

ABSTRACT

That India faces a ‘fiscal crisis’ has been a recurrent refrain of the literature on India’s economic reforms. Indeed a central objective of the reforms process, one that has proved elusive so far, is the reduction in the fiscal deficit of the central government. The supposed intractability of the fiscal problem has provided the motivation for the passage of the Fiscal Responsibility and Budget Management Act in 2003 that commits the government to targets for the fiscal and revenue deficits.

We revisit the proposition that India’s debt problem is unsustainable in light of the recently changed outlook for growth and interest rates. Using a decomposition model, we separate out the effects on the fiscal deficit of growth and government behaviour in the past. We find that if recent government behaviour were to continue, the Indian economy would to achieve a growth rate of 6.5 per cent in the coming years, something that seems eminently achievable.

Next, positing a nominal growth rate of 11 per cent (or a real growth rate of 6.1 per cent) in the coming years and making suitable assumptions about revenue buoyancy and other receipts, we empirically estimate the growth in primary expenditure that would be permissible. We find that no deceleration in primary expenditure is required if we assume a revenue buoyancy of 1 or above.

We compare our optimistic projections with the sombre estimates of the Kelkar Task Force and find that our estimates differ from KTF’s because the KTF report postulates much higher levels of debt than we do. Clearly, we need a consensus on what India’s debt position today is. Nevertheless, our analysis does suggest that assessments of the sustainability of India’s debt have not adequately factored in the changed outlook for growth and interest rates.

Is India's Federal Debt Sustainable?- Revisiting an Old Debate

T T Ram Mohan

Ravindra H Dholakia

Navendu Karan

1. Introduction

India's fiscal situation has been at the very centre of the reforms process as well as the literature on reforms. The inability to bring the fiscal deficit under control after more than a decade of reforms is perceived to be one of the failures of reforms over the past decade.

This concern has especially grown since 1998-99 with the reversal in the trend of the earlier years of reforms of a declining debt to GDP ratio. As a result, the perception has gained ground that the debt to GDP ratio could soon become unsustainable, that is, government will not be able to service the debt, leading eventually to fiscal collapse as investors are no longer willing to hold government debt.

A lively literature has grown on the problem of lack of sustainability of debt. We do not wish to attempt here a comprehensive survey as this has been done elsewhere. We will content ourselves with citing two recent papers that reinforce the conventional wisdom on India's debt situation.

Rangarajan and Srivastava (2003), after examining the trends in the debt to GDP ratio over the past fifty years, conclude that "for stabilising the debt to GDP ratio at current levels, fiscal reforms aimed at attaining a balance on primary account are imperative". In other words, growth by itself cannot be expected to bring the problem under control; active intervention to correct the primary balance is required.

In a similar vein, Pinto and Zahir (2004) contend that a "programme of robust fiscal reform is needed to combat unsustainable public debt dynamics...". They add, "India is unlikely to grow out of its debt problem inspite of today's lower interest rates".

The base scenario in the absence of fiscal reforms that Pinto and Zahir outline assumes growth of 5.5 per cent in 2003-04 and 5 per cent in 2004-05. These projections, we dare say, have already been overtaken by events. GDP growth was 8.2 per cent in 2003-04 and is expected to be at least 6 per cent in 2004-05- and this in the absence of the comprehensive reforms that the authors cite as a precondition for growth. We make this point at the very outset because we do believe that an under-estimation of growth possibilities is part of the reason for what might be termed ‘deficit pessimism’ among commentators in India and abroad.

The mounting concern over the fiscal situation led eventually to the passing of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 that aims at bringing the fiscal situation under control by 2008-09. The Act postulates, among other things, that revenue deficit should decline by 0.5 percentage points of GDP every year till 2008-09 beyond which government borrowings should be only to finance capital expenditure for creation of assets. Fiscal deficit is required to decline by 0.3 percentage points of GDP very year, and its level in 2008-09 must be below 3 percent of GDP.

Following the passage of the Act, the government has recently come out with the report of the Kelkar Task Force (hereafter to be referred to as KTF) on the implementation of the Act (Kelkar, 2004). The report has outlined a road map for the implementation of the Act, making assumptions about receipts and expenditures under what it calls a baseline scenario (where things continue as they are now) and under a scenario where tax reforms are carried out. Only under the latter scenario, KTF contends, can the targets laid down in FRBM Act be met. In other words, it reiterates what most of the literature says: absent fiscal reforms, India’s public debt position is likely to be unsustainable.

This paper re-examines the whole question of fiscal sustainability given the present outlook for growth and interest rates. We confine ourselves to the fiscal position of the centre and do not address the wider problem of the combined debt of the centre and the states. Starting off with the present level of central debt, we ask what order of fiscal adjustment would be required in order to reach a tolerable level of debt in a reasonable time frame.

The literature on India's fiscal problems recognizes that, to the extent that the growth rate stays above the interest rate, it can mitigate the debt problem. However, it is not very sanguine about what growth by itself can achieve without measures being taken to address the primary balance (Rangarajan and Srivastava, 2003).

Our own projections suggest that the general consensus on the fiscal situation at the centre may be unduly alarmistic, conditioned as it is by growth and interest rate assumptions of a decade ago. Neither the potential for an acceleration in growth rate nor for a reduction in the overall interest rate on debt appears to have been adequately taken into account in most projections.

To be sure, much hinges on the measurement of the present level of debt and on the data on debt that is available in the public domain. In section 5, we highlight discrepancies between the debt level that we have assumed based on publicly available information and the debt estimates of the RBI and the Economic Survey as also the debt levels implied in the KTF forecasts. Some of the discrepancy with respect to the KTF estimates can be ascribed to differences in measurement of debt. This does raise the question as to what accounts for the rest of the discrepancy. If there are elements of public liabilities that the government is aware of and that are not yet in the public domain, these cannot, in the very nature of things, be factored into our analysis.

The rest of the paper proceeds as follows. In section 2, we estimate the tolerable level of debt for the centre as also the present level of debt. In section 3, we examine the fiscal record of the past decade or so, with a view to ascertaining the relative roles of growth and fiscal behaviour in determining changes to fiscal deficit.

In Section 4, we estimate the fiscal adjustment required in order to reach the tolerable level of debt within a reasonable time frame. We compare our estimates of the degree of fiscal adjustment required with those of KTF and account for differences. Section 5 compares our estimates of central debt with official estimates. Section 6 concludes.

2. Tolerable level of central public debt for India

What would be a tolerable or acceptable level of central debt in India? While there is no firm theoretical basis for determining an absolute tolerable level (see, Reinhart et al, 2003), we may be guided by norms obtaining elsewhere.

