APPENDICES

CONTENTS

APPENDIX I

TRENDS AND PATTERNS IN CENTRAL AND STATE FINANCES :
A Graphical Presentation

OVERALL DEFICIT POSITION :
CENTRE, STATES AND UTs

Graphic No: 1

Rs Crores (000)

Total Expenditure

Total Revenue Receipts

YEARS

Debt Finance   Deficit Finance
External Receipts

TENTH FINANCE COMMISSION

OVERALL BUDGETARY POSITION
CENTRE, STATES AND UTs

Graphic No: 2

Rs Crores (000)

BUDGETARY DEFICIT

1982/83

Years

Revenue Deficit   Capital Deficit

TENTH FINANCE COMMISSION
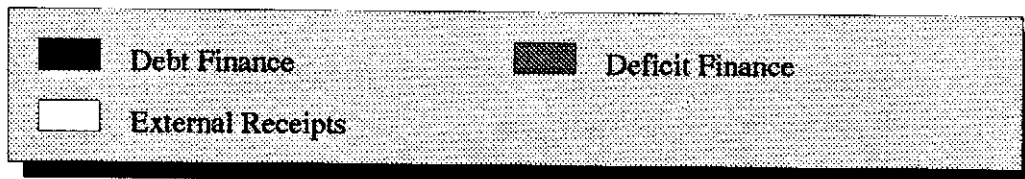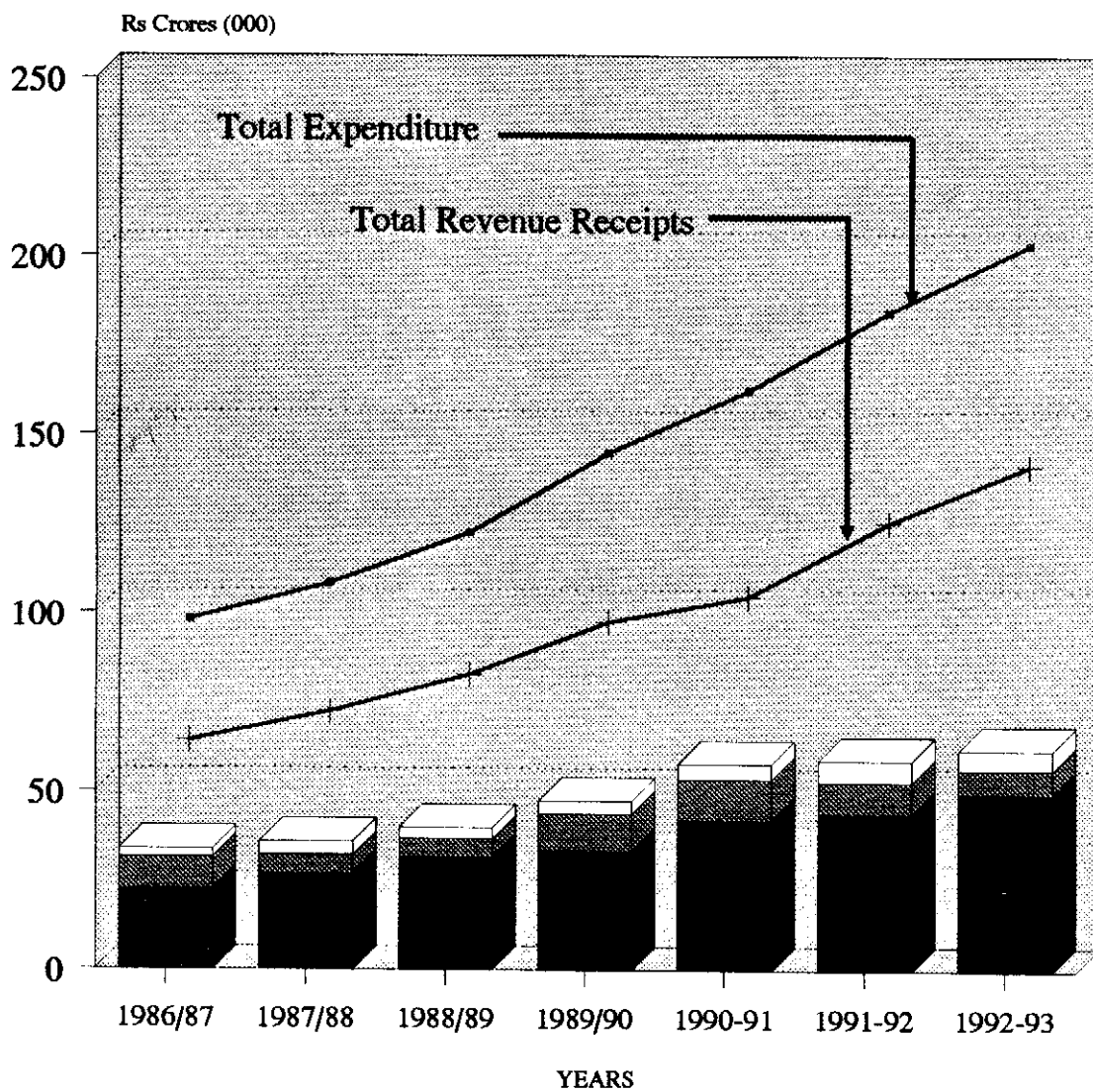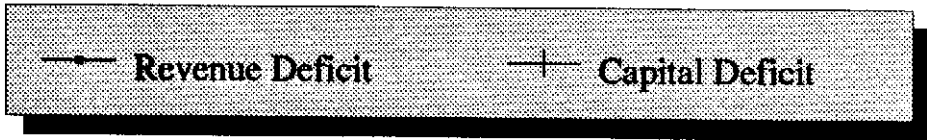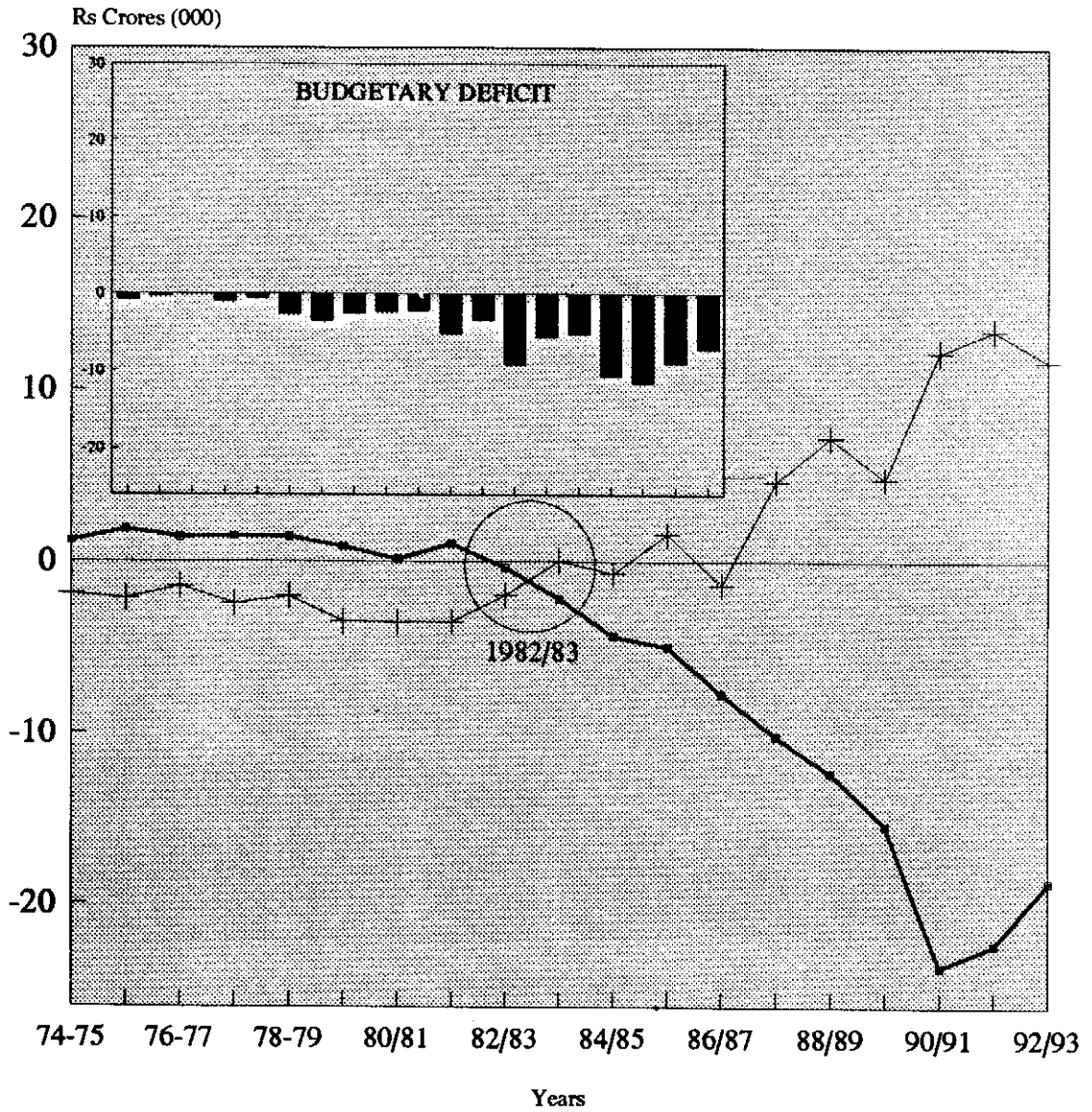
FISCAL DEFICIT
CENTRE & STATES

Graphic No: 3

% GDP

PER CENT

SHARE OF STATES IN TOTAL FISCAL DEFICIT

YEARS

STATES   CENTRE

TENTH FINANCE COMMISSION
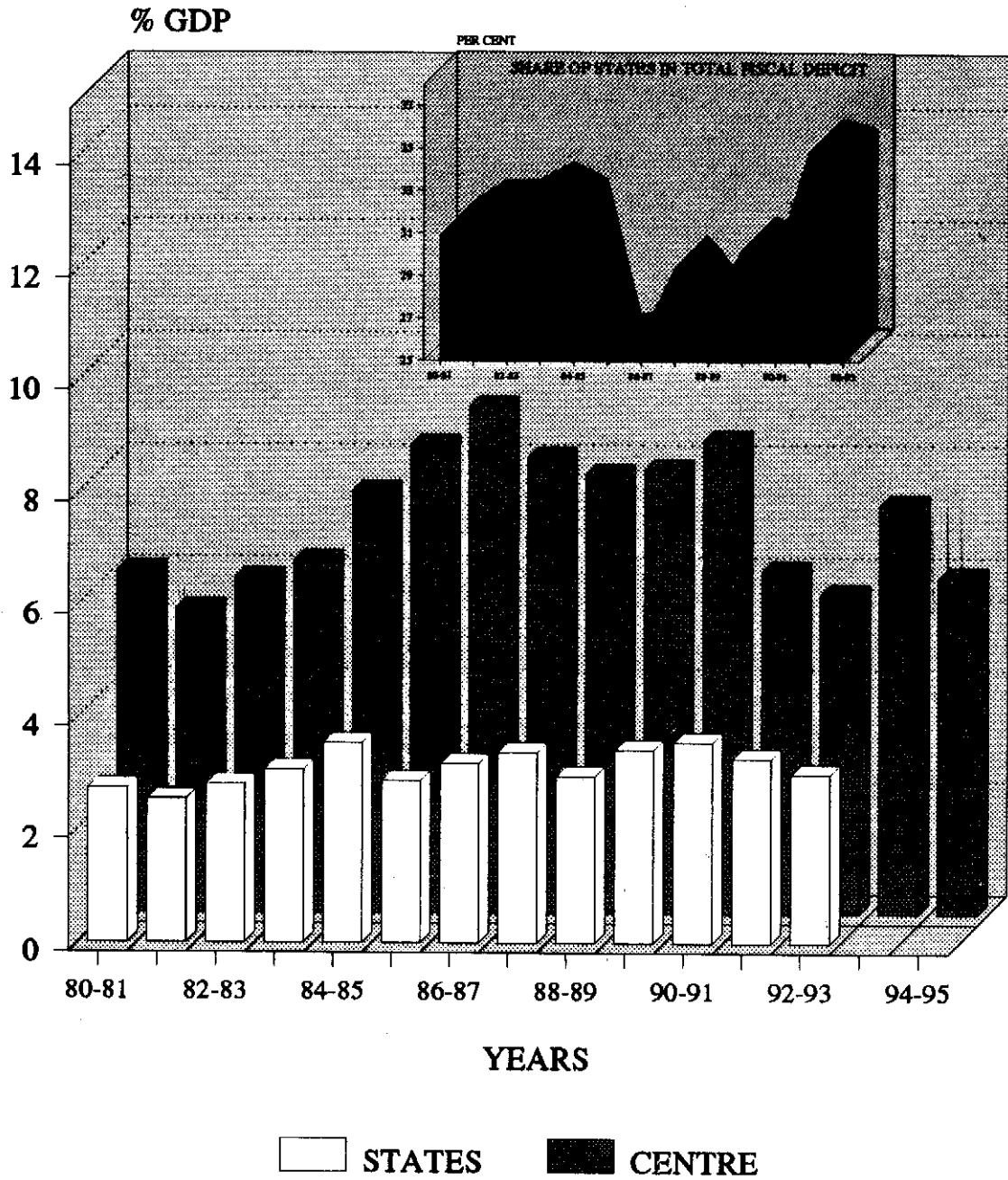
OVERALL BUDGETARY POSITION
CENTRAL GOVERNMENT

Graphic No: 4

Rs Crores(000)

