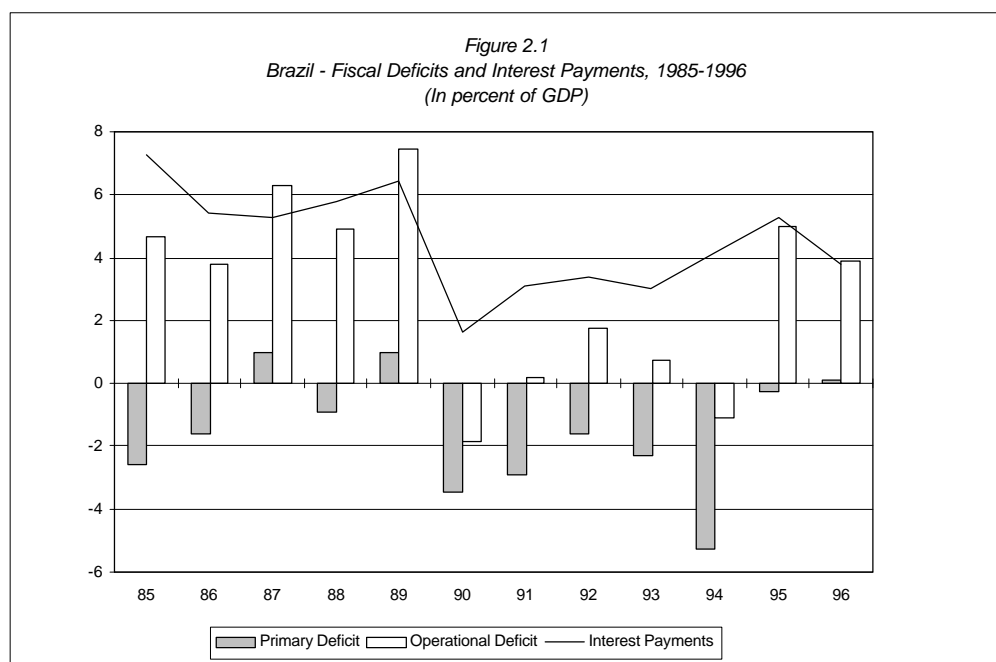
[2] Throughout this paper the expression public sector refers to the nonfinancial public sector, which comprises the Federal Government (including the Central Bank and the social security system), the States and Municipalities and all Public Enterprises.

[3] Figure 3.1 in Section 3 below provides a telling picture of the long sequence of stabilization attempts during the period. For a detailed analysis of the evolution of the public sector accounts since the mid-eighties, see Carneiro and Werneck (1993), Barbosa and Giambiagi (1995), Velloso (1996a, 1996b), Furugem, Pessôa and Abe (1996) and Giambiagi (1997). For the analysis of the fiscal accounts before the mid-eighties, see Werneck (1986, 1991). The dynamics of the public-sector debt in Brazil is examined in Bevilaqua and Werneck (1997b).

Examining the evolution of the primary balance in Figure 2.1, one identifies three markedly distinct periods.[4] The first one, from 1985 to 1989, is basically the Sarney Administration term, that followed the end of the two-decade long military regime. The second period, from 1990 to 1994, covers both the short-lived Collor Administration, that ended with the impeachment of the President in September 1992, and the Franco Administration that launched the Real Plan in mid-1994, six months before the end of the presidential term. The third period, 1995-96, corresponds to the first half of the present Cardoso Administration.

In order to have a clearer picture of the evolution of the fiscal indicators over the whole time span, Table 2.1 presents averages for each of those three periods, variations of the averages between periods and decomposition of the variations. The primary deficit line in the lower part of the table, shows that the average primary surplus increased from 0.6 percent of GDP in 1985-89, to 3.1 percent in 1990-94, only to fall back to less than 0.1 percent of GDP in 1995-96. The federal government was responsible for 80 percent of the improvement in the public-sector primary surplus between the first two periods, but for only 36 percent of the deterioration observed between the last two periods. The remaining deterioration stemmed, in roughly equal parts, from the accounts of states and municipalities, on one hand, and public enterprises, on the other.

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[4] Taking into consideration the deficiencies of the available information, the consolidation of the above-the-line accounts of the public sector presented in Appendix 1 should be considered an approximation. Those deficiencies are well evidenced by the magnitude of the figures shown in the "float and adjustment" row in the tables of Appendix 1. In recent years the quality of these data has improved (Piancastelli and Pereira, 1996). For a discussion of the limitations of the above-the-line data see, for example, Giambiagi (1997).

Table 2.1

BRAZIL: Changing Fiscal Deficits, 1985-1996

Deficits Categories and Public Sector Segments	Annual Averages (In Percent of GDP)			Variation 85/89 - 90/94			Variation 90/94 - 95/96			Variation 85/89 - 95/96		
	1985-1989 (A)	1990-1994 (B)	1995-1996 (C)	(B) - (A)	Decomp I	Decomp II	(C) - (B)	Decomp I	Decomp II	(C) - (A)	Decomp I	Decomp II
Operational Deficit	5.42	-0.05	4.45	-5.47	100.0		4.50	100.0		-0.97	100.0	
Federal Government	2.89	-0.54	1.72	-3.43	62.7		2.26	50.3		-1.17	119.9	
States and Municipalities	0.92	0.16	2.17	-0.75	13.8		2.01	44.8		1.26	-129.3	
Public Enterprises	1.62	0.33	0.62	-1.29	23.6		0.28	6.3		-1.01	103.3	
Interest Payments	6.04	3.06	4.53	-2.99	54.6	100.0	1.47	32.7	100.0	-1.52	155.8	100.0
Federal Government	2.45	1.01	2.16	-1.44	26.3	48.2	1.15	25.5	78.0	-0.29	29.9	19.2
States and Municipalities	0.96	0.79	1.80	-0.16	3.0	5.5	1.00	22.3	68.3	0.84	-86.3	-55.4
Public Enterprises	2.64	1.24	0.62	-1.40	25.7	47.0	-0.62	-13.7	-41.9	-2.02	207.5	133.2
Primary Deficit	-0.62	-3.11	-0.08	-2.49	45.4	100.0	3.02	67.2	100.0	0.54	-55.3	100.0
Federal Government	0.44	-1.55	-0.45	-1.99	36.4	80.1	1.10	24.5	36.4	-0.89	91.5	-165.5
States and Municipalities	-0.04	-0.63	0.37	-0.59	10.8	23.7	1.00	22.3	33.2	0.41	-42.5	76.9
Public Enterprises	-1.02	-0.91	-0.01	0.11	-2.1	-4.6	0.90	20.0	29.7	1.01	-104.2	188.6

The table also shows that the reduction of the operational deficit between 1985-89 and 1990-94 reached almost 5.5 percent of GDP, and that more than half of the improvement came from falling interest payments. Between 1990-94 and 1995-96, however, the operational deficit widened again by 4.5 percent of GDP. Only less than a third of that variation may be attributed to rising public-sector interest payments. All the rest came from the vanishing primary surplus.

A closer and more careful analysis of the evolution of the primary balance is therefore a key step towards a deeper understanding of the fiscal-policy performance in Brazil since the late eighties. The next sections will concentrate precisely on this point.

3. A FISCAL IMPULSE MEASURE

During most of the period under analysis, the Brazilian economy was subject to very high inflation rates and to an uneven GDP growth performance (see Figures 3.1 and 3.2). It is well known that fluctuations in these variables impact public sector's tax revenues and expenditures, having important effects on the observed changes in the fiscal deficit in any given year.[5] In order to produce a more accurate picture of the underlying fiscal trends in the Brazilian economy in the recent period, this section develops an alternative indicator of fiscal policy. This indicator corrects conventional fiscal stance measures for the effects of the economic cycle, and yields an estimate of the changes in the discretionary component of fiscal policy in each year.

The change in the observed primary deficit with respect to the previous year, as a percentage of GDP, is the simplest possible measure of the discretionary change in the budgetary position of the public sector, or the "fiscal impulse" [6]. Since it excludes interest payments, it captures only the effects of contemporaneous fiscal policy actions. Its main disadvantage, however, is that part of the observed fluctuations in the primary deficit are induced by the effects of the economic cycle on tax revenues and expenditures and not by discretionary policy actions.

