

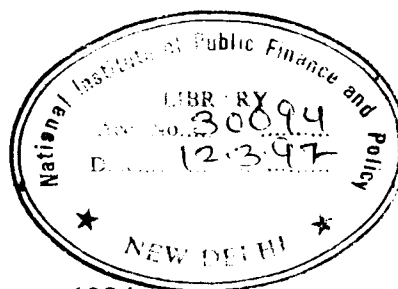
**ELASTICITY AND BUOYANCY OF MAJOR CENTRAL TAXES
(1970-71 To 1981-82)**



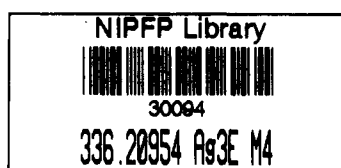
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(Pawan K Aggarwal)

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ELASTICITY AND BUOYANCY OF MAJOR CENTRAL TAXES (1970-71 to 1981-82)

I. Introduction

1. The Sub-group on Central Resources for the Seventh Five Year Plan entrusted the responsibility of providing buoyancy and elasticity estimates of the three major Central taxes, namely, the personal income tax, the corporation income tax and the Union excise duties to the National Institute of Public Finance and Policy.

2. While entrusting this responsibility to the Institute the Group decided :

- (i) in case of Union excise duties, the estimates are to be provided separately for the two categories of the levies, namely, those levied on *ad valorem* basis and those levied on specific basis;
- (ii) in regard of each one of the three taxes, along with nominal income elasticities, estimates that facilitate gauging the effects of inflation should also be provided; and
- (iii) in regard of each one of the three taxes estimates that give an idea about the decomposition of the aggregate elasticity/buoyancy estimates into tax-to-base and base-to-income elasticity/buoyancy estimates should also be provided.

3. The Sub-group also decided:

- (i) the income measure to be used for the purposes of estimating aggregate buoyancy/elasticity coefficients may be approximated with the Gross Domestic Product (at factor cost) measured at current prices;
- (ii) the price variables to be used for the purposes of gauging the effects of inflation may be approximated with the implicit price deflators of different income measures used for the purposes of estimating aggregate and tax-to-base elasticity coefficients; and
- (iii) in the exercises aimed at decomposing aggregate buoyancy/elasticity estimates into tax-to-base and base-to-income buoyancy/elasticity, while the gross value added in the sectors other than agriculture, forestry and logging, and fishing is identified as the proxy base in regard of personal income tax; gross value added in selected sectors,

namely, registered manufacturing, mining and quarrying, banking and insurance, trade, hotels and restaurants, transport, storage and communication, and construction is identified as the proxy base for corporation income tax. In the case of Union excise duties, gross value added in the registered manufacturing sector is identified as the proxy base.

4. Further, the Sub-group felt that the reference period for the exercises could be restricted to the years running through 1970-71 to 1981-82.

5. In addition to the proxy bases to be used for the purposes of the assigned task decided by the Sub-group, some additional proxies have also been explored. Thus, for each one of the taxes, the bases are approximated with two alternative measures. The details are as follows :

(a) Personal income tax:

Proxy base 1: Aggregate GDP net of GDP attributable to agriculture, forestry and logging, and fishing (NA-GDP).

Proxy base 2: Aggregate personal income net of income from unorganised sectors of agriculture, forestry and logging, and fishing (NA-PI).

(b) Corporation income tax:

Proxy base 1: Combined income (GDP at factor cost) from manufacturing (registered sector), mining and quarrying, banking and insurance, trade, hotels and restaurants, transport, storage and communication, and construction (GDP-FSS).

Proxy base 2: Aggregate profits net of profits from forestry and logging (AP-NFL).

(c) Union excise duties:

Proxy base 1: Value added in the registered manufacturing sector (GDP-RMS)

Proxy base 2: Value of output in the registered manufacturing sector (VOP-RMS).

6. Further, it was felt that the measurements of the inflation effects could also be approached through the use of wholesale price index (WSPI), in addition to the measures

wherein the implicit price deflators related to the identified proxy bases are being used.

7. Wherever the wholesale price index is used, the proxy base measured at current prices is deflated with the wholesale price index to represent constant price value of the relevant base.

8. In addition to estimating the elasticity and buoyancy of personal income tax and corporation income tax, such estimates are obtained for the aggregate of the two taxes also. The estimates thus arrived are designated as the elasticity and buoyancy estimates of income tax. This exercise, however, is confined to the estimates representing buoyancy and elasticity estimates related to the GDP alone.

9. So far as Union excise duties are concerned, these can initially be grouped into five broad categories, namely, (i) basic and special duties of excise, (ii) excise duty on electricity, (iii) additional excise duty in lieu of sales tax, (iv) additional excise duty on textiles and textile articles, and (v) cesses administered by the Department of Revenue and other ministries/departments. At present, a part of the proceeds attributable to group (i) net of (a) collection costs and (b) the sum meant for Union Territories, is distributable among the States. This distribution is governed by the formulae evolved by a Finance Commission. Turning to the remaining categories while the whole sums of the proceeds attributable to (ii) and (iii) are meant for distribution amongst the States, the whole sums of proceeds attributable to (iv) and (v) are meant for the exclusive use of the Union. In view of these variations, the buoyancy/elasticity estimates are obtained individually for each one of the five categories.

II. Methodology

10. As is well documented in the literature, elasticity/buoyancy estimate of a tax can be arrived through least square fits of a linear equation of the form:

$$\text{Log } T = \text{Log } a + b \text{ Log } x + u$$

Where T represents tax receipts,
x represents GDP at factor cost, and
u represents stochastic error term.

If 'T' in the above specification is measured in gross terms, i.e., in terms of historical tax receipts, the resultant estimate of b is identified as buoyancy estimate. Instead, if 'T' is measured net of the revenue effects of discretionary changes attempted during the years covered by the reference period, the resultant estimate of b is identified as the elasticity estimate.

11. The decomposition of the buoyancy and elasticity estimate into tax- to- base and base-to-GDP measures can be approached through least square fits of the linear equations of the forms:

$$\begin{aligned} \text{Log } T &= a_0 + b_0 \log Z + v ; \text{ and} \\ \text{Log } Z &= a_1 + b_1 \log X + w ; \text{ where} \end{aligned}$$

T represents net or gross tax receipts,
 Z represents tax base,
 X represents GDP at factor cost, and
 v and w represent stochastic error terms.

Similarly, isolation of the inflationary effects on the buoyancy/elasticity estimates can be approached through least square fits of the linear equation of the form:

$$\text{Log } T = a_2 + b_2 (\log x^*) + b_3 (\log p) + u, \text{ where}$$

x* represents GDP at constant prices,
 p represents the implicit price deflator, and
 u represents stochastic error term.

In the cases, where inflationary effects are to be isolated in relation with the proxy bases, x* is to be replaced with corresponding measure of the proxy base measured at constant prices and p with corresponding implicit price deflator or a relevant price index.

12. The above described methodology indicates that estimation of elasticity of a tax, necessitates a priori cleaning of its historical receipts for the revenue effects of the discretionary measures attempted during the reference period. In the literature a variety of methods have been advocated to facilitate this cleaning process. The choice of these depend much upon the availability of the required data details in quantity terms. Of these alternative methods, the method most commonly known as proportional adjustment method is considered as the appropriate and feasible approach in the situations wherein the revenue effects of the

annual discretionary measures alone are available on annual basis.

13. The revenue effects of the discretionary changes in a year would comprise: (i) the revenue effects of the discretionary changes indicated in the annual budgets voted by the Parliament and (ii) the revenue effects of discretionary changes made outside the annual budgets. They should also take into account (i) the revenue effects of the discretionary changes relating to current financial year and those related to the full (assessment) year and (ii) the revenue effects of the discretionary changes relating to a part of the year and those related to the whole of the year.

14. The revenue effect of a discretionary change, in a part of the year might differ from that of the whole of the year if the changes in tax provisions were not made effective from the beginning of a financial year either because of their late introduction or because of the very manner in which their introduction was stipulated in the budget. Such revenue effects are important for Union excise duties in particular where a large number of changes were introduced outside the budget and were made effective from a date later than April 1 of a given financial year. The revenue effects of a discretionary change in the current financial year and in a full year are important also in the cases of personal income tax and corporation income tax. In the base of these taxes, due to the system of advance (direct and indirect through deduction of tax from salaries at source) payment of tax, only a part of the full year revenue effect of the discretionary changes is realised in the current financial year.

15. For any change in the tax provisions where the estimate of revenue effect in a part of the year differs from that in the whole of the year, the revenue effect in the whole of the year in excess of the revenue effect in a part of the year could be treated as the revenue effect of a 'dummy' discretionary change in the next financial year. Similarly, for any change in the tax provisions where the estimate of the revenue effect in the current financial year differs from that in the full year, the revenue effect in the full year in excess of the revenue effect in the current year could be treated as the revenue effect of a 'dummy' discretionary change in the next financial year. Thus, the aggregate of revenue effects in a year due to the 'dummy' discretionary changes, discretionary changes made through the budget and those made outside the budget need be taken as the estimate of the revenue effects

of the discretionary changes made in that year. The series of revenue effects of the discretionary changes, thus arrived at, should be used for the purposes of cleaning the series of observed revenue by using the proportional adjustment method. The procedure of adjustment (or cleaning the series) of observed revenue by using the proportional adjustment method is explained in the Annexure.

III. The Data

16. The series representing gross revenue yields of personal income tax and corporation income tax are taken from the annual *Reports of the Comptroller and Auditor General of India*. The corresponding data relating to Union excise duties are taken from the *Explanatory Memoranda* presented along with the annual budgets of the Union government. The data thus compiled were refined in consultation with the officials of the Ministry of Finance.

17. The data representing annual discretionary changes are compiled on the basis of the information provided in the *Explanatory Memoranda*. The specific data that have been used for this purpose were the two budget estimates of revenue, i.e., the estimates given at the time of the presentation of the budget and the estimates given by the voted budget. These revenue effects correspond to the current year. The data on revenue effects of the discretionary changes, for the current year and for the full year are taken from the *Finance Minister's Speech* on the Finance Bill. It was noticed that the revenue effects of some of the discretionary changes are not given in the budget. The estimates of the revenue effects of some such changes in the case of direct taxes were obtained on the basis of information provided in the *All India Income Tax Statistics*.

