



## PREFACE

This study on the incidence of major indirect taxes in India attempts to estimate effective tax rates of major commodity taxes in India for the fiscal year 1989-90. It includes both central and state taxes in its coverage.

There is a wide range of findings emanating from the analysis. The major ones may be listed as follows: (1) the total effective rate of taxes varied between 3-40% for most commodities; (2) for necessities, the rate varied between 3-12%; (3) the effective tax rate for services (construction, electricity and transport) was about 10%; (4) on average, sales tax accounted for the highest burden, exceeding 5 percentage points of the effective tax rate; Union excise duty and customs duty accounted for less than 5 percentage points; countervailing duty generally did not account for more than 1 percentage point, reflecting the availability of tax credit against the MODVAT; (5) effective tax rates reflected substantial input taxation, more than 30% of the total for most commodities, and even 100% for iron ore and some services; (6) also, even though services were not taxed directly, the abovementioned 10% effective tax rate on them was due to input taxation; (7) the contribution of sales tax in input taxation was highest; the contribution of excise duty was not low either, followed by the contribution of customs duty; the contribution of countervailing duty was low; (8) tax incidence on consumers in rural areas (11%) was slightly lower than in urban areas (12%); (9) the distribution of the burden of indirect taxes was progressive in both rural and urban areas, but more so in rural areas; the distribution of the burden of individual tax components was also progressive; and (10) the effective tax rate on food items was lower than on non-food items; that on cereals was lower than on other food items.

The conclusions of the study could be listed as follows: (1) Given the high incidence of input taxation, there was an obvious need to reduce it. This could be expected to be achieved as the coverage of MODVAT was expanded. (2) Also, given the high incidence of input taxation, the states should also move to a credit mechanism in their sales tax structures. (3) A VAT rate of 4% on cereals and pulses would be equivalent to their current tax burden from the sales tax. For many other products, the equivalent VAT rate would be 14%.

While the study used 1989-90 data, many of the conclusions that are drawn on state level commodity taxation are quite valid under prevailing circumstances. Also, the study's conclusion on input taxation clearly points towards the usefulness of the central level MODVAT (with its widening coverage) in reducing cascading and improving efficiency in production. It is hoped that states will follow suit with the implementation of a properly harmonised state-level VAT.

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## CONTENTS

	Page Nos.
<b>Preface</b>	(iii)
<b>Acknowledgements</b>	(v)
<b>Executive Summary</b>	(xiii)
<b>1. Introduction</b>	
1.1 Objectives	1
1.2 Plan of the Study	2
1.3 Some Concepts	3
1.4 Review of Earlier Studies	4
<b>2. Composition of Tax Revenue and Tax Structures</b>	
2.1 Composition of Tax Revenue	7
2.2 Salient Features of the Tax Structures	8
<b>3. The Methodology: A Theoretical Perspective</b>	
3.1 The Model	18
3.2 Obtaining Required Input-Output Matrices	31
3.3 Tax Bases and Implicit Nominal Tax Rates	32
3.4 Tax Incidence by Household Groups	37
<b>4. The Data: Requirements, Availability and Modifications</b>	
4.1 Data Requirements	44
4.2 Available Data and Modifications	45
<b>5. Tax Incidence: Results</b>	
5.1 Nominal Tax Rates	48
5.2 Effective Tax Rates	49
5.3 Tax Incidence by Expenditure Groups	61
5.4 Concluding Remarks	77
<b>Annexures</b>	78
Annexure 1	79
Annexure 2	99
<b>References</b>	141

