

II. A MACRO PERSPECTIVE AND THE SCOPE OF TAX REVENUE: 2000-01 TO 2006-07

1. Introduction

At a meeting of the Planning Commission, held for undertaking a mid-term appraisal of the Ninth Plan (September 30, 2000), the Prime Minister asked the Commission to examine the possibility of raising the growth target of the economy for the Tenth Plan, due to start in 2002-03, to 9 percent from the target of 6.5 percent of the Ninth Plan. It was acknowledged that this would require “far reaching changes in existing policies”. The strategy for achieving such a target needs to spell out the sectors, sources and regions that can drive the economy onto such an ambitious growth trajectory. It also requires a re-specification of the role of government in achieving and sustaining this growth. In particular, the implications for augmenting tax revenues for financing development expenditures require to be worked out in adequate detail within a macro framework. In this context, the following important questions need to be addressed:

1. What are the sectors, which will mainly contribute towards attaining the stipulated growth target? It is clear that growth in agriculture would be rather low. The industrial sector will provide a higher growth. But on an average basis, encompassing the five years, it will probably be less than 9 percent. The residual growth has thus to come from services. As such, sectoral growth targets need to be specified keeping in view both their desirability and feasibility in order to derive the role of plan intervention to drive growth in these sectors.
2. Which are the states/regions that will mainly contribute to this growth? The inter-state growth profile indicates wide variations. Successful states have registered growth more than 4 to 5 percentage points above average, while slower or constrained states have performed almost that much below average.

Should the growth strategy have a regional focus? What would be the implications for equity and efficiency?

3. What is the role of government in this endeavor? How much of the aggregate output/savings of the economy should it draw upon for government expenditures, and what share of that should be devoted to capital expenditures, i.e. government investment. Further, what are the sectors government investment should focus on? This issue needs to be considered in the context of the persistent fall of capital expenditures over the last fifteen years.
4. In drawing upon the economy's output, how much would it be desirable/feasible for the government to draw as tax revenues, how much as non-tax revenues, and how much should it then borrow? These questions can be addressed in the context of the steady erosion of the tax-GDP ratio, the stagnation of non-tax revenues, and issues relating to sustainability of debt and fiscal deficit. An analytical framework that allows for interdependence and feedbacks among key variables is required for addressing these issues.
5. Once the tax revenue targets are determined in this framework, one can work out, starting from the base year tax-GDP ratio, the extent by which it should rise, and accordingly what is the aggregate incremental effort required, and what might be the sources for additional buoyancy.
6. The aggregate tax revenue buoyancy can then be decomposed as centre-state targets and tax-wise targets.

These matters are taken up individually. We first address the issue as to which sector is likely to provide the targeted rate of growth.

2. Sectoral Growth Profiles

Dividing the economy into three broad sectors, viz., agriculture and allied activities, industry (excluding construction), and services (including construction), the profile of annual growth rates since 1993-94 (year from which the new GDP series is available) indicates that the agricultural sector shows a high degree of volatility and low average growth. The industrial sector shows a peak performance rising to as high an annual growth rate at 12.82

percent (in 1995-96) but undergoes steady erosion in the closing years of the nineties due to recession. In terms of annual growth rates, the services sector is the steadiest. It has maintained a healthy growth even during the period of recession.

In working out the potential of an individual sector towards contributing to a high growth target, one needs to look at the following features characterising a sector: (i) its share in total GDP; (ii) its average growth in recent path; (iii) the volatility of its growth rate; and (iv) its potential contribution to tax revenues. The agricultural sector is characterised by a low and falling share in GDP, a low but highly volatile growth rate, and small effective potential for contributing to the buoyancy of tax revenues. The average annual growth rate in agriculture has been around 3.34 percent (Table II.1) and it appears that we may expect an average growth of 3.5 to 4 percent during the next few years. Since population is increasing at an average annual rate marginally above 2 percent, a growth in agricultural output of 3.5 to 4 percent should be adequate to cover and augment the availability of agricultural products in real per capita terms.

Table II.1: Sectoral Growth Performance: 1994-95 to 1999-2000

	(GDP at Factor Cost at 1993-94 Prices)						AAG ¹
	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	
Agriculture and Allied Services	5.01	-0.87	9.61	-1.92	7.16	1.27	3.34
Industry (exclu. Construction)	10.35	12.82	6.80	4.90	3.65	7.46	7.31
Services (inclu. Construction)	6.77	10.01	6.65	9.16	8.05	8.68	8.26
GDP at Factor Cost	6.98	7.31	7.51	5.02	6.81	6.43	6.64

Source (Basic Data): National Accounts Statistics, September 1999 and Press Note, 30 June 2000 by CSO.
 Note: 1. Average annual growth rate.

The average growth in the industrial sector has been around 7.3 percent and it should be possible to sustain an annual growth above 8 percent in this sector. Indeed, it may need to be raised beyond 9 percent as is explained below. The key to raising aggregate growth to a level of 9 percent, nevertheless, lies in uplifting the growth in services by about 2 percentage points from an average of 8.2 percent to above 10 percent, as shown in Table II.2. Indeed, it may need to be beyond 10 percent as is explained below.