18. The data on GDP at factor cost measured at current and constant (1970-71) prices as well as the data on the proxy bases measured at current and constant (1970-71) prices are taken from the *National Accounts Statistics*, January 1979, and February 1983. The implicit price deflators are generated on the basis of the relevant series measured at current and constant (1970-71) prices. The data on wholesale price index are taken from the

19. The details of the data compiled and the adjustments that have been made in regard of each one of the individual taxes with respect to gross series as well as discretionary changes are given below.

a. Personal income tax

(i) Tax revenue

20. The series representing gross revenue collections of personal income tax is observed to be inclusive of the revenue effects of the Voluntary Disclosure Scheme introduced in 1975. The revenue effects of this scheme, for the two years (1975-76 and 1976-77), were of the orders of Rs.193.39 crore and Rs.31.01 crore, respectively. The extent to which these revenue effects can be classified as of normal nature is doubtful. However, their exclusion in *toto* is also open to discussion. In the absence of any positive guidance regarding their inclusion or exclusion, the buoyancy estimates are obtained with and without exclusion of these effects. However, as these measures do fall within the broad definition that can be ascribed for discretionary measures, for the series that have to be arrived for the purposes of estimation of elasticity, the series exclusive of these revenue effects is taken as the basis. This series is designated as series of adjusted observed revenue.

(ii) Additional resource mobilisation

21. The data representing the revenue effects of the discretionary measures introduced through annual voted budgets are compiled on the basis of the budget estimates given in Explanatory Memoranda. These are designated as Set I. This series of revenue effects takes into account the current year revenue effects of the discretionary changes. As noted earlier, for some of the discretionary measures the revenue effects given for the current year differ from that given for the full year. To accommodate these variations, wherever revenue effects for the current year do not tally with the effects for the full year, the revenue effects given under Set I are adjusted. The series thus adjusted are referred as Set II. It is observed that some of the discretionary measures that have been used for the above purpose

do not take note of some changes that have been attempted under the assumption that the revenue loss attributable to the proposed changes will be compensated through better compliance, assessments and administration. The adequacy of this assumption is open to discussion. Accordingly, some further adjustments have been attempted in regard of the revenue effects designated under Set II and the series thus arrived are referred as Set III. In the absence of any reliable information that can be used without any ambiguity, these adjustments were based on value judgements. The specific adjustments that have been attempted for this purpose in regard of each one of the individual years are as follows:

i. Year 1970-71

22. A revenue loss of Rs. 3 crore in the current year and Rs. 5 crore in a full year should have resulted from the upward revision of exemption limit from Rs.4000-4800 depending on the status of the taxpayer: whether the taxpayer is married or not and whether the taxpayer has children or not, to a uniform exemption limit of Rs.5000 for all the income taxpayers. In the budget, the revenue effect of this change was not taken into account under the assumption that the revenue loss will be compensated by the improvements in tax administration resulting from this simplification. It is difficult to quantify the extent to which the improvements in tax administrations had actually compensated for the loss in the revenue. It is assumed herein that the expected improvement in tax administration compensated for 50 per cent of this loss in revenue and hence taken into account only 50 per cent of this loss due to the change under consideration. Accordingly, the revenue losses relating to his change are placed at Rs. 1.5 crore for the current year and at Rs. 2.5 crore for the full year.

ii. Year 1974-75

23. It was stated in the budget speech of the Finance Minister that the reduction in marginal rates of tax would result in a loss of Rs. 36 crore in the current year and Rs. 60 crore in the full year. But this loss was not taken account of in the budget as it was expected to be more than compensated by better tax compliance. Until today, there is no evidence to this effect. We assume that the expected better tax compliance compensated for 50 per cent of this loss in revenue and hence account for only 50 per cent of this loss due to the change

under consideration. That is, the revenue losses of this specified change are placed at Rs. 18 crore for the current year and at Rs. 30 crore for the full year.

24. Further, a revenue loss of Rs.12 crore in the current year and Rs. 20 crore in the full year should have resulted from the shift from a separate deduction in respect of travelling, books, taxes on professions, and expenditure incurred in the performance of duties, to a system of standard deduction upto a maximum of Rs.3500. In the budget, the revenue effect of this change was not taken account of. We have taken into account these estimated revenue losses.

iii. Year 1975-76

25. The exemption limit for the taxpayers was raised from Rs.6000 to Rs.8000 through the Finance (Amendment) Act, 1975, i.e., outside the budget. The estimates of revenue loss due to this change are placed at Rs.48 crore for the current year and Rs.80 crore for the full year.

iv. Year 1976-77

26. A revenue loss of Rs.36 crore in the current year and Rs.60 crore in the full year should have resulted from the reduction in marginal rates of tax. But, in the budget, no revenue loss was taken into account as it was expected to be compensated by better tax compliance due to reduction in rates of taxation. In this case also we assume that the expected better tax compliance compensated only for 50 per cent of the loss in revenue and hence account for 50 per cent of this loss due to the change under consideration. Thus, the estimates of loss are placed at Rs. 18 crore for the current year and Rs. 30 crore for the full year.

v. Year 1980-81

27. Through the budget 1980-81, marginal tax relief was given to the taxpayers in the income range from Rs.8000 to Rs.10000. In the budget, no revenue loss was taken into account in respect of this change. The estimates of loss from this specified change work out to be of the order of Rs.4.8 crore for the current year and Rs.8 crore for the full year.

28. Further, a revenue loss of Rs.54 crore in the current year and Rs.90 crore in the full year is estimated to result from reduction of surcharge from 20 per cent to 10 per cent. In the budget, the revenue effect of this change was not taken into account as the change was expected to evoke better tax compliance and compensate for the expected loss. In this case, we assume that 30 per cent of the estimated loss was compensated by better tax compliance and hence, take into account only 70 per cent of this loss due to the change under consideration. Accordingly, the current year and the full year revenue losses from the specified change are placed at Rs.36 crore and Rs.60 crore, respectively.

29. All the data relating to personal income tax are given in Table 1.

b. Corporation income tax

(i) Tax revenue

30. The series of gross revenue collection of corporation income tax is observed to be inclusive of the revenue effects of (i) price hikes attempted in regard of ONGC and Oil India Limited in 1981-82 and (ii) the Voluntary Disclosure Scheme introduced in 1975 (October-December). The revenue effects of (i) were of the order of Rs.278 crore from ONGC and Rs.94.44 crore from Oil India Limited. On checking the accounts of these organisations with the Central Board of Direct Taxes, it is observed that the revenue collections from these organisations in the year 1981-82 should have been nil in the absence of price hikes. The revenue effects of (ii) in the years 1975-76 and 1976-77 were Rs.5.85 crore and Rs.2.41 crore, respectively. Like, in the case of personal income tax, the exclusion or inclusion of revenue effects of (i) and (ii) in the series representing gross revenue from corporation income tax is not very clear. Accordingly, two sets of gross receipts are used for the purposes of estimation of buoyancy of corporation income tax. while the Set I used for the purpose is taken as inclusive of the revenue effects of (i) and (ii), the Set II designated as adjusted observed revenue is taken as exclusive of these revenue effects. However, for the purposes of estimating elasticity, only Set II is taken as the basis.

(ii) Additional resource mobilisation

31. The data on revenue effects of discretionary changes compiled from the

Explanatory Memoranda on the annual budgets do not take into account the revenue effects of the discretionary changes made in the period between two budgets. Through the supplementary budget, on December 13, 1971, a surcharge was levied on corporation tax. Its revenue effects for the current year and for the full year, taken from the Indian Economic Statistics, Part II, Public Finance, August, 1973, are of the order of Rs.7.5 crore and Rs.10 crore, respectively. So, the revenue effect for the year 1971-72 is taken to be inclusive of a revenue gain of Rs.7.5 crore from the specified change. The series thus arrived are referred as Set I.

32. The revenue effects given in Set I do not take into account the revenue effects of a full year. Like, in the case of personal income tax, wherever the current year and the full year revenue effects of a discretionary change differ, Set I is adjusted to account for this variation. The series of revenue effects, thus arrived at, is designated as Set II.

33. All the data relating to corporation income tax are given in Table 2.

34. The aggregates of data on personal income tax and corporation income tax, designated as data on income tax, are presented in Table 3. For the purpose of generating Set III of discretionary changes for income tax, Set II of revenue effects of discretionary changes in corporation tax is added to Set III of revenue effects of discretionary changes in personal income tax.

c. Union excise duties

(i) Tax revenue

35. The observed (gross) revenue series representing the yield from Union excise duties under the five specified categories indicated earlier are compiled on the basis of the information given in the *Explanatory Memoranda* submitted along with the annual budgets. In the case of basic excise duties, the data are compiled separately for commodities subjected to *ad valorem* duties and specific duties. At present, the Union excise tariff covers 140 commodities within which 7 commodities are exempted from Union excise duties and about 100 commodities are assessed partly or wholly on *ad valorem* basis. The information where a commodity is subjected to *ad valorem*, specific-cum-*ad valorem* duties in different years is obtained from the *Explanatory Memoranda Explaining the Provisions in the Finance Bill*.

The commodities which have not been subjected to specific duties throughout the reference period of the study are designated here as commodities subjected to *ad valorem* duties.

36. The above classification, however, is not attempted in regard of the categories 'I' and 'J' (two of the broad commodity groups), given in the Memoranda. For the purpose of presenting this analysis, broad groups of basic and special duties given in the Memoranda are categorised into three categories: (i) the receipts attributable to specific duties, (ii) the receipts attributable to *ad valorem* duties, and (iii) other receipts. The category (iii) includes, the receipts from category 'I', i.e., 'All Other Goods not specified Elsewhere' and the receipts from category 'J', i.e., 'Miscellaneous Receipts'.

(ii) Additional resource mobilisation

37. The data relating to the revenue effects of the discretionary changes made year to year are compiled on the basis of the earlier specified two budget estimates given in the *Explanatory Memoranda*, i.e., the revenue effects of the discretionary changes used herein take into account the revenue effects of the discretionary changes proposed at the time of the presentation of the budget and the reliefs subsequently announced in the Parliament at the voting stage of the Finance Bill. The series do not take into account the revenue effects of the discretionary changes made outside the annual budgets. These are not taken into consideration mainly on account of time and data constraints.

38. All the data that have been used in regard of Union excise duties are given in Table 4.

IV. Results

a. Series of hypothetical revenue

39. The series of hypothetical revenue obtained from series of adjusted observed revenue (observed revenue in the case of Union excise duties) from different taxes, by using proportional adjustment method, with alternative sets of revenue effects of the discretionary changes are reported in Tables 1 to 4. In the case of personal income tax, three alternative series of hypothetical revenue obtained with three alternative sets of revenue effects of the discretionary changes are presented in columns 6 to 8 in Table 1. The alternative series of

hypothetical revenue from corporation income tax obtained with two alternative sets of revenue effects of the discretionary changes are reported in columns 5 & 6 in Table 2. The alternative series of hypothetical revenue from income tax (personal income tax and corporation income tax taken together) with three alternative sets of revenue effects of the discretionary changes are given in columns 6 to 8 in Table 3. In the case of Union excise duties, the series of hypothetical revenue are obtained only for basic excise duties and additional duties of excise in lieu of sales tax. In the case of basic excise duties, the series of hypothetical revenue are also obtained separately for commodities subjected to *ad valorem* and specific duties of excise. All these sets of hypothetical revenue are presented in columns 15 to 18 in Table 4.