Blanchard (1990) suggests a measure of the fiscal impulse which addresses the main shortcoming of the changes in the primary deficit without compromising its simplicity: the value of the primary deficit in any given year if the unemployment rate had remained the same as in the previous year, minus the primary deficit in the previous year. The measure, therefore, captures the change in the primary deficit which cannot be attributed to the economic cycle, as measured by variations in the unemployment rate. Its estimation

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[5] See, for example, Buiter (1983).
[6] Alternative fiscal impulse measures are examined in Chand (1992).

Figure 3.1
Brazil, Monthly percentage change in the General Price Index, IGP-DI
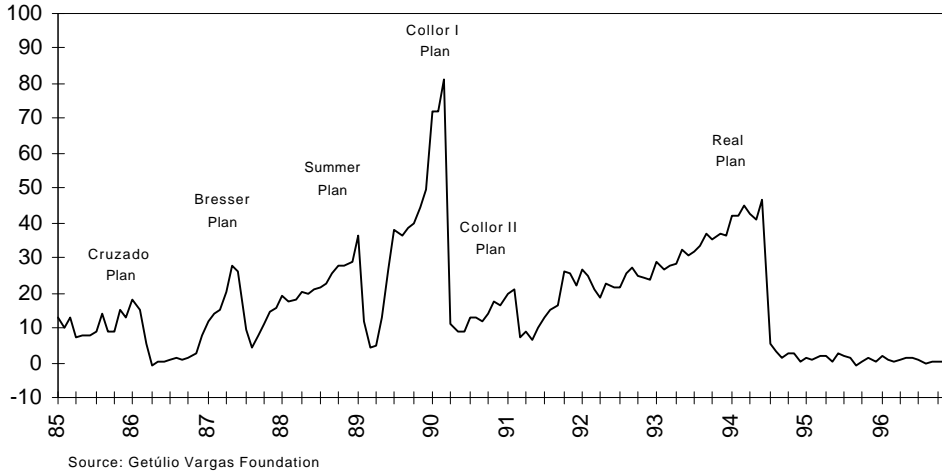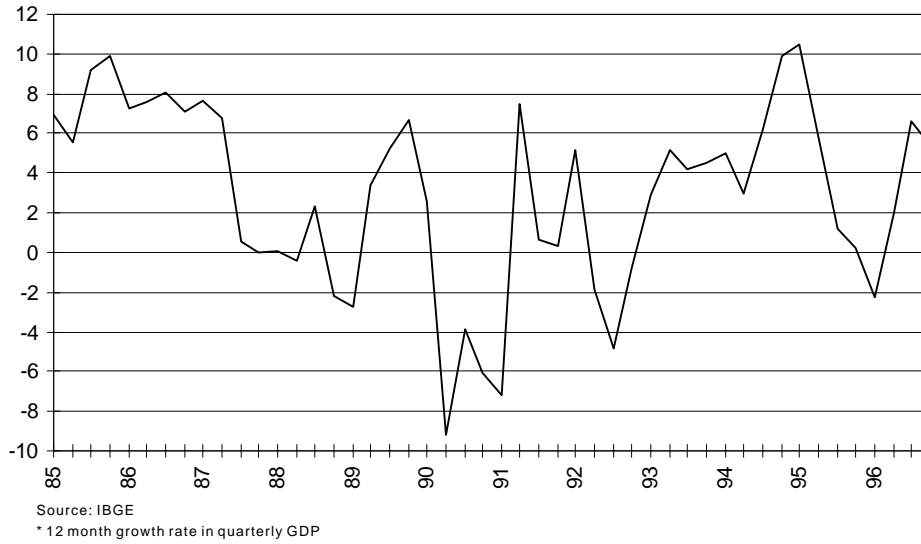
Collor I
Plan

Real
Plan

Summer
Plan

Bresser
Plan

Collor II
Plan

Cruzado
Plan

Source: Getúlio Vargas Foundation

Figure 3.2
Brazil, Real GDP Growth ＊

Source: IBGE
* 12 month growth rate in quarterly GDP

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requires, in addition to the observed primary deficit, the calculation of an adjusted primary deficit series.

In this paper an alternative version of Blanchard's fiscal impulse measure is constructed in which the different components of the primary deficit are adjusted for variations both in the activity level and the inflation rate.[7] It focus on output rather than unemployment because the former captures better the short-run variations in the economic cycle in Brazil.[8] Also, it adjusts the deficit for changes in the inflation rate because of the asymmetric indexation of revenues and expenditures throughout the period under analysis. While Brazilian tax revenues have been highly, though imperfectly, indexed to the inflation rate for many years, expenditures were never subject to a similar degree of indexation and used to have their real value significantly eroded during the high inflation period.[9]

As the 1988 Constitution introduced changes that altered substantially the fiscal regime in Brazil, the empirical work was based on data for the period of 1989 to 1996. Since this is a relatively short time interval, quarterly data was used for the econometric estimations. Except for the state value-added tax (ICMS), only federal government data is available on a quarterly basis. Therefore, the estimated fiscal impulse measure reflects mainly the effect of adjustments on federal tax revenues and expenditures. Series of revenues from most taxes were adjusted, proving to be sensitive only to variations in the activity level. The exceptions were the import tax and the ICMS, which were also adjusted for changes in the inflation rate. On the expenditure side, the only category that had to be adjusted was the government payroll, which proved sensitive to changes in the inflation rate. The

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[7] Despite the substantial trade liberalization of the early 1990s, the Brazilian economy remains fairly closed and most of the impact of macroeconomic variables on expenditures and tax revenues could possibly be attributed to domestic variables.

[8] Faria (1996) estimates a measure of the fiscal impulse for the Brazilian economy following a different methodology and adjusting only total revenues for fluctuations in the activity level.

[9] For an analysis of the effects of the inflation rate on government expenditures in Brazil, see Bacha (1995).

remaining expenditure series did not show any significant relationship with the two macroeconomic variables.

The starting point for the construction of the alternative fiscal policy indicator was the estimation of inflation and GDP elasticities of tax revenues and expenditures.[10] For each of the categories of taxes and expenditures, a OLS regression was run with the following specification:

$$lnA_t = a + blnY_t + glnp_t + e_t$$

where A_t represents the specific category, Y_t stands for real GDP, p_t is the inflation rate, and e_t is an error term.

Monthly tax revenues and expenditures data covering the period from January 1989 to December 1996 were first converted to constant prices (December 1996), using the geometric average of the General Price Index (IGP-DI) for the current and the previous month, and then aggregated to generate the quarterly tax revenues and expenditures series. All regressions were then estimated with quarterly data (1989.I to 1996.IV).

Some of the regressions showed evidence of first-order serial correlation and were reestimated using the maximum likelihood procedure of Beach and MacKinnon (1978).[11] In addition, when the estimated coefficient of one of the explanatory variables had very little statistical significance, the variable was dropped from the regression.

Most of the regressions refer to the federal government. As mentioned above, for the state and municipal governments the only series that was available on a frequency higher than

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[10] For earlier attempts to estimate the response of federal revenues and expenditures to macroeconomic variables see, respectively, Muriel (1996) and Pereira (1996).

[11] In fact, preliminary inspection of the series suggested that some of them are not stationary. The small span covered by the data, however, raises questions about the adequacy of a cointegration analysis.

a year was the Value-Added Tax (ICMS). There was no monthly or quarterly information on the required series for state-owned enterprises.

Estimation results for the series that were significantly related to either one of the explanatory variables are presented in Table A2.1 in Appendix 2. The adjusted tax revenue and expenditures figures were obtained as the fitted values of the regressions in Table A2.1 using as explanatory variables the inflation rate and/or the GDP of the previous year:

$$ln\hat{A}_t = \hat{a} + \hat{b}lnY_{t-4} + \hat{g}lnp_{t-4}$$

In the cases in which there was a correction for first-order serial correlation of the error terms the fitted values were generated as:

$$ln\hat{A}_t = (1-\hat{r})\hat{a} + \hat{b}(lnY_{t-4} - \hat{r}lnY_{t-5}) + \hat{g}(lnp_{t-4} - \hat{r}lnp_{t-5})$$

where $\hat{r}$ is the estimated correlation coefficient between errors in period t and period t-1. Figures A2.1 to A2.8 in Appendix 2 present the actual and adjusted values for the different series.