Table II.2: Sectoral Shares: Percent to GDP at Factor Cost at Current Prices

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Sectoral Growth Rates							Percent	
Agriculture and Allied Services		3.50	3.50	4.00	4.00	4.00	4.00	4.00
Industry (exclu. Construction)		7.50	8.00	9.50	9.50	9.50	9.50	9.50
Services (inclu. Construction)		8.50	9.15	11.00	10.86	10.74	10.62	10.52
Aggregate Growth Rate		7.00	7.50	9.00	9.00	9.00	9.00	9.00
Nominal Amounts (at 1993-94 Prices)							Rs. Crore	
Agriculture and Allied Services	293869	304154	314800	327392	340487	354107	368271	383002
Industry (exclu. Construction)	255715	274894	296885	325089	355973	389790	426820	467368
Services (inclu. Construction)	601771	652902	712661	791056	876995	971170	1074331	1187300
GDP at Factor Cost	1151355	1231950	1324346	1443537	1573456	1715067	1869423	2037671
Shares								
Agriculture and Allied Services	25.524	24.689	23.770	22.680	21.639	20.647	19.700	18.796
Industry (exclu. Construction)	22.210	22.314	22.417	22.520	22.624	22.727	22.832	22.936
Services (inclu. Construction)	52.266	52.997	53.812	54.800	55.737	56.626	57.469	58.268
GDP at Factor Cost	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Sectoral Contribution								
Agriculture and Allied Services		0.893	0.864	0.951	0.907	0.866	0.826	0.788
Industry (exclu. Construction)		1.666	1.785	2.130	2.139	2.149	2.159	2.169
Services (inclu. Construction)		4.441	4.851	5.920	5.953	5.985	6.015	6.443
Total		7.00	7.50	9.00	9.00	9.00	9.00	9.00

Source (Basic Data): National Accounts Statistics, September 1999 and Press Note, 30 June 2000 by CSO.

In Table II.3, growth rates of agriculture and industry have been pegged at 4 and 9.5 percent per annum for the period of the Tenth Plan. The growth of the services sector is derived residually so as to produce an aggregate growth of 9 percent per annum during the Plan period. For the two years before the start of the new Plan, aggregate growth is gradually increased in two incremental steps. The relevant details are given in Table II.3.

As the three sectors grow in tandem according to the indicated growth rates, the pressure on even the services sector for maintaining a high growth rate begins to come down. The peak rate of growth for this sector is 11 percent after which the required rate begins to decline. This is because the share of the services sector in aggregate output continues to increase. We also observe that if the indicated profile of the services sector is achieved, then at the end of the Tenth Plan period, this sector would account for about 60 percent of aggregate output while the share of agriculture would have fallen to below 20 percent.

We have carried out a sensitivity analysis for alternative ranges of growth rates for agriculture and industry. In particular, if agriculture grows in the range 3.5 to 4.5 percent, and industry, in the range what 8.5 to 10.5 percent, what would be the requirement in growth terms for the services to ensure an aggregate growth rate of 9 percent during the plan period. These results are summarised in Table II.3. The critical requirement for a 9 percent aggregate growth rate turns out to be a growth in services in the range of 10 to 11 percent.

Table II.3 : Sensitivity Analysis: Alternative Configuration of Growth Rates: Average for 2002-03 to 2006-07

Agriculture	Industry	Services
4.0	9.5	10.75
4.5	9.5	10.57
5.0	9.5	10.40
4.5	9.0	10.77
4.5	9.5	10.57
4.5	10.0	10.37
4.5	10.5	10.16
5.0	10.0	10.19
5.5	10.5	9.80

The change in the sectoral profile leading to continued increase in the share of the services sector seems imminent even if the nine percent target is not reached, as long as the service sector growth is above the average rate. Historical performance indicates that this appears to be the most likely scenario.

3. Regional Profile of Growth

A growth strategy that aims to increase the average growth rate by about 1.5 to 2 percentage points would require a reconsideration of the (i) regional distribution of development funds; (ii) augmentation of capital expenditures in government budgets; and (iii) focussing of capital expenditure on infrastructure. A services sector oriented growth would take place in urban centres, in large cities with strong infrastructure, in particular, power and telecommunications.

In Table II.4, state-wise GSDP and corresponding growth rates for the period 1995-96 to 1997-98 are given. The table classifies different states into three groups according to their per capita GSDP. A fourth group relates to special category (SC) states. An examination of the profile of growth in terms of per capita GSDP at constant prices indicates that maximum growth in the 1990s has occurred in the middle income group states and Gujarat and Maharashtra.