Year

Legend:
— Revenue Deficit
+ Capital Deficit
□ Budget Deficit

TENTH FINANCE COMMISSION
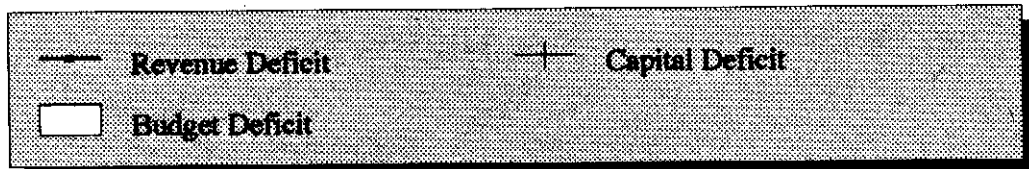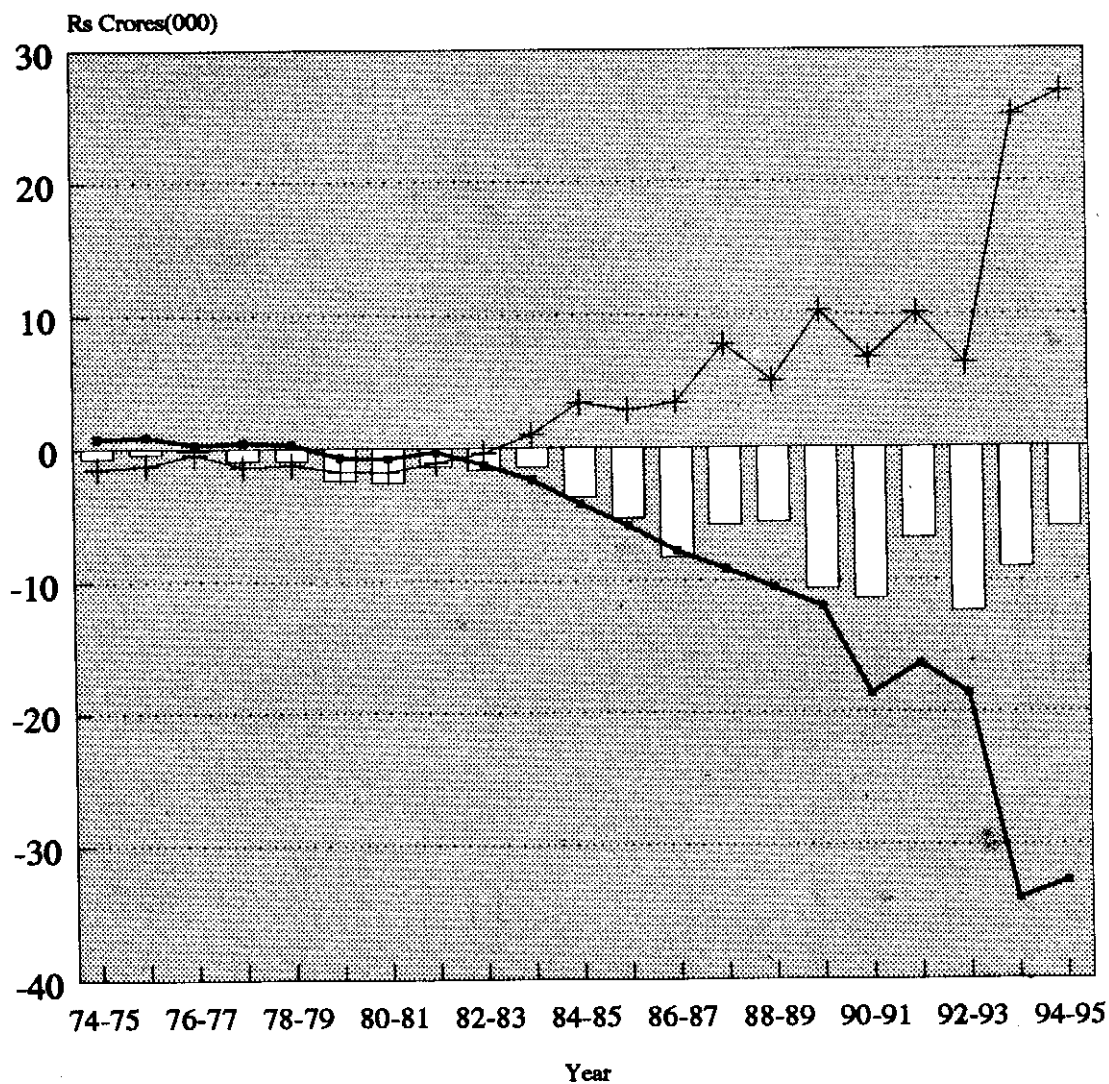
CENTRAL GOVERNMENT EXPENDITURE
MODE OF FINANCING

Graphic No: 5

Rs Crore (000)

INTER TEMPORAL COMPARISON
OF EXPENDITURE CATEGORIES

■ SUBSIDIES ☐ CAPEX ■ INTEREST ▨ OTHER REVEXP

YEAR

84-85   86-87   88-89   90-91   92-93   94-95

■	TAX REV.	▨	NON TAX REV	■	RBI CREDIT
☐	EXT FINANCE	▨	INTERNAL BORROWING		

TENTH FINANCE COMMISSION
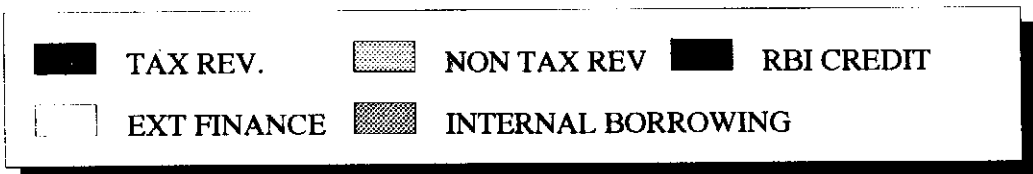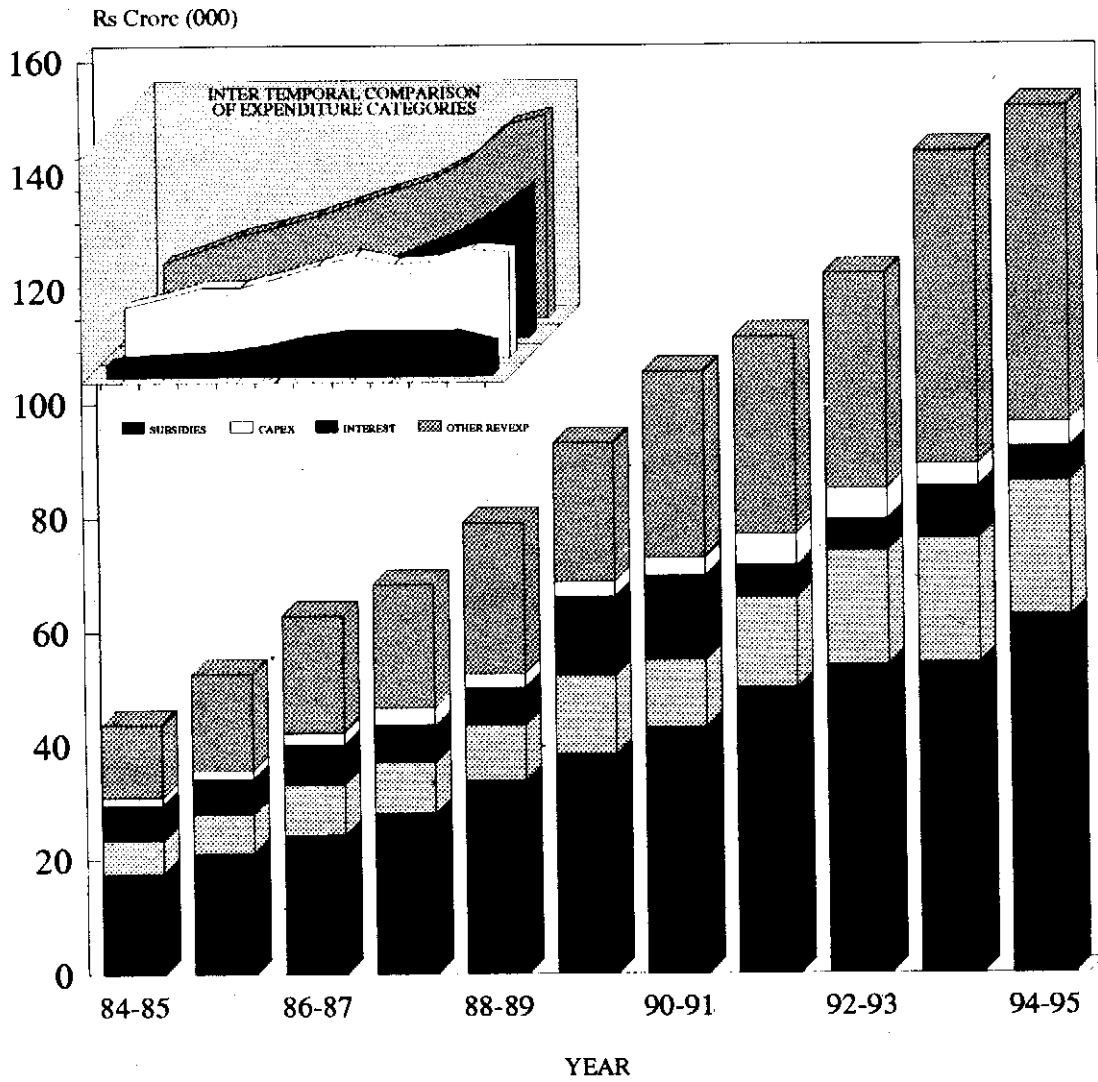
REVENUE AND MONETISED DEFICIT
SHARE IN FISCAL DEFICIT

Graphic No:6

TENTH FINANCE COMMISSION
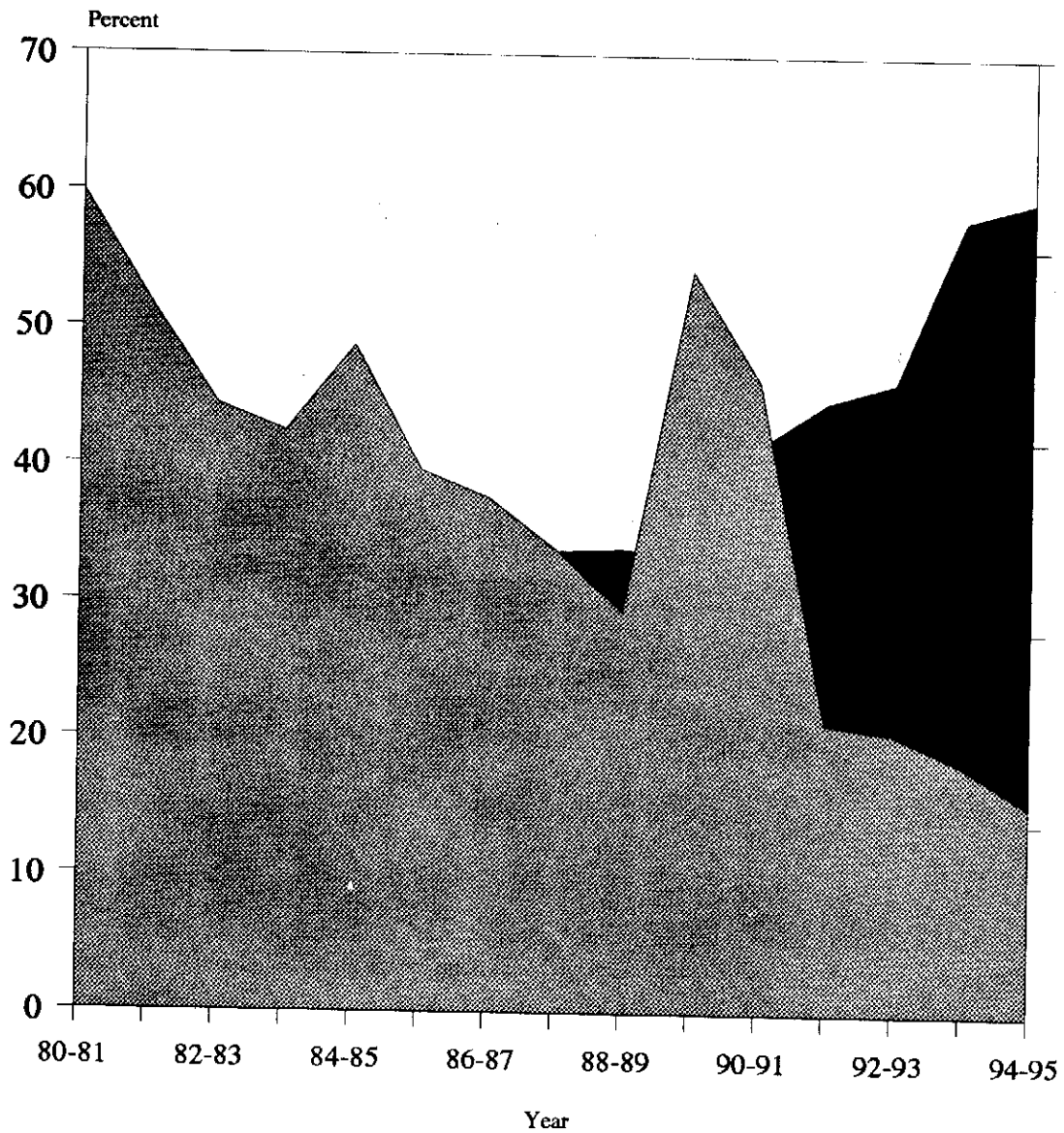
Graphic No: 7

FINANCING OF FISCAL DEFICIT
CENTRAL GOVERNMENT

1985/86

Other Liabilities
(46.7%)

RBI Credit
(24.3%)

Market Borrowings
(22.4%)

External Finance
(6.6%)

Treasury Bills
(40%)

Special Deposits
(27%)

S.P.F.
(6%)

Others
(7%)

SS/PPF
(20%)

Other Liabilities
(56%)

Market Borrowings
(27%)

RBI Credit
(10%)

External Assistance
(8%)