40. Among the alternative sets of hypothetical yield obtained for different taxes, alternative II is preferable to alternative I, while alternative III is preferable to alternative II. This ranking is rationalised on the basis of the quality of data that have been used for the purpose. It may be noted that while Set I series are based on the revenue effects of the discretionary changes given by the annual budgets alone, Set II takes note of the differences in the full year and the current year revenue effects and Set III takes into account the revenue effects of the measures covered under Set I and Set II as well as the revenue effects of some additional discretionary changes.

b. Estimates of buoyancy and elasticity coefficients with respect to gross domestic product

41. The elasticity and buoyancy estimates obtained for different taxes with respect to gross domestic product measured at current prices are presented along with the relevant statistics in Table 5. The estimated yields of the taxes examined herein are presented in the Statistical Appendix in Table A.1 - the estimated yields reported herein were arrived on the basis of the least squares estimates obtained for the adopted specifications and the observed series of GDP at current prices. Of the alternative estimates given in Table 5, keeping in view the earlier indicated rankings of the series used for cleaning the gross receipts, while the preferred elasticity estimate for personal income tax can be placed at 1.0391, similar estimates for corporation income tax and aggregate income tax may be placed at 0.9714 and 1.0113, respectively.

42. The elasticity estimates that facilitate gauging influence of inflation were obtained with respect to the most preferred (Set III) series of hypothetical yields. So far as the index representing inflation is concerned, as noted earlier, two alternatives, namely, implicit GDP deflator and wholesale price index, were used for the purpose of this exercise. The partial elasticities obtained for this purpose are given in Tables 6 and 7. The estimated series of the tax receipts obtained through the use of partial elasticities and the series of the relevant explanatory variables, are given in the Statistical Appendix in Tables A.2 and A.3.

43. An examination of the R-square values given in Tables 6 and 7 indicates that the two alternative specifications that have been experimented do not differ significantly. However, t-statistics obtained for the specification wherein wholesale price index is used were higher than those obtained for the specification wherein implicit deflator of GDP is used. Thus, for the purposes of identifying the influence of inflation, partial elasticities obtained with the specification wherein WSPI is used may be preferred to those obtained with the specification wherein implicit GDP deflator is used.

c. Estimates of elasticity and buoyancy coefficients with respect to tax bases of different taxes

44. The elasticity and buoyancy estimated obtained with respect to alternative tax bases, along with the related statistics, are given in Table 8. The estimated tax series obtained on the basis of these buoyancy and elasticity estimates are given in the Statistical Appendix in Tables A.4, A.5, A.6, and A.7. As with the case of earlier estimates, in regard of estimates given in Table 8 also the elasticity estimates given by Set III are preferable to those given by other two sets. Among the other two sets, those obtained on the basis of Set II are preferable to those obtained on the basis of Set I.

45. The estimates of partial elasticity coefficients of central taxes with respect to alternative tax bases are obtained only with respect to the most preferable series of hypothetical yield among the alternatives considered. The estimates of partial elasticity coefficients with respect to alternative tax bases at 1970-71 prices or the tax bases (at current prices) deflated by WSPI, and the implicit tax base deflator (ITBD) or WSPI are given in Table 9. The estimated tax receipts arrived on the basis of the partial elasticities given in

Table 9 are presented in the Statistical Appendix in Tables A.8, A.9, A.10 and A.11.

46. Like in the case of partial elasticity coefficients of different taxes with respect to GDP and alternative indices of inflation, the partial elasticity coefficients with respect to WSPI and the relevant proxy base deflated by WSPI appear more stable than those obtained with respect to the relevant proxy bases and the corresponding implicit tax base deflators.

d. Buoyancy coefficients of tax bases with respect to gross domestic product

47. The buoyancy coefficients of tax bases with respect to GDP at current prices are given in Table 10. The growth rates of tax bases are also reported in Table 10. The series of tax bases estimated on the basis of the specifications used for estimates given in Table 10 are presented in Table A.12.

48. It would be noticed from Tables 8 and 10 that tax-to-base elasticities are lower than base-to-GDP elasticities for all the three central taxes. The low tax-to-base elasticity in the case of personal income tax may be due to decrease in inequality in taxable incomes of the taxpayers. Any change in inequality in income of the taxpayers could be due to disproportionate change in actual incomes of the taxpayers or disproportionate change in the degree of evasion of tax base by the taxpayers with different levels of income, or both. In the case of corporate income tax, low tax-to-base elasticity may be taken to indicate that over time, corporate enterprises have reduced their taxable profits through tax planning by an increasing proportion of profits component of net domestic product. The low tax-to-base elasticity of Union excise duties could partially be due to levy of Union excise duties at specific rates of taxation on some of the commodities.

TABLE 1

**The Observed and Hypothetical Revenue from Personal Income Tax
and Estimates of Revenue Effects of the Discretionary Changes
(1970-71 to 1981-82)**

Year	Observed revenue	Adjusted observed revenue	Estimates of revenue effects of discretionary changes			Hypothetical revenue		
			Set I	Set II	Set III	Set I	Set II	Set III
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	473.17	473.17	13.75	13.75	12.25	473.17	473.17	473.17
1971-72	534.39	534.39	11.00	11.00	11.00	523.39	523.39	523.39
1972-73	625.47	625.47	3.00	12.00	12.00	609.66	600.84	600.84
1973-74	741.37	741.37	7.60	10.60	10.60	715.22	702.00	702.00
1974-75	878.25	878.25	0.00	5.07	-24.93	847.27	826.81	855.21
1975-76	1214.36	1020.97	-9.00	-9.00	-77.00	993.64	969.64	1069.17
1976-77	1194.40	1163.39	0.00	-4.00	-54.00	1132.25	1108.70	1274.86
1977-78	1002.02	1002.02	23.20	23.20	11.20	952.62	932.80	1085.76
1978-79	1177.39	1177.39	-8.20	-5.20	-5.20	1124.28	1100.90	1281.42
1979-80	1340.31	1340.31	49.16	45.60	45.60	1232.97	1210.60	1409.10
1980-81	1439.94	1439.94	0.00	25.00	-15.80	1324.62	1273.01	1530.46
1981-82	1475.50	1475.50	-115.00	115.00	-142.20	1463.12	1411.63	1719.39

- Notes: 1. Series of observed revenue is compiled from the *Report of the Comptroller and Auditor General of India*, Union Government (Civil), Revenue Receipts, Vol.II, Direct Taxes, for different years.
2. Series of adjusted observed revenue is obtained from series of observed revenue by making an adjustment for the revenue effects of the voluntary disclosure scheme 1975.
3. Series of revenue effects of the discretionary changes are compiled from the Budget of the Central Government for different years. Alternative I accounts for the revenue effects in the current year, Set II takes account of also the full year effects of the discretionary changes, and Set III takes into account also the revenue effects of some of the changes, the revenue effect of which were not taken into account in the budget due to one reason or another.
4. Series of hypothetical revenue are obtained from series of adjusted observed revenue by using proportional adjustment method.

TABLE 2

**The Observed and Hypothetical Revenue from Corporation Income Tax
and Estimates of Revenue Effects of the Discretionary Changes
(1970-71 to 1981-82)**

Year	Observed revenue	Adjusted observed revenue	Estimates of revenue effects of discretionary changes		Hypothetical revenue	
			Set I	Set II	Set I	Set II
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	370.52	370.52	0.00	0.00	370.52	370.52
1971-72	472.08	472.08	23.50	23.50	448.58	448.58
1972-73	557.86	557.86	13.50	22.00	517.26	509.19
1973-74	582.60	582.60	11.00	15.25	530.00	517.85
1974-75	709.48	709.48	0.00	7.33	645.43	624.11
1975-76	861.70	855.85	10.50	15.50	769.03	739.23
1976-77	984.23	981.82	0.00	3.50	882.22	845.01
1977-78	1220.77	1220.77	55.20	55.20	1047.33	1003.16
1978-79	1251.47	1251.47	21.90	21.90	1054.88	1010.39
1979-80	1391.90	1391.90	4.50	12.50	1169.46	1113.68
1980-81	1377.45	1377.45	0.00	11.00	1157.32	1093.32
1981-82	1969.96	1597.52	0.00	0.00	1342.22	1267.99

- Notes: 1. Series of observed revenue is compiled from the *Report of the Comptroller and Auditor General of India, Union Government (Civil), Revenue Receipts, Vol.II, Direct Taxes*, for different years.
2. Series of adjusted observed revenue is obtained from series of observed revenue by making an adjustment for the revenue effects of the voluntary disclosure scheme 1975, and of the revenue effects of the price hike in 1981-82 by ONGC and Oil India Limited.
- 3&4. Same as for Table 1.

TABLE 3

**The Observed and Hypothetical Revenue from Income Tax (Corporation Income Tax
and Personal Income Tax) and Estimates of Revenue Effects of the Discretionary Changes**

Year	Observed revenue	Adjusted observed revenue	Revenue effect of discretionary changes			Hypothetical revenue		
			Set I	Set. II	Set. III	Set I	Set II	Set. III
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	843.69	843.69	13.75	13.75	12.25	843.69	843.69	843.69
1971-72	1006.47	1006.47	34.50	34.50	34.50	971.97	971.97	971.97
1972-73	1183.33	1183.33	16.50	34.00	34.00	1126.83	1109.93	1109.93
1973-74	1323.97	1323.97	18.60	25.85	25.85	1243.05	1217.60	1217.60
1974-75	1587.73	1587.73	0.00	12.40	-17.60	1490.68	1448.77	1476.36
1975-76	2076.06	1876.82	1.50	6.50	-61.50	1760.70	1706.63	1802.36
1976-77	2178.63	2145.21	0.00	-0.50	-50.50	2012.48	1951.13	2108.59
1977-78	2222.79	2222.79	78.40	78.40	66.40	2011.71	1950.39	2119.58
1978-79	2428.86	2428.86	16.70	16.70	16.70	2183.10	2116.55	2300.16
1979-80	2732.21	2732.21	53.60	58.10	58.10	2407.58	2330.26	2532.42
1980-81	2817.39	2817.39	0.00	36.00	-4.80	2482.64	2372.21	2615.82
1981-82	3445.46	3073.02	-115.00	-115.00	-142.20	2809.23	2684.28	2985.18

Notes : Same as for Table 2.