The states can be divided into four groups among the general category states. In the first group are *low income – low growth* states like Bihar, and Uttar Pradesh. In the second category are states, which are *low-to-middle income*, and *high growth* states like Madhya Pradesh, Rajasthan and Kerala. In the third group are states, which are *middle-to-high income* and *high growth* states, such as, Andhra Pradesh, Tamil Nadu, Gujarat and Maharashtra. In the last group are *high income-low growth* states like Punjab, Haryana. States, which have a high dependence on agriculture have been able to achieve low aggregate growth. States, which are already at high levels of income, may see their growth tapering off. On the other hand, states which have low incomes but considerable unutilised potential should be able to sustain high growth provided a breakthrough can be made in governance and infrastructure. Some hard realities may be observed. By and large, special category states constitute such a small share of total GDP in the economy that even if very high growth takes place in these states, they will make only a marginal difference to the aggregate growth of GDP.

Table II. 4: GSDP at 1980-81 Prices: Growth Profile of States

State	Per Capita GSDP (Rs.) Average (1995-96 to 1997-98)	Average GSDP (Rs. Crore) 1995-96 to 1997-98	Share in All-State GSDP	Share in Population in 1991	Average Annual Growth Rate 1995-96 to 1997-97
G C States					
Bihar	1308.94	12342.33	4.63	10.33	3.71
Orissa	1826.18	6317.33	2.37	3.79	4.40
Uttar Pradesh	1929.00	30256.00	11.36	16.64	4.25
Madhya Pradesh	2226.35	16542.67	6.21	7.91	5.11
Rajasthan	2418.23	12034.52	4.52	5.26	4.65
Kerala	2675.71	8385.00	3.15	3.49	4.99
Andhra Pradesh	2765.78	20067.00	7.53	7.95	8.62
Karnataka	2974.42	14749.67	5.54	5.39	5.25
West Bengal	3120.98	23431.00	8.79	8.14	6.69
Tamil Nadu	3246.51	19512.93	7.32	6.70	4.14
Gujarat	4309.24	19704.33	7.40	4.95	6.16
Haryana	4332.73	8043.00	3.02	1.97	4.90
Punjab	4940.26	11088.00	4.16	2.43	4.42
Maharashtra	5310.31	46202.67	17.34	9.43	5.83
Goa	7007.09	916.78	0.34	0.14	6.66
Delhi	7416.13	8041.00	3.02	1.12	12.05
All GC States and Delhi	3149.48	257634.23	96.70	95.64	
S C States					
Assam	1871.37	4647.33	1.74	2.68	4.07
Meghalaya	2146.37	426.91	0.16	0.21	5.73
Manipur	2260.34	465.05	0.17	0.22	5.67
Tripura	2296.23	751.26	0.28	0.33	8.27
Nagaland	2580.73	351.90	0.13	0.14	7.00
Himachal Pradesh	2794.83	1587.39	0.60	0.62	5.62
Arunachal Pradesh	3761.63	360.60	0.14	0.10	3.73
Sikkim	4676.82	213.28	0.08	0.05	7.00
All SC States	2798.54	8803.73	3.30	4.36	
Total	2974.01	266437.96	100.00	100.00	

- Notes: 1. For the States of Goa, Meghalaya, Manipur, Nagaland, Himachal Pradesh and Sikkim, the GSDP data is not available for the year 1997-98. Therefore, the average of these states have been calculated for the years 1993-94, 1994-95 and 1996-97.
2. The population figure of Delhi has been considered in calculating the total population figure.
3. Data for GSDP (at 1980-81 prices) is not available for the state of Jammu & Kashmir and Mizoram.

A decision as to how to regionally allocate developmental funds so as to get maximum mileage out of these funds for aggregate growth would need to be taken after these factors are taken into account. If we analyse the share of Plan grants across states for the period 1996-97 to 1998-99, we find that more than 37 percent of Plan grants have gone to the Special Category states (Table II.5), whereas they account for less than 5 percent of population and only 3.3 percent of all state GSDP. For low income states like Bihar, Uttar Pradesh, Orissa, Madhya Pradesh, West Bengal and Rajasthan, the share of Plan grants amounted to about 33 percent whereas they account for nearly 50 percent of the population and 38 percent of GDP.

Unless the allocation pattern of Plan grants is modified, ambitious growth targets are unlikely to be attained.

Table II.5: Share of Plan Grants Across States

State	1996-97	1997-98	1998-99	Average 1996-99
Bihar	1.79	3.83	4.76	3.46
Uttar Pradesh	11.22	10.94	9.39	10.52
Orissa	3.60	3.55	3.82	3.66
Madhya Pradesh	7.29	4.82	4.83	5.65
West Bengal	5.42	4.82	6.12	5.45
Rajasthan	4.74	5.24	5.11	5.03
Andhra Pradesh	6.84	6.77	6.63	6.75
Karnataka	3.91	3.68	3.79	3.79
Kerala	2.39	2.04	2.39	2.27
Tamil Nadu	4.05	4.59	4.17	4.27
Gujarat	2.82	2.71	2.56	2.70
Haryana	1.87	1.81	1.62	1.77
Punjab	1.51	1.40	1.59	1.50
Maharashtra	7.54	5.67	4.60	5.94
Goa	0.23	0.21	0.18	0.21
GCS – Share	65.22	62.08	61.56	62.95
Assam	7.05	6.84	7.35	7.08
Tripura	2.45	2.47	3.11	2.68
Manipur	2.23	2.25	2.33	2.27
Meghalaya	1.55	1.41	1.88	1.61
Jammu & Kashmir	10.23	13.96	11.60	11.93
Arunachal Pradesh	2.62	2.60	2.79	2.67
Sikkim	1.07	1.20	1.33	1.20
Himachal Pradesh	3.92	3.56	3.85	3.78
Mizoram	1.75	1.80	1.95	1.83
Nagaland	1.90	1.84	2.23	1.99
SCS – Share	34.77	37.93	38.42	37.04

Source (Basic Data): Finance Accounts of States.