The debt level that European Union states are committed to under the Maastricht treaty is 60 per cent of GDP. The Eleventh Finance Commission (EFC, 2000), while acknowledging that a higher level of debt than that of the EU “may be permissible”, argued, nevertheless, in favour of a total debt to GDP ratio of 55 per cent. One of the reasons it cited was the interest burden likely to emanate from higher interest rates occasioned by a higher level of government debt.

We do know that the interest rate scenario has changed quite dramatically in recent years with interest rates declining considerably. The growth imperative, which the EFC acknowledged as an important criterion, meanwhile remains as strong as ever. It is possible to derive a debt / GDP ratio consistent with the approach of the EFC taking into account these changes.

The tolerable level of debt for the country as a whole (centre and the states) may be derived from the equation for the stable debt / GDP ratio (D/Y):

Stable (D/Y)* = $(PD1 / Y1) \cdot ((1+gny) / (gny - i))$ where PD is primary deficit; i is interest rate; and gyn is nominal growth rate.

We make the following assumptions;

- Nominal GDP growth rate of 11 per cent
- Interest rate of 8.25 per cent (which is the weighted average interest rate on central government debt)
- PD/Y ratio of 1.7, which is the projected combined primary deficit to GDP ratio for the centre and the states for 2004-05 (RBI, 2004).

Incorporating these values in the above equation, we get,

Stable D/Y* = 68%

Thus, the debt / GDP ratio of 55% recommended by the EFC translates into 68% for the future when we take into account the likely growth rate and the present interest rate. This is the tolerable ratio for the centre and the states together. The EFC had suggested an acceptable debt/GSDP level for the states of 25%. The Tenth Plan also posits this figure. On this basis, the tolerable level for the centre alone would be 43 per cent of GDP.

Now, the aggregate level of 68 per cent for the country as a whole represents net liabilities of the central and state governments and would exclude loans from the centre to the states of about 20.5% of the combined (net) liability (RBI, 2001)- or about 14 per cent of GDP. Thus, the composite figure of 68 per cent for the centre and the states would translate into a total gross debt burden of 82 (68 +14) for the centre and the states if we did not net out central loans to the states.

Apportioning the 14 per cent equally between the centre and the states, that is seven per cent each to the centre and the states and adding the figure of seven per cent to the net debt/GDP figures of 43 per cent and 25 per cent respectively for the centre and the states, we arrive at figures of 50 per cent and 32 per cent as the tolerable debt / GDP targets for the centre and the states respectively.

We know now what fiscal adjustment must aim for. Starting with the present level of the debt to GDP ratio (56.8 per cent, table 5a) we must arrive at a figure of 50 per cent over a reasonable time frame. We believe this should happen by the end of the decade, that is, by 2009-10, or over the next six years. (The last year now proposed for the FRBM Act target to be met happens to be 2008-09). The issue of debt sustainability at the centre thus boils down to the question: what is the degree of fiscal adjustment required in order to attain a debt to GDP ratio of 50 per cent by 2009-10?

Data Issues

Before attempting any projections for the trajectory of the debt to GDP ratio in the coming years, we need to be clear as to where we stand at the moment. While various figures are available in official statistics and in the literature, we have followed the methodology adopted by Rangarajan and Srivastava (2003) in constructing our data series for debt and fiscal deficit. If we compare the debt series

given by RBI (or CMIE) and Rangarajan and Srivastava(2003), we notice the different series converge only till 1998-99. Rangarajan and Srivastava explain why their series has diverged from that of RBI for the subsequent period.

On April 1, 1999 the National Small Savings Fund was established and is maintained under the Public Account of India. While the borrowings of the Central government against the collections in NSSF have been included in the centre's 'internal debt' since 1999-2000, the borrowings by State governments against NSSF collections continue to be included in 'other liabilities' in central government debt. There is, thus, double counting on account of small savings. State government borrowings must be taken out to avoid this error.

Rangarajan and Srivastava (2003) also note that, apart from the overstatement on account of small savings, there is an understatement of debt due to certain borrowings by the centre being kept off-budget. CAG data is devoid of these errors and hence it is their data that Rangarajan and Srivastava use, arriving at a data series until 2001-02. We need to extend this series to the current year, that is 2003-04, in order to make a useful analysis of the possible scenario in near future.

CMIE data on government debt is available till 2003-04(RE). From the CMIE data, following Rangarajan and Srivastava, we subtract NSSF securities. This does not complete the adjustment required as we should be adding off-budget debt each year. We are unable to do this as CAG data beyond 2001-02 are not available.

How big is the error in omitting off-budget data? If we only subtract NSSF securities from the corresponding central debt figure in a given year for the period since, we arrive at figures that are less than the corresponding CAG figures, as given in Rangarajan and Srivastava(2003), by 0.1% in 1999-2000 and 2000-01 and 0.3% in 2001-02. Since we do not have CAG data beyond 2001-02, we take this as an acceptable magnitude of error for the time being and extend the series till 2003-04(BE) by adjusting for NSSF securities but not for off-budget debt.

3. Fiscal deficit: relative roles of growth and fiscal behaviour

As mentioned in the introduction, a premise underlying the conventional view of the fiscal problem is that growth by itself cannot be expected to address the

problem. We need fiscal reforms aimed at changing what we would call ‘fiscal behaviour’, that is, the willingness of governments to increase tax and non-tax revenues and reduce expenditure. We wish to subject this premise to critical scrutiny in relation to the fiscal record of the recent past. We do so by identifying the precise impact of growth on the fiscal deficit in the recent past, using a decomposition model.

Decomposition model

The movement of the fiscal deficit to GDP ratio and the debt to GDP ratio over time is determined by two factors: the behaviour of the growth rate of the economy vis-à-vis the interest rate; and the fiscal behaviour of the government as reflected in the primary deficit.

Table 1 documents the behaviour of the fiscal deficit to GDP ratio over the period 1991-92 to 2003-04 and also provides data on nominal growth rates in the respective years. It should be evident that the fiscal deficit tended to decline over the previous year when the growth rate rose and to rise when the growth rate declined. To be sure, there is no one to one correlation between the two: the level of the primary deficit is also a crucial factor.