## LIST OF TABLES IN THE TEXT

<i>Table Nos.</i>	<i>Description</i>	<i>Page Nos.</i>
2.1	Shares of Major Indirect Taxes: 1960-61 to 1994-95	9
2.2	A Brief Description of Rate Structure of Sales Tax: 1989-90	17
5.1	Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90	55
5.2	Effective Rates of Major Indirect Taxes for 27 Commodities:1989-90	64
5.3	Combined Effective Rates and Progressivity of Major Indirect Taxes by 5 Expenditure Classes: 1988-89	65
5.4	Effective Rates and Progressivity of Major Indirect Taxes by 5 Expenditure Classes:1988-89	67
5.5	Effective Rates and Progressivity of Major Indirect Taxes by 12 Expenditure Classes in Rural Areas:1988-89	68
5.6	Effective Rates and Progressivity of Major Indirect Taxes by 12 Expenditure Classes in Urban Areas:1988-89	69
5.7	Combined Effective Rates of Major Indirect Taxes by Food and Non-food Items and by 5 Expenditure Classes:1988-89	71
5.8	Effective Rates of Major Indirect Taxes by Food and Non-food Items and By 5 Expenditure Classes:1988-89	72
5.9	1. Effective Rates of Major Indirect Taxes by Food and Non-food Items and by 12 Expenditure Classes in Rural Areas:1988-89	73
5.9	2. Effective Rates of Major Indirect Taxes by Food and Non-food Items and by 12 Expenditure Classes in Urban Areas:1988-89	73
5.10	Combined Effective Rates of Major Indirect Taxes by Cereals and Other-food Items and by 5 Expenditure Classes:1988-89	74
5.11	Effective Rates of Major Indirect Taxes by Cereals and Other-food Items and By 5 Expenditure Classes:1988-89	75

5.12	1. Effective Rates of Major Indirect Taxes by Cereal and other Food Items and by 12 Expenditure Classes in Rural Areas:1988-89	76
5.12	2. Effective Rates of Major Indirect Taxes by Cereal and other food Items and by 12 Expenditure Classes in Urban Areas:1988-89	76

## LIST OF TABLES IN THE ANNEXURES

<i>Table Nos.</i>	<i>Description</i>	<i>Page Nos.</i>
A1.1	Commodity-wise Nominal Rates of Sales Tax in the States: 1989-90	79
A2.1	Value of Output, Exports, Imports and Their Use: 1989-90	99
A2.2	Sector Specification for Input-Output Transaction for 115 Commodities	103
A2.3	Matching of Excise Tariff Codes with 115 Sectors of Input-Output Matrices	114
A2.4	Matching of Customs Tariff Codes with 115 Sectors of Input-Output Matrices	118
A2.5	Matching of 115 Sector Codes with 60 Sector Codes	122
A2.6	Sector Specification for Input-Output Transactions for 60 Broad Groups of Commodities	124
A2.7	Matching of Excise Tariff Codes with 60 Sectors of Input-Output Matrices	135
A2.8	Matching of Customs Tariff Codes with 60 Sectors of Input-Output Matrices	138

## EXECUTIVE SUMMARY

This study aims at estimating the tax incidence of major indirect taxes in India, namely, Union excise duties (levied on almost all goods manufactured domestically), customs duties (levied on almost all imports), countervailing duties (CVD: levied on imports at the rates equivalent to Union excise duties with a view to avoiding any tax disadvantage to the domestic producers) and States' sales tax (levied on sale of all commodities except newspaper).

In this study, the concept of 'absolute tax incidence' was followed for its simplicity in interpretation and computation. Absolute tax incidence can be defined with reference to an existing tax. The element of tax in the price of a commodity is termed as absolute tax incidence. This has been identified with effective tax rates for different commodities which take into account taxes on outputs as well as on inputs, as also on inputs to inputs. Incidence of different taxes has also been analyzed by expenditure classes separately for rural and urban areas.

In the absence of any evidence regarding shifting of different commodity taxes, 100 per cent forward shifting of tax has been assumed. Frequent upward revisions in the prices of many products indicate that the taxes may have been shifted forward fully for many commodities.

The methodology of estimating effective tax rates of commodity taxes utilized in this study improves upon the existing methodology in several respects. It has extended the earlier model of effective tax rates by explicitly incorporating the element of

sales tax into the price equations. The expression of effective rate of sales tax obtained in the study is different from the intuitive expressions discussed in this context. The intuitive formulations of effective rates of sales tax had ignored a component of sales tax relating to imported inputs which might have been subjected to sales tax when purchased from traders of imported goods.