TENTH FINANCE COMMISSION
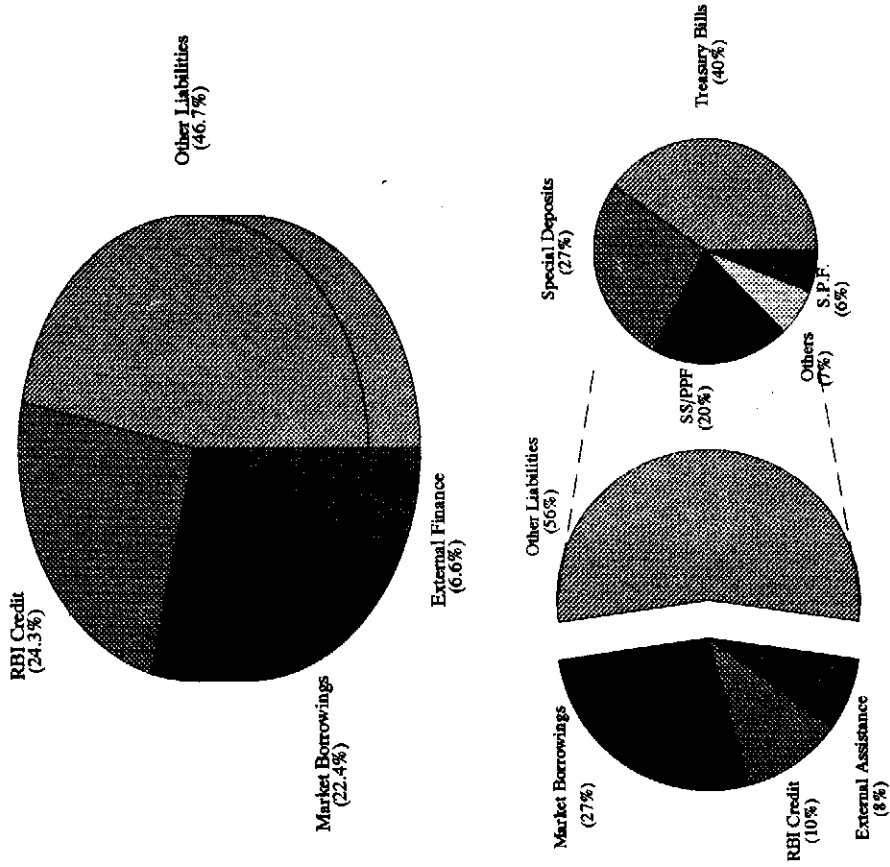
MAGNITUDE AND COMPOSITION OF DEBT
GOVERNMENT OF INDIA

Graphic No: 8

Rs.Crores(000)

SHARE OF EXTENAL LIABLITIES IN TOTAL DEBT

INTERNAL ·
LIABILITIES

YEARS

■ Internal Debt	■ Small Savings	▨ Public Account
▨ Reserve Fund	☐ External Liabilities	

TENTH FINANCE COMMISSION
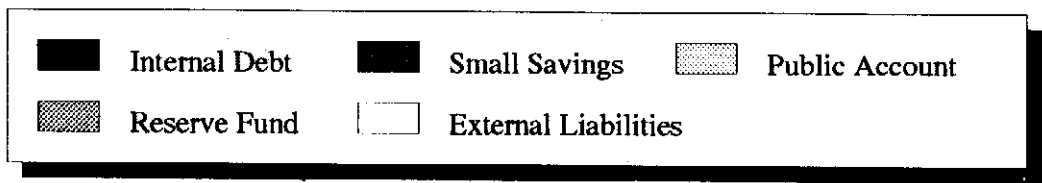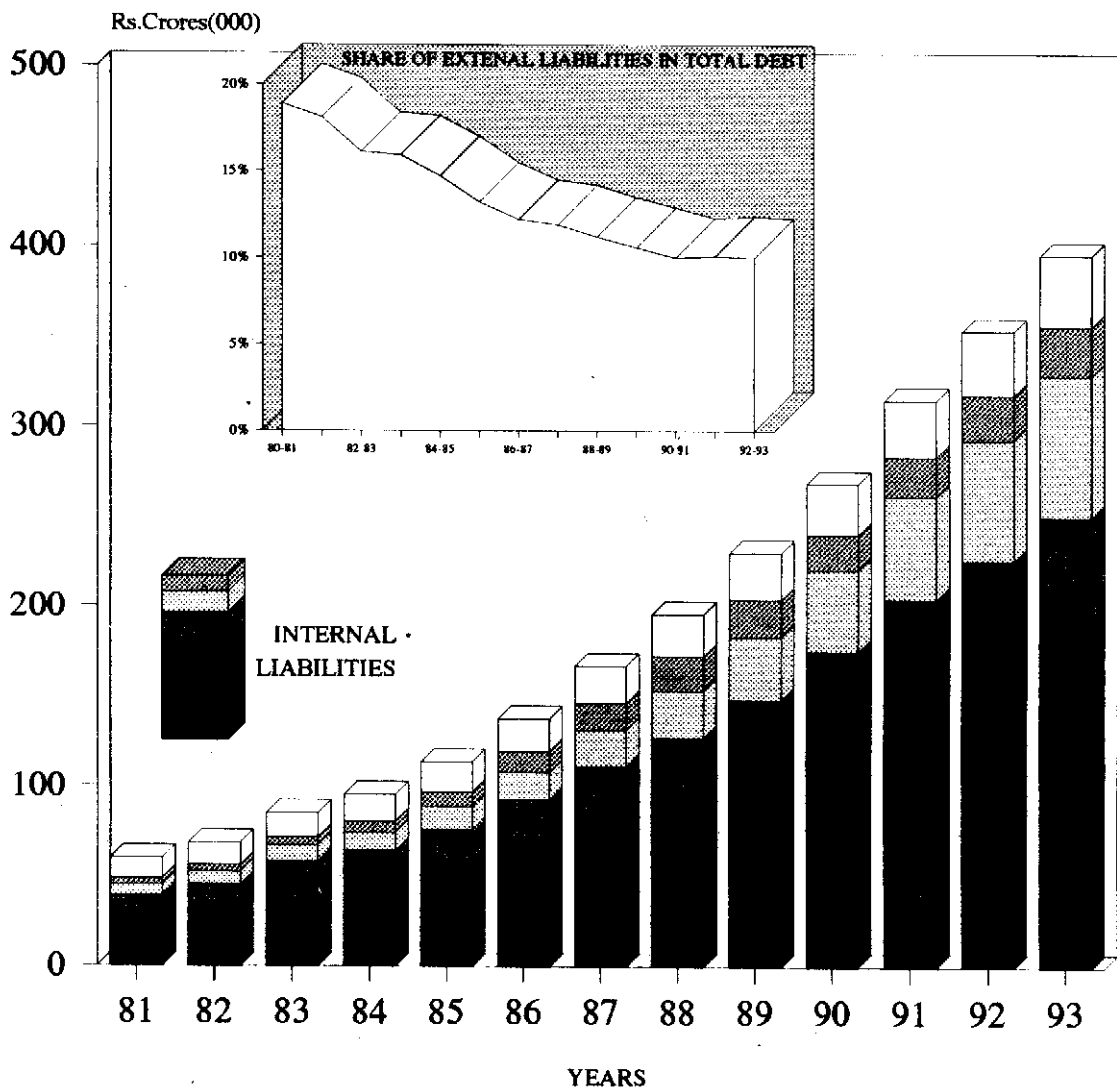
COMBINED STATES EXPENDITURE
FINANCING PATTERN

Graphic No: 9

Rs Crores (000)

YEARS

Legend:
- Own Resource
- Shared Tax
- Other Borrowings
- Centre Loans
- Centre Grants

TENTH FINANCE COMMISSION
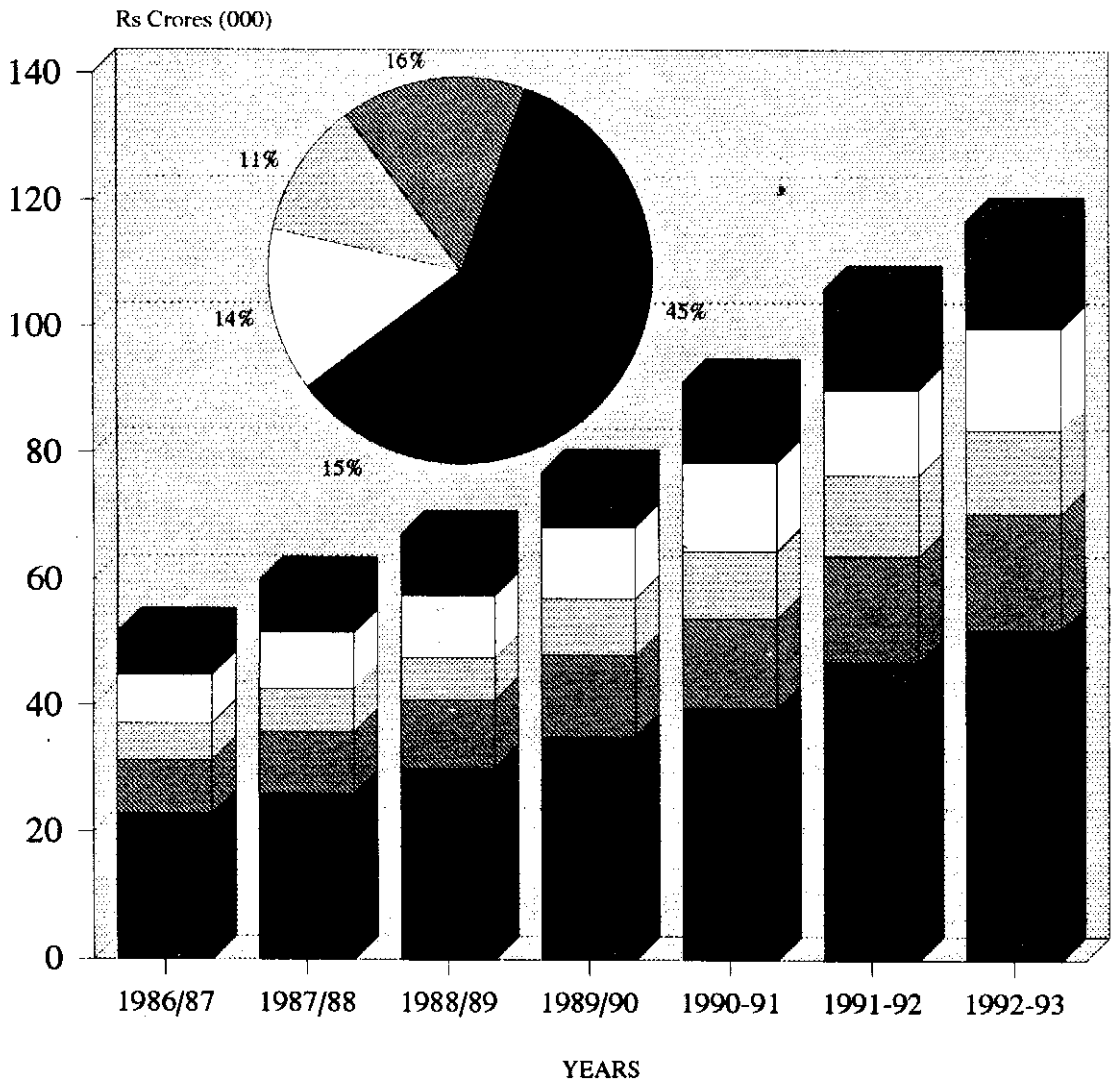
STATES' REVENUE ACCOUNT BALANCE : COMPOSITION

Graphic No: 10

Rs Crores (000)

PLAN REVENUE DEFICIT

Year

Non Plan Deficit —*— Revenue Deficit

TENTH FINANCE COMMISSION
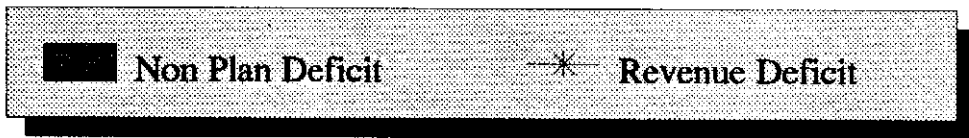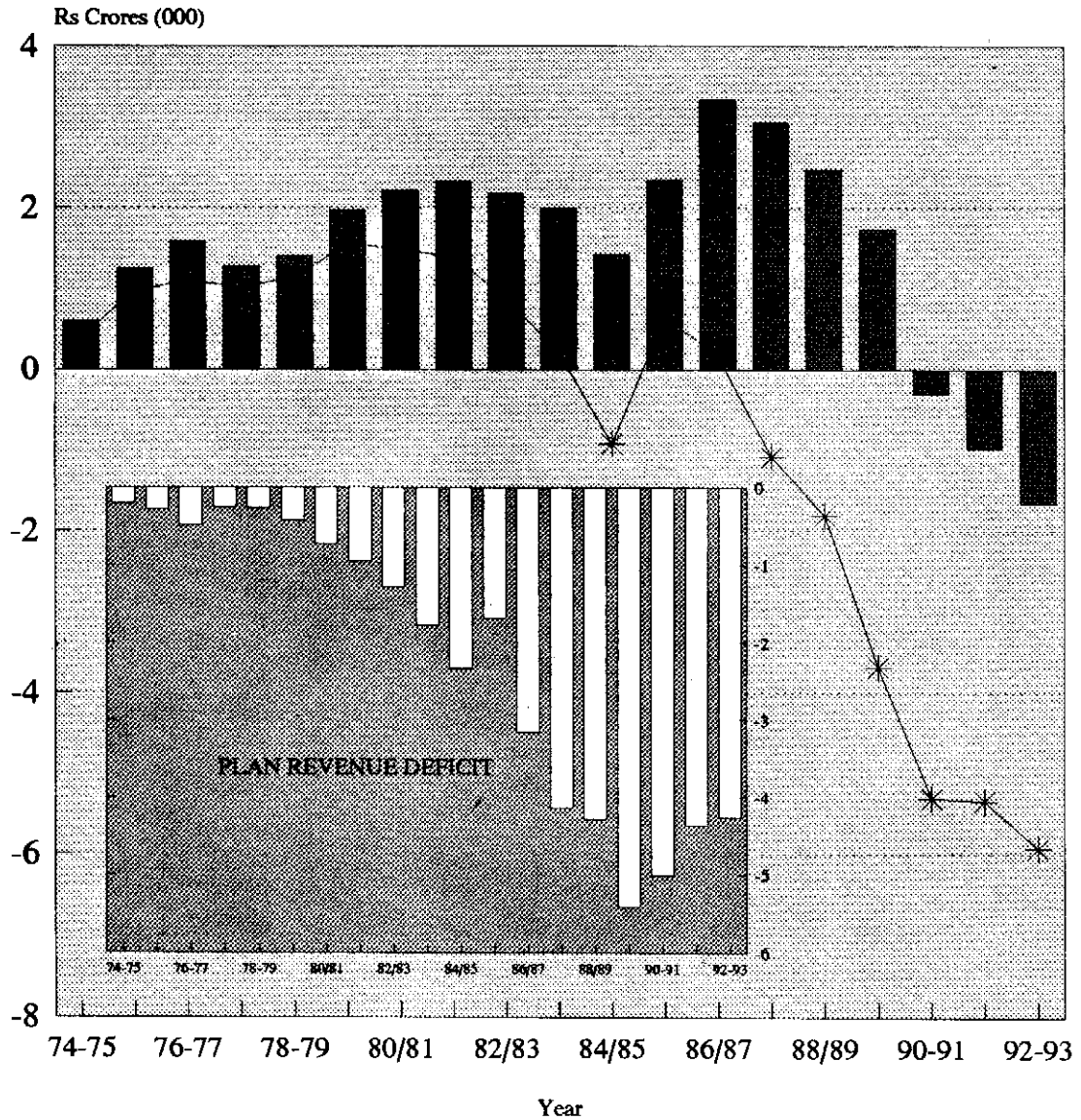
COMPOSITION OF REVENUE RECEIPTS
ALL STATES
1992/93