TABLE 4

The Observed and Hypothetical Revenue from Union Excise Duty and Estimates of Revenue Effects of the Discretionary Changes (1970-71 to 1981-82)

Year	Observed revenue						Earmarked cesses
	Basic Excise Duties			Duty on electricity	Additional duties of excise		
	Total	Ad valorem	Specific		In lieu of sales tax	on textiles and textile articles	
	(1)	(2)	(3)	(4)	(5)	(6)	
1970-71	169443	77917	91236	-	7478	-	989
1971-72	194441	93358	100933	-	10621	-	1028
1972-73	214389	103544	110627	-	13562	-	1038
1973-74	235903	114906	120832	-	17375	-	1053
1974-75	286131	149372	135583	-	18789	-	1079
1975-76	336378	172298	160864	-	22343	-	1043
1976-77	372628	195834	172024	-	25713	-	1294
1977-78	410684	210348	191883	243	28505	-	1455
1978-79	483886	250697	212799	12354	31258	2311	8578
1979-80	557484	297391	221679	15483	35637	5372	8466
1980-81	588024	333898	210539	13908	39272	6737	7387
1981-82	666157	380099	232237	14665	48623	9393	12829

TABLE 4 (Contd.)

(Rs. lakh)

Year	Estimates of revenue effects of discretionary changes						
	Basic excise duties			Duty on electricity	Additional duties of excise		Earmarked cesses
	Total	Ad valorem	Specific		In lieu of sales tax	On textiles and textile articles	
(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1970-71	12175	8089	4086	-	1196	-	-
1971-72	9924	5708	4216	-	2115	-	-
1972-73	10948	4647	6301	-	2527	-	-
1973-74	9214	2787	6427	-	2523	-	-
1974-75	19087	14129	4958	-	-	-	-
1975-76	21324	8849	10075	-	492	-	-
1976-77	-330	53	-370	-	444	-	-
1977-78	3841	1660	-183	-	507	-	-
1978-79	34781	14662	10119	12040	50	-	-
1979-80	41328	12150	18566	-	1919	82	-
1980-81	7601	10719	-2226	-	-15	-	-
1981-82	-	-	-	-	-	3300	-

(Contd..)

TABLE 4 (Contd.)

(Rs. lakh)

Year	Hypothetical yield			Additional duties of excise In lieu of sales tax
	Basic excise duties			
	Ad valorem	Specific	Total	
	(15)	(16)	(17)	(18)
1970-71	77917	91236	169443	7478
1971-72	87650	96717	184517	8506
1972-73	92851	99968	193058	8838
1973-74	100539	103382	204134	9678
1974-75	119209	110905	231081	10466
1975-76	130443	123165	254278	12171
1976-77	147680	132008	281384	13765
1977-78	157372	147389	307226	14989
1978-79	176590	155682	335968	16410
1979-80	200923	148596	358373	17701
1980-81	218353	141851	372388	19514
1981-82	248566	156470	421869	24161

- Notes:
1. These data are compiled from the Budget of the Central Government, for different years.
 2. Data on total basic excise duties include data on commodities subjected to *ad valorem* or specific duties of excise, miscellaneous receipts and data on another category of goods, namely, all other goods not elsewhere specified.
 3. Data on earmarked cesses do not include revenue from cesses levied by Departments other than department of revenue.
 4. Series of hypothetical revenue are obtained by using proportional adjustment method.

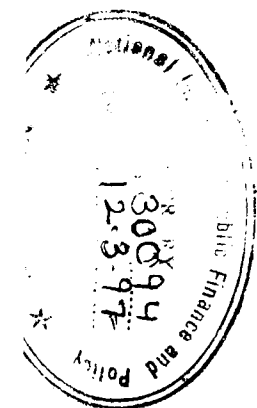


TABLE 5

**Elasticity and Buoyancy Coefficients of Major Central Taxes with respect
to Gross Domestic Product at Factor Cost (Current Prices)
(1970-71 to 1981-82)**

Tax	Elasticity/buoyancy	Coefficient	t-statistic	R-square	Growth rate actual/hypothetical tax revenue (Per cent)
		(1)	(2)	(3)	(4)
1. Personal income tax	Elasticity : Set I	0.88068	13.00	0.94	10.46
	Set II	0.85677	12.81	0.94	10.17
	Set III	1.03906	13.86	0.95	12.51
	Buoyancy : B 1	0.91279	9.53	0.90	10.85
	B 2	0.91456	13.02	0.94	10.90
2. Corporation income tax	Elasticity : Set I	1.01825	13.48	0.95	12.40
	Set II	0.97144	13.08	0.94	11.81
	Buoyancy : B 1	1.22170	15.68	0.96	15.01
	B 2	1.14789	13.51	0.95	14.09
	3. Union excise duties				
i. Basic :					
(a) Total	Elasticity	0.73561	19.32	0.97	8.80
	Buoyancy	1.11387	21.26	0.98	13.61
(b) Ad valorem	Elasticity	0.92212	24.14	0.98	11.12
	Buoyancy	1.26592	24.86	0.98	15.55
(c) Specific	Elasticity	0.45788	8.67	0.88	5.43
	Buoyancy	0.78260	12.49	0.94	9.40
ii. Additional in lieu of sales tax	Elasticity	0.88781	19.22	0.97	10.70
	Buoyancy	1.33770	16.46	0.96	16.41
4. Income tax (1 + 2)	Elasticity : Set I	0.94674	15.76	0.96	11.38
	Set II	0.91230	15.40	0.96	10.96
	Set III	1.01126	15.16	0.96	12.23
	Buoyancy : B 1	1.06681	15.73	0.96	12.90
	B 2	1.02752	15.72	0.96	12.43

Notes: 1. B1 denotes buoyancy of observed revenue and B2 denotes buoyancy of adjusted observed revenue.
2. All the elasticity/buoyancy coefficients are significant even at 99 per cent level of confidence.

TABLE 6

**Partial Elasticities of Major Central Taxes with respect to Gross Domestic Product
(GDP) at Factor Cost (Constant Prices) and Implicit GDP-Deflator
(1970-71 to 1981-82)**

Tax	Constant	Coefficient of		R-square
		GDP at constant prices	Implicit GDP deflator	
	(1)	(2)	(3)	(4)
1. Personal income tax: Set III	-8.17512	0.88274* (1.44)	1.11085*** (3.84)	0.95
2. Corporation income tax: Set II	-14.03683	1.61337*** (2.84)	0.67668** (2.51)	0.95
3. Union excise duties				
i. Basic:				
(a) Total	-429450	1.35936*** (5.89)	0.44930*** (4.12)	0.99
(b) Ad valorem	-6.40494	1.36842*** (4.99)	0.71720*** (5.52)	0.99
(c) Specific	-1.71976	1.20531*** (3.42)	0.11469 (0.69)	0.92
ii. Additional in lieu of sales tax	-11.10482	1.67781** (6.23)	0.52506*** (4.11)	0.99
4. Income tax : Set III (1+2)	-10.43973	1.24718*** (2.31)	0.90293*** (3.53)	0.96

- Notes:
1. Figures in parenthesis are t-statistics.
 2. *** Significant at 99 per cent level of confidence.
 3. ** Significant at 95 per cent level of confidence.
 4. * Significant at 90 per cent of confidence.

TABLE 7

Partial Elasticities of Major Central Taxes with respect to Wholesale Price Index (WSPI)
and Gross Domestic Product (GDP) at Factor Cost (Current Prices) Deflated by WSPI
(1970-71 to 1981-82)

Tax	Constant	Coefficient of		R-square
		GDP deflated by WSPI	WSPI	
	(1)	(2)	(3)	(4)
1. Personal income tax: Set III	-7.70748	0.84843* (1.54)	1.08797*** (6.78)	0.95
2. Corporation income tax: Set II	-14.90966	1.64158*** (3.27)	0.79952*** (5.47)	0.95
3. Union excise duties				
i. Basic :				
(a) Total	-4.60388	1.32849*** (6.64)	0.58422*** (10.06)	0.99
(b) Ad valorem	-6.64478	1.34831*** (5.51)	0.81323*** (11.45)	0.99
(c) Specific	-2.41439	1.20312*** (3.99)	0.26748*** (3.06)	0.93
ii. Additional in lieu of sales tax	-11.10266	1.59637*** (6.48)	0.70678*** (9.89)	0.99
4. Income tax: Set III (1+2)	-10.59575	1.23982** (2.54)	0.95262*** (6.70)	0.96

Notes:

1. Figures in parenthesis are t-statistics.
2. *** Significant at 99 per cent level of confidence.
3. ** Significant at 95 per cent level of confidence.
4. * Significant at 90 per cent level of confidence.

**Elasticity and Buoyancy Coefficients of Major Central Taxes with respect to
Appropriate Tax Bases at Current Prices**

Tax/Tax base	Elasticity/ Buoyancy	Coefficient	t-statistics	R-square
		(1)	(2)	(3)
1. Personal income tax				
i. NA-GDP				
	Elasticity : Set I	0.74604	13.30	0.95
	Set II	0.72643	13.31	0.95
	Set III	0.88384	15.65	0.96
	Buoyancy: B 1	0.77441	9.80	0.91
	B 2	0.77482	13.34	0.95
ii. NA-PI				
	Elasticity : Set I	0.74675	11.63	0.94
	Set II	0.72844	11.71	0.94
	Set III	0.88555	13.89	0.96
	Buoyancy: B 1	0.80157	9.44	0.91
	B 2	0.79512	13.13	0.95
2. Corporation income tax				
i. GDP-FSS				
	Elasticity : Set I	0.83687	16.71	0.97
	Set II	0.79887	16.23	0.96
	Buoyancy: B 1	1.00119	19.02	0.97
	B 2	0.94208	16.10	0.96
ii. AP-NFL				
	Elasticity : Set I	0.75549	8.30	0.88
	Set II	0.72245	8.40	0.89
	Buoyancy: B 1	0.85179	8.02	0.88
	B 2	0.85121	8.00	0.88
3. Union excise duties				
a. Basic:				
Total				
i. GDP-RMS				
	Elasticity:	0.61681	26.74	0.99
	Buoyancy:	0.93360	31.46	0.99
ii. VOP-RMS				
	Elasticity:	0.53644	24.12	0.98
	Buoyancy:	0.82450	27.08	0.99
Ad valorem				
i. GDP-RMS				
	Elasticity:	0.77264	40.97	0.99
	Buoyancy:	1.06026	41.36	0.99
ii. VOP-RMS				
	Elasticity:	0.66673	31.40	0.99
	Buoyancy:	0.92992	30.51	0.99

(Contd..)

TABLE 8 (Contd.)

