FISCAL POLICY INDICATORS IN A RULE-BASED FRAMEWORK: AN INDIAN EXPERIENCE

Ranjit K. Pattnaik, Deepa S. Raj and Jai Chander[*]

Introduction

The stance of the fiscal policy may be assessed through various indicators. Assessing the thrust of the fiscal policy through the actual budgetary position of the Government may be misleading as the finances of the Governments are influenced not only by the fiscal policy but also by the economic environment as well as the legal and institutional framework. In formulating or assessing fiscal policy, it is important to distinguish between temporary or transitory factors and permanent factors influencing the budget so as to ascertain what part of the changes in fiscal position are due to the economic environment and what part is due to changes in fiscal policy. Temporary factors include effects on Government outlays and revenues brought about by cyclical deviations from the trend output as also by lumpy outlays and transitory changes in government earnings. Permanent factors, on the other hand, relate to the more enduring components of the budget in the absence of exogenous shocks and when the economy is operating at optimal capacity. The temporary factors need to be disentangled from the permanent factors to gauge the medium term orientation of the fiscal policy.

In India, the traditional fiscal indicators used for analysis of Government finances are the revenue deficit (RD), gross fiscal deficit (GFD) and gross primary deficit (GPD). Fiscal consolidation efforts, which were undertaken in the aftermath of the macroeconomic crisis of 1991, enabled a sharp fiscal correction in terms of reduction in these indicators during the first half of 1990s, but fiscal slippages in the second half of the decade necessitated measures to ensure that the deleterious fiscal position did not hamper the growth trajectory. It is in this context that India has adopted a rule-based fiscal framework with the enactment of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 by the Central Government and the framing of FRBM Rules, 2004, thereby marking a new beginning in the fiscal consolidation process. Under the FRBM Act, 2003 the Central Government is committed to eliminate revenue deficit and reduce fiscal deficit to 3 per cent of GDP by end-March 2009. The FRBM Rules have stipulated annual targets for the phased reduction of revenue deficit and fiscal deficit. The Rules also impose annual ceilings on Government guarantees and additional liabilities. The elimination of revenue deficit and generation of revenue surpluses, thereafter would release fiscal space for further public investment.

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[*] Department of Economic Analysis and Policy – Reserve Bank of India.

The views expressed in this paper are those of the authors and should not be interpreted as those of the organisation to which they belong.

Notwithstanding the steady decline in the key deficit indicators in recent years, concerns have been expressed that the fiscal consolidation process is the result of fortuitous environment provided by sustained growth in economy, benign inflation, strong capital flows and low interest rates, and that there needs to be a more proactive fiscal consolidation. This paper attempts to assess the effectiveness of the Central Government's fiscal policy stance in terms of its impact on the structural and cyclical components of fiscal deficit, the impact of macroeconomic developments on structural revenues and the efforts required for the Government to move forward in attaining the FRBM targets. It may be mentioned that out of the 28 States in India, 23 have enacted fiscal responsibility legislations (FRL). An analysis of the State finances with respect to their individual chartered progress under the FRL is beyond the scope of the present paper. Section 1 surveys the literature on the measurement of structural and cyclical components of budget deficit; Section 2 presents the overview of public finances in India, outlining the evolution of measures of deficit and fiscal trends since the 1990s. Section 3 analyses the recent fiscal consolidation phase at the Centre and sets out indicators of fiscal stance; Section 4 presents the analytical framework for measuring the structural and cyclical components of deficits and for the decomposition of the structural revenues so as to distinguish the impact of macroeconomic environment on Government revenues; Section 5 presents the empirical findings of the exercise; Section 6 assesses the fiscal consolidation under the FRBM Act and Section 7 concludes.

1. Survey of literature on measuring structural and cyclical deficits

Over the years various alternative techniques have been developed for adjusting the fiscal accounts to yield a more accurate measure of fiscal policy stance. The Cyclically-adjusted Budget Balance (CAB) is generally used as an index of discretionary changes in fiscal policy due to certain distinct advantages. By sifting cyclical changes from non-cyclical changes in the government's budgetary balance, the CAB helps to ascertain the orientation of the fiscal policy. Furthermore, a discretionary change in the fiscal stance can serve as a leading indicator of the future course of the policy insofar as the present policy decisions have long-term implications for public finances. CAB may also be used to analyse the reaction of policy authorities to changes in economic environment (Chouraqui *et al.*, 1990). Since the overall deficit is the sum of cyclical and structural components, with the estimation of one component, the other is derived as a residual. Most methods estimate the cyclical component first and net it from the overall deficit to derive the structural component indirectly. The most popular method for doing this is the gaps-elasticities approach used by the OECD, the IMF and the EU (Giorno *et al.*, 1995, Hagemann 1999, European Commission 1995). In this approach, the cyclical adjustments are made by adopting a three-step procedure. First, the output gap, *i.e.*, the difference between the actual output and potential output, is estimated. Second, the reaction of budget variables to output gap variations is estimated by applying the elasticity of government revenue and expenditure categories (with respect to GDP) to the output gap. Finally, the structural budget balance is calculated as the

difference between the sum of the cyclical revenue categories and the unadjusted revenue categories, on the one hand, and the cyclical expenditure categories and the unadjusted expenditure categories, on the other.

The measurement of potential output could be undertaken either by using the trend smoothing approach or the production function method. Some of the trend smoothing approaches discussed in the literature for extracting the trend output include simple linear trend, split time trend, Hodrick-Prescott (H-P) filter, peak-to-peak extrapolation estimates or a method based on Beverage-Nelson decomposition in a multivariate setting. The production function approach involves, generally, the use of a two-factor Cobb-Douglas production function. Under this method, the potential output is defined as a function of the trend rate of total factor productivity of capital stock and "potential" labour supply, *i.e*, the labour supply that is consistent with the "non-accelerating wage rate of unemployment" (NAWRU).

Using the CAB approach to describe the fiscal policy stance, though an improvement over the traditional fiscal indicators, can be misleading since the structural component encompasses a wide range of factors, including the fiscal drag. The methodology developed by Muller and Price (1984), therefore, disaggregates the structural component into base year effect, fiscal drag, and discretionary impact, after netting out the cyclical component using the gap-elasticities approach. The conclusions drawn on the basis of this methodology are dependent, to a large extent, on the choice of base year. Kremer *et al.* (2006) also adopt a disaggregated framework for the analysis of structural components of the budget. Employing the gap-elasticities approach, taxes and social contributions on the revenue side and unemployment benefits on the expenditure side are adjusted for the cyclical components. Structural revenue ratios are then broken down into fiscal drag, which captures any change in the revenue ratio that arises automatically, *i.e.*, without changes in legislation; decoupling of the tax base from GDP, which measures the deviation of the trend growth rate of tax base from the trend growth rate of nominal GDP; discretionary fiscal policy measures which measure the changes in revenue brought about by legislative policies; and residual developments. While the first two factors measure the impact of macroeconomic developments; the third, and to a great extent, the fourth factor identify the impact of fiscal policy.