Graphic No: 11

SHARED TAXES
21%

PLAN GRANTS
16%

NON PLAN GRANTS
3%

OWN NON TAX
14%

Own Tax
45%

45%

STATE EXCISE
15%

SALES TAX
60%

OTHER TAXES
11%

PROPERTY TAX
9%

VEHICLE TAX
5%
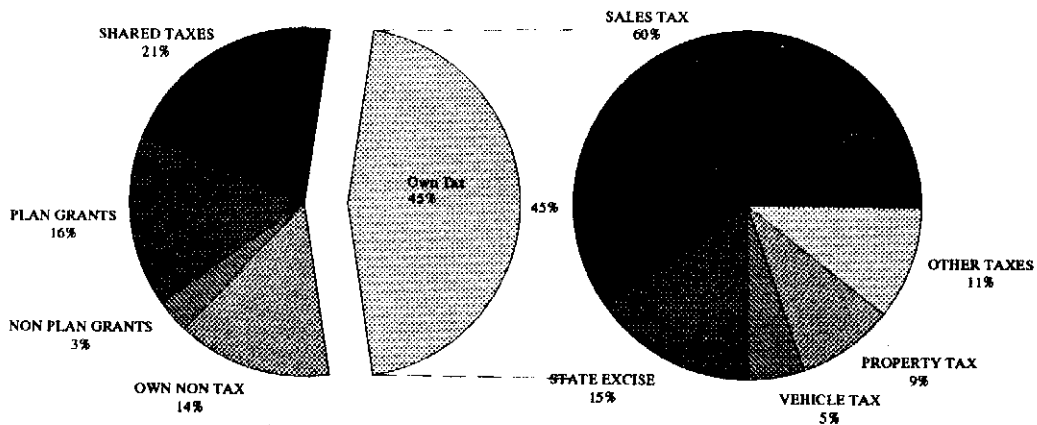
COMPOSITION OF CAPITAL RECEIPTS
ALL STATES
1992/93

LOANS FROM CENTRE
60%

INTERNAL DEBT
16%

OTHERS
9%

SMALL SAVINGS
11%

RECOVERY OF LOANS
4%

TENTH FINANCE COMMISSION
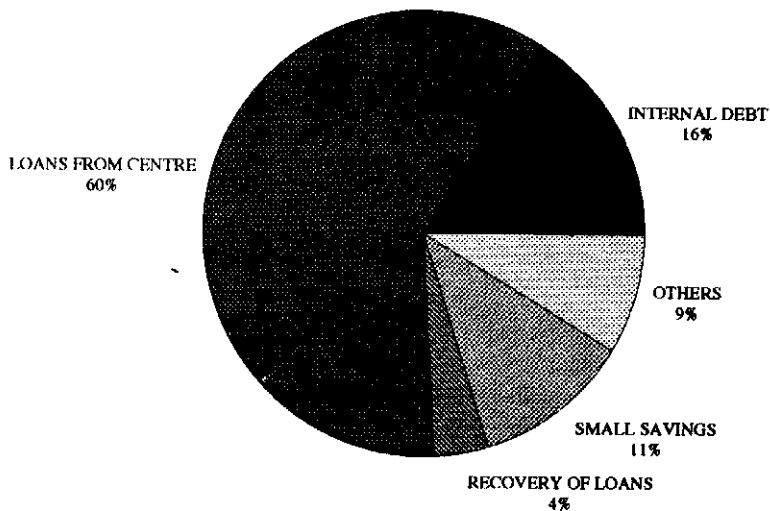
TOTAL LIABILITIES
ALL STATES

Graphic No:12

Rs Crores (000)

% GDP

YEARS

Legend:
- Debt/Income Ratio
- Outstanding liab.
- Loans and Advances
- Market Loans

TENTH FINANCE COMMISSION
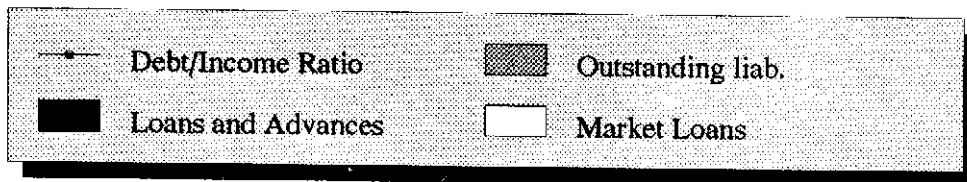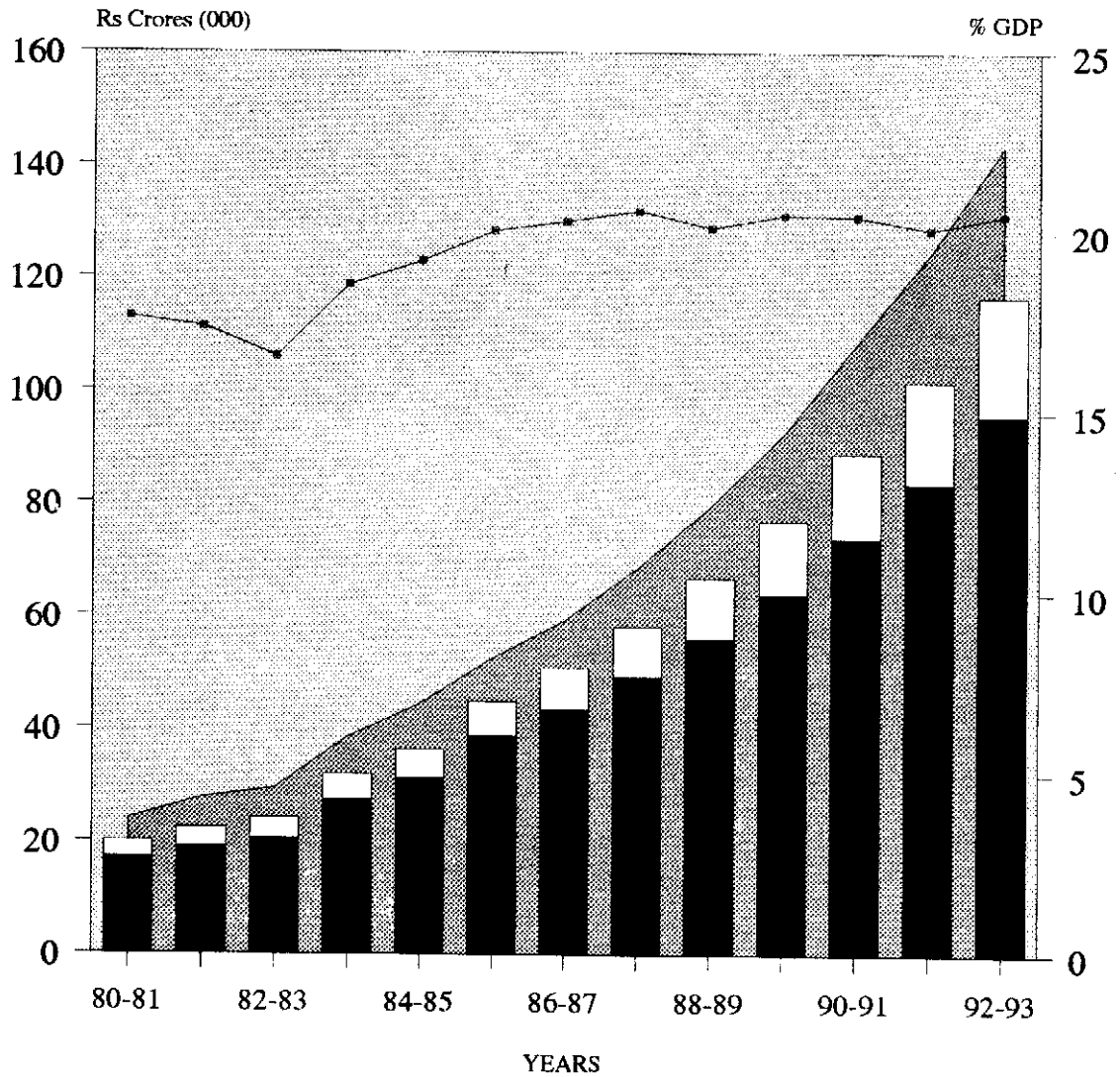
Methodology For Projection of Tax Revenues

1. The method that has been used for projecting tax revenues of the Centre and the States is in the genre of tax-income reponse models viz. a buoyancy model.

2. This method has been preferred to the elasticity approach which measures changes in tax yield owing to automatic growth, without discretionary changes. The elasticity method entails adjusting the tax yield of any year to the simulated yield for that year, if a base year rate-structure had prevailed. The actual tax yield is to be 'cleaned' by a sequence of adjustments intended to remove the effects of discretionary changes. The cleaned tax series is regressed upon the relevant tax base or a suitable proxy like state domestic product using a double log function to estimate elasticity coefficients. Buoyancy, it may noted measures the relative changes in tax yield due to both built in flexibility and due to discretionary changes. The use of buoyancy coefficient has a different role to play than the elasticity coefficient as it indicates how the actual growth of revenue compares with the growth in nominal income.

3. The buoyancy of individual taxes, for the Centre and all the States (except the North Eastern States) has been estimated by regressing tax revenue on nominal Gross domestic product and state domestic product respectively using a double log function. The coefficient has been estimated using the equation:

$$R = a\,Y^b\,u.$$

In the log form the equation would be:

$$\log R = \log a + b \log Y + \log u$$

where, R - tax revenue, is the dependent variable, and Y - domestic product in nominal terms, is the independent variable and u is a random term.

4. By using the buoyancy coefficients and relating these with the assumed rate of growth of GDP or SDP, one can project future tax-yields. Thus for purposes of making projections the buoyancy coefficient is applied to the rate of growth of income and the rate of growth of tax-revenue is estimated as follows:

$$\dots\dots\frac{R}{R} = y \cdot b$$

Where R is tax revenue, 'y' is growth rate of domestic product and 'b' is buoyancy coefficient.

5. On this basis, tax yield in a given year may be projected by applying the estimated rate of growth of tax revenue to the base year figures.

6. The base year, 1994-95, figures to which the growth rate is applied have been arrived at on the basis of a trend rate of growth for the period 1983-84 to 1992-93 estimated using a semi long function.

7. The buoyancy coefficients for individual taxes of the States are given in Tables 1 to 4 and that for the Central taxes in Table 5.

8. Revenue forecasting models with full specifications of tax rates and individual tax bases were not used due to lack of detailed data on the tax bases and multiplicity of tax-rates. Also, the purpose of the exercise was to relate projections of tax yields to the assumed profile of growth of nominal income, which was commonly applied to all the States and the Centre.

9. These estimated buoyancies have been moderated in the case of both the Centre and the States. The moderated buoyancies are placed at Annexure III.1 to III.4 and IV.1.

Table 1

Sales Tax

States	Buoyancy Coefficient	t-statistic	R Squared
Andhra Pradesh	1.177	10.960	0.930
Assam	1.535	17.132	0.970
Bihar	1.057	25.826	0.987
Goa	1.069	25.820	0.987
Gujarat	1.250	12.688	0.947
Haryana	1.092	25.243	0.986
Himachal Pradesh	1.216	16.560	0.968
Jammu & Kashmir	1.023	12.572	0.946
Karanataka	1.291	31.709	0.991
Kerala	1.290	24.387	0.985
Madhya Pradesh	0.955	15.754	0.965
Maharashtra	1.069	25.820	0.987
Orissa	1.222	19.644	0.977
Punjab	0.986	24.100	0.985
Rajasthan	1.062	15.512	0.964
Tamil Nadu	1.108	28.770	0.989
Uttar Pradesh	1.175	32.089	0.991
West Bengal	1.101	28.722	0.989

Table 2

State Excise

States	Buoyancy Coefficient	t-statistic	R Squared
Andhra Pradesh	1.101	11.740	0.939
Assam	0.910	6.386	0.918
Bihar	1.353	27.211	0.988
Goa	1.343	23.808	0.984
Gujarat	1.089	8.440	0.888
Haryana	1.408	23.021	0.983
Himachal Pradesh	1.265	23.469	0.984
Jammu & Kashmir	1.245	5.131	0.745
Karanataka	1.051	23.193	0.984
Kerala	1.067	13.905	0.956
Madhya Pradesh	1.217	23.242	0.984
Maharashtra	1.343	23.808	0.984
Orissa	1.261	19.566	0.977
Punjab	1.165	50.953	0.997
Rajasthan	1.773	9.266	0.905
Tamil Nadu	1.447	2.620	0.432
Uttar Pradesh	1.558	9.421	0.908
West Bengal	0.877	9.939	0.916

Table 3

Motor Vehicle Tax

States	Buoyancy Coefficient	t-statistic	R Squared
Andhra Pradesh	1.020	11.627	0.994
Assam	1.010	33.441	0.992
Bihar	1.497	6.967	0.844
Goa	1.164	13.083	0.950
Gujarat	1.186	5.654	0.780
Haryana	0.786	10.376	0.923
Himachal Pradesh	1.343	22.993	0.983
Jammu & Kashmir	0.827	4.732	0.713
Karanataka	1.136	14.828	0.961
Kerala	1.207	15.357	0.963
Madhya Pradesh	0.802	10.159	0.920
Maharashtra	1.164	13.083	0.950
Orissa	1.408	12.520	0.946
Punjab	0.872	12.167	0.943
Rajasthan	1.421	5.768	0.787
Tamil Nadu	0.905	12.532	0.946
Uttar Pradesh	0.941	8.129	0.880
West Bengal	0.981	17.918	0.973

Table 4

Stamps and Registration Fee

States	Buoyancy Coefficient	t-statistic	R Squared
Andhra Pradesh	1.074	16.522	0.968
Assam	1.117	9.564	0.910
Bihar	1.281	10.798	0.928
Goa	1.539	25.751	0.987
Gujarat	1.301	9.996	0.917
Haryana	1.248	23.339	0.984
Himachal Pradesh	0.858	9.983	0.917
Jammu & Kashmir	0.539	2.330	0.376
Karanataka	1.364	19.190	0.976
Kerala	1.401	17.188	0.970
Madhya Pradesh	1.165	24.724	0.985
Maharashtra	1.539	25.751	0.987
Orissa	1.156	15.463	0.964
Punjab	0.833	8.160	0.881
Rajasthan	1.286	16.412	0.968
Tamil Nadu	1.292	34.551	0.993
Uttar Pradesh	1.309	18.627	0.975
West Bengal	1.246	27.330	0.988

Table 5

Buoyancy of Major Central Taxes

Taxes of Centre	Buoyancy Coefficient	t-statistic	R Squared
Union Excise Duties	1.013	43.398	0.995
Income tax	1.103	16.721	0.968
Corporation tax	1.310	18.890	0.975
Customs Duties	1.389	21.787	0.981

Monitoring of Maintenance Expenditure

1. Introduction

Any system of monitoring will require that the accounts reflect, in a clear manner, the expenditure incurred on maintenance. It is necessary that the accounts are so designed that they indicate the works component and the work charged establishment separately under total maintenance expenditure.