Note: GCS = General Category States;

SCS = Special Category States

4. Taxing the Growing Output

Long-term trend of the tax-GDP ratio indicates that it steadily rose from a little over 7 percent in the early 1950s to a peak of about 17 percent by the late 1980s. Since then it has steadily fallen. The estimates provided by the Eleventh Finance Commission (EFC), it stood at 14 percent of GDP in 1999-00 with respect to the new GDP series. This fall is also reflected in the incremental tax-GDP ratio as shown by the changes in aggregate tax revenue buoyancy.

In Table II.6, the buoyancy figures for each of the five decades have been summarised. It is evident that the aggregate buoyancy has steadily fallen during the last fifteen years so as to arrive at a level below unity. This reflects that the tax-GDP ratio will keep falling as growth takes place. The fall will be larger, the higher is the growth rate.

Among other reasons, an important cause for the fall in buoyancy is the sectoral shift where the share of agriculture and industry in aggregate output has steadily fallen and the share of services has steadily increased. Since most of the value added in services remains under-taxed, the buoyancy with respect to GDP would show a decline. It is also clear that, if the share of agriculture falls below 20 percent of GDP and the share of services increases to about 60 percent as was indicated earlier, the focus of additional tax effort needs to shift towards the services sector. It is this sector that can provide the needed fillip to arrest the steady decline in tax buoyancy. It will also be seen from Table II.6 that the fall in buoyancy is relatively more in central tax revenue than in states' tax revenue. As such it is the centre which has to play the larger role in augmenting tax revenue buoyancy.

Table II.6: Aggregate Tax Revenue Buoyancies

	Aggregate Tax Revenue	Central Tax Revenue (Gross)	State Tax Revenues (Own)
1950-51 to 1959-60	1.38	1.38	1.39
1960-61 to 1969-70	1.16	1.15	1.17
1970-71 to 1979-80	1.3	1.27	1.35
1980-81 to 1989-90	1.14	1.15	1.12
1990-91 to 1998-99	0.96	0.91	1.04

Source: Report of the Eleventh Finance Commission, June 2000, p. 10.

The role played by the structural changes in the composition of GDP on the falling aggregate buoyancy of tax revenue with respect to GDP is quite significant. Preliminary regressions (see Appendix) indicate that as the share of services sector in GDP increases, the aggregate buoyancy of tax revenues falls.

The dependent variable is annual buoyancy of aggregate tax revenue. The overall sample is from 1970-71 to 1996-97. Two main explanatory variables that emerge are growth rate of GDP and the share of the services sector. Both have a negative impact on buoyancy.

If share of the services sector goes up by 1 percentage point, the aggregate buoyancy of tax revenues goes down by 0.07.

$$\begin{array}{l} \text{BATR} = 5.353 - 0.0449 \text{ GRGDP} - 0.0704 \text{ SS} - 0.4119 \text{ } \emptyset \text{ BATR} \quad (-2) \\ \text{(t-ratio):} \quad (5.545) \quad (-2.148) \quad \quad \quad (-3.140) \quad \quad \quad (-2.857) \end{array}$$

$$R^2 = 0.62 \quad \mathcal{R}^2 \text{ or adj-}R^2 = 0.56 \quad \text{DW} = 2.33 \quad \text{F} = 10.93$$

where

BATR = aggregate tax revenue buoyancy

GRGDP = annual growth rate of GDP

SS = share of services sector

BATR is a stationary series with intercept without a trend

GRGDP is a stationary series with intercept without a trend

SS is a stationary series with intercept and a trend

The upshot of the argument is that as the share of services sector increases, the tax-base becomes narrower, aggregate buoyancy of tax revenues is eroded, and the tax-GDP ratio falls. As we target the 9 percent growth rate, these influences will be further accentuated unless ways and means are found for effective taxation of services.

Another important issue pertains to the inter-dependence between the buoyancies of central tax revenues and states' own tax revenues. In particular, the buoyancy of states' own tax revenues (BSOR) is also shown to be negatively related to the share of services and the buoyancy of central indirect taxes with a lag, as indicated in the regression results summarised below.

$$\begin{array}{l} \text{BSOR} = 5.247 - 0.0796 \text{ GRGDP} - 0.061 \text{ SS} - 0.21 \text{ BCI} \quad (-1) \\ \text{(t-ratio):} \quad (5.315) \quad (-3.831) \quad \quad \quad (-2.899) \quad \quad \quad (-1.724) \end{array}$$

$$R^2 = 0.58 \quad R^{-2} = 0.52 \quad DW = 1.84 \quad F = 9.76$$

Here, BCI, is the annual buoyancy of central indirect taxes.