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Gross Fiscal Deficit (GFD)/GDP	5.6	5.4	7	5.7	5.2	4.9	5.8	6.5	5.4	5.6	6.1	5.3	4.8
Nominal Growth Rate in GDP (Gny)	14.8	14.6	14.8	17.9	17.3	15.2	11.3	14.3	11.3	8.6	9.1	7.6	11.6
Real Growth Rate in GDP (Gy)	0.9	5.3	4.9	7.6	7.5	7.4	4.5	6.0	7.1	3.9	5.2	4.6	7.8

1. Gross Fiscal Deficit (GFD), as used for the computations here, is computed as the difference between the closing and opening debt figures in a given year. This deficit, in accordance with Rangarajan & Srivastava (2003), is called Derived Fiscal Deficit.

Source: *Business Beacon*- CMIE Online database

We pose the question: knowing the fiscal behaviour of the government in recent years and assuming that this will continue, what is the growth rate that would be required to lower the debt to GDP ratio to the target of 50% by 2009-10? We attempt to answer this question in this section using a theoretical model. (In section 4, we posit a certain achievable growth rate and estimate the order of fiscal adjustment required.)

To answer this question, we first attempt to separate out the impact of the two factors, growth and fiscal behaviour, on the fiscal deficit over the period 1992-2004. We do this by decomposing the change in the fiscal deficit to GDP ratio in a given year into these two components.

We define

$$\Delta(\text{GFD}/Y)_{\text{total}} = \Delta(\text{GFD}/Y)_{\text{growth}} + \Delta(\text{GFD}/Y)_{\text{govt. behaviour}} \text{-----}(1)$$

What is $\Delta(\text{GFD}/Y)_{\text{growth}}$? It is the contribution of economic growth by itself to the change in the GFD to GDP ratio. That is, the change in the GFD to GDP ratio in the absence of any change in government or fiscal behaviour.

We need to consider government behaviour in relation to both expenditure and revenues. If government behaviour did not change, its real expenditure would remain the same, that is, the expenditure (TE) would grow at the rate of inflation. Similarly, if government behaviour remained unchanged, its revenue receipts (RR) would grow at the nominal growth rate of GSDP (G_{ny}), that is, the real growth rate of the economy (G_y) plus the inflation rate (π).

Thus, for a given growth rate, G_{ny} , the growth component of the change in the GFD/ GSDP ratio may be computed as:

$$\begin{aligned} \Delta(\text{GFD}/Y)_{\text{growth}} &= [\text{TE}_0(1+\pi) - \text{RR}_0(1+G_{ny})]/Y_0(1+G_{ny}) - [\text{TE}_0 - \text{RR}_0]/Y_0 \\ &= - [G_y/(1+G_{ny})] * [\text{TE}_0 / Y_0] \text{-----} \quad (2) \end{aligned}$$

Subscripts 0 and 1 indicate the two periods over which we take the change in GFD/GSDP ratio.

The change in the GFD/GSDP ratio that can be ascribed to government's fiscal behaviour is simply the residual, that is,

$$\Delta(\text{GFD}/Y)_{\text{govt. behaviour}} = \Delta(\text{GFD}/Y)_{\text{total}} - \Delta(\text{GFD}/Y)_{\text{growth}} \text{-----} (3)$$

Here, we need to be clear about the sense in which we use 'government behaviour' or 'fiscal behaviour'. The 'government behaviour' component is not synonymous with commonly used indicators such as the primary deficit because the primary

deficit in a given year would incorporate the growth contribution through the effect on revenues.

An intuitive way of explaining what we term ‘government (or fiscal) behaviour’ would be to say that it represents efforts to increase revenues either by widening the tax base or by improving efficiency of tax collection; it would also include attempts to keep growth in real expenditure in check. In other words, it represents any impact on the fiscal deficit other than that arising from revenues growing at the nominal growth rate and expenditure growing at the rate of inflation.

Table 2: Contribution of GDP growth and Fiscal Behaviour to change in FD to GDP ratio

	CGr	CGov	TC	Gny	Gy
1991-92	-0.149	-1.864	-2.013	14.85	0.91
1992-93	-0.811	0.986	0.175	14.58	5.27
1993-94	-0.735	3.27	2.535	14.81	4.87
1994-95	-1.182	-1.681	-2.863	17.87	7.59
1995-96	-1.036	0.74	-0.296	17.3	7.52
1996-97	-1.003	0.387	-0.617	15.17	7.39
1997-98	-0.599	2.264	1.664	11.28	4.48
1998-99	-0.845	0.625	-0.22	14.35	5.99
1999-00	-1.03	-0.296	-1.326	11.25	7.13
2000-01	-0.543	1.164	0.621	8.64	3.89
2001-02	-0.745	1.743	0.998	9.11	5.2
2002-03	-0.703	-0.391	-1.094	7.56	4.59
2003-04(RE)	-1.157	1.311	0.155	11.56	7.77
Positive change indicates a deterioration					
All values expressed as percentages					
CGr: Contribution of growth to the change in GFD/GSDP ratio (percent)					
CGov: Contribution of government behaviour to the change in GFD/GSDP ratio (percent)					
TC : Total change in GFD/GSDP ratio					
Gny: Nominal growth in GDP					
Gy: Real Growth in GDP					
Data Source: <i>Business Beacon</i> - CMIE Online database					

Table 2 presents the results of our decomposition. Negative figures for either component represent a contribution towards a lowering of the fiscal deficit to GDP ratio; positive figures represent a contribution towards an increase in the ratio.

As the table shows, only in three years did fiscal behaviour contribute to a lowering of the fiscal deficit; in all the other years, fiscal behaviour tended to worsen the fiscal situation. This will, of course, not come as news at all, given the strident criticism we have been hearing of the government's failure to mobilise additional revenues (represented by the decline in the tax/GDP ratio) and to rein in expenditure.

The growth contribution has throughout been towards lowering the fiscal deficit to GDP ratio, which is understandable for any positive growth tends to lower the ratio. However, of the thirteen years that we have analysed, the cumulative effect of the two components has been negative only in seven, that is, the two components together contributed to a lowering of the fiscal deficit to GDP ratio only in seven years. This means that in six out of 13 years, the growth component was overwhelmed by the fiscal behaviour component.

Out of the five years of rapid growth in the period considered (that is, where the growth rate was in excess of 7 per cent) - 1994-95, 1995-96, 1996-97, 1999-00 and 2003-04-, government behaviour improved and reinforced the effect of growth in two years, 1994-95 and 1999-00.

In the other three years, *government behaviour worsened but was offset by the vigorous contribution arising from rapid growth*. This does suggest that, contrary to the received wisdom, if growth is rapid enough that does substantially solve the fiscal problem, no matter that government behaviour does not improve. (We will leave aside the question of what 'rapid enough' growth is in practice, other than to say that such growth has been achieved in the past). This should, of course, not be construed as a license for profligacy on the part of the government because all growth is, after all, subject to a margin of uncertainty.