The CAB approach suffers from certain drawbacks. The major weakness is its reliance on estimates of output gap which, in turn, depends on the calculation of potential output. As potential output cannot be directly observed, assumptions of non-inflationary growth rate are made. Effects of inflation and real interest rate changes are ignored. Furthermore, this method does not take into account underlying changes in the structure of the economy. The measurement of output gap is also sensitive to the techniques used. Errors in estimating the output gap can, therefore, have significant impact on estimated structural balances. The CAB also assumes that there are no latent pressures on spending and or/revenues. Despite these shortcomings, the CAB approach is still a useful tool to assess the fiscal stance of the Government, although it may be less useful as an indicator of fiscal sustainability or as a measure of fiscal policy impact on aggregate demand.

Alternate fiscal indicators have been put forth in literature. Blanchard (1990) advocates the use of moving benchmarks, wherein the induced and discretionary elements of changes in budget balances are derived by calculating the budget balance that would be obtained had the unemployment rate, inflation and interest rate remained at the previous year's level. To overcome the shortcoming of constant elasticities of budget variables assumed in the CAB approach, Jaegar (1990) follows a structural time series approach where time varying elasticities are used. In this method, the variances of the parameters are not well defined. Brandner, Diebalek and Schuberth (1998), developing on an earlier work by Cano and Kanutin (1996) on smoothed-ratio approach, therefore, suggest an alternate approach which estimates structural balances directly by 5means of a time series technique. Under this approach, budgetary categories expressed as ratios to GDP are decomposed into a trend and a cyclical component using the H-P filter and the structural deficit is derived as the difference between the sum of structural revenue and structural expenditure relative to GDP.

In India, Pattnaik, Pillai and Das (1999), estimated the structural and cyclical deficit using the methodology developed by Muller and Price (1984). They found that the growing GFD was on account of higher expenditure elasticity relative to revenue elasticity and that structural rigidities existed in the system as reflected in the predominance of the fiscal drag. Structural and cyclical components of the GFD was also estimated in the Reserve Bank's Report on Currency and Finance (RBI, 2002) for the Central and State Governments, separately as well as combined, on the basis of the methodology developed by Giorno *et al.* (1995) and Van den Noord (2000). The estimates confirmed the predominance of structural component of fiscal deficit. Rangarajan and Srivastava (2005) employed the smoothed-ratio approach to estimate the structural and cyclical components of fiscal deficit and primary deficit. Decomposing the fiscal deficit to GDP ratio into primary structural deficit, structural interest payments and cyclical fiscal deficit, they found that the impact of structural interest payments has been larger and more persistent than structural primary deficit in the 1990s, contributing to the large structural fiscal deficit. Estimates of the structural and cyclical deficits of major Indian States were made in the Reserve Bank's publication *State Finances – A Study of State Budgets 2004-05*, drawing from the methodology suggested by Muller and Price (1984). The amplitude of cyclical deficit was found to be lower in the second half of the 1990s than in the first half and fiscal drag appeared to have deteriorated for most of the State Governments (RBI, 2005).

2. Overview of the Indian public finances

2.1 Evolution of measures of deficit

In India, like in most developing countries, designing of fiscal policy placed emphasis on a single measure of deficit, *i.e*., the conventional deficit/budget deficit till the mid-1980s. The budget deficit or "deficit financing" was measured as the difference between total expenditure and total receipts (including borrowings) and

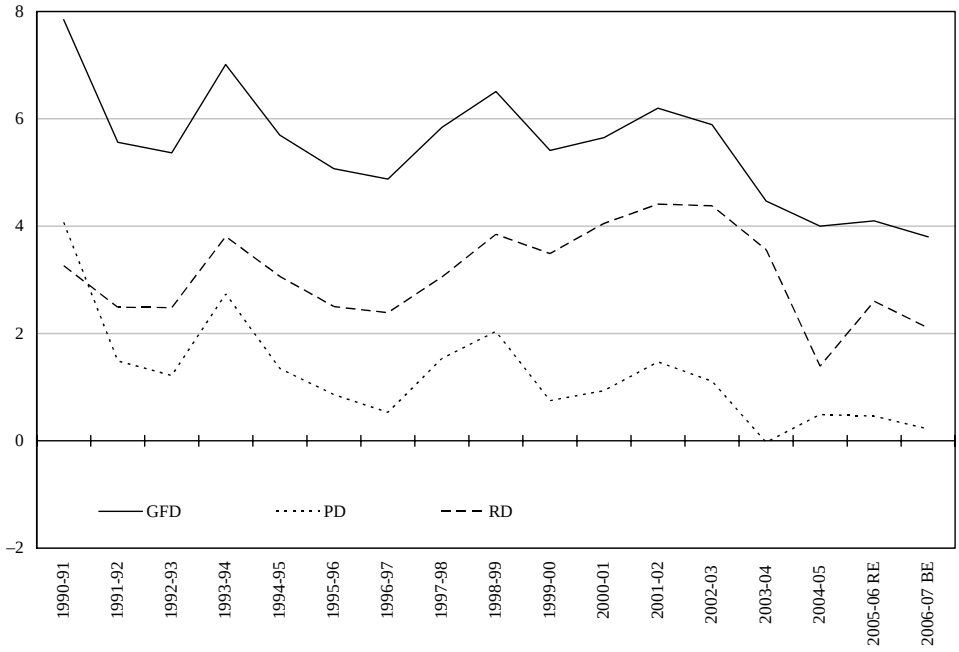
was financed by running down Government's cash balances with the Reserve Bank and sale of short-term treasury bills, mostly to the Reserve Bank. While the budget deficit was used as a measure of creating reserve money in the system, it suffered from two basic limitations: it did not reveal the full extent of the Government's reliance on Reserve Bank credit; and it tended to overstate the monetary impact of fiscal operation to the extent treasury bills were held outside the Reserve Bank. The Committee to Review the Working of the Monetary System in 1985 (Chairman: Sukhamoy Chakravarty), therefore, recommended the use of monetised deficit, which measures the net Reserve Bank credit to the Government to capture the impact of fiscal operations. Thus, since the mid-1980s, there has been a shift from the conventional single measure approach to measuring deficit to a multiple measure approach. A range of deficit indicators were conceptualized (Rangarajan *et al.*, 1989) and published in the various publications of both the Reserve Bank and the Government of India. Since 1991-92, the budget documents of the Government of India set out three key deficit indicators, the revenue deficit (RD), the gross fiscal deficit (GFD) and the primary deficit (PD). Out of these deficit indicators, GFD became an important target fiscal variable and crucial policy target of the Central Government in the context of the structural adjustment programme initiated in 1991 (Chelliah, 1996). Revenue deficit measures the difference between current expenditure and current revenue. It is used as a measure of the Government's dissaving. GFD, though traditionally defined as the difference between total government expenditure and current revenues, in the Indian context, was taken as the difference between aggregate expenditure and non-debt receipts consisting of tax revenue, non-tax revenue, recoveries of loans and disinvestment proceeds. Primary deficit which is the difference between GFD and interest payments is a measure of the sustainability of deficit. Other measures used in the literature are net fiscal deficit (NFD) which excludes net lending from GFD, net primary deficit (NPD) which excludes net interest payments from (NFD) and primary revenue balance (PRB) which nets out interest payments from revenue deficit (Appendix 1 and Appendix 2).