Macro Prospects and Revenue Effort.doc/9.11.2000

5. Augmenting Growth: Recasting the Expenditure Priorities

An important aspect relating to the interface between the fiscal sector and aggregate output of the economy concerns the profile of government expenditures. If a growth rate of 9 percent is to be achieved and sustained, fundamental changes in the structure of government expenditure would be called for. A major feature of the inter-temporal profile of government expenditure has been the erosion of the share of capital expenditure in total government expenditure. This feature has characterized both the central budgets and the state budgets. In Table II.7, the persistent fall of capital expenditure as percentage of GDP since the late 1980s has been highlighted.

Table II.7: Capital Expenditure in Government Budgets

	(Percent to GDP)							
	1980-81 to 1984-85	1985-86 to 1989-90	1990-91 to 1994-95	1995-96	1996-97	1997-98	1998-99	1999-00 [®]
Centre	6.13	6.78	4.61	3.43	3.29	3.61	3.72	2.78
				<i>3.25</i>	<i>3.09</i>	<i>3.41</i>	<i>3.51</i>	<i>2.62</i>
State	3.79	3.21	2.57	2.29	2.01	2.2	1.97	2.06
				<i>2.17</i>	<i>1.89</i>	<i>2.08</i>	<i>1.87</i>	<i>1.95</i>

Source: Report of the Eleventh Finance Commission, June 2000, pp. 177-178.

Note: The first three columns indicate period averages. Figures in italics indicate percent to GDP new series.

[®] Revised estimate

Capital expenditure has been crowded out to very low levels both in the central and the state budgets. For increasing and sustaining a higher growth rate in the economy, it is critical that the share of capital expenditure in government budgets is increased by reprioritising expenditure away from revenue expenditure. However, this must not be done along conventional lines where increasing capital expenditure had merely meant increasing government investment and ownership in public sector enterprises in a wide range of sectors with low productivity.

Government investment must focus on those sectors which are relevant for the growth of the growth-augmenting sectors and should be used not for the objective of ownership but rather for leveraging private sector participation also in the same sectors. Thus, the total capital which is attracted to the concerned sectors would be significantly greater than what the government itself puts up. The sector, which has primary importance in this context, is infrastructure. It has two components: social and economic. Education and health among the social sectors, and power, telecommunications and roads among the economic sectors take the prominent position. Government expenditure should focus on these sectors. As far as the social sectors are concerned, since they are less capital intensive, a shift in the composition of revenue expenditure in favor of health and education is called for. However, since the claim of interest payments would depend on the levels of debt and fiscal deficit which, in turn, will depend on the performance on the revenue front covering both tax and non-tax revenue, the macro picture can be closed only by working out sustainable levels of debt and deficit and the corresponding burden of interest payments consistent with the expenditure targets. This is discussed in the following section.

6. Growth Target and Sustainable Debt and Deficit

Aggregate output growth, interest rate, inherited debt stock, and the fiscal deficit along with debt that may be targeted are linked with each other and need to be conjointly considered. The responsiveness of interest rate and growth rate to fiscal deficit as a percentage of GDP is of particular importance in this context. In this section, we propose to highlight the considerations that are relevant in determining targets that are sustainable as well as mutually consistent. Appendix I delineates interrelationships among appropriate variables.

It may be argued that, in a static sense, if the economic growth rate exceeds the interest rate on debt service, then public debt should be sustainable in the sense that the fiscal deficit to GDP ratio could be stabilized. Since there is a large range of fiscal deficit to GDP ratios within which the condition may be satisfied we need an additional condition in order to determine the relevant level of fiscal deficit to GDP ratio at which it may be stabilised. This

condition can be obtained by considering that a certain level of primary expenditure (non-interest government expenditure) is required to support a given rate of growth. In any case, a minimum level of primary expenditure is needed in the system and these are rigid downwards. If a judgement can be made as to a target level of primary expenditure, the corresponding levels of interest rate, growth rate, fiscal deficit and debt to GDP ratios can be determined simultaneously. Alternatively, if the interest rate and growth rate curves can be estimated precisely, the level of primary expenditure to GDP ratio, interest rate and growth rate, and optimal debt and deficit ratios can be determined. It is often the case that the economy in reality may be far removed from such optimal levels. In such a case the desired direction of change need to be worked out.

In Tables II.8, II.9 and II.10, certain combinations of alternative parameter values have been utilised in order to work out desirable levels of debt and deficit at which one may attempt to stabilise these in the medium term within the context of the Indian economy. The parameter ranges, which may be relevant in this context, may be indicated as below:

Effective Interest Rate on Government Borrowing	:	10 percent plus/minus	1 percentage point
Revenue Receipts to GDP Ratio	:	19 percent plus/minus	2 percentage points
Growth Rate	:	8 percent plus/minus	1 percentage point
Inflation Rate	:	6 percent plus/minus	1 percentage point
Interest Payment to Revenue Receipts	:	30 percent plus/minus	10 percentage points

Accordingly, primary expenditure to revenue receipts may be considered in the range of 70 percent plus/minus 10 percentage points, as a proportion of revenue receipts.