The adjusted public sector primary deficit was then calculated aggregating the adjusted tax revenues and expenditures for the federal government and state and municipal governments to the unadjusted primary deficit of the state owned enterprises. The difference between the actual and the adjusted deficit in each year is decomposed into revenues and expenditures in Table A2 in Appendix 2. The quarterly fiscal impulse measure was obtained as:

$$FI = (\hat{G}_t - \hat{T}_t) - (G_{t-4} - T_{t-4})$$

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where G_{t-4} - T_{t-4} and $\hat{G}_t$ - $\hat{T}_t$ are, respectively, the actual primary deficit and the adjusted primary deficit. Figures A2.9 and A2.10 in Appendix 2 present quarterly values for the actual and adjusted deficits, as well as the change in the primary deficit and the estimated fiscal impulse measure. Actual and adjusted yearly values for the nonfinancial public sector primary deficit are presented in Table 3.1.

Table 3.1

Brazil: Actual and Adjusted Primary Deficit, 1989-1996

(In percent of GDP)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Actual Deficit	*1.0*	*-4.6*	*-2.8*	*-1.6*	*-2.2*	*-5.3*	*-0.3*	*0.1*
Adjusted Deficit	*2.7*	*-2.8*	*-3.6*	*-2.1*	*-2.1*	*-4.0*	*0.5*	*0.8*

Table 3.2 presents the actual yearly change in the nonfinancial public sector primary deficit, along with the estimated fiscal impulse measure.

Table 3.2

Brazil: Actual Change in the Primary Deficit and Fiscal Impulse Measure, 1989-1996

(In percent of GDP)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Change in Deficit	*0.9*	*-5.6*	*1.8*	*1.2*	*-0.6*	*-3.0*	*5.0*	*0.4*
Fiscal Impulse Measure	*2.6*	*-3.8*	*1.0*	*0.7*	*-0.5*	*-1.8*	*5.8*	*1.0*

4. A REASSESSMENT OF PAST FISCAL-POLICY EPISODES

To what extent would the above derived indicators affect the assessment of past fiscal policy episodes presented in Section 2? The adjusted deficit shows, on average, a more expansionist fiscal policy stance than the actual deficit during the period 1989-1996.[12] Average values, of course, conceal important differences within the period. While the adjusted series indicates higher deficits or lower surpluses when compared to the observed values for 1989-90 and 1994-96, it also shows that the actual deficit significantly underestimates the primary balances of 1991-92. For 1993, there is no significant difference between the two measures. This was an year in which there was a high rate of real GDP growth and a significant increase in the inflation rate with respect to the previous year, causing the adjustments on revenues and expenditures to cancel out (see Table 3.1 and Figure 4.1).

Figure 4.1
Actual and Adjusted Primary Deficit
(In percent of GDP)

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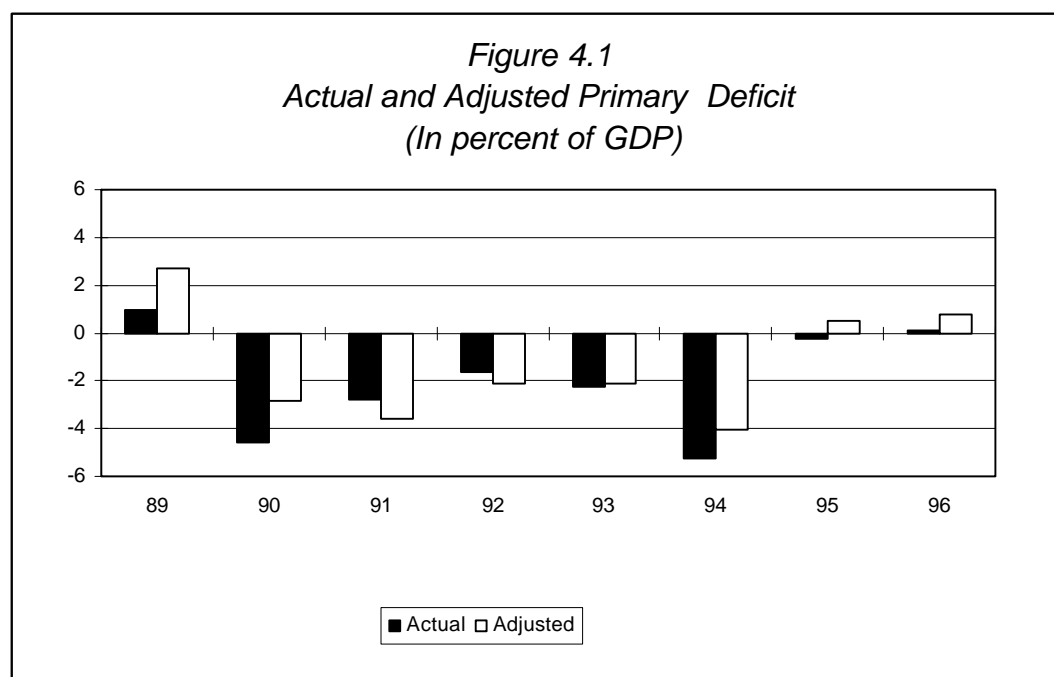
[12] The average values of the actual and adjusted primary deficits in Table 3.1 are, respectively, -2.0 and -1.3.

Figure 4.2
Actual Change in Primary Deficit and Fiscal
Impulse Measure (In percent of GDP)
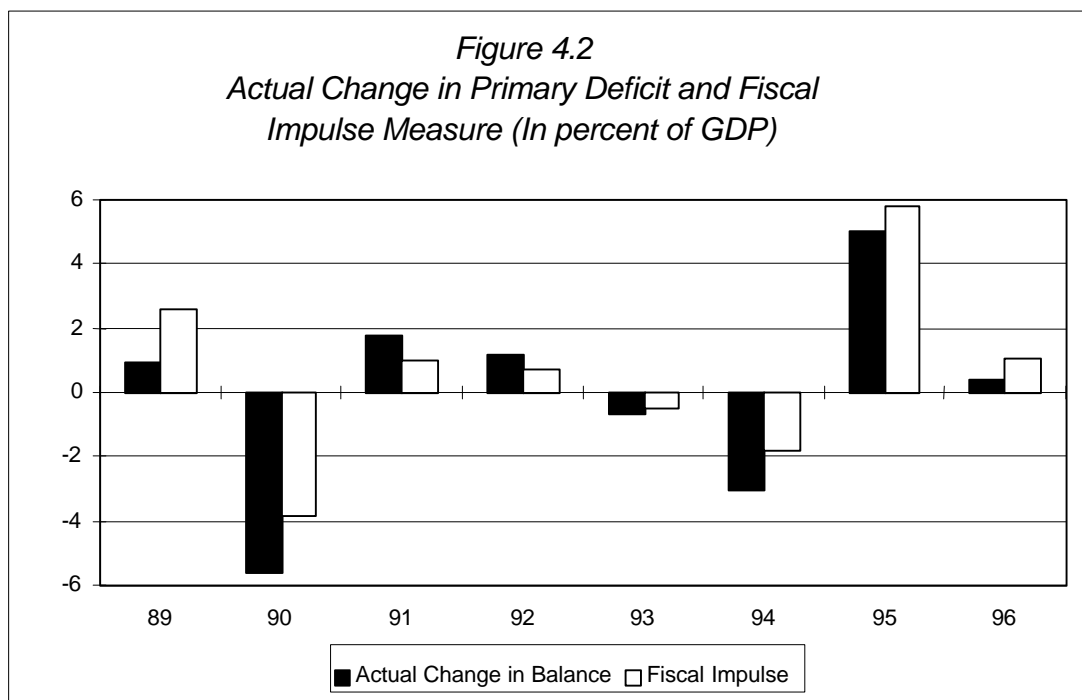
The same kind of conclusion emerges from the analysis of Table 3.2, which shows an average fiscal impulse of 0.6 percent of GDP for 1989-96, as opposed to the neutral fiscal policy stance suggested by the average change in the actual primary deficit during the same period.