The empirical illustration for estimating effective tax rates of commodity taxes has been provided for the tax structures that prevailed during the year preceding the major tax reforms of the 1990s, i.e., the fiscal year 1989-90. Since 1990-91, significant reforms have been introduced in the rate structures of Union excise duties and customs duties though no major changes have been made in the rate structures of States' sales taxes. The significance of the empirical estimates can be viewed with reference to the process of tax reforms. In the case of sales tax, the effective rates for the current rate structures could be expected to be close to those obtained in this study. These rates indicate the pattern of incidence of sales tax and thereby help in identifying unintended incidence of sales tax, and shed light on the extent of input taxation in the system of sales tax. The unintended incidence of tax can be checked through suitable reforms. The estimates of effective rates of other taxes as well as the combined effective rates of all these taxes taken together, would provide benchmark estimates to the future researchers for evaluating the impact of reforms of the 1990s, besides revealing the intricacies of the system of commodity taxation prior to the reforms.

The effective rates were estimated for 68 broad groups of commodities for each of the taxes under consideration. The combined effective rates (for all these taxes taken together) were obtained by adding effective rates of individual taxes. The combined effective rate varied from about 3 to 40 per cent for most of the commodities. For a few commodities, the rate varied from 45 to 64 per cent. As one would have expected, the combined effective rate for the commodities traditionally classified as luxuries was quite high. It was above 30 per cent on mineral water and tobacco products, rubber products, petroleum products, electronic equipment and motor vehicles. Even for those commodities, traditionally considered as necessities the tax burden turned out to be substantial. The combined effective rate for necessities such as cereals, pulses, cotton & cotton textiles, animal husbandry, forestry & logging, sugar & khandsari and jute, hemp & mesta; textiles varied from about 3 to 12 per cent. Moreover, the combined effective rate for hydrogenated oils worked out to be as high as 26 per cent. The combined effective tax rate for services like construction, electricity and transport, which were not subjected to any of these taxes directly, worked out to about 10 per cent that could be attributed entirely to input taxation.

Regarding the contribution of individual taxes, sales tax accounted for a significant part of the combined effective tax rate for most commodities. Its contribution exceeded 5 percentage points for most commodities, whereas the contribution of Union excise duty as well as of customs duty was found to be less than 5 percentage points. Contribution of CVD was found to be small. The effective rate of CVD did not exceed 1 per cent except in the case of articles of silk and synthetic fibre for which the rate was about 2 per cent.

Both customs duty and CVD have not been applicable to a domestically produced commodity. They contribute to the combined effective tax rate of a domestically produced commodity through taxation of imported inputs going into production of the commodity. As expected, the contribution of customs duty was larger for the commodities with larger import content such as plastic and petroleum products, fertilizers, non-ferrous basic metals, some machinery and transport equipments. Its contribution to their combined effective tax rates varied between 8 and 17 percentage points. As noted above, contribution of CVD was found to be small. The lower contribution of CVD as compared to the customs duty could be attributed to two factors: first, the lower rates of CVD as compared to customs duty on most commodities and second, the availability of tax credit for CVD paid on inputs against the excise duty chargeable on output of the manufacturer (under the MODVAT scheme), whereas such tax credit has not been available for customs duty.

Variation in the contribution of individual taxes to the combined effective tax rates was found to be more prominent when viewed in terms of their shares in the combined effective tax rates. The share of sales tax exceeded 30 per cent for most commodities, whereas the share of Union excise duty as well as that of customs duty was less than 30 per cent for most commodities. The share of CVD was small. It did not exceed 4 per cent for most commodities.

In the case of items of necessity, sales tax accounted for a major part of the combined tax burden. Its share was above 60 per cent for cereals and pulses. It was so, because on many such commodities the excise duty was nil or very low while moderate

rates of sales tax were applicable to these commodities. Also, sales tax was found to account for a major part (greater than 60 per cent) of the combined tax burden on minerals, woollen textiles, wood and wood products, leather and leather products, rubber products, tractor and other agricultural implements, and communication and transport equipments. In the case of sugar, cement and synthetic fibres, excise duty accounted for a major part (more than 60 per cent) of the combined tax burden as these commodities have not been subjected to sales tax.