2.2 Trends in fiscal indicators since the 1990s

The rapid deterioration in the Government finances during the late 1980s caused by a faster rise in expenditure growth relative to revenue growth resulted in a steep rise in the Central Government's fiscal deficit to GDP ratio which culminated in a balance of payments crisis. The macroeconomic crisis of 1991 created an exigency and led to the chartering of a strong reversal of hitherto followed policies. Fiscal reforms were initiated with the aim of achieving a reduction in the size of deficit and debt in relation to GDP through revenue enhancement and curtailment in current expenditure growth while enlarging spending on investment and infrastructure so as to provide momentum to the growth process. Measures were undertaken to curb the pre-emption of institutional resources by the Government and simultaneously to provide a level-playing field to the private investors.

Figure 1

Key Deficit Indicators
(percent of GDP)



The strategy for restoring fiscal balance comprised tax and non-tax reforms, expenditure management and institutional reforms. Restructuring public sector mainly involved divestment of Government ownership which was initiated in 1991-92. Fiscal-monetary coordination was sought to be improved through deregulation of financial system, elimination of automatic monetization to reduce the size of monetized deficit, and reduction in pre-emption of institutional resources by the Government. At the sub-national level, fiscal adjustments began as a consequence of the deterioration in States' finances, which exacerbated in the latter half of the 1990s. With a view to promoting State reforms, access to Central Government assistance as well as to guarantees for loans from multilateral agencies was linked to their reform efforts. Several State Governments have also enacted Fiscal Responsibility Legislation (FRL), partly driven by the Twelfth Finance Commission's debt relief incentives.

The fiscal performance in terms of movements in the key deficit indicators, *viz.* revenue deficit (RD), gross fiscal deficit (GFD) and primary deficit (PD) since the undertaking of fiscal reforms in the early 1990s may be characterized in three distinct phases based on the performance: the period of improvement from 1991-92 to 1996-97; the period of worsening from 1997-98 to 2001-02 and the period of

improvement since 2002-03 which was accelerated by the enactment of the Fiscal Responsibility and Budget Management Act, 2003.

The GFD of the Centre witnessed a decline during the first half of the 1990s. Tax revenue as a proportion of GDP fell during this period as a result of restructuring of the tax system with focus on simplification and rationalisation of both direct and indirect taxes, drawing mainly from the recommendations of the Tax Reforms Committee, 1991 (Chairman: Raja J. Chelliah). The key tax reforms have been lowering of the maximum marginal personal income tax and corporation tax rate; widening of the tax base by way of a series of steps including introduction of presumptive taxes; progressive reduction in the peak rate of customs duty on non-agricultural products; reduction of slabs in excise duties; and introduction of service tax in 1994-95. The fiscal correction strategy focused on the expenditure front, whereby corrective measures initiated at the beginning of the 1990s, mostly in the terms of curtailment of expenditure growth, yielded some promising results. In fact, the reduction in revenue receipts brought about by the decline in tax/GDP ratio was more than offset by the reduction in revenue expenditure, resulting in a marginal reduction in the ratio of revenue deficit to GDP during this period. However, the fiscal consolidation even during the first half of the 1990s was brought about primarily through curtailment in capital outlay and net lending. Consequently, the gross fiscal deficit, on an average, declined by 0.49 per cent of GDP per annum during the period 1991-92 to 1996-97 (Table 1).

The implementation of the Fifth Pay Commission recommendation led to a substantial increase in the wage bills in 1997-98 and 1998-99. While tax reforms have generally led to a rise in tax revenue to GDP ratio across countries (Shome, 1995), in the Indian context, the tax-GDP ratio of the Central Government suffered a persistent decline from 9.7 per cent during the first half of the 1990s to 9.0 per cent in the second half of the 1990s. The decline in the tax/GDP ratio, thus, accentuated the decline in key deficit indicators since 1997-98. The switch from administered system to a system of increased market orientation of Government borrowing also meant higher interest rates and, therefore, larger interest payments, leaving fewer resources for undertaking non-interest expenditure. By the year 2001-02, all the major deficit indicators, *viz.* revenue deficit, fiscal deficit, and public debt rose to levels higher than those prevalent at the beginning of the reform process.

The fiscal deterioration and increased dissaving of Government administration witnessed in the latter half of 1990s renewed the urgency for improving public finances of both Centre and States. During 2002-03, finances of the Central Government revealed an improvement with a decline in all the key deficit indicators. This paved the way for the implementation of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003. The enactment of the FRBM legislation by August 2003 and the framing of FRBM Rules, 2004 under it in July 2004 set the tone of a renewed effort towards fiscal consolidation. The FRBM Act embodies the spirit of inter-generational equity and provides for long-term macroeconomic stability by reducing fiscal deficit and eliminating revenue deficit by March 31, 2008 (later extended to March 31, 2009). The FRBM Rules 2004 set

Table 1

Changes in Key Fiscal Variables
(percent of GDP)

	1991-92 to 1996-97	1997-98 to 2001-02	2002-03 to 2006-07
	(average)	*(average)*	*(average)*
1. Revenue Deficit (B–A)	**–0.14**	**0.41**	**–0.45**
A. Revenue Receipts (i+ii)	–0.07	–0.06	0.28
i. Tax Revenue (net)	–0.12	–0.18	0.48
ii. Non-Tax Revenue	0.05	0.12	–0.21
Of which:			
a. Interest Receipts	0.01	–0.01	–0.21
b. Dividend and Profits	0	0.15	–0.01
B. Revenue Expenditure	–0.22	0.35	–0.17
Of which:			
i. Interest Payments	0.09	0.08	–0.23
ii. Subsidies	–0.17	0.05	–0.04
iii. Grants	–0.69	–0.64	0.06
iv. Defence	–0.06	0.03	–0.07
2. Gross Fiscal Deficit (1+3+4+5–6)	**–0.49**	**0.27**	**–0.48**
3. Non-defence Capital Outlay	–0.15	0.01	0.06
4. Defence Capital Expenditure	–0.03	0.02	0.05
5. Net Lending	–0.16	–0.14	–0.15
6. Disinvestment	0.01	0.03	–0.01
7. Gross Primary Deficit (2–Bii)	**–0.58**	**0.19**	**–0.25**

annual targets for phased reduction in key deficit indicators over the period ending March 31, 2008 (extended to March 31, 2009) and impose ceilings on Government guarantees and additional liabilities.