We can now proceed to use our decomposition model to address our key question, namely, the growth rate required if government behaviour remains unchanged in the coming years.

$$\Delta(\text{GFD}/Y)_{\text{total}} = x \text{ (say)} = \Delta(\text{GFD}/Y)_{\text{growth}} + \Delta(\text{GFD}/Y)_{\text{govt. behaviour}} \dots\dots\dots(4)$$

$$\text{Let } \Delta(\text{GFD}/Y)_{\text{govt. behaviour}} = a \dots\dots\dots(5)$$

We know from (2) above,

$$\Delta(\text{GFD}/Y)_{\text{growth}} = - [G_y / (1 + G_{ny})]^* [TE_0 / Y_0]$$

$$\text{Therefore, } x = - [G_y / (1 + G_{ny})]^* [TE_0 / Y_0] + a \dots\dots\dots(6)$$

$$\text{and } D_1/Y_1 - D_0/Y_0 = D_0/Y_1 - D_0/Y_0 + (\text{GFD}_0/Y_0 + x)$$

Now, let us suppose that we proceed from the present D/Y to the target D/Y by 2009-10 through equal reductions in D/Y each year, say, d.

Then the required nominal growth (G_{ny}) is given by

$$d = D_0/Y_1 - D_0/Y_0 + (\text{GFD}_0/Y_0 + x)$$

$$\Rightarrow d = D_0/[Y_0(1 + G_{ny})] - D_0/Y_0 + (\text{GFD}_0/Y_0 + x)$$

$$\Rightarrow d = D_0/Y_0 [1/(1 + G_{ny}) - 1] + (\text{GFD}_0/Y_0 + x)$$

Simplifying and substituting the value of x from (6) above,

$$d = D_0/Y_0 [- G_{ny} / (1 + G_{ny})] + \text{GFD}_0/Y_0 - [G_y / (1 + G_{ny})]^* [TE_0 / Y_0] + a$$

$$\Rightarrow d(1 + G_{ny}) = - D_0/Y_0 * G_{ny} + \text{GFD}_0/Y_0 * (1 + G_{ny}) - [G_y [TE_0 / Y_0] + a * (1 + G_{ny})]$$

$$\Rightarrow G_{ny}(d + D_0/Y_0 - \text{GFD}_0/Y_0 + TE_0 / Y_0 - a) = \text{GFD}_0/Y_0 + \pi * [TE_0 / Y_0] + a - d$$

$$G_{ny} = \frac{\text{GFD}_0/Y_0 + \pi * [TE_0 / Y_0] + a - d}{(d + D_0/Y_0 - \text{GFD}_0/Y_0 + TE_0 / Y_0 - a)} \dots\dots\dots (7)$$

As can be seen from the above equation, to compute the required growth rate in the first year, we need the following: the base year's fiscal deficit, the base year's GDP, the total expenditure in the base year – all of which are known for the first year- , the rate of inflation (assumed to be 4.5 per cent annually over the next six years), the change in the GFD/GDP ratio arising from government behaviour (which we have assumed to be the average of the last six years) and the required reduction in debt/GDP each year (again assumed by us, based on the targeted level of debt to GDP for 2009-10).

Plugging in the values as outlined above in equation (7), the required nominal growth rate, G_{ny} , for the first year turns out to be 10.9 per cent.

We now assume a revenue buoyancy of 1 in the future. All the other non-debt creating capital receipts are assumed to be at the level specified by KTF. The GFD, GDP and TE for the first year can thus be computed - and hence G_{ny} for the second year. And so on for all the future years.

Table 3 : Estimation of the growth required to meet the targeted debt to GDP ratio, given the average fiscal behaviour of the past.

Variables	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Revenue Receipts	263026	292220	324215	359543	398642	441997	490141
Recoveries	18023	27100	13395	12725	12089	12089	12089
Other Receipts	14500	4000	4000	4000	4000	4000	4000
Primary Expenditure	303098	330400	349449	382957	420577	463339	511058
Debt/GDP	0.5679	0.5566	0.5452	0.5339	0.5226	0.5113	0.5
GDP	2772194	3079892	3417107	3789447	4201531	4658476	5165902
Outstanding Liabilities	1574218	1714114	1863143	2023299	2195804	2381925	2582951
Gross Fiscal Deficit	132104	139896	149030	160156	172505	186121	201026
Contribution of government behaviour to the change in GFD/GDP ratio	0.0117	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
Total Expenditure (adjusted)	427653	463216	490640	536424	587236	644207	707256
Targeted decrease in Debt to GDP ratio per annum	-0.0161	-0.0113	-0.0113	-0.0113	-0.0113	-0.0113	-0.0113
Inflation	0.0449	0.045	0.045	0.045	0.045	0.045	0.045
GFD/Y	0.0477	0.0454	0.0436	0.0423	0.0411	0.04	0.0389
Cgov	0.0057	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
TE*/Y	0.1543	0.1504	0.1436	0.1416	0.1398	0.1383	0.1369
x1 (numerator)		0.0728	0.0704	0.0683	0.0669	0.0656	0.0644
x2(denominator)		0.6562	0.6433	0.627	0.615	0.6031	0.5914
Desired Growth in GDP (Nominal) (Gny)	0.1225	0.111	0.1095	0.109	0.1087	0.1088	0.1089

Our revenue buoyancy assumption is broadly in line with buoyancy of 0.8-1 seen in the past (Table 4) and also with the baseline assumptions in the Kelkar Task Force on Fiscal Responsibility and Budget Management Act, 2003 (KTF). Given the

consensus in favour of raising the tax to GDP ratio and the tax reforms planned to achieve this, we make another set of computations assuming a tax buoyancy of 1.1. It is worth noting here that KTF assumes a buoyancy of 1.3 in the reforms scenario.

Table 3 shows our projections up to 2009-10. The average nominal growth rate required for fiscal sustainability, as defined by us, works out to 10.9 per cent ; at the assumed inflation rate of 4.5 per cent, this would imply a real growth rate of 6.1 per cent, which does seem achievable going by the forecasts for growth that have been put out of late. (Even those sceptical of possibilities for accelerating growth, such as Acharya (2004), do not seem to have a problem with a growth estimate of the order of 6%.)

Our model thus suggests that if we take the average of government behaviour of the past six years as a given, then such behaviour is compatible with achieving the desired reduction in the debt to GDP ratio in the stipulated time horizon.