Tax/Tax base	Elasticity/ Buoyancy	Coefficient	t-statistics	R-square
		(1)	(2)	(3)
Specific				
i. GDP-RMS	Elasticity:	0.38441	9.26	0.90
	Buoyancy:	0.65571	13.80	0.95
ii. VOP-RMS	Elasticity:	0.35480	9.07	0.90
	Buoyancy:	0.60446	14.37	0.96
b. Additional in lieu of sales tax				
i. GDP-RMS	Elasticity:	0.74274	22.55	0.98
	Buoyancy:	1.11050	14.95	0.96
ii. VOP-RMS	Elasticity:	0.61972	22.39	0.98
	Buoyancy:	0.97126	11.11	0.93

- Notes:
1. For definitions of different tax bases, see paragraph 5, pp. 2-3
 2. All the elasticity/buoyancy estimates with respect to NA-GDP, GDP-FSS and GDP-RMS are obtained for the period 1970-71 to 1981-82 and with respect to NA-PI, AP-NFL and VOP-RMS are obtained for the period 1970-71 to 1980-81.
 3. All the buoyancy/elasticity coefficients are significant even at 99 per cent level of confidence.

TABLE 9

Partial Elasticities of Major Central Taxes with respect to Appropriate Tax Bases at
1970-71 Prices or at Current Prices but Deflated by Wholesale Price Index (WSPI)
and Implicit Tax Base Deflator (ITBD) or WSPI

Tax/Tax bases	71 prices/ deflated	ITBD/ WSPI	Constant	Coefficient of		R square
				Tax base	ITBD WSPI	
			(1)	(2)	(3)	(4)
1. Personal income tax : Set III						
i. NA-GDP	71 prices	ITBD	-1.00590	0.12038 (0.21)	1.31073*** (4.04)	0.9
	deflated	WSPI	1.14990	0.00003** (2.08)	0.98522*** (5.80)	0.9
ii. NA-PI	deflated	WSPI	-5.03636	0.67842** (2.29)	1.00262*** (5.71)	0.9
2. Corporation income tax : Set II						
i. GDP-FSS	71 prices	ITBD	-9.07546	1.35672*** (3.34)	0.50761** (2.35)	0.9
	deflated	WSPI	-7.80675	1.18468*** (4.75)	0.58519*** (4.08)	0.9
ii. AP-NFL	deflated	WSPI	-1.64318	0.39635*** (3.82)	1.04909*** (10.11)	0.9
3. Union excise duties						
a. Basic :						
Total						
i. GDP-RMS	71 prices	ITBD	2.09418	0.98610*** (6.96)	0.42153*** (5.50)	0.99
ii. VOP-RMS	deflated	WSPI	0.10578	0.71991 (9.00)	0.39431*** (6.26)	0.99
Ad valorem						
i. GDP-RMS	71 prices	ITBD	0.10779	1.00621*** (7.60)	0.64908*** (9.07)	0.99
ii. VOP-RMS	deflated	WSPI	-2.01712	0.74678*** (7.86)	0.60472*** (8.08)	0.99
Specific						
i. GDP-RMS	71 prices	ITBD	3.98083	0.83826*** (2.78)	0.14430 (0.88)	0.92
ii. VOP-RMS	deflated	WSPI	1.89958	0.63356*** (4.16)	0.13886 (1.16)	0.93
b. Additional in lieu of sales tax						
i. GDP-RMS	71 prices	ITBD	-3.13582	1.20206*** (5.46)	0.49933*** (4.20)	0.99
ii. VOP-RMS	deflated	WSPI	-4.73655	0.82049 (7.67)	0.46420*** (5.51)	0.99

- Notes: 1. For definition of tax bases, see paragraph 5, pp. 2-3.
2. Elasticity estimated with respect to NA-GDP, GDP-FSS and GDP-RMS are for the period 1970-71 to 1981-82, and with respect to NA-PI, AP-NFL and VOP-RMS are for the period 1970-71 to 1980-81.
3. Figures in parenthesis are t-statistics.
4. *** Significant at 99 per cent level of confidence.
** Significant at 95 per cent level of confidence.
* Significant at 90 per cent level of confidence.

TABLE 10

**Buoyancy Coefficients of the Tax Bases of Major Central Taxes with respect to
Gross Domestic Product (GDP) at Factor Cost (Current Prices)**

Tax/Tax base	Buoyancy coefficient	t-statistics	R-square	Growth rate of tax base (Per cent)
	(1)	(2)	(3)	(4)
1. Personal income tax				
i. NA-GDP	1.17801	38.74	0.99	14.32
ii. NA-PI	1.22732	30.85	0.99	14.79
2. Corporation income tax				
i. GDP-FSS	1.22421	40.34	0.99	14.91
ii. AP-NFL	1.23714	6.34	0.99	15.41
3. Union excise duties				
i. GDP-RMS	1.19728	46.10	0.99	14.54
ii. VOP-RMS	1.38704	26.43	0.99	16.81

- Notes:**
1. For definition of tax bases, see paragraph 5, p.2.
 2. Estimates of buoyancy of NA-GDP, GDP-FSS and GDP-RMS are obtained for the period 1970-71 to 1981-82 and of NA-PI, AP-NFL and VOP-RMS are obtained for the period 1970-71 to 1980-81.
 3. GDP at factor cost (current prices) has grown at the rate of 11.94 per cent during 1970-71 to 1981-82.
 4. All the buoyancy coefficients are significant even at 99 per cent level of confidence.

**PROPORTIONAL ADJUSTMENT METHOD FOR
CLEANING THE REVENUE SERIES FOR
ESTIMATING ELASTICITY**

The procedure of estimating hypothetical yield at a constant rate structure from actual yield of a tax or cleaning the series of actual yield by using the proportional adjustment method with first year as the base year involves two steps. The first step involves estimation of partially cleaned series, cleaned with respect to the revenue effects of the discretionary changes made in the current year. The second step involves estimation of final series by further cleaning this partially cleaned series with respect to the revenue effects of the discretionary changes made in the earlier years since the base year. This procedure is explained below.

Let T_1, T_2, \dots, T_n denote the series of actual tax yield in the n years. Further, let D_1, D_2, \dots, D_n denote the estimated revenue effects of the discretionary changes made (through the budget and outside the budget) in n years, adjusted for the estimated revenue effects in the current year and in a full year of the discretionary changes made in a year as explained elsewhere in this report. Let T_1', T_2', \dots, T_n' denote the cleaned series of tax revenue in the n years, cleaned with respect to the first year as the base year. The working-out of this cleaned series can be shown as follows:

Actual tax yield	Revenue effect of discretionary changes	Cleaned series of tax revenue	
		Partially cleaned (1) - (2)	Fully cleaned (final series)
(1)	(2)	(3)	(4)
T_1	D_1	T_1	$T_1' = T_1$
T_2	D_2	$T_2 - D_2$	$T_2' = T_2 - D_2$
T_3	D_3	$T_3 - D_3$	$T_3' = (T_3 - D_3) (T_2' / T_2)$
T_4	D_4	$T_4 - D_4$	$T_4' = (T_4 - D_4) (T_3' / T_3)$
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
T_i	D_i	$T_i - D_i$	$T_i' = (T_i - D_i) (T_{i-1}' / T_{i-1})$
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
T_n	D_n	$T_n - D_n$	$T_n' = (T_n - D_n) (T_{n-1}' / T_{n-1})$

Note: Since we have taken the first year as the base year for cleaning the series of tax revenue, the revenue in the first year does not call for any adjustment with respect to the revenue effect of the discretionary changes made in this year.

STATISTICAL APPENDIX

TABLE A.1

**Estimates of Observed and Hypothetical Revenue from Major Central Taxes as obtained
from the Buoyancy/Elasticity Equations with reference to Gross Domestic Product at Factor Cost
(Current Prices)
(1970-71 to 1981-82)**

Year	Personal income tax									
	Estimated hypothetical yield (EHY)			Deviation of EHY from hypothetical yield as percentage of EHY			Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	Set I	Set II	Set III	Set I	Set II	Set III				
	(Rs. crore)	(Rs. crore)	(Rs. crore)				(Rs. crore)	(Rs. crore)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1970-71	519.41	516.91	506.38	-8.90	-8.46	-6.56	537.30	-11.94	527.85	-10.36
1971-72	550.75	547.23	542.63	-4.97	-4.36	-3.55	570.94	-6.40	560.97	-4.74
1972-73	599.61	594.40	599.86	1.68	1.08	0.16	623.52	0.31	612.73	2.08
1973-74	726.50	716.44	752.33	-1.55	-2.02	-6.69	760.77	-2.55	747.90	-8.87
1974-75	838.31	823.49	890.76	1.07	0.40	-3.99	882.45	-0.48	867.77	1.21
1975-76	874.46	858.03	936.26	13.63	13.01	14.20	921.93	31.72	906.66	12.61
1976-77	933.31	914.15	1011.03	21.32	21.28	26.09	986.30	21.10	970.10	19.92
1977-78	1039.05	1014.76	1147.52	-8.32	-8.08	-5.38	1102.35	-9.10	1084.48	-7.60
1978-79	1109.53	1081.66	1239.91	1.33	1.79	3.35	1179.95	-0.22	1160.98	1.41
1979-80	1197.80	1165.29	1357.10	2.94	3.89	3.83	1277.39	4.93	1257.03	6.62
1980-81	1411.07	1366.69	1646.56	-6.13	-6.49	-7.05	1513.85	-4.88	1490.22	-3.37
1981-82	1585.77	1531.03	1889.67	-7.73	-7.80	-9.01	1708.52	-13.64	1682.26	-12.29

(Contd)

TABLE A.1 (Contd.)

Year	Corporation income tax							
	Estimated hypothetical yield (EHY)		Deviation of EHY from hypothetical yield as percentage of EHY		Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	-----	-----	-----	-----				
	Set I	Set II	Set I	Set II				
(Rs. crore)	(Rs. crore)			(Rs. crore)		(Rs. crore)		
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1970-71	407.79	405.86	-9.14	-8.71	410.77	-9.80	422.16	-12.23
1971-72	436.37	432.95	2.80	3.61	445.55	5.96	455.66	3.60
1972-73	481.43	475.50	7.44	7.08	501.30	11.28	509.04	9.59
1973-74	601.06	587.64	-11.82	-11.82	654.25	-10.95	653.75	-10.88
1974-75	709.26	688.16	-9.00	-9.31	797.97	-11.09	787.85	-9.95
1975-76	744.74	720.97	3.26	2.53	846.11	1.84	832.42	2.81
1976-77	802.98	774.66	9.87	9.08	926.11	6.28	906.17	8.35
1977-78	909.07	872.02	15.21	15.04	1074.79	13.58	1042.23	17.13
1978-79	980.74	937.50	7.56	7.78	1177.24	6.30	1135.31	10.23
1979-80	1071.50	1020.09	9.14	9.17	1309.13	6.32	1254.43	10.96
1980-81	1295.01	1222.16	-10.63	-10.54	1643.26	-16.18	1553.13	-11.31
1981-82	1482.12	1390.13	-9.44	-8.79	1932.08	1.96	1808.33	-11.66

(Contd..)