Again, period averages conceal important differences in single years. The estimated fiscal impulse measure for 1989, for example, shows a much more expansionist stance than the actual change in the primary deficit suggests. While the actual deficit increased by about 0.9 percent of GDP with respect to the previous year, the estimated fiscal impulse measure was virtually three times bigger. That difference could probably be explained by the high rate of real GDP growth and the substantial acceleration of inflation in 1989. Similarly, for 1990 the estimated fiscal impulse measure shows a less contractionist fiscal policy than the actual change in the deficit does. This result, however, should possibly be

attributed to the temporary increase in the tax burden in the context of the first Collor Plan, rather than to effects of the economic cycle on tax revenues and expenditures series[13](see Table 3.2 and Figure 4.2).

For both 1991 and 1992 the changes in the actual deficit show a more expansionist policy stance than the estimated fiscal impulse measure suggests. This is particularly the case of 1991, when the change in the observed deficit is almost twice the estimated fiscal impulse measure. The difference can be explained by the effect on tax revenues of the virtual stagnation in real GDP during these two years. This effect more than compensated the impact on expenditures of the acceleration in the inflation rate following the breakdown of the second Collor Plan in mid 1991.

The two indicators are significantly different again during the period that followed the launching of the *Real* Plan. The fiscal impulse data presented in Table 3.2 show that the change in the observed deficit overestimates the fiscal contraction of 1994, and underestimates the fiscal expansion of 1995-96. In fact, when measured by the estimated fiscal impulse the contraction in 1994 was less than two thirds of the change in the observed deficit. That can be explained by the record rate of real GDP growth of 6 percent during the year, which increased tax collection by more than 2 percentage points of GDP with respect to 1993. The impact of GDP growth on adjusted revenues more than compensated the fact that adjusted expenditures were lower than actual expenditures because of the sharp drop in the inflation rate during 1994.

Finally, for 1995-96 the estimated measure shows that the fiscal stance deterioration was larger than suggested by the conventional indicator.[14] While the observed deficit showed

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[13] Adjusted revenues are lower than actual revenues in 1990, despite the sharp contraction in real GDP observed in that year (See Appendix 2).

[14] In fact, the quarterly data presented in Figure A2.10 in Appendix 2 show that the deterioration in the fiscal policy stance started in the last quarter of 1994.

a cumulative increase of 5.4 percent of GDP, the estimated fiscal impulse in these two years reached about 6.8 percent of GDP. In both years, the difference between the two indicators can be explained by the fact that adjusted revenues were systematically lower than actual revenues. Again, this effect more than compensated the fact that adjusted expenditures were lower than actual expenditures.

APPENDIX 1

DATA

Table A1.1
BRAZIL: TOTAL OPERATIONAL AND PRIMARY DEFICITS OF THE PUBLIC SECTOR: 1985-1996
(In percent of GDP)

CATEGORY AND LEVEL OF GOVERNMENT	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Total Borrowing Requirement	30.24	11.78	33.96	55.88	89.87	32.00	28.25	47.24	65.01	26.49	7.40	6.09
Federal Government	11.02	5.19	14.58	12.41	55.09	13.26	6.90	16.93	23.97	9.97	2.40	2.64
States and Municipalities	7.06	2.87	8.57	14.91	17.99	9.30	10.32	17.41	27.24	11.86	3.70	2.81
Public Enterprises	12.17	3.71	10.80	28.56	16.80	9.44	11.03	12.90	13.80	4.65	1.30	0.64
Monetary Correction	25.57	7.97	27.66	50.97	82.43	33.83	28.05	45.47	64.28	27.61	2.40	2.19
Federal Government	9.82	3.82	11.28	8.11	50.84	15.76	6.82	16.28	23.36	11.52	0.66	0.94
States and Municipalities	6.03	1.87	6.79	14.74	17.38	9.30	11.04	16.77	27.15	11.07	1.25	0.91
Public Enterprises	9.72	2.28	9.59	28.13	14.21	8.78	10.20	12.41	13.77	5.02	0.40	0.31
Operational Deficit	4.67	3.81	6.29	4.90	7.44	-1.83	0.20	1.77	0.73	-1.12	5.00	3.90
Federal Government	1.20	1.38	3.30	4.30	4.25	-2.50	0.08	0.64	0.61	-1.55	1.74	1.70
States and Municipalities	1.02	1.00	1.78	0.17	0.60	0.00	-0.72	0.64	0.09	0.79	2.45	1.90
Public Enterprises	2.45	1.43	1.21	0.43	2.58	0.67	0.84	0.48	0.04	-0.37	0.90	0.33
Interest Payments	7.27	5.41	5.29	5.80	6.44	1.63	3.10	3.37	3.03	4.15	5.26	3.79
Federal Government	2.80	1.78	1.50	3.30	2.85	-0.94	1.08	1.74	1.51	1.65	2.24	2.07
States and Municipalities	1.12	0.90	1.18	0.67	0.90	0.20	0.78	0.74	0.69	1.54	2.27	1.32
Public Enterprises	3.35	2.73	2.61	1.83	2.68	2.37	1.14	0.88	0.84	0.96	0.84	0.40
Primary Deficit	-2.60	-1.60	1.00	-0.90	1.00	-3.46	-2.90	-1.60	-2.30	-5.27	-0.26	0.10
Federal Government	-1.60	-0.40	1.80	1.00	1.40	-1.56	-1.00	-1.10	-0.90	-3.19	-0.50	-0.40
States and Municipalities	-0.10	0.10	0.60	-0.50	-0.30	-0.20	-1.50	-0.10	-0.60	-0.75	0.18	0.57
Public Enterprises	-0.90	-1.30	-1.40	-1.40	-0.10	-1.70	-0.30	-0.40	-0.80	-1.33	0.06	-0.07

Source: Secretaria de Política Econômica, Ministério da Fazenda

Table A1.2
BRAZIL: SUMMARY OPERATIONS OF THE PUBLIC SECTOR
(In percent of GDP)

	1989	1990	1991	1992
Non-financial Revenue	29.64	34.83	31.12	31.48
Tax Revenue	13.88	17.87	14.83	15.48
VAT - IPI	2.21	2.52	2.23	2.40
Income Tax	4.10	4.27	3.51	3.85
Finsocial	1.10	1.02	1.38	1.04
PIS/PASEP	0.54	1.20	1.10	1.12
IPMF	0.00	0.00	0.00	0.00
CSLL	0.21	0.87	0.30	0.75
Other Federal Taxes	0.80	1.10	0.70	0.60
State and local Tax Revenue	7.20	9.10	8.48	7.97
Minus: Public Enterprises Taxes	-2.28	-2.21	-2.87	-2.25
Social Security Contributions	4.47	5.35	4.85	4.79
Other Non-Tax Revenue	11.29	11.61	11.44	11.21
Federal Government	1.03	2.80	1.14	1.10
States and Municipalities	1.60	1.73	2.21	1.77
Public Enterprises Value Added	5.12	5.29	6.75	7.36
Other Revenue of Public Enterprises	3.54	1.79	1.34	0.98
Non-financial Expenditure	37.43	38.04	33.60	33.60
Current Expenditure	29.88	30.84	26.77	27.21
Wages	16.28	15.71	13.37	13.65
Goods and Sevices	6.05	5.86	5.79	5.21
Pensions and Welfare	4.30	4.59	4.07	5.04
Subsidies and other Current Exp	2.70	4.19	2.93	2.67
Transfers to Private Sector	0.55	0.49	0.61	0.64
Capital Expenditure	7.55	7.20	6.83	6.39
Investment	6.62	6.82	6.39	5.91
Public Enterprises other Capital Expen	0.30	0.24	0.32	0.43
Credit Op. Expenditures (POOC)	0.63	0.14	0.12	0.05
Float and Adjustment	6.79	6.67	5.38	3.72
Primary Deficit	1.00	-3.46	-2.90	-1.60
Real Interest Payments	6.44	1.63	3.10	3.37
Operational Deficit	7.44	-1.83	0.20	1.77