3. Recent fiscal consolidation: indicators of fiscal stance

The fiscal trends since 2002-03 indicate that the fiscal consolidation achieved during this period is distinct from that of the first half of 1990s. Since the fiscal correction in the 1990s was achieved through cutbacks in expenditure, particularly

Table 2

Select Items of Receipts and Expenditure – Nature of Impact

	Inertial Impact	**Macroeconomic Policy Impact**	**Fiscal Policy Impact**
Tax revenue			
Of which:			
Corporation Tax	Yes (+)	No	Yes (+)/(–)
Service Tax	Yes (+)	No	Yes (+)
Income Tax	Yes (+)	No	Yes (+)/(–)
Excise Duty	Yes (+)	No	Yes (–)
Customs Duty	Yes (+)	No	Yes (–)
Non-Tax revenue			
Of which:			
Dividends and Profits	Yes (+)	Yes (–)	Yes (–)
Interest Receipts	No	No	Yes (–)
Non-debt capital receipts			
Recoveries of Loans	No	No	Yes (–)
Disinvestment Proceeds	No	No	Yes (–)
Revenue Expenditure			
Of which:			
Subsidies	No	No	Yes (+)
Interest Payments	No	Yes	Yes (–)
Capital Expenditure			
Of which:			
Loans and Advances	No	No	Yes (–)

Note: + indicates an increase in the fiscal variable and – indicates a decline in the fiscal variable.

grants on the revenue account and capital outlay on the capital account, rather than through improved revenue, the consolidation efforts could not be sustained. In contrast, substantial contribution from tax revenue coupled with declining interest payments/GDP ratio and reduced net lending helped in achieving the fiscal consolidation during the third phase *i.e.*, 2002-03 to 2006-07. As changes in fiscal variables may be characterised by inertial impact, macro-policy intervention impact and fiscal policy impact, an analysis of the various components of receipts and expenditure during the third phase was undertaken to ascertain the role of these three impacts in bringing about a change in the fiscal variables. These are summarized in Table 2.

3.1 Tax revenue

Tax/GDP ratio improved, on an average, by 0.48 per cent during the third phase despite substantial rationalization of tax rates. Introduction of new taxes such as the Securities Transaction Tax, Fringe Benefit Tax and Banking Cash Transaction enabled the buoyancy in collection. Furthermore, efforts were taken to tighten the tax structure to prevent leakages and improve tax administration. These developments reflect the *fiscal policy impact.* Despite reduction of customs duty, there was a significant increase in customs revenue on account of the oil price increase reflecting the *inertial impact*. Corporation income tax rate was reduced from 35 per cent to 30 per cent in 2004-05. However, the buoyancy in the economy has translated into higher tax collections, reflecting again the *inertial impact.* The alteration of tax brackets for personal income tax as part of a major overhaul of direct taxes to provide stability in the medium term, however, led to a lower growth in personal income tax collections.

3.2 Non-tax revenue

Non-tax revenue fell during the third phase. Interest receipts, the largest non-tax revenue for the Government has been declining on account of:

(a) reduction in lending rates on loans to State Governments and others;

(b) debt swap scheme which enabled State Governments to prepay their high cost liabilities over a three-year period between 2002-03 and 2004-05;

(c) debt restructuring of loans extended by the Central Government to those State Governments which enact fiscal responsibility legislation and reduction of interest rates thereon;

(d) discontinuation of Central Government loans to States for their plans in accordance with the Twelfth Finance Commission award[1] and

(e) prepayments by Central Public Sector Undertakings (CPSUs).

All these measures constitute the *fiscal policy impact*. Receipts from "dividends and profits" have been affected both positively and negatively. The buoyancy in the economy has enabled public sector enterprises to post profits, reflecting the *inertial impact*. However, dividends were also negatively affected by the *macroeconomic policy impact.* For instance, transfer of surpluses from the Reserve Bank has been lower on account of its sterilisation operations undertaken to contain exchange rate volatility. Furthermore, public sector oil marketing companies suffered "under recoveries" of around Rs.40,000 crore in 2005-06 as the pass-through of oil price hikes was not fully effected due to considerations for inflation. This reduced dividends from these companies.

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[1] The Indian Constitution provides for appointment of the Finance Commissions every five years for recommending the transfer of resources from the Centre to the States.

3.3 Recoveries of loans

Recoveries of loans to the States by the Centre during the years 2002-03 to 2004-05 were high on account of the operation of debt swap scheme whereby existing high interest bearing loans to the States were swapped with fresh low interest cost market loans and small savings collections. These transactions, however, were made fiscal deficit neutral since the proceeds were utilized by the Central Government to discharge its liabilities with the National Small Savings Fund.[2] Recoveries of loans are estimated to decline in 2006-07, reflecting the impact of debt consolidation by the States under the Twelfth Finance Commission award. Thus, changes in this variable reflect primarily the *fiscal policy impact*.

3.4 Disinvestment proceeds

Disinvestment proceeds which are treated as above the line transactions had a significant bearing on the reduction of fiscal deficit in 2003-04 with over Rs.16,000 crore being mobilized, reflecting the *fiscal policy impact*. The Union Budget for 2006-07, however, proposes not to utilize the disinvestment proceeds to meet budgetary expenditure as these are to be earmarked for the National Investment Fund, thereby making the transaction deficit neutral.

3.5 Interest payments

Interest payments during the third phase have, in general, declined on account of the *macroeconomic policy impact* of lower interest rate regime. The weighted average interest rate on Central Government liabilities have been declining in recent years (Table 3). The Government's decision to buy back illiquid domestic securities and prepay external debt as part of its policy of debt restructuring, had, however, resulted in premium payment in 2003-04. This is a *fiscal policy impact*.

3.6 Subsidies

Measures taken to facilitate liquidation of stocks and drought conditions entailed large outgoes under food subsidies in 2002-03 and 2003-04. Since then food subsidies have generally declined as a proportion of GDP. Fertiliser subsidies have risen in recent years on account of the high input cost reflecting the rise in international oil prices. Explicit provision of petroleum subsidy was made in the

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[2] The National Small Savings Fund (NSSF) was created in April 1999 into which all small savings collections are credited. NSSF in turn invested these funds in special securities of the Central Government (20 per cent) and State Governments (80 per cent) between April 1999 and March 2002. Since March 2002, the entire net collections credited to the NSSF are being invested only in State Government special securities. Reinvestment of redemption proceeds of these securities is, however, made in Central Government securities.

Table 3

Average Interest Cost of Central Government Liabilities
(percent)

Year	Average Interest Rate
2000-01	9.73
2001-02	9.2
2002-03	8.62
2003-04	7.96
2004-05	7.31
2005-06 RE	6.52
2006-07 BE	6.37

Budget since 2002-03 after the dismantling of the Administered Price Mechanism. Thus the expenditure outlays undertaken for subsidies reflect fiscal policy impact.

4. Analytical Framework

The traditional indicators used for assessing fiscal situation of a country reflect the interplay of a variety of factors including policy decisions, structural changes in the economy and overall macroeconomic environment. In order to assess the efficiency of fiscal policy, there is a need to ascertain and separately analyse the impact of each of these factors on actual fiscal outcome. The present paper, therefore, adopts the broad framework developed by Kremer *et al. (*2006) after making certain modifications so as to make it suitable to the nature of data disseminated for the Indian economy. This methodology estimates cyclical and structural components of the gross fiscal deficit using a two-step procedure of detrending the GDP series and applying relevant elasticities of the fiscal variables to the output trend gap series.

4.1 Gross fiscal deficit: estimation of cyclical and structural components

The analytical framework of the present paper would be centred around gross fiscal deficit. To decompose the gross fiscal deficit into the structural and cyclical deficit, the series of relevant budgetary categories are first classified into the structural and cyclical components. Budgetary category X may be defined as follows:

$$X^a = X^s + X^c$$

where superscripts a, s and c represent actual, structural and cyclical components of the budget variable, respectively.