2. The Existing Position:

(a) The major heads concerned with maitenance expenditure are :

3054 - Roads and Bridges

2059 - Public Works (for Buildings)

2216 - Housing

2701 - Major and Medium Irrigation

2702 - Minor Irrigation

(b) Among these heads, "Maintenance and Repairs" is already a minor head (053) under 2059-Public Works. In all the other cases, it is a detailed head-170. 140-Minor Works is another detailed head and 174-work charged establishment is a sub-detailed head.

3. The Scheme

(a) Since these heads are already heads of revenue expenditure they may be deemed to be entirely for maintenance expenditure. Some States have now defined capital expenditure at such low limits as Rupees one lakh that, in fact, no other type of expenditure would even now be getting charged to these heads. However, there may be some other items which may be getting charged here and for which a revenue head of expenditure might still be necessary.

(b) But even if these major heads are deemed to be heads of expenditure for maintenance, there will still be need to have a minor head for "Maintenance and Repairs" under all these major heads, as is now the case under major head 2059-Public Works.

(c) In the present system of functional classification of the Budget, the minor head reflects a programme. Maintenance should be considered one such item hereafter. There should be no objection to having this as a minor head. In any event, there is a precedent in the case of major head - 2059 Public Works. The same precedent can be followed in the case of the other Major Heads.

(d) Under the minor head: "Maintenance and Repairs" there should be two sub-heads: (i) Works and (ii) Work Charged Establishment. In this specific case the Accountants General could be requested to include in the accounts not merely the minor head but these two sub-heads so that the actual expenditure under the works portion and under establishment can be separately monitored.

(e) In all these cases, there is a sub-major head: "General" under which there is a minor head: "Direction and Administration" which shows the Departmental establishment. The problem sought to be tackled above is specifically in regard to the work charged Establishment consequent on its becoming provincialised.

4. Details

Major head - 3054. Roads and Bridges:

(a) There are two sub-major heads here. 03-State Highways and 04-District and Other Roads. Under each a minor head - "Maintenance and Repairs" can be opened.

2059 - Public Works:

There are already minor heads here under the sub-major heads.

01-Office Buildings

60-Other Buildings

There is no problem here.

2216 - Housing:

a) This Head has a Sub-major Head 01. Government Residential Buildings and a Minor Head: 106 General Pool Accomodation. Under this Minor Head there are Sub-heads:

(i) Direction and Administration

(iii) Maintenance and Repairs

(vii) Machinery and Equipment.

b) What is needed is that Maintenance and Repairs should show Works and Establishment separately i.e. establishment other than under sub-Head (i) Direction and Administration. We also require that maintenance and repairs should be a minor head and not a sub-Head.

c) Therefore, Government Pool Accomodation should be made a sub-major head. Under this there should be the following minor heads:

001	Direction and Administration
052	Machinery and Equipment
053	Maintenance and Repairs
799	Suspense
800	Other Expenditure

This is the case at present for the Sub-major head 04 - Bombay Building Repairs and Reconstruction Scheme.

Under minor head 053. maintenance and repairs there will be two Sub-heads - Works and Establishment.

The same procedure can be followed for (107) Police Housing and (700) other Housing which are at present minor heads along with (106) General Pool Accomodation under Sub-Major head 01: Government Residential Buildings.

2702 - Minor Irrigation:

There are two sub-major heads here.

01-Surface Water, and

02-Ground Water

(a) In the case of surface water, there are two minor Heads,

101-Water Tanks and

102-Lift Irrigation Schemes.

Maintenance is different in these two schemes and the element of recovery will be much more important in the case of lift irrigation schemes. It is, therefore, important that the maintenance of these two is indicated separately.

(b) If, in this case, a minor head is opened, "Maintenance", "Water Tanks" and "Lift Irrigation Schemes" will have to be seperate sub-heads which will not serve the purpose. Therefore, in the case of Minor Irrigation, one option would be that "Maintenance" should be a new Sub-major head. Then under this the minor heads will be "Water Tanks", "Lift Irrigation Schemes" and "Tube Wells".

2701 - Major and Medium Irrigation:

(a) The position here is complicated because both minor and medium projects have been brought under one major head; consequently, major irrigation and medium irrigation have become sub-major heads. As a result all other heads below have been pushed down by one level. At the same time, this is a head where each project is big enough to be shown as a separate minor head.

(b) One possibility, therefore, would be to break up this major head into two major heads - one for major irrigation and the other for medium irrigation. In the numbering series of major heads there are spare numbers available for this purpose.

(c) Major irrigation then becomes the major head. Each project can then be the sub-major head. Under this sub-major Head, there can be a minor head for maintenance. Under this there would be two sub-heads - works and work charged establishments as has been suggested in other cases.

(d) If, however, the major head cannot be split up, as suggested above, then it should be first clarified that only maintenance expenditure, whether on works or on provincial establishment, will be charged to the Revenue Head 2701 and all other project establishment and project works will have to be charged to the capital head. Then, automatically the expenditure under the minor head will reflect the total maintenance Expenditure on a particular project.

(e) Under this minor head the sub-heads are for items like Dam, Canal etc. Under the revised scheme, expenditure under three items - works, provincial establishment and work charged establishment would reflected separately. If the expenditure at this sub-head level is to be reflected by the Accountant General, as has been suggested for other Heads, this might pose a problem under works because of the number of sub-heads involved. Therefore, it is suggested that there may be three group sub-heads - (1) Works, (2) Provincial Establishment and (3) Work Charged Establishment. The existing sub-heads can then be suitably grouped under these three groups and the Accountant General can indicate expenditure upto group sub-head level above.

Revenue Sharing under Alternative Criteria : A Comparison

1. The Eighth and Ninth Commissions determined the respective shares of States in the devolution of income tax and Union excise duties largely on the basis of three allocative criteria : (i) population (ii) distance, and (iii) inverse of income. While we have used the population and distance criteria, we have not considered it desirable to use inverse of income as a criterion. We have, instead, drawn upon the discussion in paper no. 6 of 1993, NIPFP, New Delhi {Srivastava D.K. and Aggarwal P.K. (1993) "Some Revenue sharing Criteria in Federal Fiscal Systems: Some New Insights"} and developed further the ideas contained therein. Some analytical properties of these criteria are discussed below.

2. The information base for the 'distance' and 'inverse income' criteria consists of the respective pupulations of the State (N_i) and their per capita incomes (y_i). For the population formula, the information base is limited to just (N_i). The subscript i is used here to indicate the i th State. The total number of States is taken to be n. In the ensuing discussion, States have been arranged in an ascending order with respect to per capita income, i.e.

$$y_1 < y_2 < .... < y_n \qquad i = 1, 2, ...n$$

3. Shares and per capita shares of States under different criteria have been represented by the following symbols:

Criterion	Share	Per Capita Share
Population	q_i	$q^w_i = q_i / N_i$
Distance	a_i	$a^w_i = a_i / N_i$
Inverse Income	b_i	$b^w_i = b_i / N_i$

The per capita share of a State is derived by dividing its aggregate share by its population. The following conditions would be satisfied :

$$\Sigma q_i = \Sigma a_i = \Sigma b_i = 1 \qquad i = 1, 2, ... n$$

When the shares are taken as percentages, they would add up to 100 instead of 1.

a. Population Criterion

4. The share of a State in the population formula (q_i) is given by :

$$q_i = N_i / \Sigma N_i$$

The corresponding 'per capita' share is given by

$$q^w_i = 1 / (\Sigma N_i)$$

Since $1 / \Sigma N_i$ ($= Q$, say) is invariant with respect to Y_i, it means that, in this criterion, the same per capita share is given to each State irrespective of its position on the income scale. In a diagram, where per capita share is indicated on the vertical axis, and per capita income on the horizontal axis, the population based per capita shares would represent a horizontal line (Fig. 1).

b. Distance Criterion

5. In the distance formula, distances are measured by the term $(y_n - y_i)$, where y_n is the highest per capita income among all the States. Accordingly, the share of a State in the distance formula may be written as :

$$a_i = N_i (y_n - y_i) / \Sigma N_i (y_n - y_i) \qquad i = 1, 2, ... n$$

The term $1 / \Sigma N_i (y_n - y_i)$ is the same for all the States. Writing this as A, we may rewrite :

$$a_i = A N_i (y_n - y_i)$$

If we divide a_i by N_i, the corresponding per capita share (a^w_i) is obtained. Thus,

$$a^w_i = A (y_n - y_i)$$

6. This equation specifies a straight line which may be represented in a diagram with a^w_i on the y-axis and y_i on the x-axis (Fig.1). This line would fall to the right, since the slope of line $(da^w_i / dy_i = -A)$ is negative. It implies that the poorer a State, the larger is its per capita share in the revenue sharing arrangement based on this form of the distance formula. The slope of the line indicates the implied degree of progressivity. It may be noted that the distance formula as written above would given a zero share to the highest income State. Such a version of the formula may be written as its standard or unadjusted version. For a comparision of the relative analytical properties with other allocative criteria, it is a useful starting point. This version of the distance formula has been slightly modified by the last two Finance Commissions, as also by this Commission. The implications of these adjustments have been discussed subsequently.

7. The per capita shares, as determined by the population formula and the distance formula (unadjusted version), may be represented together in one diagram (Fig. 1), with a view to highlighting the implications of bringing progressivity into the allocative scheme. The intersection of the line (a^w_i , q^w_i) is given by :

$$1 / (\Sigma N_i) = A (y_n - y_i)$$

or $\quad y_i = [y_n - \Sigma N_i (y_n - y_i) / \Sigma N_i]$

or $\quad y_i = M$

Where, M is the average per capita income of all States

$$(= \Sigma N_i y_i / \Sigma N_i)$$

8. This implies that, as compared to the population based shares, States which are below the mean income, get higher shares in the distance formula. Correspondingly, the shares of those States which have per capita incomes higher than the mean income are reduced.

c. Inverse Income Criterion

9. In the inverse income formula, the share of a State may be written as :

$$b_i = (N_i / y_i) / [\Sigma N_i / y_i]$$

Here also, the term $[1 / \Sigma (N_i / y_i]$ is common for all States. Writing this as B, we may rewrite,

$$b_i = B N_i / y_i$$

Dividing this by Ni, we get the corresponding per capita shares (b^W_i). Thus,

$$b^W_i = B/y_i$$

or $(b^W_i)(y_i) = B$

10. This equation describes a rectangular hyperbola in a diagram where b^W_i is represented on the vertical axis and y_i is represented on the horizontal axis (Fig. 2). In this case also, the line falls to the right as y_i increases, indicating progressivity in the revenue sharing arrangement.

11 We may now consider the point of intersection of the q^W_i and b^W_i lines. It is given by :

$$\frac{1}{\sum N_i} = \frac{B}{y_i}$$

or $y_i = \sum N_i / \sum N_i / y_i$

This point will be to the left of mean income

$(M = \sum N_i y_i / \sum N_i)$

if, $M > \sum N_i / \sum N_i / y_i$

or if, $\sum (N_i y_i) [\sum (N_i / y_i)] > (\sum N_i)^2$

which is satisfied since the LHS can be written as :

$(\sum N_i)^2$ + interaction terms which are all positive. In other words, the transfer mechanism works in such a way that some of the States that are below average get a share smaller than that assigned to them under the population criterion.

d. Comparison of Distance and Inverse Income Criteria

12. If both a^W_i and b^W_i are brought together in the same diagram (Fig.3), it can be seen that the lines representing per capita shares under the two criteria, i.e. a^W_i and b^W_i, respectively, would intersect at two points. Relative to the distance formula, the inverse income formula favours those States which are very rich or very poor, i.e. States which are located at the two extremes of the income-scale. Conversely, the adjustment that is effected for bringing progressivity into the scheme gives rise to a burden which is borne relatively more by the middle income States in the inverse income formula, as compared to that in the distance formula.