Source: Secretaria de Política Econômica, Ministério da Fazenda

BRAZIL: SUMMARY OPERATIONS OF THE PUBLIC SECTOR
(In percent of GDP)

	1993	1994	1995	1996
Non-financial Revenue	*31.29*	*33.04*	*31.66*	*32.59*
Tax Revenue	*15.60*	*18.19*	*18.68*	*18.79*
VAT - IPI	*2.44*	*2.12*	*2.04*	*2.03*
Income Tax	*3.89*	*3.65*	*4.23*	*4.16*
Finsocial	*1.37*	*2.32*	*2.31*	*2.37*
PIS/PASEP	*1.16*	*1.04*	*0.93*	*0.98*
IPMF	*0.07*	*1.02*	*0.02*	*-0.19*
CSLL	*0.80*	*0.94*	*0.89*	*0.86*
Other Federal Taxes	*0.60*	*0.90*	*1.10*	*1.10*
State and local Tax Revenue	*7.67*	*8.17*	*8.96*	*9.26*
Minus: Public Enterprises Taxes	*-2.40*	*-1.97*	*-1.80*	*-1.78*
Social Security Contributions	*5.47*	*4.84*	*4.89*	*5.08*
Other Non-Tax Revenue	*10.22*	*10.01*	*8.09*	*8.72*
Federal Government	*1.53*	*1.74*	*1.64*	*1.70*
States and Municipalities	*1.83*	*1.67*	*1.64*	*1.48*
Public Enterprises Value Added	*4.59*	*5.52*	*4.21*	*4.26*
Other Revenue of Public Enterprises	*2.27*	*1.08*	*0.60*	*1.28*
Non-financial Expenditure	*35.76*	*29.92*	*32.05*	*33.32*
Current Expenditure	*29.35*	*25.64*	*28.10*	*28.38*
Wages	*13.77*	*13.00*	*13.68*	*13.71*
Goods and Sevices	*6.86*	*3.73*	*5.31*	*5.44*
Pensions and Welfare	*5.57*	*5.37*	*5.53*	*6.00*
Subsidies and other Current Exp	*2.64*	*2.91*	*2.84*	*2.80*
Transfers to Private Sector	*0.51*	*0.63*	*0.74*	*0.43*
Capital Expenditure	*6.41*	*4.28*	*3.95*	*4.94*
Investment	*5.97*	*4.06*	*3.68*	*4.60*
Public Enterprises other Capital Expen	*0.40*	*0.13*	*0.20*	*0.33*
Credit Op. Expenditures (POOC)	*0.04*	*0.09*	*0.07*	*0.01*
Float and Adjustment	*6.77*	*2.15*	*0.65*	*0.63*
Primary Deficit	*-2.30*	*-5.27*	*-0.26*	*0.10*
Real Interest Payments	*3.03*	*4.15*	*5.26*	*3.79*
Operational Deficit	*0.73*	*-1.12*	*5.00*	*3.90*

Source: Secretaria de Política Econômica, Ministério da Fazenda

BRAZIL: FEDERAL GOVERNMENT OPERATIONS
(In percent of GDP)

	1989	*1990*	*1991*	*1992*
Revenue	14.46	19.13	15.21	15.65
Tax Revenue	8.96	10.98	9.22	9.76
VAT - IPI	2.21	2.52	2.23	2.40
Income Tax	4.1	4.27	3.51	3.85
Finsocial	1.1	1.02	1.38	1.04
PIS/PASEP	0.54	1.2	1.10	1.12
IPMF				
CSLL	0.21	0.87	0.30	0.75
Other Taxes	0.8	1.1	0.70	0.60
Social Security Contributions	4.47	5.35	4.85	4.79
Other	1.03	2.8	1.14	1.10
Expenditure	20.46	20.49	17.77	17.45
Current Expenditure	17.77	17.57	15.21	15.68
Wages	6.95	6.06	4.54	4.60
Goods and Services	3.75	3.34	3.42	2.58
Pensions and Welfare	3.8	3.87	3.53	4.45
Current Transfers	3.27	4.30	3.72	4.05
Intergovernmental Transfers	2.72	3.81	3.11	3.41
Other Transfers	0.55	0.49	0.61	0.64
Capital Expenditure	2.69	2.92	2.56	1.77
Investment	1.60	2.57	1.99	1.60
Transfers to P.S Enterprises	0.46	0.21	0.45	0.12
Credit Op. Expenditures (POOC)	0.63	0.14	0.12	0.05
Float and Adjustment	4.60	2.92	3.56	2.90
Primary Deficit	1.40	-1.56	-1.00	-1.10
Real Interest Payments	2.85	-0.94	1.08	1.74
Operational Deficit	4.25	-2.50	0.08	0.64

Source: Secretaria de Política Econômica, Ministério da Fazenda

BRAZIL: FEDERAL GOVERNMENT OPERATIONS
(In percent of GDP)

	1993	1994	1995	1996
Revenue	*17.33*	*18.57*	*18.05*	*18.09*
Tax Revenue	*10.33*	*11.99*	*11.52*	*11.31*
VAT - IPI	*2.44*	*2.12*	*2.04*	*2.03*
Income Tax	*3.89*	*3.65*	*4.23*	*4.16*
Finsocial	*1.37*	*2.32*	*2.31*	*2.37*
PIS/PASEP	*1.16*	*1.04*	*0.93*	*0.98*
IPMF	*0.07*	*1.02*	*0.02*	*-0.19*
CSLL	*0.80*	*0.94*	*0.89*	*0.86*
Other Taxes	*0.60*	*0.90*	*1.10*	*1.10*
Social Security Contributions	*5.47*	*4.84*	*4.89*	*5.08*
Other	*1.53*	*1.74*	*1.64*	*1.70*
Expenditure	*20.49*	*16.21*	*18.29*	*18.42*
Current Expenditure	*18.13*	*15.27*	*17.26*	*17.29*
Wages	*4.93*	*5.00*	*5.31*	*5.03*
Goods and Services	*4.38*	*1.42*	*3.02*	*3.14*
Pensions and Welfare	*5.05*	*4.88*	*4.95*	*5.42*
Current Transfers	*3.77*	*3.97*	*3.98*	*3.70*
Intergovernmental Transfers	*3.26*	*3.34*	*3.24*	*3.27*
Other Transfers	*0.51*	*0.63*	*0.74*	*0.43*
Capital Expenditure	*2.36*	*0.94*	*1.03*	*1.13*
Investment	*2.20*	*0.84*	*0.95*	*1.11*
Transfers to P.S Enterprises	*0.12*	*0.01*	*0.01*	*0.01*
Credit Op. Expenditures (POOC)	*0.04*	*0.09*	*0.07*	*0.01*
Float and Adjustment	*4.06*	*0.83*	*0.74*	*0.73*
Primary Deficit	*-0.90*	*-3.19*	*-0.50*	*-0.40*
Real Interest Payments	*1.51*	*1.65*	*2.24*	*2.07*
Operational Deficit	*0.61*	*-1.55*	*1.74*	*1.70*

Source: Secretaria de Política Econômica, Ministério da Fazenda

Table A1.4
BRAZIL: SUMMARY OPERATIONS OF STATES AND MUNICIPALITIES
(In percent of GDP)