TABLE A.1 (Contd.)

Year	Basic excise duties (total)				Basic excise duties (Ad valorem)			
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY
	(Rs. lakh)		(Rs. lakh)		(Rs. lakh)		(Rs. lakh)	
	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1970-71	168057	0.82	172080	-1.53	77612	0.39	80417	-3.11
1971-72	176486	4.55	185316	4.92	82522	5.21	87482	6.72
1972-73	189472	1.89	206347	3.90	90203	2.94	98850	4.75
1973-74	222426	-8.22	263050	-10.32	110283	-8.83	130260	-11.79
1974-75	250679	-7.82	315261	-9.24	128116	-6.95	160021	-6.65
1975-76	259679	-2.08	332554	1.15	133907	-2.59	170034	1.33
1976-77	274197	2.62	361106	3.19	143357	3.02	186720	4.88
1977-78	299916	2.44	413607	-0.17	160407	-1.89	217867	-3.45
1978-79	316818	6.04	449407	7.67	171818	2.78	239422	4.71
1979-80	337739	6.11	495094	12.60	186156	7.93	267270	11.27
1980-81	387284	-3.85	609113	-3.46	221000	-1.20	338257	-1.29
1981-82	426947	-1.19	706009	-5.64	249729	-0.47	400047	-4.99

(Contd..)

TABLE A.1 (Contd.)

Year	Basic excise duties (total)				Basic excise duties (Ad valorem)			
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY
			(Rs. lakh)		(Rs. lakh)		(Rs lakh)	
	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)
1970-71	92991	-1.69	96080	-5.04	7405	0.98	9591	-22.03
1971-72	95867	0.89	101215	-0.28	7856	8.28	10484	1.31
1972-73	100198	-0.23	109155	1.35	8558	3.26	11928	13.69
1973-74	110714	-6.62	129457	-6.66	1036	-6.81	15967	8.82
1974-75	119269	-7.01	147018	-7.78	11998	-12.77	19845	-5.32
1975-76	121916	1.02	152639	5.38	12520	-2.78	21159	5.59
1976-77	126114	4.67	161733	6.36	13370	2.96	23360	10.07
1977-78	133352	10.53	177918	7.85	14897	0.61	27496	3.67
1978-79	137981	12.83	188603	12.83	15916	3.10	30378	2.89
1979-80	143583	3.49	201879	9.81	17193	2.96	34124	4.43
1980-81	156352	-9.27	233524	-9.84	20281	-3.78	43768	-10.27
1981-82	166134	-5.82	259045	-10.35	22813	5.91	52259	-5.96

(Contd..)

TABLE A.1 (Contd.)

Year	Income tax (Personal income tax and Corporate income tax)									
	Estimated hypothetical yield (EHY)			Deviation of EHY from hypothetical yield as percentage of EHY			Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	Set I	Set II	Set III	Set I	Set II	Set III				
	(Rs. crore)	(Rs. crore)	(Rs. crore)				(Rs. crore)	(Rs. crore)		
(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	
1970-71	926.75	922.38	912.53	-8.96	-8.53	-7.54	944.51	-10.67	949.27	-11.12
1971-72	986.99	980.08	976.03	-1.52	-0.83	-0.42	1013.98	-0.74	1016.43	-0.98
1972-73	1081.42	1070.29	1076.09	4.20	3.70	3.15	1123.93	5.28	1122.39	5.43
1973-74	1329.27	1305.75	1341.45	-6.49	-6.75	-9.23	1418.16	-6.64	1404.14	-5.71
1974-75	1550.41	1514.48	1581.11	-3.85	-4.34	-6.63	1686.68	-5.87	1659.38	-4.32
1975-76	1622.41	1582.19	1659.66	8.52	7.87	8.60	1775.20	16.95	1743.18	7.67
1976-77	1740.07	1692.61	1788.53	15.66	15.27	17.90	1920.92	13.42	1880.79	14.06
1977-78	1952.87	1891.66	2023.10	3.01	3.11	4.77	2187.61	1.61	2131.69	4.27
1978-79	2095.63	2024.74	2181.47	4.17	4.53	5.44	2368.64	2.54	2301.34	5.54
1979-80	2275.38	2191.84	2381.90	5.81	6.32	6.32	2598.78	5.13	2516.34	8.57
1980-81	2713.68	2597.34	2875.02	-8.51	-8.67	-9.02	3169.39	-11.11	3046.50	-7.52
1981-82	3076.46	2931.16	3287.36	-8.69	-8.42	-9.19	3650.72	-5.62	3490.95	-11.97

TABLE A.2

**Estimates of Hypothetical Revenue from Major Central Taxes as obtained from the Partial
Elasticities Equations with reference to Gross Domestic Product (GDP) at Factor Cost
(Constant Prices) and Implicit GDP Deflator
(1970-71 to 1981-82)**

Year	Personal income tax		Corporation income tax		Basic excise duties (total)	
	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	502.40	-5.82	419.23	-11.62	173436	-2.30
1971-72	539.01	-2.90	444.99	0.81	181251	1.80
1972-73	601.50	-0.11	470.21	8.29	187422	3.01
1973-74	758.29	-7.42	568.91	-8.98	215534	-5.29
1974-75	906.57	-5.67	640.18	-2.51	233681	-1.11
1975-76	936.67	14.15	719.65	2.72	259217	-1.91
1976-77	1015.11	25.59	761.96	10.90	269826	4.28
1977-78	1139.91	-4.75	896.18	11.94	307985	-0.25
1978-79	1222.90	4.78	992.20	1.83	334766	0.36
1979-80	1362.81	3.40	1002.68	11.07	332135	7.90
1980-81	1646.81	-7.07	1221.44	-10.49	387050	-3.79
1981-82	1885.91	-8.83	1401.54	-9.53	430352	-1.97

(Contd..)

TABLE A.2 (Contd.)

Year	Basic excise duties (ad valorem)		Basic excise duties (specific)		Additional duties of excise in lieu of sales tax		Income tax	
	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY
	(9)	(10)	(11)	(12)	(13)	(16)	(17)	(18)
1970-71	79382	-1.85	96569	-5.52	7706	-2.96	923.47	-8.64
1971-72	84110	4.21	98976	-2.28	8125	4.69	985.52	-1.41
1972-73	89503	3.74	98900	1.08	8441	4.69	1071.67	3.57
1973-74	107826	-6.76	106615	-3.03	9979	-3.02	1325.57	-8.15
1974-75	121838	-2.16	109643	1.15	10976	-4.66	1539.67	-4.11
1975-76	133737	-2.46	121656	1.24	12491	-2.56	1658.55	8.67
1976-77	141718	4.21	123709	6.71	13099	5.08	1777.69	18.61
1977-78	163483	-3.74	137663	7.06	15406	-2.71	2043.53	3.72
1978-79	178728	-1.20	147399	5.62	17066	-3.85	2227.41	3.27
1979-80	183941	9.23	140732	5.59	16832	5.16	2366.87	6.99
1980-81	220904	-1.16	156239	-9.21	20265	-3.71	2874.36	-8.99
1981-82	251152	-1.03	167723	-6.71	23044	4.85	3297.25	-9.46

TABLE A.3

Estimates of Hypothetical Revenue from Major Central Taxes as obtained from the Partial Elasticities Equations with respect to Wholesale Price Index (WSPI) and GDP at Factor Cost (Current Prices) Deflated by WSPI (1970-71 to 1981-82)

Year	Personal income tax		Corporation income tax		Basic excise duties (total)	
	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs crore)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	503.25	-5.98	414.80	-10.67	171259.19	-1.06
1971-72	539.47	-2.98	441.91	1.51	179648.53	2.71
1972-73	599.07	0.29	477.70	6.59	190188.67	1.51
1973-74	753.27	-6.80	585.05	-11.49	221516.10	-7.85
1974-75	912.48	-6.28	632.27	-1.29	232569.20	-0.64
1975-76	947.88	12.80	690.36	7.08	249887.57	1.76
1976-77	1014.25	25.70	766.06	10.31	272177.58	3.38
1977-78	1138.50	-4.63	896.55	11.89	307361.31	-0.04
1978-79	1212.81	5.66	1013.22	-0.28	339349.06	-1.00
1979-80	1355.99	3.92	1023.05	8.85	338633.37	5.83
1980-81	1652.91	-7.41	1205.77	-9.33	382747.53	-2.71
1981-82	1888.59	-8.96	1392.89	-8.97	427121.87	-1.23

(Contd..)

TABLE A.3 (Contd.)

Year	Basic excise duties (ad valorem)		Basic excise duties (specific)		Additional duties of excise in lieu of sales tax		Income tax	
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY
	(Rs crore)		(Rs crore)		(Rs lakh)		(Rs crore)	
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1970-71	78672.62	-0.96	95223.40	-4.19	7574.07	-1.27	919.34	-8.23
1971-72	83582.71	4.87	98030.88	-1.34	8024.16	6.00	982.88	-1.11
1972-73	90447.93	2.66	100674.55	-0.70	8597.09	2.80	1077.78	2.98
1973-74	109958.60	-8.57	110145.18	-6.14	10334.90	-6.35	1339.43	-9.10
1974-75	121392.39	-1.79	108539.10	2.18	10969.38	-4.59	1536.09	-8.89
1975-76	130257.96	0.14	116165.18	6.02	11957.54	1.79	1635.29	10.22
1976-77	142397.04	3.56	124947.78	5.65	13251.58	3.88	1781.73	18.35
1977-78	163259.87	-3.61	137526.58	7.17	15339.92	-2.29	2042.33	3.78
1978-79	180517.12	-2.18	150427.21	3.49	17277.89	-5.02	2240.03	2.68
1979-80	186510.52	7.73	144061.11	3.15	17247.08	2.63	2384.25	6.21
1980-81	219135.71	-0.36	154053.28	-7.92	19997.19	-2.41	2861.78	-8.59
1981-82	249801.81	-0.49	166219.81	-5.87	22824.39	5.86	3289.58	-9.25

TABLE A.4

**Estimates of Observed and Hypothetical Revenue from Personal Income Tax
as obtained from Buoyancy/Elasticity Equations**

Year	Non-agricultural gross domestic product (NA-GDP)									
	Estimated hypothetical yield (EHY)			Deviation of EHY from hypothetical yield as percentage of EHY			Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	Set I	Set II	Set III	Set I	Set II	Set III				
	Rs. crore)	(Rs. crore)	(Rs. crore)				(Rs. crore)	(Rs. crore)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1970-71	526.77	523.79	513.53	-10.18	-9.66	-7.86	544.74	-13.14	535.60	-11.66
1971-72	564.34	560.13	557.20	-7.26	-6.56	-6.07	585.12	-8.67	575.32	-7.11
1972-73	606.08	600.43	606.36	0.59	0.07	-0.91	630.11	-0.74	619.57	0.95
1973-74	676.09	667.87	690.20	5.79	5.11	1.71	705.83	5.04	694.07	6.82
1974-75	807.16	793.64	851.41	4.97	4.18	0.45	848.35	3.52	834.30	5.27
1975-76	881.80	865.02	945.47	12.68	12.09	13.08	929.93	30.59	914.57	11.63
1976-77	956.66	936.45	1041.29	18.35	18.39	22.43	1012.00	18.02	995.33	16.88
1977-78	1040.23	1016.02	1149.90	-8.42	-8.19	-5.58	1103.92	-9.23	1085.78	-7.71
1978-79	1125.45	1096.99	1262.34	0.10	0.36	1.51	1197.94	-1.72	1178.31	-0.08
1979-80	1234.84	1200.67	1408.97	-0.15	0.83	0.01	1319.01	1.61	1297.47	3.30
1980-81	1400.63	1357.37	1635.76	-5.43	-5.85	-6.44	1503.29	4.21	1478.83	-2.63
1981-82	1568.57	1515.62	1870.62	-6.72	-6.86	-8.08	1690.81	-12.73	1663.41	-11.30

(contd.)