Table II.8: Interest Payment to GDP Ratio: Some Ranges

RR/GDP	.17	.19	.21
IP/RR			
.20	0.034	0.038	0.042
.30	0.051	0.057	0.063
.40	0.068	0.076	0.084

Table II.9: Debt-GDP Ratio: Determining Desirable Levels
 $[D = (ip^*)(1+g)/i]$

	g	.13	.14	.15
Ip*	i\			
0.05	0.09	0.628	0.633	0.639
	0.10	0.565	0.570	0.575
	0.11	0.514	0.518	0.523
0.06	0.09	0.753	0.760	0.767
	0.10	0.678	0.684	0.690
	0.11	0.616	0.622	0.627

Table II.10: Fiscal Deficit to GDP Ratio: Determining Desirable Levels
 $[d = D.g/(1+g)]$

g	.13	.14	.15
D\			
.50	0.058	0.061	0.065
.565	0.065	0.069	0.074
.60	0.069	0.074	0.078
.65	0.075	0.080	0.085

7. Central and State Fiscal Profiles: Alternative Projections

In this section, we construct fiscal profiles of the centre for 2000-2001 to 2006-2007 and the state under alternative growth targets and given targets for macro aggregates such as the revenue deficit, fiscal deficit and capital expenditure. The main macro targets for the final year of the Tenth Plan are specified below:

Projections are based on an overall growth in nominal terms of 15 percent per annum. Although a break-up of this between real and inflation has not been made as far as tax revenue projections are concerned, in projecting expenditures, inflation is assumed at 5.5 percent, and the salary component has been protected with respect to this rate. The associated results are given in Appendix Tables A1 to A4.

Table II.11: Macro Aggregates in the Terminal Year

(Percent to GDP)

Variables	1999-2000	2006-07
Revenue Deficit		
Centre	3.81	0.00
State	2.96	-0.50
Combined	6.77	-0.50
Fiscal Deficit		
Centre	5.64	4.00
State	4.71	3.00
Combined	9.84	6.50
Capital Expenditure		
Centre (Net of Repayment and Onlending)	2.62	4.60
State (Net of Repayment)	2.06	3.83
Combined	4.17	7.93
Outstanding Debt		
Centre	53.34	41.53
State	25.07	26.45

Source (Basic Data): Appendix Table A1.

The projections for central government's fiscal aggregates are given in Appendix Table A1. The growth parameters have been changed upwards as compared to the ones assumed by the Eleventh Finance Commission. The growth rates of tax revenues consistent with assumed GDP growth rate are given in Appendix Table A1. For the first two years, the same buoyancies have been used as prescribed by the EFC. However, for the Plan period, the buoyancy parameters have been lowered by a small margin in view of the higher growth rate assumptions. The aggregate tax revenues of the centre are derived by utilising the same tax GDP target as set out by the EFC. For the two additional years also, the tax GDP ratio is targeted to increase so as to give a tax-GDP ratio in the terminal year of nearly 10.9 percent of GDP, with a view to eliminating the revenue deficit of the centre also to zero by 2006-07. The revenue from a potential service tax, therefore, is residually derived and it is required to contribute a substantial amount. Along with its impact on union excise duties it would also enable the economy to reach the desired macro targets.

On the expenditure side, pensions and defence services on the non-Plan account are set to grow at 10 percent per annum in line with the EFC projection rates. The effective interest rate is set at 10 percent which is marginally higher than what was assumed by EFC in view of the higher inflation assumptions. Explicit subsidies are also allowed to grow at 10 percent. Other general services, social services and economic services are projected in terms

of their salary and non-salary components. The salary component is allowed to grow at the same rate as inflation, i.e., 6 percent. The non-salary components are allowed to grow at the same rates as indicated by EFC namely, 7 percent for other general services, 15 percent for social services and 11 percent for economic services. For non-Plan grants to states, the EFC figures are used.

On the capital side, fiscal deficit has been targeted to fall to 4 percent by the end of the Plan period. Accordingly, figures for outstanding debt have been derived and after applying the effective interest rate, interest payments have been calculated. Capital expenditure is derived residually in the system and it is shown to increase to 4.6 percent of GDP by the last year of the Plan. The outstanding debt-GDP ratio is shown to fall to 41.5 percent which, along with the debt of the state governments, will force the aggregate debt to GDP ratio within the sustainable range.

The fiscal profile of the states has also been constructed for the period until 2006-07. As far as tax revenue is covered, the state tax revenue to GDP ratio is projected to rise to 6.9 percent of GDP by the terminal year of the Tenth Plan. This implies an increase 1.6 percentage points between 1999-2000 and 2006-07. For non-tax revenues also a targeted increase of 0.7 percentage point between the base year and the terminal year has been provided. Potential fiscal transfer for the states amounts to 37.5 percent of the revenue receipts of the centre, i.e., gross tax revenue receipts and non-tax revenue receipts. The share in central taxes amount to 29.5 percent of the shareable central tax revenues, i.e., gross tax revenue receipts. Cost of collection and surcharges and cesses have been projected as part of the central fiscal profile.