The structural component of a budgetary category is that part of budget balance which would have taken place had the actual GDP been equal to its trend level. The remaining part, which is generated by the gap between actual GDP and trend GDP, is called cyclical component of the budgetary category. For the present paper, the relevant expenditure category is assumed to be exogenous of the GDP growth and hence all expenditure is assumed to be structural in nature. Although the movements in GDP may influence government expenditure, the bulk of the expenditure remains independent of fluctuations in GDP. In literature, the only expenditure item which is adjusted for the cyclical component is social security benefits. Since these expenditures are negligible in the Indian context, the overall expenditure has not been adjusted for business cycles. Moreover, identifying the components of expenditure which respond to cyclical component of GDP would not be without errors particularly in the light of composition of the Government expenditure in India. Hence, it is assumed for the present purpose that all the expenditure is structural in nature.

Revenue receipts are first decomposed into cyclical and structural components. As the contribution of agricultural sector to the revenues of the Government is negligible,[3] the tax base of revenue receipts is assumed to be non-agricultural GDP. Following Bouthevillain (2001), the cyclical component of revenue receipts is calculated as a product of constant revenue elasticity and output gap (difference between actual nominal GDP and trend nominal GDP) and trend revenue receipts. The trend is estimated by using a Hodrick-Prescott filter with a smoothing parameter of $\lambda = 100$.

$$RR^c = RR^t * e_{rr} * (B^a - B^t)/B^t$$

where RR^c is the cyclical component of revenue receipts and e_{rr} is the elasticity of revenue receipts with respect to base or B, *i.e.* non-agricultural nominal GDP. The superscripts a and t represent actual and trend values, respectively.

The structural component RR^s would, thus, be the remaining part of RR.

$$RR^s = RR^a - RR^c$$

where RR^a is the actual revenue receipts.

The structural deficit is arrived at as the difference between the structural revenue and total expenditure as all the expenditure is assumed to be structural. Cyclical deficit is taken as the difference between gross fiscal deficit and the structural deficit which is essentially equal to cyclical revenue receipts. This also makes a case for further analysis of structural revenues.

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[3] In India taxation of agricultural income is comes under the purview of the State Governments and are by and large outside the tax net.

4.2 Analysis of structural revenues

To further analyse the structural component of revenues, the changes in structural revenue ratios are broadly attributed to two factors: dynamic inertial effect and policy effect.

4.2.1 Dynamic inertial effect

The dynamic inertial effect is taken to be the changes in structural revenues that would have taken place even without any change in the fiscal stance. Thus, this effect would capture the fiscal drag and the effect of deviations in the growth rate of tax base from the growth rate of trend GDP.[4]

a. Fiscal drag

Fiscal drag usually refers to the increase in average tax rates in a progressive income tax scheme as a consequence of increase in nominal income over time. If the elasticity of tax collection is other than one, the growth in tax revenue would differ from the growth in GDP implying a change in revenue receipts to GDP ratio. In this exercise the concept of fiscal drag is applied to the entire revenue receipts and not just tax revenue. The contribution of fiscal drag to revenue receipts/GDP ratio is calculated on the basis of the elasticity of revenue receipts and growth rate in trend non-agricultural GDP (g_t) which is assumed to be the base for all revenue receipts, including non-tax revenue. Elasticity of revenue receipts (e_{rr}) with respect to the tax base is calculated after netting out the impact of legislative changes (in the form of additional resource mobilisation) from the revenue receipts. The contribution of fiscal drag to changes in structural revenue receipts is computed as:

$$(e_{rr}-1) * g_t * RR_{t-1}/NGDP_t$$

where $NGDP_t$ is trend nominal GDP.

b. Differential growth in trend tax base

This refers to the deviations in the growth of trend tax base from the trend GDP. Other things remaining same, the revenue receipts to trend GDP ratio will change if revenue base increases at a rate different from the trend growth GDP. As discussed above, the contribution of agricultural GDP to the Government revenue of the Government is negligible in India whereas its share in GDP is significant. The trend growth rate of agricultural GDP is lower than that of overall trend GDP (G_t) whereas non-agricultural GDP has registered a relatively higher growth, particularly in the last decade. The contribution of deviations of trend tax base growth to the change in structural revenue ratio is computed as:

$$(g_t - G_t) * RR_{t-1} / NGDP_t$$

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[4] The deviations of growth rate of trend tax base from trend GDP is termed as decoupling of tax base by Kremer *et al.* (2006).

4.2.2 Short-term discretionary policy changes

This captures the changes in tax revenue as a result of policy changes. The short-term impact of changes in tax structure is measured in terms the additional resource mobilisation (ARM). The budget documents of the Government of India provide estimates of additional resource mobilisation/change in tax revenue on account of specific measures taken during the year.

4.2.3 Residual developments

The change in revenue receipts which is not explained by the three factors discussed above is attributed to factors such as improved tax administration, lagged effect of tax revenue, underestimation of ARM, structural changes in the tax base etc. These factors may be interpreted to provide the medium term fiscal stance adopted by the Government, at least on the revenue side. Thus, the residual effect captures the both short-term and long-term effect and includes changes in tax structure and other measures such as tax administration, lagged impact of tax changes, etc.

5. Empirical findings

Using the methodology outlined above, the structural and cyclical deficits were computed for the gross fiscal deficit of the Central Government (Table 4). The structural deficit relative to GDP had declined by nearly 1 percentage point during the third phase over the second phase. A surplus in the cyclical component during the third phase indicates the impact of upbeat economic activity enabling an overall reduction in GFD. It may be noted that all the years in the third phase witnessed

Table 4

Structural and Cyclical Deficits of the Central Government

Year	Structural Deficit	Cyclical Deficit	Gross Fiscal Deficit
Phase I (1991-92 to 1996-97)	5.21	0.35	5.56
Phase II (1997-98 to 2001-02)	5.72	0.16	5.87
Phase III (2002-03 to 2005-06)	4.75	–0.11	4.63

Table 5

Adjusted Structural and Cyclical Deficits of the Central Government
(percent of GDP)

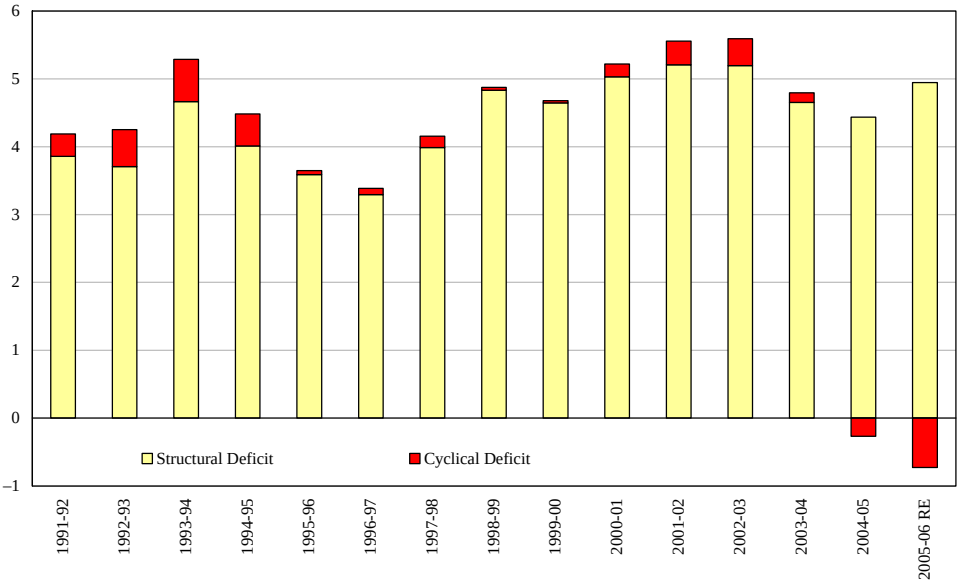
Period (1)	Structural Deficit (2)	Cyclical Deficit (3)	Adjusted Fiscal Deficit (4)
1991-92	3.9	0.3	4.2
1992-93	3.7	0.5	4.3
1993-94	4.7	0.6	5.3
1994-95	4	0.5	4.5
1995-96	3.6	0.1	3.6
1996-97	3.3	0.1	3.4
Phase I (1991-92 to 1996-97)	**3.9**	**0.4**	**4.2**
1997-98	4	0.2	4.2
1998-99	4.8	0	4.9
1999-00	4.6	0	4.7
2000-01	5	0.2	5.2
2001-02	5.2	0.3	5.6
2002-03	5.2	0.4	5.6
Phase II (1997-98 to 2002-03)	**4.8**	**0.2**	**5.0**
2003-04	4.7	0.1	4.8
2004-05	4.4	–0.3	4.2
2005-06 RE	4.9	–0.7	4.2
Phase III (2003-04 to 2005-06)	**4.7**	**–0.3**	**4.4**