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Nominal Growth Rate in GDP (Gny)	14.8	14.6	14.8	17.9	17.3	15.2	11.3	14.3	11.3	8.6	9.1	7.6	11.6
Growth in revenues	20.2	12.3	1.8	20.7	20.9	14.7	6	11.6	21.4	6.1	4.5	15.1	13.5
Revenue Buoyancy	1.36	0.84	0.12	1.16	1.21	0.97	0.54	0.81	1.9	0.71	0.5	2	1.17

4. Empirical estimate of tolerable primary expenditure growth

Our theoretical model tells us that past government behaviour is sustainable taking into account *the interest rate scenario obtaining in the past*. Note that government behaviour has been defined as a combination of revenue-enhancing and expenditure control efforts on the part of the government. This combination of the past, when projected into the future, was seen to be sustainable in the sense of requiring a GDP growth rate of 10.9 per cent in nominal terms, a growth rate that is within the realm of feasibility.

We now approach the question of sustainability in slightly different terms. We assume a certain interest rate for the future taking into account the declining trend in the weighted average of interest rate on public debt. We also make suitable assumptions about the future growth rate of the GDP and revenue growth (using estimates of revenue buoyancy)

Having made these assumptions, we ask: what growth in *primary expenditure* would be consistent with meeting the targeted debt to GDP ratio of 50 per cent by 2009-10? To the extent that the required growth rate in primary expenditure is below the trend rate of growth in primary expenditure, fiscal correction is indicated; the difference between the two would indicate the severity of correction required.

We compute the primary deficit in a given year as follows.

Let us suppose that the total reduction in D/Y over the five year period is achieved in equal instalments of 'd' each year. We can then write

$$D_1 / Y_1 - D_0 / Y_0 = d \text{ ----- (8)}$$

$$\text{and } GFD_1 = D_1 - D_0 = Y_0 * d + (D_0 + Y_0 * d) * G_{ny} \text{ ----- (9)}$$

where G_{ny} is nominal growth in GSDP.

$$\text{Now, } PD_1 = GFD_1 - \text{Interest payments} = GFD_1 - i_1 * D_0 \text{ ----- (10)}$$

where i_1 = interest in period 1 and D_0 is debt in the previous period

$$\therefore PD_1 = (G_{ny} - i_1)D_0 + Y_0 * d * (1 + G_{ny}) \text{ ----- (11)}$$

$$\text{and } PD_1 / Y_1 = \frac{(G_{ny} - i_1)D_0}{(1 + G_{ny})Y_0} + d \text{ ----- (12)}$$

G_{ny} on the right hand side in the equation C above is the growth rate that we assume.

The above equation thus gives us the tolerable level of primary deficit in a given year based on our targeted reduction in the debt to GDP ratio. We are interested in obtaining the tolerable primary expenditure in a given year. We can write

$$\text{Primary expenditure} = \text{primary deficit} + \text{revenues} + \text{recoveries} + \text{other receipts} \text{-- (13)}$$

We make the following assumptions:

- Nominal GDP growth rate of 11 per cent (or real growth rate of 6.2 per cent at an inflation rate of 4.5 per cent)
- Average revenue buoyancy during the period 2005-06 to 2009-10 is assumed to be 1 and 1.1 under Scenario 1 and Scenario 2 respectively. (For the period 2003-04 to 2009-10, these translate into averages of 1.08 and 1.16 respectively.)
- As regards non-debt creating capital receipts, we assume disinvestment proceeds of only Rs 4,000 crore each year as assumed in the KTF. This does seem extremely conservative over a long-run period but, for the present, we chose to live with this assumption. For loan recoveries too, we go by the figures mentioned in the baseline scenario of KTF.

It remains for us to make assumptions about interest rates. For the purpose of projecting the future interest rate, we could make assumptions based on the declines we have seen in the recent past. We note that the average interest rate has shown declines of 0.4, 0.3 and 0.5 per cent in the three years since 2001.

Going forward, we have factored in declines of 0.2 per cent each year for the first five years (going upto 2009-10) on the weighted average interest of all government liabilities as older and costlier debt is substituted by newer and cheaper debt. For the next five years thereafter, we assume a slightly lower interest rate decline-0.15 per cent each year. In other words, we build in a total interest decline of 1.00 per cent over a five year period (2005-06 to 2009-10), starting from the interest rate of 8.2 per cent for 2004-05 (BE).

Just to put this assumption of a 1.00 per cent decline in the interest rate over five years in perspective, the decline in the weighted average interest rate on government liabilities in the past five years has been 1.2 per cent. As the trough in interest rates was attained recently, the full impact of the interest rate decline on the entire debt portfolio will be felt more in the coming five years than in the past five. Secondly, the proportion of low cost liabilities to total liabilities tends to increase

with time. For these reasons, our interest rate assumption of a 1 per cent decline over the coming five years is conservative.

A more accurate way to project future interest rates would be to make assumptions about interest rate movements on all the components of liabilities- internal debt (including market loans and non-market loans), small savings, external debt etc. While the proportions of these components are known from published data, the maturity structure is not known for any component except for domestic market loans.

We attempted to compute the weighted average interest cost by making two sets of assumptions about domestic market loans. One, the interest rate on market loans would stay at the present level. Two, there would be a modest increase each year in market borrowing costs starting from 2004-05. While we do not report the results here, we found that in both the scenarios, the average reduction in weighted average interest rate was not very different from what we have assumed for our projections.

Based on the assumptions about growth and interest rates, we estimate from the Domar equation the primary deficit that would result each year. Based on the revenue assumptions we have made, we go on to estimate the *primary expenditure* that would be consistent with the targeted reduction in the debt to GDP ratio.

The primary expenditure figures derived for each year for each of the two scenarios are as shown in Tables 5a and 5b. We find that primary expenditure can grow at an average rate of 10.8 per cent in 2003-04 to 2009-10. This does not at all compare unfavourably with the growth rate of 10.5 per cent in 1998-99 to 2003-04. The growth rate in primary expenditure over a more recent period, 1999-2000 to 2003-04, is 9.9 per cent.

The bottomline: Under the growth and interest rate assumptions made, we find that is possible to achieve the target debt to GDP ratio *without any substantial fiscal compression!* Growth (combined with low interest rates) is indeed solving the country's fiscal problem. We call this Scenario I.