On the expenditure side, interest payments are obtained by applying an effective interest rate of 11 percent on outstanding debt at the beginning of the year. Pensions, Police and Election expenditures are projected to grow at 10 percent. Primary education, priority health, water supply and sanitation are derived by setting terminal year targets and evenly distributing growth in incremental steps between the base year and the terminal year. Other components of expenditure are derived by applying differential growth rates of salary and

non-salary components. The salary component is set to grow at the same rate as inflation (5.5 percent). The non-salary component for general, social and economic services is set to grow respectively at 7, 15 and 11 percent per annum respectively. Revenue deficit becomes zero by 2004-05 and then converts to a surplus. Fiscal deficit is targeted to reduce to 3 percent by 2006-07. Capital expenditure, which is a residual, is shown to increase from 2.06 percent to 3.83 percent between 1999-2000 and 2006-07. The outstanding debt to GDP ratio at first increases to a peak of 27.66 percent by 2003-04 but then begins to decline by 2006-07, to 26.64 percent of GDP.

8. Macro Tax Targets

In order to achieve the fiscal deficit and capital expenditure targets, additional revenue needs to be generated from both tax and non-tax resources. As far as tax revenue is concerned, based on buoyancies, the following targets for major taxes, have been set (Table II.12). These are consistent with the necessary expenditure restructuring required to sustain an ambitious growth target.

Table II.12: Tax Revenue Targets

Tax	(Percent to GDP)	
	Tax-GDP Ratios	
	1999-2000	2006-07
Corporation Tax	1.55	2.35
Income Tax	1.38	1.88
Customs	2.47	2.44
Union Excise Duties	3.16	3.51
Service Tax	0.10	0.57
Central Taxes (Gross)	8.80	10.88
State Taxes	5.29	6.90
Total Tax Revenues	14.09	17.78

Source (Basic Data): Appendix Tables A1 and A3.

9. Summary and Conclusions

In this chapter, the path of tax revenue for the centre and the states over the period 2000-01 to 2006-07, i.e., to the end of the Tenth Plan, has been worked out within an overall framework that accommodates a nominal growth rate of 15 percent in the Plan period. The

tax-GDP ratio targets are fixed in line with the targets prescribed by the EFC. The central feature in the context of augmenting the tax-GDP ratio is identified as the growing share of the services sector. This requires suitable strategies both in spheres of indirect and direct taxes. Growth can be sustained with an increasing share of capital expenditure in government budgets focussed on social and economic infrastructure.

Appendix I: Sustainability of Public Debt

In Diagram II.1, some of the important relationships pertaining to debt sustainability are drawn together. In the fourth quadrant, combinations of debt and deficits are indicated such that they represent levels of fiscal deficit (as per cent to GDP), which will reproduce the connected level of debt year after year. This relationship depends entirely on the growth rate. Given the growth rate, this relationship indicated by a line such as OZ provides combinations of mutually consistent deficit and debt levels. The specific relationship is given by:

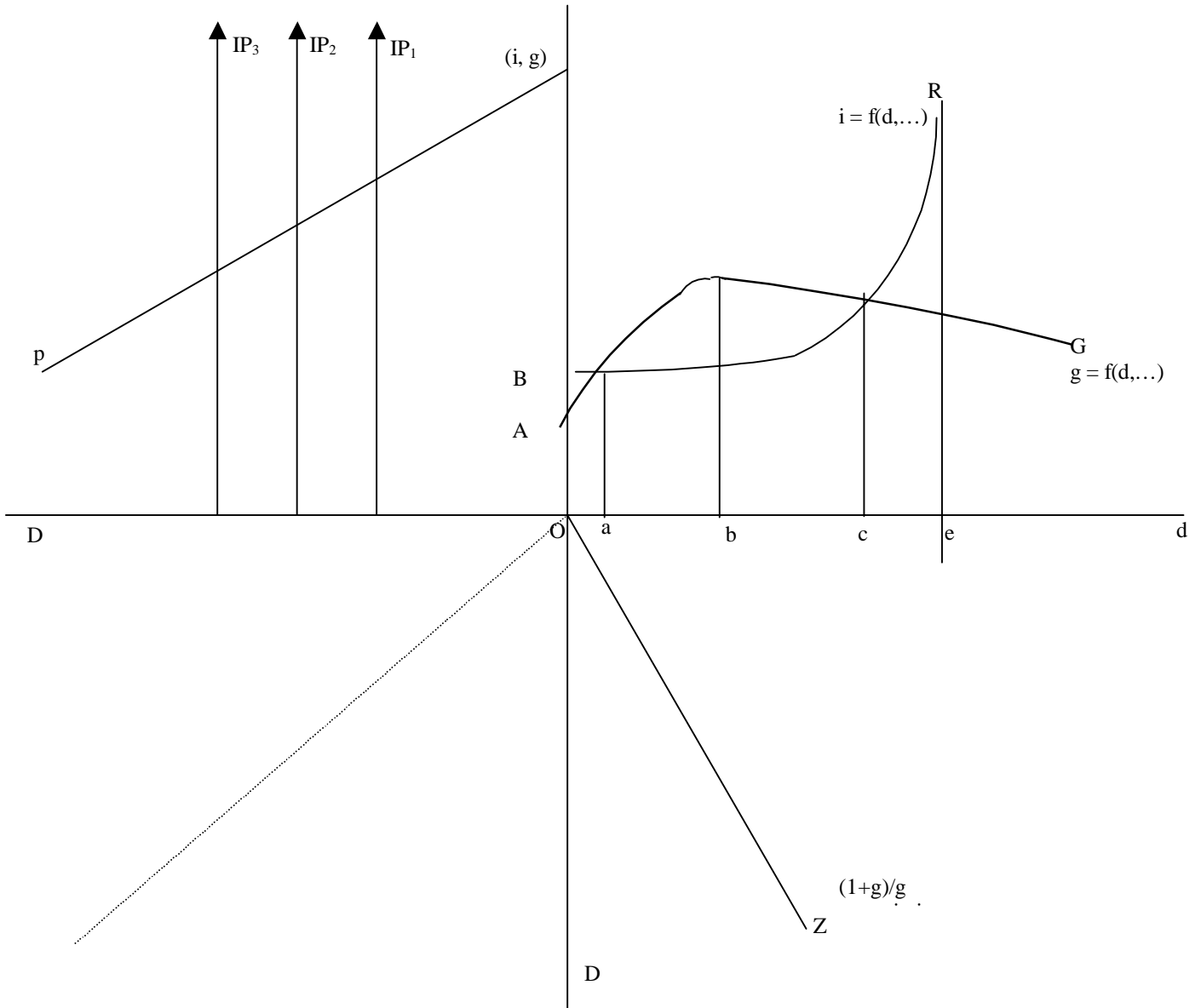
$$\text{Deficit/Debt} = g/(1+g)$$

While the line OZ can indicate the sustainable level of debt, given a level of deficit, or a sustainable level of deficit given a level of debt, one of these needs to be determined using other information in the system. In the first quadrant of Diagram II.1, two reduced-form relationships are indicated: line AR indicates the interest rate as a function of fiscal deficit, given the level of other variables that might also be determinants of the interest rate. Line AR rises to the right indicating that, given other things, as government borrows more and more, the interest rate would become higher and higher. At high levels of deficit, the curve rises steeply indicating that higher and higher borrowing can be induced by offering rising interest rates at the margin. At a very high level of fiscal deficit, the curve becomes nearly vertical indicating that the risk of default has become so high that no lender is willing to lend further at any interest rate. Similarly, line BG gives the relationship between growth rate and fiscal deficit. This line rises to the right, reaches a peak, and then slides downwards, indicating that at first, while unemployed resources exist in the system, higher government expenditure financed by borrowing may lead to higher real growth, but after full employment is reached (or even before it, if government expenditures contribute less at the margin than private expenditure and borrowing happens to be crowding out private expenditures), this curve turns downwards. Levels of fiscal deficit in this quadrant can be divided into some distinct ranges and some critical points can be identified. Point 'e' defines the bankruptcy point beyond which nobody would be willing to lend. The range 'ac' indicates the range where deficit is sustainable where sustainability is judged from the condition that growth rate exceeds the

interest rate. Throughout this range, deficit would not lead to a rising debt-GDP ratio even while a primary deficit is present. The range 'ce' defines the range where deficit becomes increasingly unsustainable as the interest rate exceeds the growth rate. Point 'b' defines the optimum level of deficit as it at this level that the growth rate is maximized while maintaining full employment. If the two curves $g = f(d, \dots)$ and $i = f(d, \dots)$ could be estimated precisely, the optimum level of deficit, and using the OZ curve, the corresponding level of debt could be specified precisely. Without this information one endeavours to settle down anywhere in the sustainable range by using other relevant information.

The forty five-degree lines in the third quadrant translate D (debt-GDP ratio) on to the horizontal axis of the second quadrant. Associated with the level of debt and the relevant interest rate, the level of interest payments to GDP ratio can be indicated by the rectangles drawn using combinations of 'd' and 'i' in the second quadrant. Accordingly, vertical lines in this quadrant indicate interest payments for a given level of debt at varying interest rates. In this quadrant the level of primary expenditure (to GDP ratio) is also shown by a family of lines falling to the right. For any given level of revenue receipts to GDP ratio, primary expenditure would be lower, the higher is the interest payment to GDP ratio. To sustain growth at a certain level, certain minimum primary expenditure is needed, a reasonable part of which may be required in the form of capital expenditure.

Diagram II.1 Public Debt Sustainability



- d = deficit - GDP ratio
- D = debt - GDP ratio
- g = GDP growth rate
- e = bankruptcy point
- ce = unsustainable deficit
- ac = sustainable deficit
- b = optimal deficit
- IP = Interest payment to GDP ratio