13. The two points of intersection may be identified by using the condition that, for points of intersection, we would have $a^W_i = b^W_i$. Thus,

$$A(y_n - y_i) = B / y_i$$

or $(y_i)^2 - (y_n)(y_i) + B/A = 0$

14. This equation provides the two values of y_i (say, u and v) at which the curves representing the per capita shares under the distance and the inverse income formulae intersect. These values are given by:

$$u = .5[y_n - \{(y_n)^2 - 4B/A\}^{1/2}] \text{ and } v = .5[y_n + \{(y_n)^2 - 4B/A\}^{1/2}]$$

15. It can be established that the difference between the per capita shares determined by the distance formula (a^W_i), and the inverse income formula (b^W_i) is maximised when

$$y_i = [\sum (N_i)(y_n - y_i) / \sum (N_i / y_i)]^{1/2}$$

We have, $(a^W_i - b^W_i) = A(y_n - y_i) - B/y_i = z$ (say)

Differentiating the left hand side with respect to y_i, the first order condition for maximisation may be written as:

$$d_z/dy_i = -A + B/(y_i)^2$$

This gives $y_i = \{B/A\}^{1/2}$

The second order condition for maximisation is also satisfied, since

$$d^2 z / dy_i^2 = -2B / (y_i)^3$$

The ratio $(a^W_i / b^W_i = r)$, (say), on the other hand, is maximised at $y_n/2$, as can be ascertained by writing the relevant first and second order conditions.

16. This indicates that compared to the distance criterion, the inverse income criterion would allocate shares which are relatively higher not only for the poorest State(s) but also the richest State(s) at the cost of the middle income States. The closer the State is to the median income $(y_n/2)$, the greater would be its relative loss in the inverse income formula compared to the distance formula.

17. It may be noted that an adjustment has been made in the distance formula used by the Eighth and Ninth Commissions, as also by this Commission, with a view to giving a positive share to the highest income State. The Ninth Commission had used the same notional `distance' for Goa, Punjab and Maharashtra. This implies that the per capita shares of these States would be equal in the adjusted distance formula. The modification implies that, in the adjusted version of the distance formula, the per capita share of the two richest States would be greater than their corresponding shares in its standard version. This would be reflected in correspondingly reduced shares of the States that are lower on the income scale. These features are indicated in Fig.4.

18. In comparing the per capita shares of States under the distance (standard version), inverse income and population criteria, six points of interest may be identified over the range of income from the lowest per capita income (y_1) to the highest per capita income (y_n). These points are indicated below. The curves representing per capita shares with respect to per capita income under the alternative criteria have been referred to as the distance, inverse-income and population criteria curves, respectively.

(i) u : the point of intersection between the distance curve (a^W_i) and inverse income curve (b^W_i) at the lower end of per capita incomes ;

(ii) v : point of intersection between the two curves, at the higher end of per capita incomes ;

(iii) M : the mean income defined by $\sum N_i y_i / \sum N_i$. This gives the point of intersection of the population criterion curve (q^W_i) with the distance curve (a^W_i).

(iv) y(q,b) : This is given by $(\sum N_i / \sum N_i / y_i)$. This gives the point of intersection of the population criterion curve (q^W_i) with the inverse income curve.

(v) $\{B/A\}^{1/2}$: This is the point at which the difference between the per capita shares determined by the distance formula and the inverse income formula, i.e. $(a^W_i - b^W_i)$ is maximised.

(vi) $y_n/2$: This is the point at which the ratio between the per capita shares under the distance and the inverse income formulae (a^W_i / b^W_i) is maximised.

19. The income-levels corresponding to the six points mentioned above have been calculated with respect to a distribution of (y_i, N_i), where y_i refers to the per capita incomes of States calculated as an average of per capita incomes of 1987-88, 1988-89 and 1989-90, and population figures relate to the 1971 census. In Table 1, the States have been arranged according to an ascending order of per capita income. The critical income levels corresponding to the six points identified earlier are given in this Table.

20. Between the distance formula and the inverse income formula, the use of the latter would benefit Bihar at the lower end and the States from Arunachal Pradesh to Goa at the upper end of the income scale (Table 1). The difference between the two is maximised at about the income levels of Jammu & Kashmir and Himachal Pradesh. The intersection between the population and inverse income curves takes place at an income level just below that of Meghalaya. Between this and the mean income level, there are five States, viz. Himachal Pradesh, Jammu and Kashmir, Kerala, Andhra Pradesh and Manipur.

21. In Table 2, the shares of States determined under the three formulae, viz. population, distance and inverse income formulae have been given using the distribution of Ni based on 1971 population and per capita incomes (y_i) that represent the average of three years, viz. 1987-88, 1988-89 and 1989-90. The corresponding per capita shares are given in Table 3.

22. A comparison of the per capita shares under the alternative version of the distance criterion indicates that, as compared to the standard version, the adjusted distance formula allocates higher shares to Goa and Punjab at the upper end of the income-scale, and Rajasthan, Orissa, Uttar Pradesh and Bihar at the lower end of the income scale.

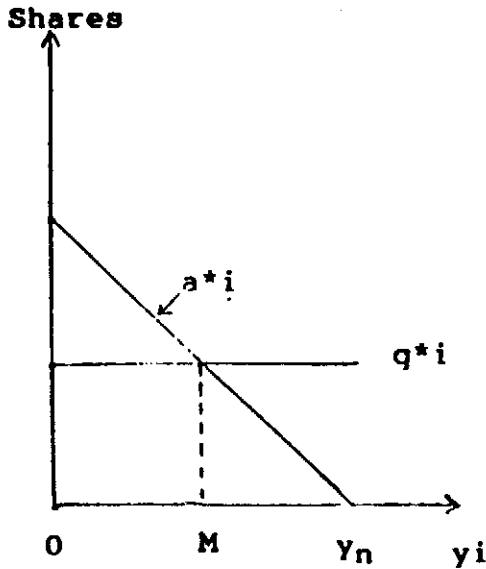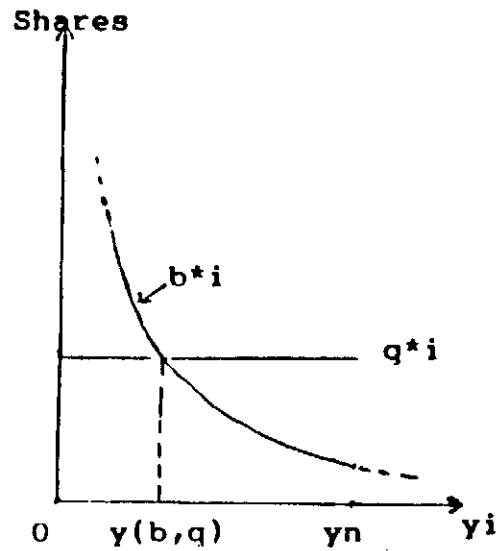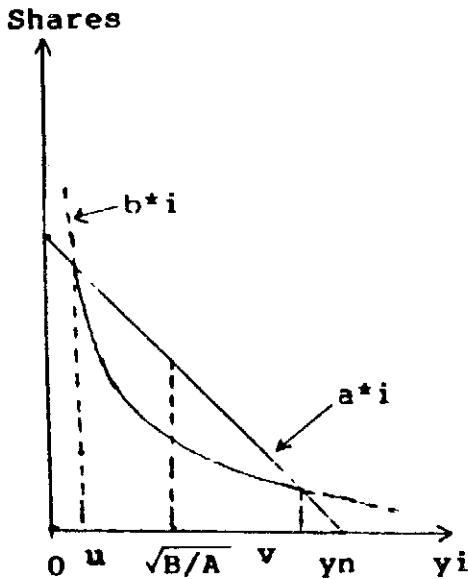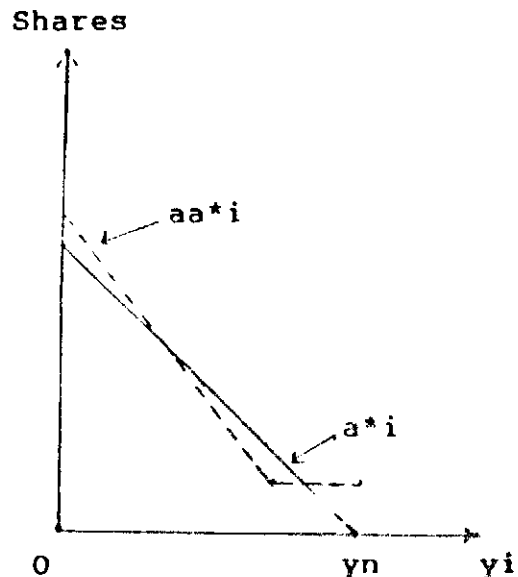## Per Capita Shares Under Alternative Criteria

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Shares refer to per capita shares
yi indicates per capita income.
aa*i refers to per capita shares under the adjusted distance formula.

Table 1

Per Capita Incomes : Points of Interest under Alternative Criteria

State	Per Capita Income (Rs.)	Critical income levels (Rs.)	Intersection between curves
Bihar	2135		distance & inverse income
		$u = 2699$	
Uttar Pradesh	2867		
Orissa	2945		
Rajasthan	3092		
Tripura	3163		
Assam	3195		
Madhya Pradesh	3299		
Meghalaya	3328		
		$y(q,b) = 3358$	population & inverse income
Manipur	3449		
Andhra Pradesh	3455		
Kerala	3532		
Jammu & Kashmir	3534		
		$\{B/A\}^{1/2} = 3548$	*
Himachal Pradesh	3618		
		$M = 3625$	population & distance **
		$y_n/2 = 3682$	
West Bengal	3750		
Karnataka	3810		
Nagaland	3929		
Tamil Nadu	4093		
Mizoram	4094		
Gujarat	4602		
		$v = 4665$	distance & inverse income
Arunachal Pradesh	4670		
Sikkim	4846		
Haryana	5284		
Maharashtra	5369		
Punjab	6996		
Goa	7364		

*   Income level at which the difference between per capita shares under distance and inverse income criteria ($a^w i - b^w i$) is maximised.
** Income level at which the ratio $a^w i / b^w i$ is maximised.

Table 2

Alternative Criteria : State-wise Shares

States arranged in ascending order of income	Average (1987-90) Per Capita Income (Rupees)	Population (in lakhs) 1971 Census	Shares Under Alternative criteria (Per cent)			
			Population	Distance	Inverse Income	Adjusted Distance
1	2	3	4	5	6	7
Bihar	2135	563.53	10.377	14.513	16.367	14.773
Uttar Pradesh	2867	883.41	16.267	19.566	19.107	19.672
Orissa	2945	219.45	4.041	4.776	4.621	4.795
Rajasthan	3092	257.66	4.744	5.421	5.167	5.425
Tripura	3163	15.56	0.287	0.322	0.305	0.322
Assam	3195	146.25	2.693	3.003	2.839	2.998
Madhya Pradesh	3299	416.54	7.670	8.339	7.830	8.305
Meghalaya	3328	10.12	0.186	0.201	0.189	0.200
Manipur	3449	10.73	0.198	0.207	0.193	0.205
Andhra Pradesh	3455	435.03	8.010	8.375	7.808	8.308
Kerala	3532	213.47	3.931	4.029	3.748	3.988
Jammu & Kashmir	3534	46.17	0.850	0.871	0.810	0.862
Himachal Pradesh	3618	34.60	0.637	0.638	0.593	0.630
West Bengal	3750	443.12	8.159	7.887	7.327	7.757
Karnataka	3810	292.99	5.395	5.128	4.769	5.034
Nagaland	3929	5.16	0.095	0.087	0.081	0.085
Tamil Nadu	4093	411.99	7.586	6.637	6.242	6.450
Mizoram	4094	3.32	0.061	0.053	0.050	0.052
Gujarat	4602	266.97	4.916	3.632	3.597	3.447
Arunachal Pradesh	4670	4.68	0.086	0.062	0.062	0.059
Sikkim	4846	2.10	0.039	0.026	0.027	0.024
Haryana	5284	100.37	1.848	1.028	1.178	0.927
Maharashtra	5369	504.12	9.283	4.953	5.822	4.423
Punjab	6996	135.51	2.495	0.246	1.201	1.189
Goa	7364	7.95	0.146	0.000	0.067	0.070
		5430.80	100.000	100.000	100.000	100.000

Table 3
Alternative Criteria : Per Capita Shares

States arranged in ascending order of income	Per Capita Shares x 10,000 (based on 1971 population)			
	qo*	ao*	bo*	aao*
1	2	3	4	5
Bihar	184.14	257.53	290.44	262.16
Uttar Pradesh	184.14	221.47	216.29	222.68
Orissa	184.14	217.63	210.56	218.47
Rajasthan	184.14	210.39	200.55	210.54
Tripura	184.14	206.89	196.05	206.72
Assam	184.14	205.32	194.08	204.99
Madhya Pradesh	184.14	200.20	187.97	199.38
Meghalaya	184.14	198.77	186.33	197.82
Manipur	184.14	192.81	179.79	191.29
Andhra Pradesh	184.14	192.52	179.48	190.97
Kerala	184.14	188.73	175.57	186.82
Jammu & Kashmir	184.14	188.63	175.47	186.71
Himachal Pradesh	184.14	184.49	171.39	182.18
West Bengal	184.14	177.99	165.36	175.06
Karnataka	184.14	175.03	162.76	171.82
Nagaland	184.14	169.17	157.83	165.40
Tamil Nadu	184.14	161.10	151.50	156.56
Mizoram	184.14	161.05	151.47	156.51
Gujarat	184.14	136.03	134.75	129.11
Arunachal Pradesh	184.14	132.68	132.78	125.44
Sikkim	184.14	124.01	127.96	115.95
Haryana	184.14	102.44	117.35	92.33
Maharashtra	184.14	98.25	115.50	87.74
Punjab	184.14	18.12	88.64	87.74
Goa	184.14	0.00	84.21	87.74

Per Capita shares under different formulae have been indicated as detailed below:

qo* = *population criterion;*

ao* = *distance criterion (standard version);*

bo* = *inverse-income criterion;*

aao* = *adjusted distance criterion.*

Excerpts from Measuring Interstate Differentials in Infrastructure A study undertaken for the Commission by T.C.A. Anant, K.L. Krishna and Uma Roy Chaudhry

INTRODUCTION

1. Over the years our understanding of the development process has changed and with it we have changed the role that is assigned to different agents. However in one area there is virtually no change, which is in the centrality of state policy to the provisioning of infrastructure. Adequate infrastructure Physical or Economic, Social, and Institutional - is treated as the basic pre-requisite for sustained economic development.

2. In this study we seek to develop indices of infrastructural availability at the level of different states mainly for the years 1985 and 1990. These indices will reflect the divergence of a state from the all India average. In this coverage we exclude Union territories. Infrastructure can be measured in different ways: in terms of investment, output or results or in terms of the availability of facilities. In this study we focus on the availability of facilities as the basis for analysis.