Table 5a: Scenario1(Buoyancy =1 between 2005-06 to 2008-09) – Projections till 2009-10								
	2003-04	2004-05(BE)	2005-06	2006-07	2007-08	2008-09	2009-10	Annual Compounded Growth 2003-04 to 2009-10
Growth rate(nominal)	0.123	0.120	0.100	0.110	0.110	0.110	0.110	
Inflation	0.045	0.045	0.045	0.045	0.045	0.045	0.045	
Growth rate(real)	0.078	0.075	0.055	0.065	0.065	0.065	0.065	
GDP (Estimated)	2772194	3104857	3415620	3791338	4208386	4671308	5185152	
Debt/ GSDP ratio	0.5679	0.5513	0.5476	0.5357	0.5238	0.5119	0.5000	
Outstanding liabilities	1574218	1711625	1870387	2031014	2204348	2391240	2592576	
Interest Rate	0.086	0.082	0.080	0.078	0.076	0.074	0.072	
Primary Deficit	7549	7907	21381	14245	18443	23190	28537	
Interest Payment	124555	129500	137380	146382	154891	163702	172798	
Fiscal Deficit	132104	137407	158762	160628	173334	186892	201336	
Total Expenditure	427653	477829	516438	555065	608684	668361	733996	0.094
Primary Expenditure (PE)	303098	348329	379058	408683	453793	504659	561198	0.108
Receipts	295549	340422	357677	394438	435350	481469	532661	0.103
RR	263026	309322	340282	377713	419261	465380	516572	0.119
MCR	14500	4000	4000	4000	4000	4000	4000	
Recoveries	18023	27100	13395	12725	12089	12089	12089	
PD/Y	0.003	0.0025	0.006	0.004	0.004	0.005	0.006	
FD/Y	0.048	0.044	0.046	0.042	0.041	0.040	0.039	

When we assume a tax buoyancy of 1.1 (Scenario 2), the fiscal problem naturally appears far more manageable. The permissible growth in primary expenditure turns out to 11.6 per cent per annum compared to the past growth rate of 10.5 per cent. This is Scenario 2.

To summarise, in the two scenarios, we arrive at tolerable growth rates of primary expenditure of 10.8 per cent and 11.6 per cent respectively compared to the past growth rate of 10.5 per cent. Thus, our projections suggest that the debt to GDP ratio can be brought down to an acceptable level by 2009-10 without any substantial compression in primary expenditure relative to the trend rate of growth in primary expenditure. This happens because of the benign effects of the

combination of growth rate and interest rates we have assumed (and our assumptions, we have argued, are entirely plausible, if not conservative).

Table 5b: Scenario2(Buoyancy =1.1 between 2005-06 to 2008-09) – Projections till 2009-10								
	2003-04	2004-05(BE)	2005-06	2006-07	2007-08	2008-09	2009-10	Annual Compounded Growth 2003-04 to 2009-10
Growth rate(nominal)	0.123	0.120	0.100	0.110	0.110	0.110	0.110	
Inflation	0.045	0.045	0.045	0.045	0.045	0.045	0.045	
Growth rate(real)	0.078	0.075	0.055	0.065	0.065	0.065	0.065	
GDP (Estimated)	2772194	3104857	3415620	3791338	4208386	4671308	5185152	
Debt/ GSDP ratio	0.5679	0.5513	0.5476	0.5357	0.5238	0.5119	0.5000	
Outstanding liabilities	1574218	1711625	1870387	2031014	2204348	2391240	2592576	
Interest Rate	0.086	0.082	0.080	0.078	0.076	0.074	0.072	
Primary Deficit	7549	7907	21381	14245	18443	23190	28537	
Interest Payment	124555	129500	137380	146382	154891	163702	172798	
Fiscal Deficit	132104	137407	158762	160628	173334	186892	201336	
Total Expenditure	427653	477829	519534	562279	620926	686696	759669	0.100
Primary Expenditure (PE)	303098	348329	382154	415897	466034	522994	586870	0.116
Receipts	295549	340422	360773	401652	447592	499803	558333	0.112
RR	263026	309322	343378	384927	431503	483714	542244	0.128
MCR	14500	4000	4000	4000	4000	4000	4000	
Recoveries	18023	27100	13395	12725	12089	12089	12089	
PD/Y	0.003	0.0025	0.006	0.004	0.004	0.005	0.006	
FD/Y	0.048	0.044	0.046	0.042	0.041	0.040	0.039	

As important, we are able to show a reduction in debt to GDP over time inspite of the fiscal deficit to GDP ratio being at 4 per cent in 2008-09, which is above the target contemplated under the FRBM Act. In other words, our projections indicate that we can live with a higher fiscal deficit ratio than contemplated under the Act and yet achieve a desirable level of debt to GDP ratio by 2009-10. This does make us wonder whether we need the FRBM Act at all.

It remains for us to explain why our figures are at variance with those of the Kelkar Task Force in crucial respects- the debt to GDP ratio arrived at in the last year as well as the fiscal deficit to GDP ratio.

Comparison of our scenarios with KTF's

A detailed comparison of our projections with those of KTF is provided in the Appendix. Table 6 summarises the key differences between two KTF scenarios, baseline and reform, and Scenarios 1 and 2 in our estimates.

Scenario 1 and KTF *baseline scenario*: As Table 6 shows, over a five-year period, we show a lower interest cost amounting to Rs 41,731 crores. This, in turn, arises because we assume a lower level of debt (and hence debt to GDP ratio) in the base year relative to KTF.

As shown in the appendix, we assume the same figures for loan recoveries and other receipts as the KTF. Our revenue receipts in Scenario 1 are higher than those in KTF as are our figures for primary expenditure. Revenue receipts are higher because, while KTF assumes a growth rate in line with ours, the revenue buoyancy assumed in KTF is lower than ours (KTF- 0.87; ours- 1).

Comparison of Scenario 1 with KTF's *reform scenario*: The KTF reform scenario assumes both a higher growth rate and a higher revenue buoyancy than we do. Hence, the revenue receipts in our scenario are considerably lower than KTF's. The interest difference is lower than in the first comparison because the debt levels in KTF's reform scenario are lower than in its baseline scenario.

Table 6: Difference between KTF and our estimates (Rs. Crores)				
	KTF Baseline Scenario- Scenario1	KTF Reform Scenario - Scenario 1	KTF Baseline Scenario - Scenario 2	KTF Reform Scenario - Scenario 2
Revenue Receipts	-60394	212342	-101280	171456
Total Expenditure	-5659	90921	-46545	50035
Interest Payment	41730	11926	41731	11926
Primary Expenditure	-47389	78995	-88276	38110

Comparison of Scenario 2 with KTF's *baseline scenario*: Our estimates of revenue receipts and total expenditure are higher, while interest costs are lower by Rs.