The effective tax rates were found to incorporate substantial input taxation. For most of the commodities, the extent of input taxation varied from about 3 to 20 percentage points. A few commodities were found to incorporate still higher input taxation. It was 24 and 26 percentage points for petroleum products and fertilizers, respectively. Input taxation accounted for more than 30 per cent of the effective tax rate for most commodities, and 100 per cent of the effective tax rates for iron ore and services. It accounted for 71, 74, 75, 76, 83 and 90 per cent of the effective tax rates for coal and lignite, lubricating preparations of petroleum, coal tar products, pesticides, jute, hemp & mesta textiles, and fertilizers. In the case of iron ore and services, the effective rates were made up only of input taxation as the taxes under consideration did not apply to services or iron ore. In the case of pesticides, high contribution of input taxation could be attributed to high intensity of imported inputs and high customs duty on these inputs, besides the sales tax on domestic inputs. In the case of other commodities, excise duty or CVD would also have contributed to input taxation as these commodities were not covered by the MODVAT scheme.

There was significant variation in the contribution of individual taxes to the combined input taxation because of varied character of structures of different taxes. The relative contribution of sales tax was found to be highest. The share of sales tax exceeded 30 per cent for most commodities. In fact, it was more than 50 per cent for some commodities such as pulses, jute, animal husbandry, forestry and logging, mineral water and tobacco products, and leather and leather products. This reveals high input taxation under the system of sales tax. Contribution of excise duty was found significant in spite of the provision of set off for the duty paid on inputs, through the scheme of MODVAT. Its share varied from 20 to 40 per cent for most commodities. This could be attributed to the then limited coverage of the MODVAT scheme. Customs duty was also found to make a significant contribution to input taxation reflecting on high import intensity of inputs and/or high duty rates. The share of customs duty was found to be more than 50 per cent for wood and wood products, plastic products, petroleum products, basic metals, machinery and tools, and transport equipments. The share of CVD was small. It did not exceed 4 per cent for most commodities.

Regarding the tax incidence on consumers, the average tax incidence in rural areas as compared to urban areas was found to be lower. The combined effective tax rates for rural and urban areas were 11.2 and 12.2 per cent respectively.

The distribution of burden of indirect taxes was found to be progressive in rural as well as urban areas. Tax progressivity with reference to consumer expenditure was higher in rural areas as compared to that in urban areas. The effective tax rate increased along low-expenditure to high-expenditure classes from 9.8 per cent to 13.7 per cent in rural areas, and from 10.2 per cent to 13.4 per cent in urban areas. The tax progressivity would

not have been so pronounced if it was viewed with reference to income instead of expenditure as the rich has a lower propensity to spend.

The distribution of burden of individual taxes was also found to be progressive in rural as well as urban areas. For each tax, progressivity with reference to consumer expenditure was higher in rural areas as compared to that in urban areas. The effective rate of customs duty increased along low-expenditure to high-expenditure classes from 1.5 per cent to 2.4 per cent in rural areas, and from 1.5 per cent to 2.2 per cent in urban areas. Similarly, the effective rate of sales tax increased along low-expenditure to high-expenditure classes from 4.8 per cent to 6.1 per cent in rural areas, and from 5.0 per cent to 6.1 per cent in urban areas. The effective rate of excise duty increased from 3.4 per cent to 5.1 per cent in rural areas, and from 3.6 per cent to 5.4 per cent in urban areas.

The effective rates of all the taxes combined as well as of individual taxes, for consumption basket of food items were found to be lower than those for consumption basket of non-food items, in both rural and urban areas. Between rural and urban areas, the effective rates for the basket of food items were found to be lower in rural areas while for the basket of non-food items were found to be lower in urban areas. Within the food items, cereals were found to bear lower tax incidence as compared to other food items, in all areas. The effective tax rate for consumption baskets of cereals as well as other food items relating to rural consumers was found to be lower than that relating to urban consumers. This could be attributed to higher proportion of lower tax incidence commodities in the consumption basket of food items of the rural consumers. The distribution of tax burden was found

progressive with respect to consumption baskets of sub-groups of commodities, in rural as well as urban areas.

The study has indicated the need for reducing input taxation with a view to mitigating its ill effects such as inducement for vertical integration, and the rise in price by more than the element of tax in it. The sharp cuts in the rates of customs duty and extension of the scheme of MODVAT to most commodities under the Union excise duty, during the 1990s, would have resulted in significant reduction in input taxation. This process of tax reforms can go a long way in mitigating input taxation. The States, however, need to be induced for reforming the system of sales tax which is the major contributor to input taxation.