CONCEPTS AND METHODOLOGY

3. The availability of adequate infrastructure is taken as the fundamental cornerstone of development strategy. The availability of adequate transportation facilities, power, communications, etc. are taken as essential preconditions by any entrepreneur deciding on an investment project in any region. Similarly the availability of skilled manpower and decent living conditions are also important considerations in such location decisions.

4. The end of the second world war with the associated process of decolonization saw rapid growth in and proliferation of theories of economic development, chief among these were Rosenstein-Rodan's "Big Push", Nurkse's "Balanced Growth", Rostow's "Take off into Sustained Growth" and Leibenstein's "Critical Minimum effort Thesis". The common theme of all these theories was an aggregative framework of analysis and identifying the process of growth and development with large and discrete injections of investment particularly in areas with strong external economies and economies of scale. Consequently the provision of social overhead capital or infrastructure was a significant component of such models.

DEFINITION OF INFRASTRUCTURE

5. The concept of Infrastructure has itself gone through changes over time. These changes reflect the deepening of the concept of development and the process of economic development. In current thinking there are three important aspects to the concept of infrastructure.

PHYSICAL INFRASTRUCTURE

6. In the 1940's and 50's when the concept was first formulated, it was conceived as a set of physical facilities without which an integrated, interdependent modern economy could not function. This emphasis on physical infrastructure was based on the following characteristics of these facilities.

* They involve technological indivisibilities and considerable lumpiness in investment.

* The investment projects have long gestation lags, this often follows from the sheer size of these investments.

* They are subject to substantial external economies and diseconomies through the interdependence of economic activities or even of infrastructure facilities themselves.

SOCIAL INFRASTRUCTURE

7. The identification of infrastructure with only physical capital was considered inadequate for two main reasons. Firstly there was the recognition of the importance of human capital in the growth process. Human capital effects growth both through its effects on innovations and technological change as well as increases in labour productivity. Investment in Human Capital has similar features and characteristics of physical infrastructural investment outlined above. For example investments in the areas of Health, Education, Water Supply, Housing, etc. have all got marked public good characteristics. They have strong linkages with each other and with physical productivity, for example literacy is an important requirement for the adoption and spread of Public Health measures, Health and Literacy have direct effects on productivity. Investments in these areas have long gestation lags sometimes even longer than in the case of physical infrastructure. The second reason was a dissatisfaction with the identification of economic growth measured in terms of national product. This dissatisfaction was on two grounds. Firstly that considerations of equity would focus attention on a number of issues of basic need like health and education. Further the recognition that quality of life is not perfectly related to measures of income and hence these other factors better proxy other needs of human society.

INSTITUTIONAL INFRASTRUCTURE

8. In recent times the emphasis of development strategy has shifted from state control to market friendly mechanism. This has highlighted the importance of institutions of governance and regulation as well as of agencies which facilitate the flow of information and investible resources. The importance of administrative systems, legal mechanisms, public safety have long been recognized as important preconditions to growth and development. But in addition to these institutions like banks and financial institutions, Insurance agencies etc. can also be seen to play critical infrastructural roles. Banks and Financial Institutions mobilize capital, help in reducing risk and can assist in information flows regarding a number of economic activities.

MEASURING INFRASTRUCTURE

9. We have three broad methods available to measure infrastructure in a country or region. Each of these have their own limitations and advantages. Each measure can be justified depending on the ultimate use to which it is to be put. In this report the basic premise is to calculate a measure which is related to the activity of the government.

INDIRECT MEASUREMENT VIA EFFECTS

10. One possibility would be to measure the extent of infrastructure in terms of utilization and results. It is instructive to consider some examples: in the case of social infrastructure we could focus on literacy or mortality statistics. In the case of transportation by the value added in that sector. Or for physical infrastructure as a whole in terms of the domestic product of the state or a given region. This method has a number of advantages, first it cuts out most intermediate measurement issues and directly focusses on the results of interest. However the link between the facility and result is not given by a precise invertible mathematical result but is influenced by a number of other socio-cultural factors. For example, the availability of schools and teachers translates to literacy through a complex of factors related to attitudes to education, the degree of economic development, the growth of opportunities to take advantage of literacy and so on. The interlinkages across infrastructural facilities create their own problem of interpretation since shortfalls in one area, say power, can significantly reduce domestic product which in all other respects the state may be very well endowed.

INVESTMENT BASED MEASURES

11. We can define the amount of infrastructural facilities available in a state in terms of the amount of investment that is undertaken for this purpose. This would have two main advantages, first it is possible to directly compare different states on availability in terms of a single linear additive measure namely money. It also has the advantage that different types of facilities are directly reduced to a single common denominator. The main difficulty with this approach is that the amount of money allocated in a given year reflects both maintenance and new investment expenditures, even if we could separate out the two, the conversion from monetary units to physical stock is problematic. The amount of physical stock generated is influenced by both prices or cost and the time taken to implement the project. Over the years infrastructure investments have been notorious for both cost and time overruns both of which are almost impossible to quantify.

12. On balance, our assessment is that these measures outlined above while useful in certain contexts are not helpful in devising a measure which can identify the extent and nature of action required at the level of states in the Union. Thus we focus attention in this report on the last measure, namely, that based on a direct enumeration of available facilities.

FACILITIES BASED MEASURES

13. In this approach the measure seeks to directly quantify the amount of different facilities available. In doing so we confront two major problems. The first relates to the aggregation problem as we will attempt to build a unique or small group of measures from a number of disparate measures. Before we deal with this issue, we must examine the second and equally important conceptual issue. The biggest problem with a facilities orientation is that it is almost impossible to control for differences in quality. For example a village may be electrified but effectively no power is delivered because of poor maintenance; the roads may exist but again may be in such poor condition that they are not useful for any major traffic; a teacher may himself be semi or illiterate and so on. This problem is further compounded if these differences are not homogeneously distributed across states. In this exercise we assume, for want of any information in this regard, that the quality effects are similarly placed in different states.

14. In this report we measure the infrastructure facilities available in different states in terms of eight major sectors:

1. Agriculture
2. Banking
3. Electricity
4. Transport
5. Communications
6. Education
7. Health
8. Civil Administration

15. These are further classified under three heads: Economic Infrastructure(1-5), Social Infrastructure (6&7), and Administrative Infrastructure. The choice of these sectors was influenced both by the conceptual considerations outlined earlier and availability of data.

METHODOLOGY

16. A key factor limiting our selection and use of variables was the lack of availability of consistent data for all states in the Union. If data for a given year was not available then the data for the closest available year was chosen. However, in some cases data for 1990 or later is not available, in which case the most recent year possible has been selected. In selecting variables the primary consideration was to preserve the capital good and public good character of the concept of infrastructure.

17. The data was first standardized by deflating the numbers by a suitable deflator. In some cases the choice of deflator was governed by some natural criteria, as in total number of villages for data on villages electrified, or cultivated area for data on net area irrigated. Where such natural deflators were not available then given our concern with availability we have used either population in million or the area of the state in thousand square kilometers. Our preference has been to focus on area unless there are compelling reasons to use population. Occasionally we have in fact used both. The choice was based on the considerations that both distance and congestion are access costs. However congestion can be reduced by improvements in quality or size. Thus in the absence of data on size distribution or quality distribution of these facilities population will be more misleading than a distance based cost. Where this argument was not compelling we have used both measures, as in the case of hospital beds or in the case of administrative measures. The standardized variable was then converted into an index number by deflating with the All-India value of that year. This implies that the index numbers reflect the deviation in a state from the All India availability of that resource.

18. The next step was to devise an aggregation procedure at the sectoral level. For this purpose we restricted attention to the eighteen largest states in terms of population. This was done as the data on the smaller states tended to have numerous gaps. Further the most complete data set is available for all variables only for 1985, hence all statistical analysis was done on this year. As a first step the 1985 data for 18 major states was analyzed to calculate the first principal component. The eigenvector corresponding to this component was standardized so as to sum up to unity. Using the eigenvector based weights sectoral indices were calculated for both 1985 and 1990. If for a given state some variables were missing in any year the weight for

those variables was redistributed amongst the other variables. This general procedure was used in all the above cases except agriculture (where no aggregation was needed), education, banking and administration.

19. The sectoral indices were aggregated into an aggregate index of infrastructure. In a fundamental sense all these infrastructural facilities are critical for the process of development. For this purpose we identified the concept of development with state domestic product. Therefore, in order to examine the issue of assigning weights we looked at the correlation of these different variables with an index of state domestic product per capita. This index was generated by calculating a three year average of the SDP's of different states and converting the resulting SDP percapita into an index with all India value set at 100. The weights for the sectoral values were than constructed in proportion to the correlation of the sectoral variable with the SDP index.

20. It must be noted that the index number so created does not reflect availability. Further increases or decreases in the absolute value does not imply that the state has seen an increase or decrease in its absolute infrastructural facilities but that it has seen a growth which is lower than the average growth recorded.

DATA SOURCES

21. Data on net irrigated area for all states have been collected from `Basic Statistics Relating to the Indian Economy', Vol.II, States (CMIE,September, 1992), for the years 1985-86 and 1987-88.

22. This is also the main source of information for "Installed capacity"," Number of Villages Electrified," and "Consumption of Electricity" (Utilities only). The information is available for 1985-86 and 1991-92 for the first two items and for 1990-91 for the last i.e. consumption of electricity. Data are available consistently for all the states except for Goa. Data on "Length of Transmission and Distribution Lines " by States are taken from "Public Electricity Supply, All-India Statistics- General Review."

23. Data on "Statewise Distribution of Commercial Bank Offices" and "Number of branches of Regional Rural Banks" are obtained from "The Report on Currency and Finance," Vol II, Statistical Statemants, (Reserve Bank of India). Distribution of Offices of Cooperative Banks in Different States are from "Statistical Tables Relating to Banks in India" (Reserve Bank of India) and is inclusive of State, Central and Primary Cooperative Banks. The latest year for which data are available is 1988 except for Goa and Mizoram for which data even for 1985 are not available. In the case of Regional Rural Banks, the latest year for which data are available for all the states is 1989 except for Goa and Sikkim for which no data on this category of bank services are available. For Commercial Bank Offices the position is very satisfactory with data for all the states being available till 1991.

24. "Basic Road Statistics of India", Transport Research Division, Ministry of Surface Transport is the source for all data on road length as well as villages connected by all weather roads. The data are available for all the states with 1988 as the latest year. Information on railway route length and registered motor vehicles are obtained from `Basic Statistics Relating to the Indian Economy,' Vol II, States (CMIE September 1992). In both the cases data are available for all the States for the years, 1985-86 and 1990-91.

25. Data on both post offices and telephones connected to the Departmental Network by States are taken from different issues of "Basic Statistics Relating to the Indian Economy," Vol.II, States (CMIE). The latest data available is for 1990.

26. In the case of `Number of Telephones connected to the Departmental Network,' the 1985-86 data have the information of northwestern States appear in the form of the total figure for Haryana, Himachal Pradesh and Punjab and for northeastern States of Manipur, Meghalaya, Nagaland, Tripura are clubbed with Assam. For 1990-91, the northeastern States of Manipur, Meghalaya, Nagaland and Tripura are presented together. In these cases the figures are distributed between the states using the proportions for the year for which details are available.

27. Data on the number of "Primary Institutions' and "All Types of Institutions' are taken from "Education in India, Vol I, Ministry of Education. The latest year for which data are available is 1985. The data on non-primary institutions are calculated from the above two. As regards the data on the "Number of teachers per unit of the population in the relevant age group" (primary 8-11 years, middle 11-14 years & higher secondary 14-17/18 years) the ratios have been worked out using the two series of teachers and population from independent sources.

28. Data on "Number of beds in Hospitals and Dispensaries" are collected from "Basic Statistics Relating to the Indian Economy, Vol.II., States (CMIE, September 1992)". The latest year for which information is availables is 1989. The data on "Number of Primary Health centres and subcentres" is obtained using both "Health Information in India," and "Health Statistics in India," both published by the Ministry of Health. The latest year for which information is available is 1990. However, no data are available for Goa and Arunachal Pradesh for 1980.

29. Finally we have collected data on some key variables describing a state, namely population, area and number of villages. These were used primarily as a basis for standardisation. The population data was drawn from various issues of the Report of Currency and Finance. Area of states was obtained from the September issues of CMIE, "Basic Statistics Relating to the Indian Economy, Vol In, States (1992)". The data on number of villages in a state was drawn from "Basic Road Statistics of India".

Scheme of Debt Relief Related to Improvement in Fiscal Performance on Revenue Account

1. The proposed scheme of general debt relief with respect to central loans relates debt relief to improvement in the ratio of revenue receipts of a State to its total revenue expenditure. Revenue receipts include devolution and grants from the Centre on revenue account. Relief is calculated by reference to repayments of central loans falling due during the period 1995-2000.

2. Relief for 1996-97 will be determined in 1995-96. In this year, actuals will be available for 1993-94. For this year, revenue receipts as a percentage of revenue expenditure (r) may be calculated for each State. For three years preceding that year, i.e. 1992-93, 1991-92 and 1990-91, similar ratios will be calculated and the average of these three ratios (r*) will be computed. From this, the percentage relief (R) is calculated as 2 (r - r*). The relief would be in the form of writing off of R per cent of repayment of principal on account of instalments falling due in 1995-96 with respect to fresh central loans to a Stage given during 1989-95 and as outstanding on March 31, 1995.

3. Thus, if the performance of a State improves by 2.5 percentage points, i.e. (r - r*) = 2.5, the State Government will become entitled to a relief equivalent to 5 per cent, i.e. R = 5. The minimum and maximum limits of R have been prescribed as zero and 10 per cent.

4. Values of R will be calculated in a corresponding manner for each year during 1995-2000. As such, the relief pertaining to repayments due in 1999-2000 will be given in the next financial year. If in any year, the Ministry of Finance finds an increase in revenue receipts or revenue expenditure of a State on acount of an unusual or abnormal item, it may take cognizance of this and make suitable adjustments.