41730 crores (as in the first comparison). This leaves room for a higher growth in primary expenditure than is possible under KTF.

Comparison of Scenario 2 with KTF's *reform scenario*: Our revenue receipts and total expenditure are lower than KTF's. Our interest cost in this comparison is lower than KTF's only by about 12000 crores over the four- year period, again reflecting the lower debt level in KTF reform scenario relative to its baseline scenario.

5. Differences in estimates of debt

How do we arrive at a conclusion that flies so radically in the face of the conventional wisdom? It should be evident that the key difference with respect to the KTF projections is our assumption about the present level of debt as well as the build up of growth in the coming years (Table 7). It is this difference that accounts for the lower interest costs in our estimates relative to KTF.

How we define and estimate total government debt is thus central to any assessment of whether this is sustainable in the years to come and whether or not any major fiscal adjustment is required. If we are to be guided by the debt to GDP ratio we have assumed (and which is consistent with the methodology used by Rangarajan and Srivastava, 2003), the much-touted fiscal problem becomes entirely manageable in the context of the evolving growth and interest rate scenarios. Not only is no major expenditure compression required, any such compression could conceivably worsen the fiscal problem by undermining growth.

As Table 7 shows, in the very first year for which we are able to make comparisons between our estimates and KTF's, 2004-05, we find a difference in debt of Rs 415,512 crores. This initial difference apart, there is a further difference of nearly Rs 100,000 crore between our debt estimates and those of KTF in *every single year* over the period 2005-09.

The incremental difference in future years arises because the addition to central debt shown in the KTF report each year exceeds what would be indicated by the level of fiscal deficit by a huge margin. In other words, going by KTF, *there is an accretion to debt that is over and above the accretion on account of the annual*

budgetary borrowings. We have sought but failed to obtain from the KTF a clarification as to where the additional increase in borrowings is coming from.

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Liabilities (Our Estimates)	1574218	1711625	1895738	2067815	2254399	2456551
Liabilities (KTF)		2127138	2394217	2684864	2992758	3322212
Difference between Liability Estimates (KTF V/s Ours)		415512	523831	653850	788409	930972
Derived FD (DFD)= Increase in Debt (KTF)			267080	290647	307893	329455
Actual Fiscal Deficit (KTF)	132103	137407	172497	182993	187041	191820
DFD-FD			94583	107654	120852	137635

	1	2	3	4	5	6
	Economic Survey*	RBI	Our Estimates**	Difference between our estimates and RBI's(2-3)	Difference between Economic Survey and RBI (!-2)	Difference between our estimates and Economic Survey's: (1-3) = (4+5)
2000-01	1292586	1168541	1114770	53771	124045	177816
2001-02	1494501	1366409	1271189	95220	128092	223312
2002-03	1695656	1561876	1412409	149467	133780	283247
2003-04(BE)	1955737	1780064	1574218	205846	175673	381519
* External Debt valued at market rates						
** Based on Rangarajan & Srivastava (2003)						

These incremental additions to debt apart, we need to explain why our estimates for 2004-05 are lower than KTF's by over Rs 400,000 crore. As KTF's figures are in line with those of the Economic Survey, explaining how we differ from the Survey will also explain how we differ from KTF.

Table 8 shows the differences in debt estimates for the past years going up to the base year for our projections, 2003-04. The difference between our estimates and those of the Survey can be said to comprise two elements: a difference between our estimates and those of RBI; and a difference between the estimates of RBI and those of the Survey.

Our estimates are lower than RBI's because of the correction that we have made to the official figures by subtracting the states' borrowing under NSS (section 2). The

RBI's estimate is lower than that of the Survey because the RBI uses the historical rate for exchange rates whereas the Survey uses the market rate. Summing up these two difference explains why we differ from the Survey and KTF. Roughly half the difference between our estimates and KTF's can be ascribed to our taking out state borrowing incorrectly shown in central liabilities. The other half is because of the differences in the exchange rates used.

Which is the more appropriate exchange rate- historical or market rate- can be debated. An obvious difficulty with using the market exchange rate is that the fiscal deficit in a given year will not equal the difference in debt between the beginning and the end of the year.

A second issue is the long term view on exchange rates because to value the entire stock of debt at the current exchange rate is to assume that this rate will obtain when any of the debt comes up for repayment. If the Indian economy continues to grow at over 6 per cent and the build of foreign exchange reserves continues, can we be guided by an exchange rate that is today propped up by central bank intervention? It requires more than an ordinary dose of pessimism to make such an assumption.

Clearly, we need to arrive at a consensus on what exactly central debt is today before we can take a position on its sustainability or frame policies aimed at controlling debt. It does appear that an overstatement of the debt position is responsible for much of the 'deficit pessimism' we have seen in recent years.

There is one last issue that we need to address. Even if our estimates are accepted, it could be contended that basing the argument of fiscal sustainability on past trends in primary expenditure is fundamentally flawed because government has not been spending enough. The requirements of infrastructure, agricultural as well as the social sectors, all of which have been starved of funds in the post-reform years, call for a much greater growth government expenditure than in the past. If we accept this contention, then we would require growth in primary expenditure much greater than the 10.8 or 11.6 per cent growth rates in our two scenarios that are consistent with fiscal sustainability. How do we address this contention?

As mentioned above, our expenditure projections take the KTF disinvestment figures of Rs 4000 crore each as a given. But this need not be so. The potential for disinvestment, even with government retaining more than 51 per cent equity in PSUs, is much greater. So, if disinvestment can be stepped up, the scope for increasing government expenditure would be much larger.

Going by our projections, the focus of fiscal policy needs to shift from expenditure compression aimed at keeping the fiscal problem under control to expenditure expansion, made possible by tax reforms and disinvestment, and rendered feasible by a favourable combination of growth and interest rates. The thrust of the FRBM Act does appear misplaced when seen in this perspective.

6. Conclusion

The literature on reforms has been characterised by what might be termed ‘deficit pessimism’, the notion that India’s fiscal situation is fundamentally untenable and cannot be remedied by growth alone but by a combination of rapid growth and change in fiscal or government behaviour. This is the rationale underlying the passage of the FRBM Act in 2003.

We subject this proposition to critical scrutiny in two ways. First, using a decomposition model, we separate out the effects of growth and government behaviour over the past decade. Assuming that government behaviour of the recent past will continue, we ask what growth rate would be required in order to make the central debt position sustainable. Sustainability here means bringing the debt to GDP ratio down to 50 per cent by the end of the decade, that is, 2009-10 from the present level of 56.8 per cent. We find that a growth rate of 6.5 per cent suffices for the purpose. Even if the growth rate falls below this level, the order of fiscal adjustment required would be modest.