The reported effective rates of sales tax seem to have some implications in the context of the ongoing debate on replacing the system of sales tax by States' value added taxes (VATs). For example, in the context of a harmonized VAT in place of sales tax, a tax rate of about 4 per cent on cereals and pulses would, on an average, leave the tax burden on these products, unchanged. An exemption of these items under a VAT might mean a substantial reduction in the burden of sales tax on these items. On many other consumer items such as edible oils, products of paper, wood, leather, rubber and plastic, electronic equipment and motor vehicles, the effective rate of sales tax varied from about 11 to 18 per cent. Under the State VAT, a uniform rate of about 14 per cent for these items may, on an average, leave unchanged the tax burden on these commodities.

## 1. INTRODUCTION

### 1.1. Objectives

Indirect taxation is an important part of the fiscal armoury of the developed as well as developing countries. In fact, in the developing countries, indirect taxes account for a major part of their total tax revenues. Indirect taxes, like direct taxes, can influence allocation of resources, and the pattern of production and consumption of different goods and services. However, an inappropriate system of indirect taxation can result in unintended and undesirable incidence of tax that may affect adversely the pattern of production and consumption.

In India, indirect taxes are levied by the Central Government as well as by the State Governments. The major indirect taxes levied by the Centre include Union excise duties and customs duties and those levied by the States include sales tax. The customs duties cover almost all goods imported into the country and the Union excise duties cover those manufactured by the medium and large producers. These duties fall on final goods as well as on raw materials and intermediate goods. However, under the Union excise duties a set off for the duty paid on inputs is available in regard to the goods covered under the MODVAT Scheme with effect from the year 1986-87. Sales tax comprises General sales tax (GST) and Central sales tax (CST). GST is levied at one or more stages in the process of production and distribution of goods and services. The three levels at which sales tax can be levied are manufacturing, wholesale and retail. It is levied on the tax base inclusive of customs and Union excise duties, if any. Each State has sought to develop its tax structure, to maximize its revenue without serious concern about its economic effects. Inputs are accorded concessional treatment in all the States. CST is charged on inter-State sales. Also, the States have resorted to additional

levies in the form of surcharge or turnover tax. As such, the system of indirect taxation in India could be characterised as one with multilevel taxation of goods without adequate set off for the taxes paid on inputs, and is far from simple.

Multilevel taxation of goods and services (within a tax or between different taxes) without adequate set off for the taxes paid on inputs results in substantial input taxation and encourages vertical integration of the firms. This can result in unintended and undesirable incidence of tax especially through "cascading", i.e., inputs can get taxed, creating a situation whereby a tax can fall on tax levied at an earlier stage. This could distort the pattern of production and consumption of different goods and services. Knowledge of the incidence of these taxes is essential for evaluating the system of indirect taxes as also for suggesting remedies for ill effects of the system. Therefore, this study aims at estimating the incidence of major indirect taxes in India, namely, Union excise duties, customs duties and sales tax on different goods and consumers. As will be discussed later, tax incidence has been identified by effective tax rates of different commodities.

## 1.2 Plan of the Study

In the rest of this Chapter, some concepts relating to tax incidence are discussed and a review of earlier studies is presented. Composition and structures of major indirect taxes are discussed in Chapter 2. The methodology for estimating the effective tax rates is developed and the procedure for estimating effective tax rates by expenditure classes is explained in Chapter 3. The data requirements, their availability and limitations are discussed in Chapter 4. Results are presented and discussed in Chapter 5. With a view to avoiding discontinuity of flow, some of the materials are relegated to the Annexures.

### 1.3. Some Concepts

Tax incidence is generally defined with reference to a change in the system of taxation. Also, it is argued that taxation results in only a change in the distribution of income. Accordingly, the change in the distribution of real income available for private use can be taken to represent incidence of taxation. Based on this analogy, at least two concepts of tax incidence, namely, 'budget incidence' and 'differential incidence' are commonly discussed in the literature. The combined effect of a change in the tax and the corresponding change in the public expenditure is termed as budget incidence. The effect of substituting one tax by another of equal yield is termed as differential incidence. The third concept of incidence, known as absolute incidence, can be defined with reference to an existing tax. The element of tax in the price of a commodity is termed as absolute incidence.<sup>1</sup> This can be identified with effective tax rates for different goods, which take into account taxes on outputs as well as inputs as also on inputs to inputs. In this study, the concept of absolute incidence has been pursued for its simplicity in interpretation and computation. Thus, the tax incidence is studied in a partial equilibrium framework. It ignores the effects of spending tax revenue altogether, and does not take into account the changes in real incomes of consumers. Although a general equilibrium analysis of tax incidence is desirable, it is impractical to meet its information requirements such as universe of tastes and technologies in the economy. As such, even the partial equilibrium analysis is made workable on the basis of certain simplifying assumptions about economic relations.<sup>2</sup> The necessary empirical evidence on the economic relations is generally scarce.