5. It may be noted that for the calculation of relief in any one year, a reference to 6 years becomes relevant. Thus, for relief in 1996-97, we refer to the following years:

Year in which relief is given	:	1996-97
Year in which relief is determined (repayments due will relate to this year)	:	1995-96
Year for which latest actuals are available (r is calculated for this year)	:	1993-94
Years from which (r*) is calculated	:	1992-93, 1991-92, 1990-91

6. The Ministry of Finance may prepare necessary guidelines for the implementation of the scheme and circulate these to the States as soon as possible.

7. In the accompanying Table, the magnitude of relief with respect to two illustrative figures of percentage relief, viz. 5 per cent and 10 per cent are given. The latter figure indicates maximum possible relief that the States may get under the Scheme.

8. The relief under this scheme is in addition to any other debt relief provided to a State on other considerations in Chapter XII.

Debt Relief (Incentive Scheme) to States on Repayment of Central Loans during 1995-2000

(Rs. lakhs)

States	Repayments during 1995-2000	Stipulated relief under general incentive scheme at	
		5%	10%
	1.	2.	3.
Andhra Pradesh	85888	4294.4	8588.8
Arunachal Pradesh	6328	316.4	632.8
Assam	28912	1445.6	2891.2
Bihar	89077	4453.9	8907.7
Goa	8119	406.0	811.9
Gujarat	104014	5200.7	10401.4
Haryana	24168	1208.4	2416.8
Himachal Pradesh	11876	593.8	1187.6
Jammu & Kashmir	23414	1170.7	2341.4
Karnataka	56768	2838.4	5676.8
Kerala	46313	2315.7	4631.3
Madhya Pradesh	50006	2500.3	5000.6
Maharashtra	112470	5623.5	11247.0
Manipur	2511	125.6	251.1
Meghalaya	2013	100.7	201.3
Mizoram	3140	157.0	314.0
Nagaland	2666	133.3	266.6
Orissa	34996	1749.8	3499.6
Punjab	22851	1142.6	2285.1
Rajasthan	53128	2656.4	5312.8
Sikkim	1559	78.0	155.9
Tamil Nadu	62342	3117.1	6234.2
Tripura	5831	291.6	583.1
Uttar Pradesh	208661	10433.1	20866.1
West Bengal	84782	4239.1	8478.2
	1131833	56591.7	113183.3

1. *Repayment amounts in column 1 relate to outstanding loans taken during the period 1989-94. However, the proposed scheme would also cover loans taken during 1994-95 on account of which repayments may fall due in 1995-2000.*

Table 1 : Statewise Revenue Receipts : 1983-84

(Rs. crores)

States	Own Tax Revenue	Non-Tax Revenue	Shares in Taxes	Art.275 Grants	Other Grants	Total
1	2.	3.	4.	5.	6.	7.
1. Andhra Pradesh	965.37	309.42	408.32	1.10	269.14	1953.35
2. Arunachal Pradesh	0.85	13.26	0.00	42.41	32.42	88.94
3. Assam	135.35	77.89	137.66	4.36	195.33	550.59
4. Bihar	441.69	226.71	590.50	19.64	236.25	1514.79
5. Goa	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
6. Gujarat	879.04	292.15	226.71	6.85	160.38	1565.13
7. Haryana	350.03	179.54	96.63	0.42	71.97	698.59
8. Himachal Pradesh	54.25	48.38	30.02	49.61	134.72	316.98
9. Jammu & Kashmir	70.13	81.65	36.38	86.22	104.54	378.92
10. Karnataka	759.52	316.37	271.15	0.00	142.42	1489.46
11. Kerala	486.77	118.26	209.48	2.05	117.68	934.24
12. Madhya Pradesh	619.12	498.21	420.25	32.83	234.39	1804.80
13. Maharashtra	1870.75	708.99	401.65	3.68	266.90	3251.97
14. Manipur	4.89	3.58	9.75	38.39	73.06	129.67
15. Meghalaya	9.50	7.21	9.86	23.18	75.21	124.96
16. Mizoram	0.61	2.52	0.00	36.61	25.60	65.34
17. Nagaland	9.47	11.06	4.88	52.59	83.89	161.89
18. Orissa	207.07	120.50	222.76	59.16	173.62	783.11
19. Punjab	544.12	156.37	111.66	0.99	65.99	879.13
20. Rajasthan	441.18	267.45	242.01	7.35	185.13	1143.12
21. Sikkim	3.77	7.86	1.13	8.99	34.33	56.08
22. Tamil Nadu	1145.24	190.00	402.03	3.60	221.64	1962.51
23. Tripura	8.38	12.70	16.78	36.10	71.07	145.03
24. Uttar Pradesh	992.10	404.75	682.12	25.11	551.34	2655.42
25. West Bengal	780.75	145.98	433.92	2.02	170.46	1533.13
Total	10779.95	4200.81	4965.65	543.26	3697.48	24187.15

Note: 1. Includes U.T period receipts of Arunachal Pradesh and Mizoram

2. Figures have been cleaned for Abnormal / One time receipts

Source : State Finance Accounts

Table 2 : Statewise Revenue Receipts : 1994-95 (B.E.)

(Rs. crores)

States	Own Tax Revenue	Non-Tax Revenue	Shares in Taxes	Art.275 Grants	Other Grants	Total
1	2.	3.	4.	5.	6.	7.
1. Andhra Pradesh	3842.64	1296.25	1876.45	144.76	1100.42	8260.52
2. Arunachal Pradesh	6.67	64.55	130.44	64.95	283.59	550.20
3. Assam	886.81	372.67	804.60	179.54	1339.45	3583.07
4. Bihar	1791.96	1162.32	2732.89	423.45	1283.90	7394.52
5. Goa	207.85	147.31	89.87	34.62	24.92	504.57
6. Gujarat	4421.17	960.21	974.36	72.32	552.27	6980.33
7. Haryana	1794.47	1861.93	312.03	8.83	328.56	4305.82
8. Himachal Pradesh	241.60	64.20	328.60	110.51	398.69	1143.60
9. Jammu & Kashmir	256.02	155.01	562.52	226.61	785.18	1985.34
10. Karnataka	4882.13	1067.74	1115.07	10.12	1093.30	8168.36
11. Kerala	2457.12	287.55	822.45	138.76	514.08	4219.96
12. Madhya Pradesh	3022.48	1477.92	1839.49	354.68	1582.00	8276.57
13. Maharashtra	8064.48	2474.62	1657.54	66.95	1315.92	13579.51
14. Manipur	22.86	45.17	178.81	74.88	204.52	526.24
15. Meghalaya	61.36	22.10	142.88	48.73	305.77	580.84
16. Mizoram	4.89	22.07	158.15	76.61	196.67	458.39
17. Nagaland	19.30	27.58	193.81	90.26	254.07	585.02
18. Orissa	1076.64	451.42	1272.65	333.01	860.61	3994.33
19. Punjab	2642.08	456.16	417.59	38.07	376.62	3930.52
20. Rajasthan	2218.12	1128.76	1269.11	504.97	930.71	6051.67
21. Sikkim	14.42	29.48	43.73	18.45	157.66	263.74
22. Tamil Nadu	4623.05	560.71	1701.44	14.62	944.55	7844.37
23. Tripura	44.39	34.34	257.36	81.53	358.59	776.21
24. Uttar Pradesh	4601.21	1478.21	3883.20	940.85	1987.95	12891.42
25. West Bengal	3562.80	340.95	1764.07	309.62	974.72	6952.16
Total	**50766.52**	**15989.23**	**24529.11**	**4367.70**	**18154.72**	**113807.28**

Note: 1. *Figures have been cleaned for abnormal/one time receipt.*

Source : *State Budget*

Appendix 7

Table 3 : Overall Surplus or Deficit on Revenue Account

(Rs. crores)

States	1983-84 Actuals	1994-95 B.E.
1.	2.	3.
1. Andhra Pradesh	-88.57	-703.66
2. Arunachal Pradesh	9.24	114.78
3. Assam	-138.99	441.29
4. Bihar	59.88	-693.09
5. Goa	N.A.	38.22
6. Gujarat	139.03	87.33
7. Haryana	75.85	-512.27
8. Himachal Pradesh	32.71	-430.08
9. Jammu & Kashmir	-28.47	-148.66
10. Karnataka	72.90	219.93
11. Kerala	-58.20	-833.37
12. Madhya Pradesh	121.85	-30.71
13. Maharashtra	70.36	-998.85
14. Manipur	23.68	104.67
15. Meghalaya	25.25	36.58
16. Mizoram	-19.78	60.13
17. Nagaland	-3.33	-64.69
18. Orissa	0.20	-421.94
19. Punjab	59.27	-406.39
20. Rajasthan	44.65	-482.77
21. Sikkim	6.80	48.68
22. Tamil Nadu	51.71	-1239.16
23. Tripura	3.85	54.62
24. Uttar Pradesh	-105.74	-1971.79
25. West Bengal	-206.17	-1335.88
26. Total (Net)	147.98	-9067.08
27. Deficit	-649.25	-10273.31
28. Surplus	797.23	1206.23

Table 4
Revenue Receipts - All states

(Rs. Lakhs)

Major Head	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	Trend Growth Rate (%)	1993-94 R.E.	1994-95 B.E.
	1	2	3	4	5	6	7	8	9	10	11	12	13
I. Tax Revenue	1070929	1220061	1442652	1647238	1903894	2231849	2569326	2946369	3527328	3942101	15.81	4466076	4986660
0022 Tax on Agr. Income	4402	8446	12692	10377	6263	6443	9259	16943	20221	11119	9.90	15004	16634
0029 Land Revenue	20811	21681	23907	21247	25831	31499	39636	38957	36371	44942	9.56	36952	69846
0030 Stamp and Registration	63249	70453	85333	100866	125337	148778	184826	210717	264488	295272	19.67	340822	381796
0039 State Excise Duties	159057	186537	207723	242933	286800	310286	388288	478920	546134	629642	16.76	651595	689835
(a) Country Spirits/ Fermented Liquors													
(b) Others													
0040 Sales Tax	622656	704738	841837	955964	1114672	1332418	1506754	1757774	2086327	2313971	16.10	2681187	3023912
Taxes on Vehicles	106883	117836	136426	157942	184302	212760	227329	259069	294224	338968	13.73	407238	437324
0041 Motor Vehicle Tax	62406	70138	82783	98331	112900	129068	139239	152892	184317	215859	14.39	248872	271839
0042 Tax on Goods & Passengers	44477	47698	53644	59611	71402	83692	88090	106177	109908	123109	12.72	158366	165485
0043 Electricity Duty	36754	45499	63390	82709	80621	99898	109021	118633	160103	175312	17.81	189746	206055
II. Non-Tax Revenue													
A Normative Items													
0049 Interest Receipts	46592	53123	54338	68708	89405	75141	92913	97022	210811	185243	16.85	198286	222742
0050 Dividend	2514	2044	2091	2335	2746	4848	2607	3274	4472	10612	13.97	5800	6032
0701 Major and Medium Irrigation													
(a) Receipts	13661	12349	20785	15508	13483	16233	17836	17546	21419	25697	5.80	29490	40391
(b) Expenditure	80988	89409	103855	122185	134920	159496	185764	201439	229589	261739	14.19	265887	317569
(i) Interest	61431	74076	84231	95371	98384	150850	144733	153430	166278	188894	13.19	217531	242475
(ii) Others	29486	29403	34646	40984	50015	56963	71752	82576	101525	114533	17.81	98005	131854
(c) Net (a-bii)	-15824	-17054	-13861	-25476	-36532	-40730	-53916	-65029	-80106	-88837		-68515	-91462
0801 Power (Departmental Schemes)													
(a) Receipts	3024	3474	3970	4523	8123	13120	13087	10946	13342	13383	21.07	18053	20692
(b) Expenditure	6906	7790	9108	12551	15660	22315	24821	18092	19968	22522	15.00	27033	28651
(i) Interest	3864	3574	N.A.	4076	4212	5366	5755	4887	8759	9014		8774	10311
(ii) Others	6836	8714	11287	11691	14673	20649	23156	17481	16083	17536	11.09	22283	22883
(c) Net (a-bii)	-3812	-5240	-7317	-7168	-6550	-7529	-10069	-6535	-2741	-4153		-4230	-2191
B. Others	189301	222097	247739	301181	328895	363449	407696	375376	459544	527735	11.12	558020	633953
A+B	218771	254969	282991	339581	377964	395179	439231	404108	591979	630600	11.54	689361	769073
III. Non-Plan Grants*	26065	23396	38193	43069	39642	61365	44906	52850	59430	52598	9.54	61982	51575
Grand Total (I+II+III)	1315765	1498426	1763836	2029888	2321500	2688393	3053463	3403327	4178737	4625299	15.06	5217419	5807308

Note   1. Includes U.T. period receipts of Arunachal Pradesh and Mizoram
        2. Figures have been cleaned for abnormal/one time receipts

Source State Finance Accounts/State Budgets
   *   Grants for which expenditure is booked on Non-plan account.

Table 5

Revenue Expenditure - All states

(Rs. Lakhs)

Major Head		1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	Trend Growth Rate (%)	1993-94 R.E.	1994-95 B.E.
	0	1	2	3	4	5	6	7	8	9	10
2049	Interest Payments	419560	484540	592902	704521	840465	1056391	1296243	20.80	1644875	1917084
2055	Police	202248	240259	279796	328429	393346	444022	520711	17.04	615318	631163
2202	General Education (Other than Dept.)	342648	416062	480504	578721	711962	766355	866980	17.02	986985	1062887
	(a) Elementary Education	341075	389933	447338	560363	664675	732355	839957	16.85	902281	1022054
	(b) Others	174332	198722	227835	260098	326304	352741	403185	15.45	450774	497534
2210	Medical & Public Health	22434	30860	28099	49972	63604	75461	95825	28.22	80853	103666
3456	Civil Supplies										
	(i) Subsidies	54724	61813	65200	79482	96532	99930	107453	12.82	123754	134302
2515	Other Rural Dev. Programmes Others	1102083	1291743	1507149	1766341	2067813	2638351	2766498	17.46	3098981	3147173
	Total	**2659104**	**3113933**	**3628824**	**4327926**	**5164701**	**6165607**	**6896852**	**17.76**	**7903821**	**8515863**

Note : *Figures have been cleaned for abnormal/one time Expenditure.*
Source : *State Finance Accounts/State Budgets.*