Next, positing a growth rate of 6.1 per cent in the coming years and making suitable assumptions about revenue buoyancy and other receipts, we empirically estimate the growth in primary expenditure that would be permissible. We find that no deceleration in primary expenditure is required at all, if we assume a revenue buoyancy of 1 or above.

As our projections and hence our conclusions are at variance with those of KTF, we compare the two estimates and find that the differences arise mainly because of differences in the estimates of the present as well as future levels of debt. The KTF report postulates much higher levels of debt than we do.

Our estimates are lower than KTF's for three reasons. One, we use the historical exchange rate for valuing external debt while KTF uses the market rate. Secondly, we subtract from official figures state borrowings from NSS incorrectly shown in central liabilities. Thirdly, there is an inexplicable accretion to debt of around Rs 100,000 crore every year in the KTF projections. Our projections are based on the data on debt available in the public domain and reflected in the estimates of Rangarajan and Srivastava (2003), CMIE and the CAG. If there is some hidden component to the debt that is known only to those in government and that is impacting on the whole question of sustainability, that is a obviously a matter on which we cannot comment at this point.

All we can say is that the central debt position appears to be sustainable based on the data on debt that is publicly available and our methodology for estimating debt. Not only is growth taking care of the debt to GDP ratio, it is doing so at a level of fiscal deficit that is higher than that mandated by the FRBM Act. This does raise the question whether the Act is required in the first place.

References

Acharya, Shankar (2004), "India's growth prospects revisited", *Economic and Political Weekly*, October 9, pp 4537-4542

Eleventh Finance Commission (2000), *Report of the Eleventh Finance Commission*

Kelkar, Vijay (2004), *Report of the Task Force on Implementation of the Fiscal Responsibility and Budget Management Act, 2003*, Ministry of Finance, Government of India,

Pinto, Brian and Farah Zahir (2004), " Why Fiscal Adjustment Now?", *Economic and Political Weekly*, March 6, pp. 1039-1048

RBI Handbook of Statistics on the Indian Economy(2004)

Reinhart, Carmen M.; Rogoff, Kenneth S.; Savastano, Miguel A: "Debt Intolerance", *Brookings Papers on Economic Activity*, 2003 Issue 1, p1, 74p

Reserve Bank of India (2001),

Rangarajan C and D K Srivastava (2003), "Dynamics of Debt Accumulation in India: Impact of Primary Deficit, Growth and Interest Rate", *Economic and Political Weekly*, Vol.38, No. 46, November 15, pp. 4851-4858

Appendix : Comparison of our estimates (Scenarios 1 and 2) with KTF estimates (baseline and reform scenarios)							
FRBM Baseline Scenario							Growth Rates
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	(2005-06 to 2008-09)
GDP (Y)	2772194	3104857	3477440	3886039	4332934	4820389	11.6
Revenue Receipts	263027	309322	323538	360480	404021	454202	10.1
Loan Recoveries	18023	27100	13395	12725	12089	12089	
Other Receipts	14500	4000	4000	4000	4000	4000	
Interest	124555	129500	143970	158659	173427	188393	9.8
Total Expenditure	427653	477829	513430	560198	607151	662111	8.5
Fiscal Deficit	132103	137407	172497	182993	187041	191820	
Liabilities/GDP		68.51	68.85	69.09	69.07	68.92	
Liabilities		2127138	2394217	2684864	2992758	3322212	
Interest Rate (implied)			6.77	6.9	6.99	7.06	
Average Buoyancy							0.867
Annual growth rate in GDP		12	12	11.75	11.5	11.25	

Our Estimates: Scenario 1(Buoyancy =1 between 2005-06 to 2008-09)							Growth Rates
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	(2005-06 to 2008-09)
GDP	2772194	3104857	3415620	3791338	4208386	4671308	11.0
Revenue Receipts	263026	309322	340282	377713	419261	465380	10.8
Loan Recoveries	18023	27100	13395	12725	12089	12089	
Other Receipts	14500	4000	4000	4000	4000	4000	
Interest	124555	129500	137380	146382	154891	163702	7.4
TE	427653	477829	516438	555065	608684	668361	8.8
Fiscal Deficit	132104	137407	158762	160628	173334	186892	
Liabilities/GDP	56.79	55.13	54.76	53.57	52.38	51.19	
Liabilities	1574218	1711625	1870387	2031014	2204348	2391240	
Interest Rate		8.23	8.13	8.03	7.93	7.83	
Buoyancy							1 (average over the period)
Annual growth rate in GDP		12	10.01	11	11	11	10.8

FRBM Reforms Scenario							Growth Rates
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	(2005-06 to 2008-09)
GDP (Y)	2772194	3104857	3477440	3903426	4391354	4962231	12.4
Revenue Receipts	263027	309322	357066	420758	482441	554712	15.7
Loan Recoveries	18023	27100	16895	12225	12089	12089	
Other Receipts	14500	4000	4000	4000	4000	4000	
Interest	124555	129500	141545	152997	164333	175769	7.9
Total Expenditure	427653	477829	518197	575759	635966	709548	10.4
Fiscal Deficit	132103	137407	140236	138776	137436	138747	
Liabilities/GDP		68.51	67.89	67.11	66.25	65.44	
Liabilities		2127138	2360834	2619589	2909272	3247284	
Interest Rate (implied)			6.65	6.75	6.83	6.91	
Average Buoyancy							1.26
Annual growth rate in GDP		12	12	11.75	11.5	11.25	

Our Estimates: Scenario 2(buoyancy =1.1 between 2005-06 to 2008-09)							Growth Rates
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	(2005-06 to 2008-09)
GDP	2772194	3104857	3415620	3791338	4208386	4671308	11.0
Revenue Receipts	263026	309322	343378	384927	431503	483714	11.8
Loan Recoveries	18023	27100	13395	12725	12089	12089	
Other Receipts	14500	4000	4000	4000	4000	4000	
Interest	124555	129500	139092	150123	160984	172519	7.4
TE	427653	477829	519534	562279	620926	686696	9.5
Fiscal Deficit	132104	137407	158762	160628	173334	186892	
Liabilities/GDP	0.57	0.55	0.55	0.54	0.52	0.51	
Liabilities	1574218	1711625	1870387	2031014	2204348	2391240	
Interest Rate			8.13	8.03	7.93	7.83	
Buoyancy							1.1
Annual growth rate in GDP		12	10	11	11	11	