TABLE A.4 (Contd.)

Year	Non-agricultural personal income (NA-PI)									
	Estimated hypothetical yield (EHY)			Deviation of EHY from hypothetical yield as percentage of EHY			Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	Set I	Set II	Set III	Set I	Set II	Set III				
	(Rs. crore)	(Rs. crore)	(Rs. crore)				(Rs. crore)	(Rs. crore)		
(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
1970-71	520.81	517.72	506.45	-9.15	-8.61	-6.57	532.06	-11.07	524.72	-9.82
1971-72	560.34	556.03	552.36	-6.59	-5.87	-5.24	575.53	-7.15	567.24	-5.79
1972-73	607.02	601.16	607.33	0.44	-0.05	-1.07	627.14	-0.27	617.68	1.26
1973-74	676.50	668.19	690.62	5.72	5.06	1.65	704.51	5.23	693.23	6.94
1974-75	800.00	786.93	842.55	5.91	5.07	1.50	843.43	4.13	828.73	5.97
1975-76	891.42	874.54	957.91	11.47	10.87	11.61	947.32	28.19	929.94	9.79
1976-77	859.74	939.86	1045.58	17.97	17.96	21.93	1025.46	16.47	1006.01	15.64
1977-78	1050.76	1026.71	1164.18	-9.34	-9.15	-6.74	1130.21	-11.34	1107.91	-9.56
1978-79	1139.97	1111.65	1282.29	-1.38	-0.97	-0.07	1233.52	-4.55	1208.32	-2.56
1979-80	1263.73	1229.23	1449.00	-2.43	-1.52	-2.75	1377.82	-2.72	1348.48	-0.61
1980-81	1450.17	1405.82	1705.85	-8.66	-9.09	-10.28	1597.14	-9.84	1561.27	-7.77

**Estimates of Observed and Hypothetical Revenue from Corporation Income Tax
as obtained from the Buoyancy/Elasticity Equations**

Year	Gross domestic product from selected sectors (GDP-FSS)							
	Estimated hypothetical yield (EHY)		Deviation of EHY from hypothetical yield as percentage of EHY		Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from adjusted observed yield as percentage of EAOY
	-----	-----	-----	-----				
	Set I	Set II	Set I	Set II				
(Rs. crore)	(Rs. crore)			(Rs. crore)		(Rs. crore)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	413.36	411.00	-10.36	-9.85	418.40	-11.44	429.08	-13.65
1971-72	444.71	440.70	0.87	1.79	456.63	3.38	465.88	1.33
1972-73	483.06	476.91	7.08	6.77	504.13	10.66	511.35	9.10
1973-74	552.70	542.34	-4.11	-4.52	592.27	-1.63	595.06	-2.09
1974-75	680.17	661.17	-5.11	-5.60	759.19	-6.55	751.87	-5.61
1975-76	756.49	731.81	1.66	1.01	862.19	-0.06	847.26	1.01
1976-77	831.04	800.51	6.16	5.56	964.79	2.01	941.82	4.25
1977-78	916.70	879.09	14.25	14.11	1084.93	12.52	1051.78	16.07
1978-79	994.47	950.15	6.08	6.34	1195.95	4.64	1152.76	8.56
1979-80	1103.46	1049.32	5.98	6.13	1354.40	2.77	1295.94	7.41
1980-81	1287.52	1215.80	-10.11	-10.07	1628.92	-15.44	1541.71	-10.65
1981-82	1473.35	1382.79	-8.90	-8.30	1914.02	2.92	1794.39	-10.97

(Contd...)

TABLE A.5 (Contd.)

Year	Corporate profits net of profits from forestry and logging (AP-NFL)							
	Estimated hypothetical yield (EHY)		Deviation of EHY from hypothetical yield as percentage of EHY		Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated adjusted observed yield (EAOY)	Deviation of EAOY from observed yield as percentage of EAOY
	-----	-----	-----					
	Set I	Set II	Set I	Set II				
(Rs. crore)	(Rs. crore)			(Rs. crore)		(Rs. crore)		
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1970-71	455.24	450.22	-18.61	-17.72	478.83	-22.62	478.60	-22.58
1971-72	497.23	489.85	-9.78	-8.43	528.91	-10.75	528.62	-10.70
1972-73	493.39	486.23	4.84	4.72	524.31	6.40	524.02	6.46
1973-74	575.12	562.98	-7.84	-8.02	623.21	-6.52	622.80	-6.45
1974-75	466.21	460.58	38.44	35.51	491.85	44.25	491.61	44.32
1975-76	763.78	738.45	0.69	0.11	858.13	0.42	857.37	-0.18
1976-77	1006.91	961.82	12.38	-12.14	1171.87	-16.01	1170.59	-16.13
1977-78	989.63	946.03	5.83	6.03	1149.21	6.23	1147.97	6.34
1978-79	1022.59	976.13	3.16	3.51	1192.45	4.95	1191.13	5.07
1979-80	1100.89	1047.49	6.25	6.32	1295.87	7.41	1294.38	7.53
1980-81	1162.87	1103.82	-0.48	-0.95	1378.44	-0.07	1376.78	0.05

TABLE A.6

**Estimates of Observed and Hypothetical Revenue from Union Excise Duties as obtained from the Buoyancy/
Elasticity Equations with reference to Gross Domestic Product from Registered Manufacturing Sector
(GDP-RMS) at Factor Cost (Current Prices)**

Year	Basic excise duties (total)				Basic excise duties (Ad valorem)			
	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs. lakh)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs lakh)	Deviation of EOY from observed yield as percentage of EOY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	169666	-0.13	174622	-2.97	78576	-0.84	81818	-4.77
1971-72	178676	3.27	188847	2.96	83837	4.55	89427	4.40
1972-73	190229	1.49	207633	3.25	90681	2.39	99596	3.96
1973-74	212393	-3.89	245323	-3.84	104104	-3.42	120366	-4.54
1974-75	249400	-7.35	312839	-8.54	127304	-6.36	158637	-5.84
1975-76	256284	-0.78	326000	3.18	131720	-0.97	166237	3.65
1976-77	277552	1.38	367807	1.31	145552	1.46	190650	2.72
1977-78	294700	4.25	402741	1.97	156902	0.30	211342	-0.47
1978-79	322156	4.29	460871	4.99	175422	0.67	246308	1.78
1979-80	350504	2.25	523621	6.47	194967	3.05	384730	4.45
1980-81	385557	-3.42	604882	-2.79	219690	-0.61	335414	-0.45
1981-82	424665	-0.66	700126	-4.85	247949	0.25	296002	-4.02

(Contd..)

TABLE A.6 (Contd.)

Year	Basic excise duties (specific)				Additional duties of excise in lieu of sales tax			
	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs. lakh)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs lakh)	Deviation of EOY from observed yield as percentage of EOY
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1970-71	93512	-2.43	97094	-6.03	7501	-0.31	9838	-23.99
1971-72	96576	0.15	102583	-1.61	7983	6.55	10798	-1.64
1972-73	100421	-0.45	109648	0.89	8608	2.66	12087	12.20
1973-74	107560	-3.88	123276	-1.98	9829	-1.54	14740	17.87
1974-75	118884	-6.71	146227	-7.28	11926	-12.25	19682	-4.54
1975-76	120918	1.86	150521	6.86	12323	-1.24	20671	8.09
1976-77	127077	3.88	163832	5.00	13564	1.48	23861	7.76
1977-78	131914	11.73	174612	8.89	14579	2.80	26581	7.24
1978-79	139443	11.65	191954	10.86	16229	1.11	31204	0.17
1979-80	146968	1.11	209957	5.58	17963	-1.46	36320	-1.88
1980-81	155962	-9.05	232344	-9.38	20147	-3.14	43119	-8.92
1981-82	165640	-5.54	257473	-9.80	22632	6.76	51310	-5.24

**Estimates of Observed and Hypothetical Revenue from Union Excise Duties as obtained
from the Buoyancy/Elasticity Equations with reference to Value of Output in the
Registered Manufacturing Sector (VOP-RMS)**

Year	Basic excise duties (total)				Basic excise duties (Ad valorem)			
	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs. lakh)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY) (Rs. lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY) (Rs lakh)	Deviation of EOY from observed yield as percentage of EOY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	172743.97	-1.91	178474.04	-5.06	80585.86	-3.31	84135.46	-7.39
1971-72	182790.79	0.94	194674.98	-0.12	86451.66	1.39	92798.55	0.60
1972-73	182984.56	5.50	194992.25	9.95	86565.57	7.26	92969.15	11.37
1973-74	208699.48	-2.19	238665.48	-1.16	101934.76	-1.37	116770.75	-1.60
1974-75	243761.08	-5.20	303003.89	-5.57	123636.27	-3.58	152843.48	-2.27
1975-76	261708.71	-2.84	337963.60	-0.47	135049.66	-3.41	172875.00	-0.33
1976-77	280014.91	0.49	374973.23	-0.63	146888.63	0.54	194371.73	0.75
1977-78	300798.29	2.14	418592.53	-1.89	160558.96	-1.98	220056.96	-4.41
1978-79	320608.71	4.79	461706.28	4.80	173805.01	1.60	245783.78	2.00
1979-80	350007.84	2.39	528358.31	5.51	193829.15	3.66	286156.75	3.93
1980-81	385960.80	-3.51	614040.61	-4.24	218876.21	-0.24	339014.35	-1.51

(Contd...)