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1. It may be noted that the differential incidence gives the same results as the absolute incidence (see Wulf, 1975).

Estimation of tax incidence or effective tax rates requires a knowledge about shifting of the tax in question, i.e., the extent to which the tax may be passed on from producers to consumers. It is generally argued that the burden of a tax on a commodity is shared between the consumers and the producers depending on the price elasticities of demand and supply of the commodity. If the supply of a commodity is perfectly elastic, the entire tax burden will be shifted to the consumers of the commodity. In the absence of any evidence regarding shifting of commodity taxes under consideration, 100 per cent forward shifting of these taxes has been assumed in this study. Frequent upward revisions in the prices of many commodities indicate that the taxes may, in fact, have been shifted forward fully for many commodities.

The prevalence of a large number of exemptions and end use concessions render the use of observed nominal tax rates inappropriate for estimating the effective tax rates. Therefore, in this study, wherever feasible, implicit nominal tax rates instead of the observed nominal tax rates are utilized. The implicit nominal tax rate of a commodity is defined as the ratio of the tax yield to the total tax base had no exemptions were allowed, e.g., value of output of the commodity for Union excise duties.

#### 1.4 Review of Earlier Studies

Many attempts have been made earlier for estimating the incidence of indirect taxes in India. Most of these studies focused on taxes in a State or on one or two Central taxes. The

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2. For a lucid discussion on the concepts of tax incidence and partial and general equilibrium approaches of tax incidence analysis see Krelove (1995).

studies dealing with the former include Government of Orissa (1961), Rao (1964), Gandhi (1966), Pathak and Patel (1970), NCAER (1972), and Government of U.P. (1974). The studies dealing with one or two Central taxes include Lydall and Ahmed (1961), Ministry of Finance (1961, 1969), Dey (1974), Chelliah and Lall (1978), NCAER (1978), Ahmed and Stern (1983), Murty (1987), Jha and Srinivasan (1989), and Narayana et al. (1991). Purohit (1986) studied Union excise duties along with sales tax.

The earlier studies did not attempt to compute the cumulative burden of a tax on different commodities as is required for estimating the effective tax rates or have failed in utilizing appropriate tax bases or adequately accounting for available limited set off in regard to taxes paid on inputs or intermediate goods. For example, Chelliah and Lall (1978) recognised that input-output tables should be used for computing effective tax rates for different commodities and that the nominal tax rates are inadequate for computing the effective rates, but they could not use input-output tables because of lack of necessary data. Similarly, NCAER (1978) and Narayana et al. (1991) did not utilize the input-output tables in computing the effective tax rates of Union excise duties. Dey (1974), and Ahmed and Stern (1983) worked with the input-output tables for the years 1963-64 and 1973-74 respectively for computing the effective rates of Union excise duties. However, Ahmed and Stern (1983) did not take into account the limited set off that was available under the Proforma Credit Scheme (PCS) which was operative during the period covered by the study. Jha and Srinivasan (1989) improved upon the methodology of earlier studies to allow for set off for the tax paid on inputs or intermediate goods. However, their model does not cover sales tax.

The methodology of estimating effective tax rates of commodity taxes utilized in this study improves upon the existing methodology in several respects. It extends the earlier model of

effective tax rates by explicitly incorporating the element of sales tax into the price equations. The expression of effective rate of sales tax obtained in this study is at variance with the intuitive expressions discussed in this context. It uses the latest available matrices of input-output coefficients. The latest year for which the input-output matrices have been constructed is 1989-90. These could be obtained from the Planning Commission. The year for which the matrices are available, in fact, coincides with the year for which effective tax rates are estimated. The study emphasises the need to define and utilize 'notional implicit nominal rates' in place of implicit nominal rates (see Chapter 3).