	1989	1990	1991	1992	1993	1994	1995	1996
Revenue	12,40	14,74	13,81	13,15	12,76	13,34	14,09	14,01
Tax Revenue	7,20	9,10	8,48	7,97	7,67	8,17	8,96	9,26
VAT-ICMS	6,1	8	7,07	6,66	6,12	7,01	6,79	7,02
Others	1,1	1,1	1,41	1,31	1,55	1,16	2,17	2,24
Nontax Revenue	1,6	1,73	2,21	1,77	1,83	1,67	1,64	1,48
Intergovernmental Transfers	3,6	3,91	3,12	3,41	3,26	3,50	3,49	3,27
Expenditure	13,40	17,18	14,58	14,72	14,43	13,88	14,19	14,79
Current Expenditure	11,10	14,64	12,46	12,70	12,36	12,11	12,70	12,97
Wages	5,6	7,21	6,62	6,81	6,72	6,40	6,99	7,29
Goods and Sevices	2,3	2,52	2,37	2,63	2,48	2,31	2,29	2,30
Pensions and Welfare	0,5	0,72	0,54	0,59	0,52	0,49	0,58	0,58
Subsidies and other Current Exp	2,7	4,19	2,93	2,67	2,64	2,91	2,84	2,80
Investment	2,3	2,54	2,12	2,02	2,07	1,77	1,49	1,82
Float and Adjustment	1,30	2,64	2,27	1,67	2,27	1,29	-0,08	0,21
Primary Deficit	-0,30	-0,20	-1,50	-0,10	-0,60	-0,75	0,18	0,57
Real Interest Payments	0,90	0,20	0,78	0,74	0,69	1,54	2,27	1,32
Operational Deficit	0,60	0,00	-0,72	0,64	0,09	0,79	2,45	1,90

Source: Secretaria de Política Econômica, Ministério da Fazenda

Table A1.5
BRAZIL: SUMMARY OPERATIONS OF PUBLIC SECTOR ENTERPRISES
(In percent of GDP)

	1989	1990	1991	1992	1993	1994	1995	1996
Sales of Goods and Services	11,20	9,90	12,60	12,40	8,30	8,70	7,00	7,61
Wages	3,73	2,44	2,21	2,24	2,12	1,6	1,38	1,39
Other Current Expenditure	8,36	6,82	8,72	7,29	6,11	5,15	4,59	5,13
Materials and Supplies	3,37	2,01	2,48	2,03	2,16	1,87	1,50	
Services	1,41	1,10	1,09	0,83	0,96	0,84	0,80	
Taxes	2,28	2,21	2,87	2,25	2,40	1,97	1,80	1,78
Others	1,30	1,50	2,28	2,18	0,60	0,47	0,50	
Public Enterprises Value Added	5,12	5,29	6,75	7,36	4,59	5,52	4,21	

Source: Secretaria de Política Econômica, Ministério da Fazenda

ACTUAL AND ADJUSTED VALUES FOR THE DIFFERENT SERIES

Table A2.1

Estimation Results

	Const.	Y	π	ρ	Adj. R^2	D.W.	SER	F
Income tax	10.90 (3.95)	0.98 (1.72)	-	0.34 (2.01)	0.93	1.84	0.21	382.3
IPI	11.64 (11.16)	0.72 (3.33)	-	-	0.25	1.63	0.10	11.09
Import Tax	6.85 (2.24)	1.44 (2.33)	-0.07 (-2.03)	0.42 (2.56)	0.95	1.84	0.18	285.9
Finsocial	7.70 (3.00)	1.45 (2.74)	-	0.89 (11.01)	0.95	1.47	0.19	585.5
CSLL	-27.84 (-2.32)	8.57 (3.44)	-	0.59 (2.75)	0.24	2.15	0.86	-7.93
PIS-PASEP	13.02 (18.55)	0.28 (1.93)	-	-	0.09	1.50	0.06	3.7
Total Revenue	11.60 (5.45)	1.10 (2.56)	-0.03 (-1.44)	0.31 (1.77)	0.97	2.06	0.13	519.7
ICM	13.21 (15.36)	0.67 (3.83)	-0.05 (-4.15)	0.76 (5.82)	0.99	1.77	0.06	6522
Federal Payroll	16.10 (112.25)	-	-0.08 (-2.36)	0.59 (4.05)	0.97	2.00	0.19	944.5

Note: t statistics in parenthesis

Sources: Tax Revenues and Expenditures: Central Bank of Brazil; GDP: index of quarterly real GDP from IBGE; Inflation: Quarterly Inflation Rate of the geometric average of the General Price Index (IGP-DI), calculated as: {[(quarter t geometric average of the geometric average of the General Price Index (IGP-DI)/ (quarter t-1 geometric average of the geometric average of the General Price Index (IGP-DI)-1]*100}

Decomposition of the Difference between the Adjusted and the Actual Deficit

	89	90	91	92	93	94	95	96	Mean	St. Dev.
Deficit: *Adjusted - Actual*	1.70	1.76	-0.80	-0.47	0.18	1.23	0.79	0.66	0.63	0.95
Revenues: *Actual - Adjusted*	2.41	1.86	-1.47	-0.40	0.50	1.83	1.59	0.88	0.90	1.31
Expenditures: *Adjusted - Actual*	-0.71	-0.10	0.67	-0.07	-0.32	-0.60	-0.80	-0.22	-0.27	0.47

Figure A2.1
Income Tax
(In percent of GDP, accumulated in 4 quarters)

Figure A2.2
IPI
(In percent of GDP, accumulated in 4 quarters)

Actual ------ Adjusted
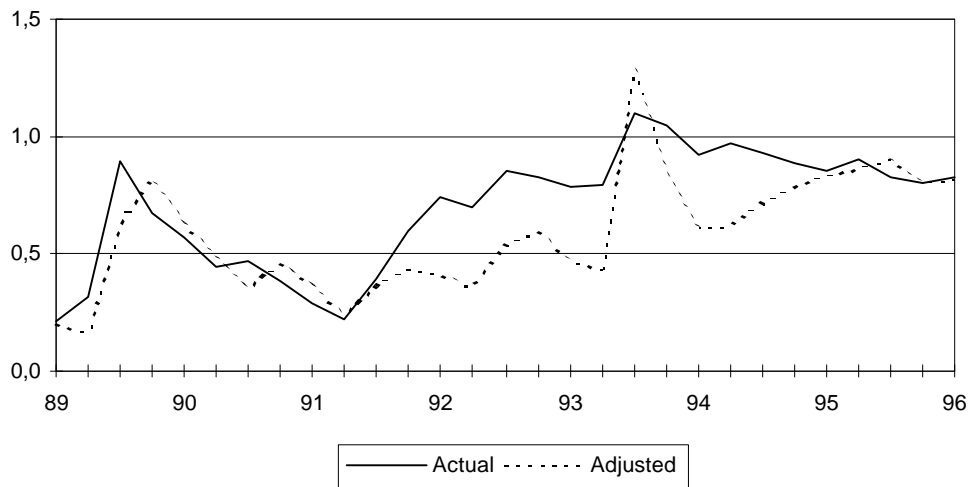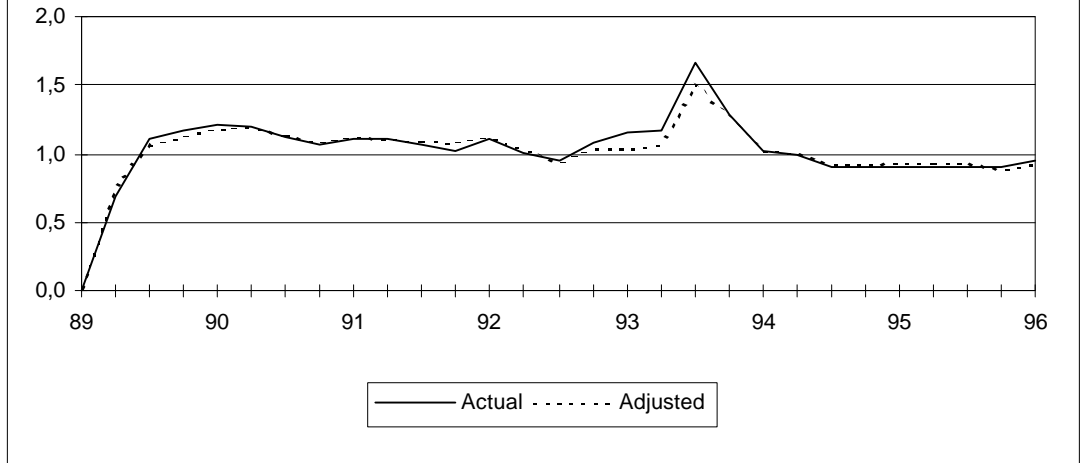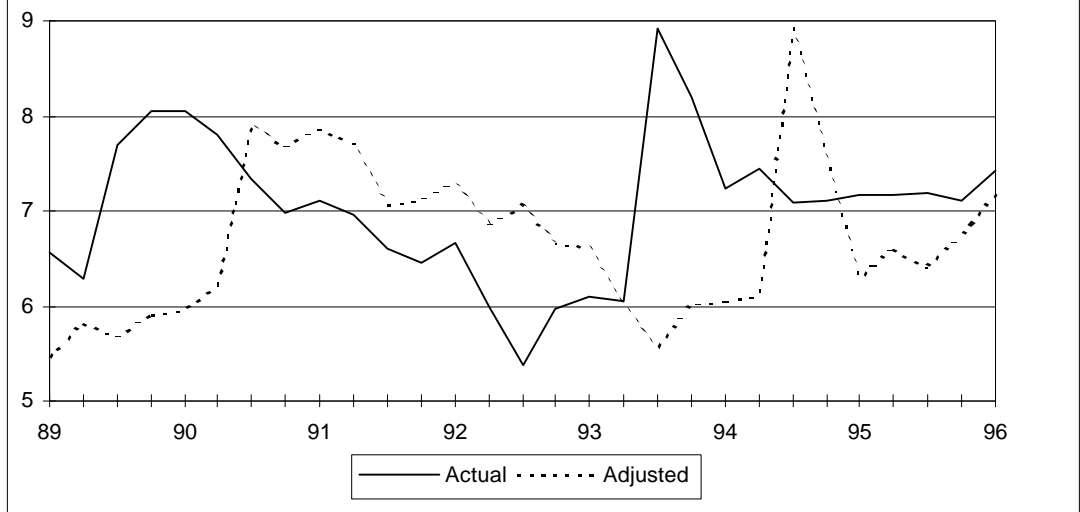