TABLE A.7 (Contd.)

Year	Basic excise duties (specific)				Additional duties of excise in lieu of sales tax			
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EOY)	Deviation of EOY from observed yield as percentage of EOY
	(Rs. lakh)		(Rs. lakh)		(Rs. lakh)		(Rs lakh)	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1970-71	93633.89	-2.56	97415.72	-6.34	7757.46	-3.60	10159.99	-26.40
1971-72	97201.17	-0.50	103823.01	-2.78	8281.00	2.72	11254.98	-5.63
1972-73	97269.31	2.74	103947.03	6.43	8291.14	6.59	11276.59	20.27
1973-74	106107.63	-2.57	120548.05	0.24	9651.33	0.28	14307.81	21.44
1974-75	117585.49	-5.68	143600.18	-5.58	11547.84	-9.37	18953.19	-0.87
1975-76	123242.53	-0.06	155568.29	3.39	12535.59	-2.91	21554.84	8.66
1976-77	128878.78	2.43	167883.22	2.47	13553.96	1.56	24361.73	5.55
1977-78	135128.59	9.07	181988.63	5.44	14722.72	1.81	27733.57	2.78
1978-79	140950.99	10.45	195549.44	8.82	15848.51	3.54	31128.49	0.42
1979-80	149372.03	-0.52	215869.08	2.69	17539.06	0.93	36487.54	-2.33
1980-81	159351.48	-10.98	241013.01	-12.64	19636.52	-0.62	43554.25	-9.83

TABLE A.8

Estimates of Hypothetical Revenue from Personal Income Tax as obtained from the Partial Elasticities Equations with reference to Appropriate Tax Bases Deflated by Wholesale Price Index (WSPI) or Implicit Tax Base Deflator (ITBD), and WSPI or ITBD

Year	Non-agricultural gross domestic product (NA-GDP) deflated by		Non-agricultural personal income (NA-PI) deflated by WSPI			
	ITBD	WSPI	ITBD	WSPI	WSPI	WSPI
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EHY)	Deviation of EHY from observed yield as percentage of EHY	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY
	(Rs. crore)		(Rs. crore)		(Rs. crore)	
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	501.83	-5.71	509.73	-7.17	498.99	-5.17
1971-72	544.12	-3.81	549.31	-4.72	542.79	-3.57
1972-73	593.66	1.21	603.59	-0.46	602.09	-0.21
1973-74	697.69	0.62	708.66	-0.94	705.27	-0.46
1974-75	918.95	-6.94	890.53	-3.97	883.39	-3.19
1975-76	991.58	7.82	951.11	12.41	971.21	10.09
1976-77	1058.54	20.44	1029.02	23.89	1045.56	21.93
1977-78	1136.17	-4.44	1130.12	-3.93	1154.11	-5.92
1978-79	1192.81	7.43	1226.17	4.51	1242.79	3.11
1979-80	1394.98	1.01	1394.58	1.04	1436.51	-1.91
1980-81	1640.84	-6.73	1646.60	-7.05	1718.69	-10.95
1981-82	1856.36	-7.38	1891.19	-9.08	-	-

TABLE A.9

Estimates of Hypothetical Revenue from Corporation Income Tax as obtained from the Partial Elasticities Equations with reference to Appropriate Tax Bases Deflated by Wholesale Price Index (WSPI) or Implicit Tax Base Deflator (ITBD), and WSPI or ITBD

Year	Gross domestic product from selected sectors (GDP-FSS) deflated by				Corporate profits net of profits from forestry and logging (AP- NFL) deflated by WSPI	
	ITBD		WSPI		Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY
	Estimated hypothetical yield (EHY)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated observed yield (EHY)	Deviation of EHY from observed yield as percentage of EHY		
	(Rs. crore)		(Rs. crore)		(Rs. crore)	
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	419.61	-11.70	422.04	-12.21	405.22	-8.56
1971-72	448.08	0.11	453.01	-0.98	439.78	2.00
1972-73	483.51	5.31	480.90	5.88	466.21	9.22
1973-74	534.31	-3.08	521.08	-0.62	569.79	-9.12
1974-75	616.89	1.17	610.92	2.16	591.00	5.60
1975-76	703.45	5.09	714.84	3.41	760.26	-2.77
1976-77	796.85	6.04	806.54	4.77	89.78	-5.14
1977-78	899.55	11.52	898.91	11.60	912.47	9.94
1978-79	1008.37	0.20	1008.74	0.16	928.29	8.84
1979-80	1059.04	5.16	1063.12	4.76	1069.75	4.11
1980-81	1203.64	-9.17	1196.17	-8.60	1228.20	-10.98
1981-82	1376.75	-7.90	1374.10	-7.72		

TABLE A.10

Estimates of Hypothetical Revenue from Union Excise Duties as obtained from the Partial Elasticities Equations with Gross Domestic Product from Registered Manufacturing Sector (GDP-RMS) at 1970-71 Prices and the Implicit Price Deflator

Year	Basic excise duties (total)		Basic excise duties (ad valorem)		Basic excise duties (specific)		Additional duties of excise in lieu of sales tax	
	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	172071	-1.53	79279	-1.72	95144	-4.11	7634	-2.04
1971-72	180000	2.51	84230	4.06	97457	-0.76	8057	5.57
1972-73	192183	0.45	91270	1.73	101691	-1.69	8719	1.36
1973-74	213562	-4.41	104467	-3.76	108289	-4.53	9897	-2.21
1974-75	239185	-3.39	123981	-3.85	112927	-1.79	11321	-7.56
1975-76	245218	3.69	128094	1.83	114533	7.54	11665	4.34
1976-77	275961	1.97	145024	1.83	126182	4.62	13468	2.21
1977-78	297479	3.28	157837	-0.29	133445	10.45	14751	1.61
1978-79	336282	-0.09	180250	-2.03	146997	5.91	17120	-4.15
1979-80	352418	1.69	195640	2.70	147955	0.43	18086	-2.13
1980-81	382957	-2.76	218752	-0.18	154671	-8.29	19979	-2.32
1981-82	426178	-1.01	248509	0.02	166366	-5.95	22732	6.28

TABLE A.11

Estimates of Hypothetical Revenue from Union Excise Duties as obtained from the Partial Elasticities Equations with reference to Value of Output from Registered Manufacturing Sector (VOP-RMS) and Wholesale Price Index (WSPI)

Year	Basic excise duties (total)		Basic excise duties (ad valorem)		Basic excise duties (specific)		Additional duties of excise in lieu of sales tax	
	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY	Estimated hypothetical yield (EHY) (Rs lakh)	Deviation of EHY from hypothetical yield as percentage of EHY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970-71	176520.85	-4.01	81349.94	-4.22	96761.98	-5.71	7943.25	-5.86
1971-72	187085.15	-1.37	87332.04	0.36	100691.86	-3.95	8494.12	0.14
1972-73	181606.25	6.31	86280.47	7.61	96158.28	3.96	8222.82	7.48
1973-74	204044.19	0.04	100936.38	-0.39	102532.36	0.83	9416.00	2.78
1974-75	233591.53	-1.07	121358.70	-1.77	110213.33	0.63	11021.71	-5.04
1975-76	257873.99	-1.39	134182.67	-2.79	120509.26	2.20	12334.73	-1.32
1976-77	280790.19	0.21	147065.97	0.41	129421.29	2.00	13595.03	1.25
1977-78	303702.45	1.16	161233.54	-2.39	137115.77	7.49	14878.33	0.74
1978-79	330842.91	1.54	176204.35	0.22	147843.49	5.30	16402.92	0.04
1979-80	353520.89	1.37	194675.58	3.21	151655.92	-2.02	17731.78	-0.17
1980-81	381686.43	-2.44	217815.23	0.25	156677.91	-9.46	19398.68	0.60

TABLE A.12

**Estimates of Tax Bases of Major Central Taxes as obtained from the Buoyancy Equations
with reference to Gross Domestic Product (GDP) at Factor Cost (Current Prices)**

Year	Non-agricultural GDP (NA-GDP)		Non-agricultural personal income (NA-PI)		GDP from selected sectors (GDP-FSS)	
	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV
	(1)	(2)	(3)	(4)	(5)	(6)
1970-71	18979.99	1.75	17234.67	2.08	12050.45	2.10
1971-72	20527.24	3.18	18700.90	3.76	13072.92	2.71
1972-73	22998.72	1.34	21052.42	2.59	14712.36	0.75
1973-74	29731.38	-9.27	27509.39	-9.22	19211.75	-9.38
1974-75	36006.01	-4.97	33583.17	-6.92	23441.62	-4.83
1975-76	38098.15	1.12	35618.64	1.44	24858.63	1.91
1976-77	41565.83	3.38	39002.59	2.27	27214.06	4.15
1977-78	47982.61	0.19	45259.02	-0.57	31592.64	0.88
1978-79	52385.56	1.98	49633.41	1.20	34610.57	1.49
1979-80	58033.82	4.25	55221.10	4.42	38496.53	3.32
1980-81	72255.80	-0.86	69387.47	-0.08	48344.53	-1.07
1981-82	84465.00	-1.29			56860.49	-1.19

(Contd..)

TABLE A.12 (Contd.)

Year	Corporate profits net of profits from forestry and logging (AP-NFL)		Gross domestic product from registered manufacturing sector- (GDP-RMS)		Value of output from registered manufacturing sector (VOP-RMS)	
	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV	Estimated value (EV) (Rs. crore)	Deviation of EV from actual value as percentage of EV
	(7)	(8)	(9)	(10)	(11)	(12)
1970-71	1134.36	7.46	3344.11	1.85	1269699.51	5.97
1971-72	1231.65	11.23	3621.36	2.28	1392434.36	7.37
1972-73	1387.84	-2.29	4064.92	0.86	1591872.73	-5.90
1973-74	1817.39	-8.61	5277.00	-7.11	2153803.99	-11.13
1974-75	2222.20	-43.39	6410.73	-0.79	2698495.73	-5.25
1975-76	2357.99	2.54	6789.49	-2.10	2884051.32	1.20
1976-77	2583.89	34.91	7418.02	1.97	3195571.17	3.61
1977-78	3004.35	13.40	8583.32	-2.88	3784065.05	-0.01
1978-79	3294.52	-7.99	9384.41	2.63	4196156.35	1.55
1979-80	3668.55	6.94	10413.67	6.03	4733820.44	6.01
1980-81	4618.10	-8.66	13012.24	-0.96	6127649.81	-1.73
1981-82			15249.83	-1.17		