## 2. COMPOSITION OF TAX REVENUE AND TAX STRUCTURES

In this Chapter, composition of tax revenues of Central and State governments is discussed with a view to indicating significance of Union excise duties and customs duties in Central taxes, and of sales tax in State taxes. Also, a brief description of the salient features of these taxes is given.

### 2.1 ~~Composition~~ of Tax Revenue

Customs duties and Union excise duties are two major sources of tax revenue of the Central government and their significance has grown over time. The share of these duties in the total tax revenue of the Centre has not been less than 65 per cent in the last three and a half decades. It was about 65 per cent during the period from 1960-61 to 1964-65, about 70 per cent during the period from 1965-66 to 1977-78, and about 74 per cent during 1978-79 to 1982-83 that has increased to 80 per cent by the year 1987-88 to decline subsequently to about 75 per cent in 1991-92 and to about 70 per cent in 1993-94. The decline in the share in the recent period could be attributed to the recent tax reforms. The trends of rise or decline in the shares of customs duties and Union excise duties have not been unidirectional throughout the period. The share of Union excise duties has increased from about 46 per cent in 1960-61 to about 51 per cent in 1976-77 while that of customs duties has remained around 19 per cent during the same period. Since then, the share of the former has declined whereas that of the latter has increased implying relatively greater exploitation of customs duties. During the period from 1976-77 to 1990-91, the share of Union excise duties has declined from about 51 per cent in 1976-77 to about 43 per cent and that of customs duties has increased from about 19 per cent in 1976-77 to about 36

per cent in 1990-91 (Table 2.1). The increased exploitation of customs duties could be attributed largely to increases in customs tariff rates rather than to increases in the tax base, i.e., the value of imports (see Aggarwal, 1991). However, following the tax reforms of 1990s, the share of customs duties has declined to about 29 per cent in 1994-95. At the State level, sales tax has been found to be the major source of revenue. Sales tax as compared to other States' taxes, has also been subjected to relatively greater exploitation over time. The share of sales tax in States' own tax revenue has increased from about 36 per cent in 1960-61 to about 51 per cent in 1970-71, and to about 60 per cent in 1980-81. Since then, it has remained around 60 per cent. Thus, these indirect taxes can be said to play a significant role in the fiscal armoury of India. Knowledge about the incidence of these taxes will be of great value in evaluating and formulating (or reforming) tax policy in India.

## **2.2 Salient Features of the Tax Structures**

The salient features of the tax structures of Union excise duties, customs duties and sales tax as prevailed in the year 1989-90 (i.e., the year preceding the tax reforms of 1990s for which the incidence of tax has been analysed in the current study) are given below.

### **2.2.1 Union excise duties**

Union excise duties were levied on almost all goods manufactured by medium and large manufacturers. These comprised basic excise duty, special excise duty<sup>3</sup>, additional duty of excise in lieu of sales tax, additional duty on textile and textile articles and cesses on specified commodities. The rates of basic

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3. Special excise duty has been merged with the basic excise duty with effect from the year 1993-94.