Figure A2.3
Import Tax
(In percent of GDP, accumulated in 4 quarters)

Actual ------ Adjusted
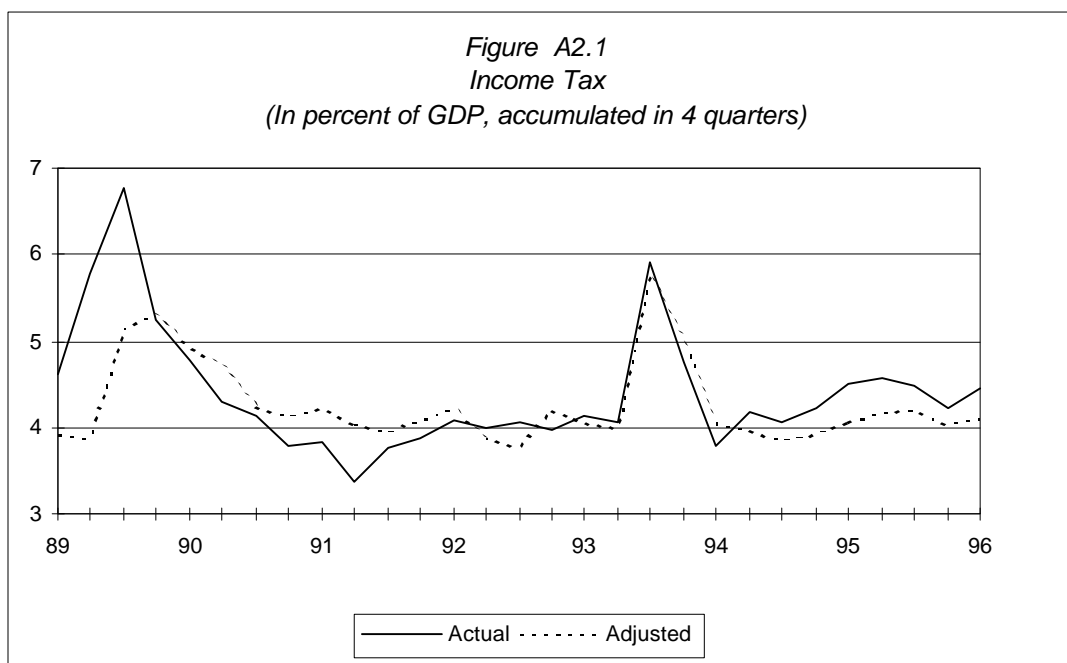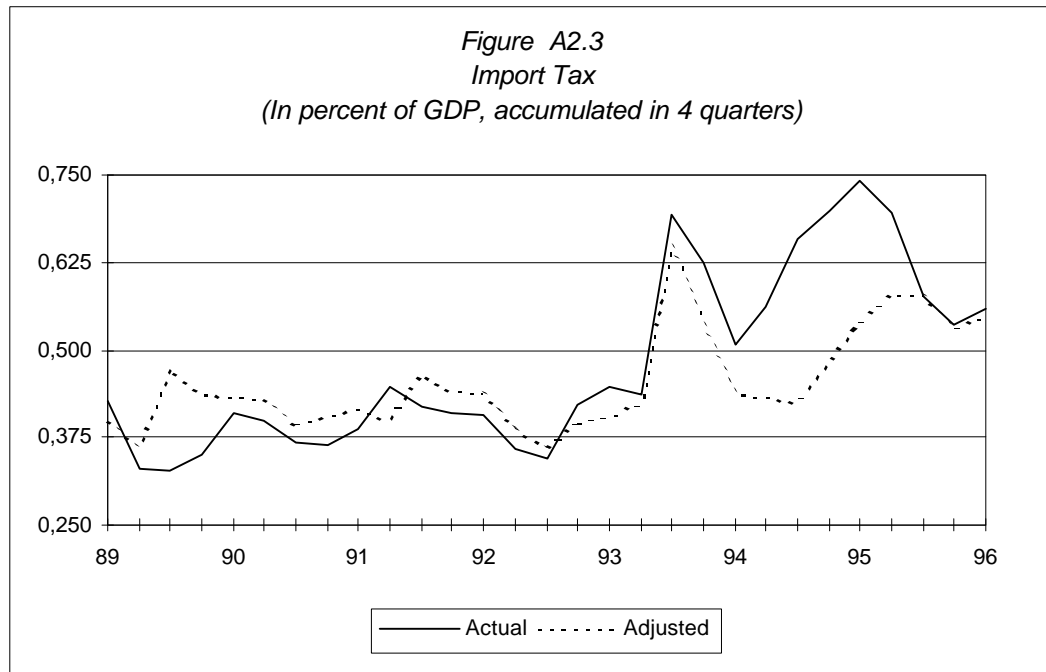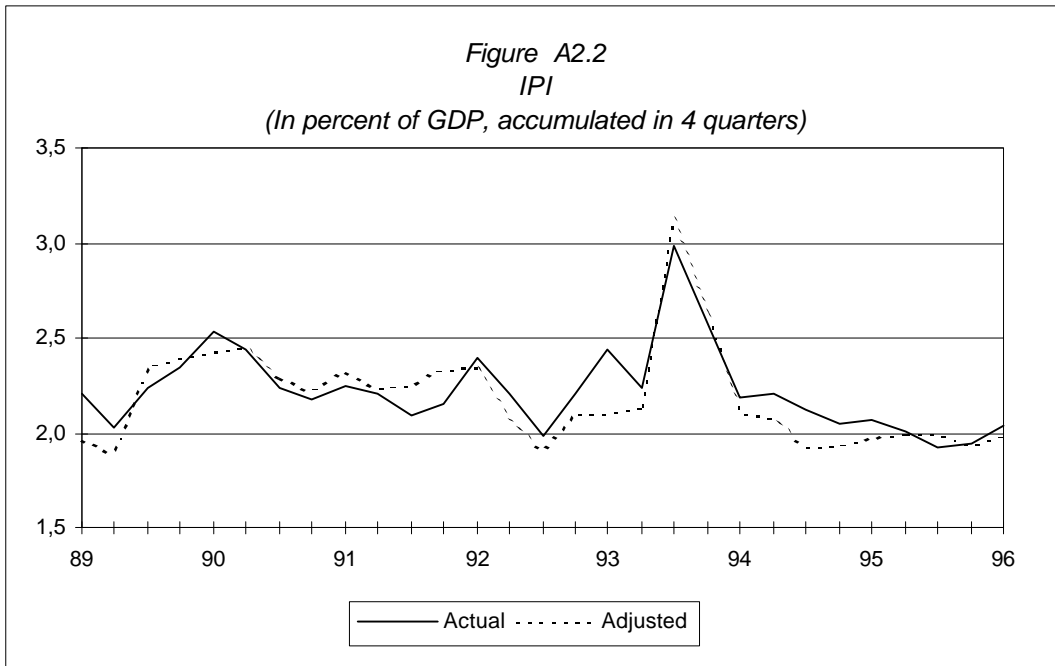
Figure A2.4
Finsocial
(In percent of GDP, accumulated in 4 quarters)