high growth rates, particularly in the sectors which contribute to the revenue of the Government.

The GFD analysed above is the difference between aggregate expenditure and non-debt receipts which include revenue receipts, recovery of loans and disinvestment proceeds. There are, however, different views on the inclusion of disinvestment proceeds as budgetary receipts. If the GFD is to measure the net borrowing requirement of the Government, then disinvestment proceeds may be part of the non-borrowed receipts. However, as disinvestment reduces the financial assets of the Government, it leads to an increase in net financial liabilities of the

Figure 2

Structural and Cyclical Components of Adjusted Deficit of the Centre
(percent of GDP)



Government (Mody, 1994). There are similar views disputing the inclusion of net lending in the GFD as this also alters the financial assets of the Government and does not reflect changes in its net worth. In the Indian context, three major policy decisions have had an impact on the magnitude of the Central Government's fiscal deficit. First is the change in the accounting treatment of Small Savings consequent upon the creation of National Small Savings Fund (NSSF) in April 1999. As a result of this policy decision, loans extended to State Governments against Small Saving collections no longer formed a part of the Centre's expenditure and hence, were not taken into consideration for calculating the Centre's fiscal deficit. Second, the withdrawal of budgetary support in the form of loans to the State Government for their State Plans with effect from 2005-06, on the basis of the recommendations of the Twelfth Finance Commission (TFC), amounted to shifting the burden of raising resources for the State Plans to the State Governments. Third, from 2006-07 disinvestment proceeds will be earmarked for the National Investment Fund and will henceforth not affect the magnitude of GFD of the Centre. While the first two policy decisions have a bearing on the loans extended by the Government and hence on its expenditure, the third policy decision has a bearing on its non-debt capital receipts. The real progress in fiscal consolidation would, therefore, have to be evaluated only after adjusting for these developments. Thus, in order to have a consistent series, an adjusted deficit was computed netting out from the GFD, disinvestment proceeds and net lending *i.e.*, loans and advances minus recoveries. The structural and cyclical components of this adjusted deficit are presented in Table 5 and Figure 2.

From Table 5, it may be seen that the adjusted deficit declined during the third phase over the second phase. However, the reduction was evident from 2003-04, rather than from 2002-03 as in the case of unadjusted GFD, in line with the move towards FRBM framework. In the third phase, the cyclical deficit turned around to record a modest surplus in respect of both the adjusted and unadjusted deficits. This supports the view that fiscal consolidation in recent years has been facilitated by upswing in the output cycle. While movements in structural deficit showed marked improvement in the third phase in terms of unadjusted GFD, the improvement in structural deficit during this phase has been marginal in terms of adjusted deficit. The structural component of adjusted deficit continued to be higher than the overall adjusted deficit as in case of GFD.

Further analysis of the structural revenue and expenditure reveals that an improvement in structural deficit in the third phase is on account of increased revenues. Structural revenue in the third phase increased, on an average, by 0.3 percentage point of GDP over the second phase (Table 6).

As discussed in the Section on analytical framework, the factors contributing to structural revenues are examined. Decomposition of changes in structural revenue shows that the contribution of the dynamic inertial impact to structural revenue ratios, measured in terms of the fiscal drag and differential growth in trend tax base, declined in the third phase over the first two phases (Table 7). While short-term impact (represented by Additional Resource Mobilisation, ARM) contributed substantially in the second phase, the modest ARM shown in the budget documents have resulted in the lower contribution of this component in the third phase. There has been significant increase in the relative contribution of residual component during the third phase. This could possibly reflect the medium to long-term impact of fiscal policy measures on the structural revenue ratio.

One of the limitations of the methodology used in the above analysis is that the elasticity was assumed to remain constant over the years. In India, the point elasticity of revenue with respect of the relevant base has been varying significantly. Hence, an exercise was undertaken to examine the impact of a variable elasticity on the empirical findings relating to analysis of structural revenue in terms of fiscal drag, differential growth trend tax base, and residual developments. Separate elasticity of revenue with respect of non-agricultural GDP was used for each of the three phases discussed above. The empirical findings obtained by using variable elasticities were, however, by and large similar to those obtained by using a constant elasticity.

It may be noted that the empirical finding discussed above are subject to certain methodological limitations, particularly in respect of measurement of output gap. In the present study potential output was measured by using the HP-filter as relevant information was not available to use more sophisticated techniques to measure potential output such as production function approach. Since measurement of output gap based on the potential output is one of the key factors in the analysis, its measurement would have a significant bearing on the results.

Table 6

Structural Revenue and Expenditure
(percent of GDP)

Year (1)	Revenue (2)	Expenditure (3)
1991-92	10.3	14.2
1992-93	10.3	14
1993-94	9.3	14
1994-95	9.4	13.4
1995-96	9.2	12.8
1996-97	9.2	12.5
Phase I Average	**9.6**	**13.5**
1997-98	8.9	12.8
1998-99	8.5	13.4
1999-00	9.3	13.9
2000-01	9.3	14.4
2001-02	9.2	14.4
2002-03	9.8	15
Phase II Average	**9.2**	**14**
2003-04	9.7	14.4
2004-05	9.5	14
2005-06 RE	9.1	14.1
Phase III Average	**9.5**	**14.1**

Table 7

Composition of Change in Ratio of Structural Revenue to GDP
(percent of total change)

Period 1	Fiscal Drag 2	Differential growth in trend tax base 3	Dynamic Inertial Effect (2+3) 4	Short-term discretionary policy changes (ARM) 5	Residual 6
Phase I (1991-92 to 1996-97)*	3.0	9.0	12	–1.0	89.1
Phase II (1997-98 to 2002-03)	4.2	15	19.3	19.3	61.5
Phase III (2003-04 to 2005-06)	3.0	8.7	11.7	10.6	77.7

* Excludes 1993-94 as it was an outlier in which the change in revenue receipts as a proportion of GDP was only 0.3 per cent.

Another factor which could lead to a high residual component is the underestimation of the short-term discretionary policy changes which, in this case, is represented by the ARM. The contribution of tax policy changes to the structural revenue could be much higher than the reported ARM since the Government has substantially rationalised the tax structure across the board and has widened the tax base as part of the tax reforms. These would have a bearing on the medium-long-term revenue generating capacity of the Government. The Government has also undertaken various measures to strengthen tax administration in recent years. The application of "information technology" has also improved the efficiency of tax administration. The cost of collection has shown a perceptible decline in recent years from 1.4 per cent in 2000-01 to 0.9 per cent in 2004-05 for direct taxes, 1.5 per cent to 0.8 per cent for customs duties and 0.8 per cent to 0.7 per cent for excise duties over the same period. These factors, though not captured in the ARM, would have influenced the structural revenues positively.

6. Fiscal Consolidation under FRBM Act

Fiscal Responsibility and Budget Management (FRBM) Rules, 2004 spelt out the path for fiscal correction for the Central Government Finances. While the FRBM Act provides a strong institutional mechanism for making sustained progress in fiscal consolidation, the progress towards attaining the targets has been mixed. Although the FRBM Act was passed in August 2003, there were no explicit annual targets set for deficit reduction. Despite this, the fiscal year 2003-04 witnessed a marked reduction in all the key deficit indicators over the budgeted levels as well as the preceding year. With the notification of the Fiscal Rules in July 2004 and stipulations of minimum thresholds for annual reductions in deficit, a front loaded fiscal consolidation was budgeted for the fiscal year 2004-05, which required that the revenue deficit decline by more than twice the stipulated minimum threshold. The fiscal outcome for 2004-05 showed that not only was the budgeted reduction in revenue deficit realised but the fiscal deficit also declined by more than twice the stipulated minimum threshold. The Central Government was however, forced to set in a "pause" in its FRBM path in 2005-06 on account of the need to provide higher resources to the States Governments in accordance with the Twelfth Finance Commission award. The process of fiscal consolidation is set to resume in 2006-07, with a projected reduction in the revenue deficit to 2.1 per cent of GDP and fiscal deficit to 3.8 per cent of GDP. The targets under the FRBM Rules and progress so far are set out in Table 8.

It is evident from the table that although significant progress has been made in fiscal consolidation since the implementation of FRBM Act, it is a challenging task to achieve the FRBM targets within the stipulated timeframe. Given the downward rigidities in expenditure, further correction would need to be based on revenue augmentation as has been done in the recent phase. While the Government has benefited from both the cyclical and structural components of revenues, the contribution of the dynamic inertial effect to structural revenues has declined in

Table 8

FRBM Rules for the Central Government

Parameter	Provisions in the FRBM	Progress So Far
Fiscal Deficit (GFD)	To be reduced by 0.3 per cent or more of GDP every year, beginning with the year 2004-05, so that it does not exceed 3 per cent of GDP by end-March 2009.	Placed at 4.1 per cent of GDP in 2005-06 (Provisional Actuals) and budgeted at 3.8 per cent for 2006-07.
Revenue Deficit (RD)	To be reduced by 0.5 per cent or more of GDP at the end of each year, beginning from 2004-05, in order to achieve elimination of the RD by March 31, 2009.	Placed at 2.7 per cent of GDP in 2005-06 (Provisional Actuals) and budgeted at 2.1 per cent for 2006-07.
Contingent Liabilities	The Central Government shall not give guarantees aggregating an amount exceeding 0.5 per cent of GDP in any financial year beginning 2004-05.	Net accretion during 2004-05 was 0.57 per cent of GDP.
Additional Liabilities	Additional liabilities (including external debt at current exchange rate) shall not exceed 9 per cent of GDP for the year 2004-05. In each subsequent year, the limit of 9 per cent of GDP shall be progressively reduced by at least one percentage point of GDP.	8.0 per cent of GDP in 2004-05.

Sources: Fiscal Responsibility and Budget Management Rules, 2004, Government of India; Union Budget 2006-07, Government of India; Economic Survey 2005-06, Government of India.

recent years. This signifies a greater role played for the discretionary fiscal policy. This also implies that further fiscal consolidation would require a pro-active fiscal policy, placing emphasis on revenue augmentation. Studies show that the most recently proposed package of tax reforms undertaken to fulfill the commitments under the FRBM Act would improve tax productivity and lower the marginal tax burden and tax-induced distortions (Poirson, 2006).

7. Conclusion

The Central Government finances in India have witnessed significant improvement in the FRBM phase. The various fiscal indicators analysed in the paper show that this consolidation has essentially been achieved through enhanced revenues. While the view held by many, including the international organisations, is that the macroeconomic performance has enabled the Government to achieve fiscal consolidation, our analysis shows that although this factor did play an important role in augmenting the Government's revenue, the strategy of rationalising the tax rates, improved tax compliance and widening of tax base also contributed to the increase in the structural revenue of the Government As emphasised in the Reserve Bank's Annual Report 2000-01, *"The path to durable fiscal consolidation is through fiscal empowerment* i.e., *by expanding the scope and size of revenue flows into the budget. A fiscal strategy based on revenue maximisation would also provide the necessary flexibility to shift the pattern of expenditures and redirect them productively; on the other hand, fiscal adjustments based predominantly on expenditure reduction involve welfare losses and risk the danger of triggering a downturn of overall economic activity"*.(RBI 2001, pp. 131) In recent years, the Government has been attempting to plug the loopholes in the tax system and arrest leakages. These efforts would need to be continued and complimented by better tax administration and compliance. Focus on expenditure reprioritisation would help to keep a check in expenditure growth and simultaneously increase allocations for the social sector. The combined impact of high economic growth and a greater role for discretionary fiscal policy should enable the Government to meet the FRBM targets.

APPENDIX 1
FISCAL BALANCE SHEET

Receipts	Expenditures
Revenue Receipts (RR)	**Revenue Expenditure**
Tax Receipts (TR)	General Services (GSR)
Non-tax Receipts (NTR) *of which:* Interest Receipts (IR) Dividend & Profits (DP) External Grants (EG)	*of which:* Interest Payments (IP) Social Services (SSR) Economic Services (ESR) Grants-in-Aid (GIA)
Capital Receipts (CR) *of which:* Recoveries of Loans (ROL)	**Capital Expenditure (CE)** Capital Outlay (CO)
Disinvestment proceeds (DIS) Internal Debt (ID) Market Loans (ML) Other Internal Liabilities (OL) *of which:* Small Savings (SS) Provident Funds (PF) special Deposits (SD) Reserve Funds & Deposits (RFD) External Borrowings (EB) **Total Receipts (TR)= (RR+CR)**	Social Services (SSC) General Services (GSC) Economic Services (ESC) Loans & Advances (LA) General Services (GSL) Social Services (SSL) Economic Services (ESL) Other Loans & Advances (OLA) **Total Expenditure (TE)= (RE+CE)**