3,0

2,0

1,0

0,0

89   90   91   92   93   94   95   96

Actual - - - - - Adjusted
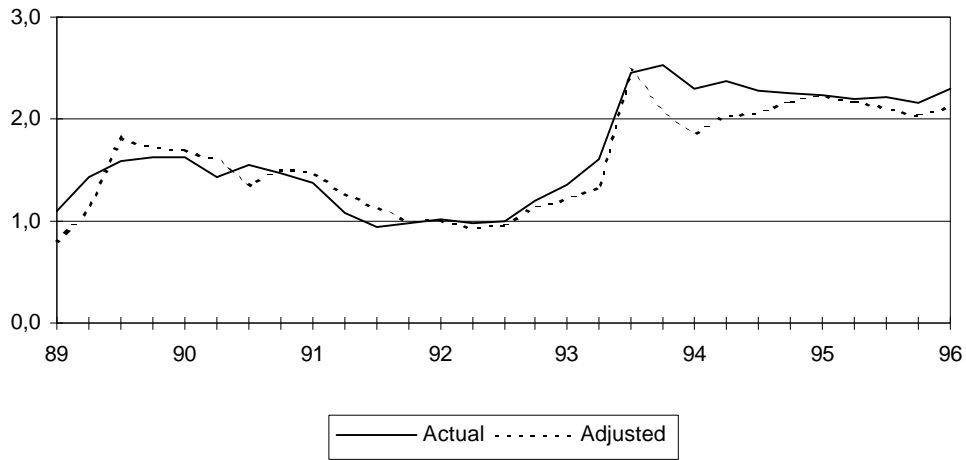
Figure A2.5
Contribution on Profits
(In percent of GDP, accumulated in 4 quarters)

1,5

1,0

0,5

0,0

89   90   91   92   93   94   95   96

Actual - - - - - Adjusted

28

Figure A2.6
PIS PASEP
(In percent of GDP, accumulated in 4 quarters)

Actual ······ Adjusted

Figure A2.7
ICMS
(In percent of GDP, accumulated in 4 quarters)

Actual ······ Adjusted

Figure A2.8
Federal Government Payroll
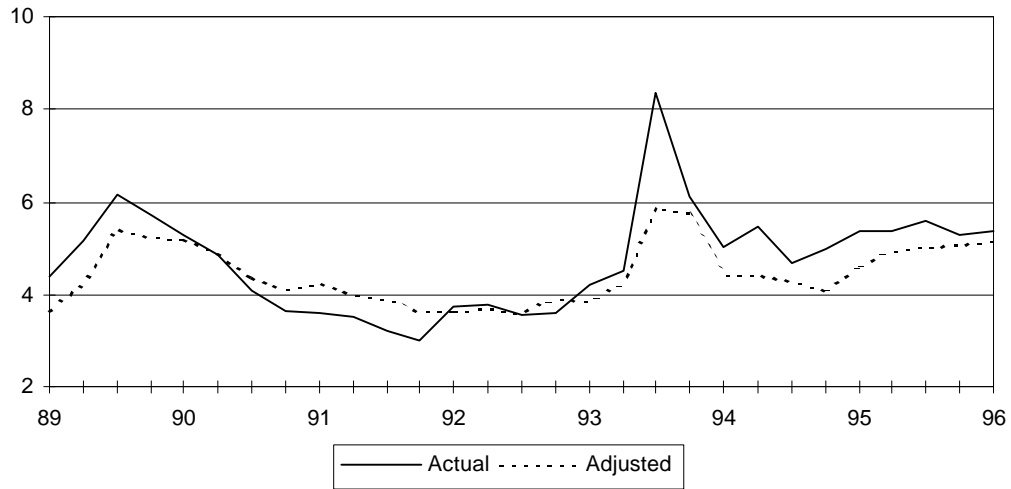*(In percent of GDP, accumulated in 4 quarters)*

Figure A2.9
Primary Deficit
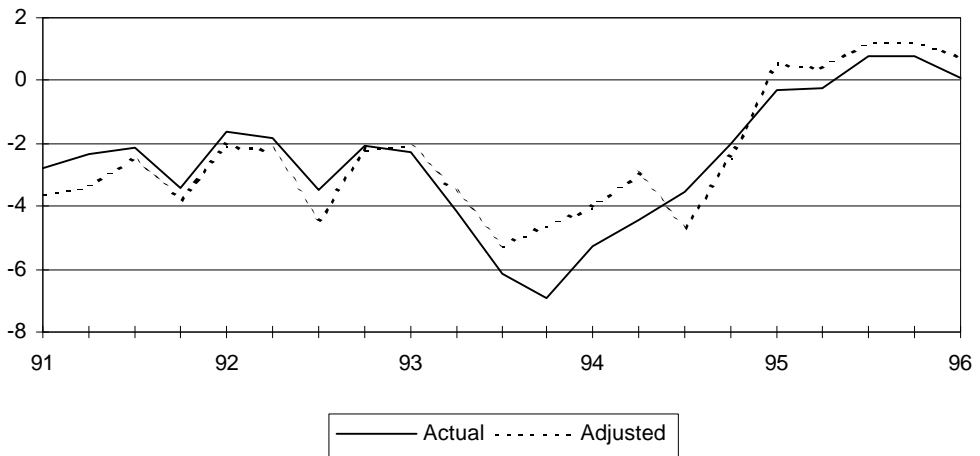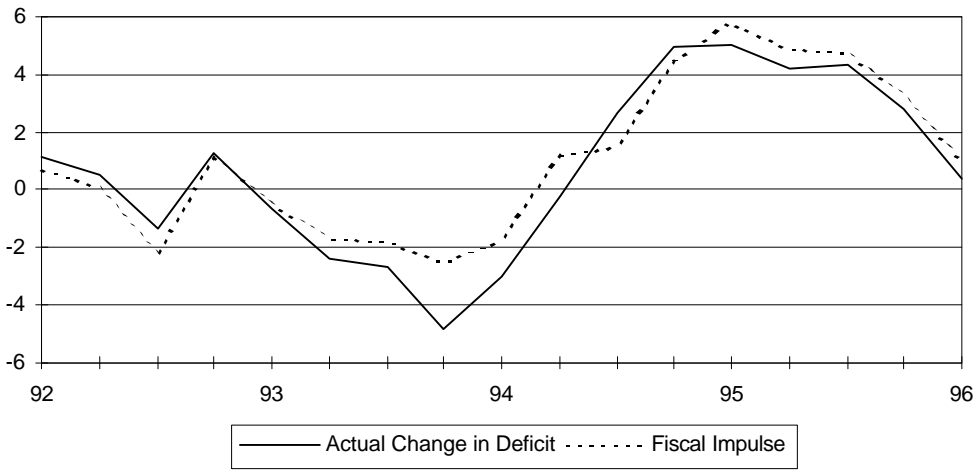*(In percent of GDP, accumulated in 4 quarters)*

Figure A2.10
Actual Change in Primary Deficit and Fiscal Impulse Measure
(In percent of GDP, accumulated in 4 quarters)

Actual Change in Deficit .... Fiscal Impulse

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