APPENDIX 2
CONCEPTS AND MEASUREMENT OF EXISTING DEFICIT MEASURES

Deficit Indicators (1)	Expenditure (2)	Receipts (3)	Measurement (4)
Traditional Measures			
1. Revenue Deficit (*RD*)	*RE*	*RE*	*RD=RE–RR*
2. Capital Account Deficit (*CAD*)	*CE=CO+LA*	*CR*	*CAD=CE–CR*
3. Conventional Budget Deficit (*CD*)	*TE=RE+CE*	*TR= RR+CR*	*CD=TE–TR=RD+CAD*
4. Monetised Deficit (*MD*)	*	*	*
Measure of Recent Origin			
5. Gross Fiscal Deficit (*GFD*)	*TE–ROL =RE+CO+ (LA–ROL) =RE+CO+NL*	*RR+DIS*	*GFD=(TE–ROL)–(RR+DIS) =(RE+CE–ROL)–(RR+DIS) =(RE+CO+LA–ROL)– (RR+DIS) =(RE+CO+NL)–(RR+DIS) =(RD+CO+NL–DIS)*
6. Primary Deficit (PD) (a) *PD*1	*TE–ROL–IP =(RE–IP)+ [CO+(LA–ROL)] =(RE–IP)+(CO+NL)*	*RR+DIS*	*PD*1=(*RE–ROL–IP*)– (*RR+DIS*) =[(*RE–IP*)+(*CO+NL*)]– (*RR+DIS*)
(b) *PD*2	*TE–ROL–IP =(RE–IP)+ [(CO+LA–ROL)] =(RE–IP)+(CO+NL)*	(*RR–IR*) *+DIS*	*PD2=(TE–ROL–IP)– [(RR–IR)+DIS] =[(RE–IP)+(CO+NL)]– [(RR–IR)+DIS]*
7. Net Fiscal Deficit (*NFD*)	*TE–NL =(RE+CE)– (LA–ROL) =(RE+CE)–NL*	*RR–DIS*	*NFD=(TE–NL)–(RR+DIS) =[(RE–CE)–(LA–ROL)]– [(RR+DIS) =[(RE–CE)–NL]–(RR+DIS)*
8. Net Primary Deficit (*NPD*)	*TE–NL–IP =(RE–IP)+ [CE–(LA–ROL)] =(RE–IP)+(CE–NL)*	(*RR–IR*) *+DIS*	*NPD=(TE–NL–IP)– [(RR–IR)+DIS] =[(RE–IP)+(CE–NL)]– [(RR–IP)+DIS]*
9. Primary Revenue Balance (*PRB*) *PRB*1 *PRB*2	*RE–IP RE–IP*	*RR RR–IR*	*PRB*1=(*RE–IP*)–*RR=RD–IP PRB2=(RE–IP)– (RR–IR)=RD–NIP*

* Since monetised deficit is essentially a financing item of the Central Government's budgetary gap, its measurement through expenditure and receipts approach is not applicable.

REFERENCES

Blanchard, O.J. (1990), "Suggestions for a New Set of Fiscal Indicators", OECD, Working Paper, No. 79, April.

Bouthevillain, C., P. Cour-Thimann, G. Van den Dool, P. Hernandez de Cos, G. Langenus, M. Mohr, S. Momigliano and M. Tujula (2001), "Cyclically-adjusted Budget Balances: An Alternative Approach", European Central Bank, Working Paper, No. 77, September.

Brackonier, H. (1999), "The Public Budget Balance – Fiscal Indicators and Cyclical Sensitivity in the Nordic Countries", October.

Brandner, P., L. Diebalek and H. Schuberth (1998), "Structural Budget Deficits and Sustainability of Fiscal Positions in the European Union", Oesterreichische National Bank, Working Paper, No. 26.

Cano, L. and A. Kanutin (1996), "Estimation of Structural Deficits in EU Countries", mimeo, London School of Economics.

Chelliah, R.J. (1996), *Towards Sustainable Growth – Essays in Fiscal and Financial Sector Reforms in India*, Oxford University Press.

Chouraqui, J.C., R.P. Hagemann and N. Sartor (1990), "Indicators of Fiscal Policy: A Re-examination", OECD, Working Paper, No. 78, April.

Cronin, D. and D. McCoy (1999), "Measuring Structural Budget Balances in a Fast Growing Economy: The Case of Ireland", Central Bank of Ireland, Technical Paper, 4/RT/99, October.

European Commission (1995), "Technical Note: The Commission Services' Method for Calculating the Cyclical Adjusment of Government Budget Balances", Directorate General for Economic and Financial Affairs, *European Economy*, No. 60.

Ford, B. (2006), "Structural Fiscal Indicators: An Overview", available at: www.treasury.gov.au/ documents/987/PDF/06_structural_fiscal.pdf

Giorno, C., P. Richardson, D. Roseveare and P. Van den Noord (1995), "Potential Output, Output Gaps and Structural Budget Balances", OECD, *Economic Studies*, No. 24.

Hagemann, R. (1999), "The Structural Budget Balance, The IMF's Methodology", International Monetary Fund, Working Paper, WP/99/95, July.

Jaeger, A. (1990), "The Measurement and Interpretation of Structural Budget Balances", *Empirica*, No. 2, Vol. 17.

Kremer, J., C. Rodrigues Braz, T. Brosens, G. Langenus, S. Momigliano and M. Spolander (2006), "A Disaggregated Framework for the Analysis of Structural Developments in Public Finances", European Central Bank, Working Paper, No. 579, January.

Mody, R.J. (1994), "Calculating the Fiscal Deficit", *Economic and Political Weekly*, Volume XXIX, No. 38, September.

Muller, P. and R.W.R. Price (1984), "Structural Budget Deficits and Fiscal Stance", OECD, Working Paper, July.

Pattnaik, R.K., A. Prakash and B.S. Misra (2004), "Sustainability of Public Debt in India: An Assessment in the Context of Fiscal Rules", in *Public Debt*, Banca d'Italia, Roma.

Pattnaik, R.K., S.M. Pillai and S. Das (1999), "Budget Deficit in India: A Primer on Measurement", RBI, Staff Studies, SS(DEAP):1/99, June.

Poirson, H. (2006), "The Tax System in India: Could Reform Spur Growth?", International Monetary Fund, Working Paper, No. WP/06/93, April.

Rangarajan, C., A. Basu and N. Jadhav (1989), "Dynamics of Interaction between Government Deficit and Domestic Debt in India", RBI, Occasional Paper, September.

Rangarajan, C. and D.K. Srivastava (2005), "Fiscal Deficits and Government Debt, Implications for Growth and Stability", Special Articles, *Economic and Political Weekly*, July.

Reddy, Y.V. (2000), "Government Budgets, Banking and Auditors: What is New?", lecture delivered to Accountants of India, Hyderabad Branch, November 12.

Reserve Bank of India (2001), *Annual Report 2000-01*.

——————— (2002), *Report on Currency and Finance 2000-01*.

——————— (2003), *Report on Currency and Finance 2001-02*.

——————— (2005), *State Finances -A Study of State Budgets 2004-05*.

Shome, P. (1995), "Recent Tax Policy Trends and Issues in Latin America", in A.L. Resende (ed.), *Policies for Growth: The Latin American Experience*, International Monetary Fund, Washington (D.C.).

Van den Noord, P. (2000), "The Size and Role of Automatic Fiscal Stabilisers in the 1990s and Beyond", OECD, Economics Department, Working Paper, No. 230.