Table 2.1

**Shares of Major Indirect Taxes in Revenue  
Receipts of the Centre or the States  
(1960-61 to 1994-95) (Per cent)**

Year	Shares in revenue of the Centre			Total tax revenue	Share of sales tax in States own tax revenue
	Customs duties	Union excise duties	Cols. (2) + (3)		
(1)	(2)	(3)	(4)	(5)	(6)
1960-61	18.99	46.49	65.48	100.00	36.03
1961-62	20.14	46.44	66.58	100.00	38.33
1962-63	19.14	46.60	65.74	100.00	37.40
1963-64	20.49	44.65	65.14	100.00	40.20
1964-65	21.83	44.02	65.85	100.00	42.42
1965-66	26.16	43.57	69.73	100.00	44.31
1966-67	25.38	44.82	70.20	100.00	48.26
1967-68	21.82	48.81	70.63	100.00	48.08
1968-69	17.79	52.62	70.41	100.00	47.90
1969-70	14.99	53.99	68.99	100.00	49.63
1970-71	16.34	54.84	71.18	100.00	50.87
1971-72	17.96	53.22	71.19	100.00	50.55
1972-73	19.02	51.59	70.61	100.00	20.06
1973-74	19.66	51.33	70.98	100.00	50.84
1974-75	21.08	51.10	72.19	100.00	54.55
1975-76	18.65	50.53	69.19	100.00	55.48
1976-77	18.79	51.04	69.82	100.00	57.21
1977-78	20.59	50.21	70.80	100.00	56.55
1978-79	23.03	50.99	74.02	100.00	57.01
1979-80	24.42	50.20	74.62	100.00	57.84
1980-81	25.87	49.32	75.19	100.00	60.28
1981-82	27.14	46.83	73.96	100.00	61.04
1982-83	28.93	45.54	74.47	100.00	59.36
1983-84	26.94	49.33	76.27	100.00	60.23
1984-85	30.00	47.51	77.51	100.00	59.35
1985-86	33.23	45.19	78.41	100.00	59.89
1986-87	34.94	44.06	79.01	100.00	59.73
1987-88	36.38	43.61	79.99	100.00	60.14
1988-89	35.54	42.36	77.90	100.00	60.89
1989-90	34.93	43.39	78.32	100.00	60.11
1990-91	35.85	42.58	78.43	100.00	60.47
1991-92	33.04	41.73	74.77	100.00	60.14
1992-93	31.86	41.31	73.17	100.00	60.79
1993-94 (RE)	28.99	40.90	69.89	100.00	61.16
1994-95 (BE)	28.92	42.12	71.04	100.00	60.04

Source : Computations are based on the revenue figures (gross of States' shares) compiled from Government of India, Public Finance Statistics, for different years.

Notes : RE = Revised estimates, BE = Budget estimates  
Sales tax comprises GST and CST.

excise duty were fixed by the Act and the special duty was charged as a surcharge on basic duties depending on the necessity to raise additional tax revenue for a short period. Additional duties of excise in lieu of sales tax had been levied on textiles, tobacco and sugar as a substitute for the power foregone by the States to levy sales tax on these commodities. These duties were collected and transferred, in full, to the States. Additional duties on textile and textile articles were collected and transferred, in full, to the Ministry of Textiles for the purpose of development of markets for textile industries such as development of markets for handlooms and powerlooms. Cesses had been levied on a few commodities like tea, coffee and sugar. These were collected and transferred, in full, to the respective Ministries for development of respective industries.

The structure of Union excise duties was far from simple. It was loaded with the problems of multiplicity of tax rates, many exemptions and end use concessions. The duty structure that had evolved over time because of the ad-hoc changes in the duty rates owing to the revenue needs of the country was beset with the problems of tax cascading and distortions in the system of production and consumption of different commodities. The set off allowed for the taxes paid at the earlier stages was not adequate. The set off was allowed under the scheme of modified value added tax (MODVAT) which had a limited coverage.<sup>4</sup> All the commodities except textiles, petroleum and its products, tobacco and its products, and plant and machinery<sup>5</sup> were covered under the MODVAT scheme. The MODVAT scheme allowed for a tax credit in regard to

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4. Prior to the introduction of MODVAT scheme in the year 1986-87, only a limited tax credit was allowed for the taxes paid on some of the inputs used for production of some specified commodities, under the proforma tax credit (PTC) scheme.
  5. Plant and machinery has been covered under the MODVAT scheme with effect from the year 1993-94.

Union excise duties or countervailing duty (CVD) paid on the inputs against the tax liability on the output. The countervailing duty was levied on the value of imports at the rates equivalent to Union excise duties applicable to the domestic production.

The MODVAT scheme was accompanied by a scheme of notional tax credit to retain the preferential treatment given to the small scale industries (SSI) prior to the introduction of the scheme. The scheme of notional tax credit allowed for a notional tax credit to the medium and large manufacturers in regard to the inputs purchased from the small scale manufacturers on which no Union excise duty may have been paid or it may have been paid at the concessional rates.<sup>6</sup>

The MODVAT scheme was at variance with the general value added tax (VAT) because of exemptions and concessional taxation of the commodities produced by small scale manufacturers and the system of notional and deemed tax credits allowed to some manufacturers<sup>7</sup> (see Purohit, 1993).

Under the deemed tax credit scheme, a manufacturer could avail of MODVAT credit at specified rates for certain inputs without production of documents evidencing the payment of Union excise duty. This provision was introduced to avoid hardship to

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6. The benefit of the notional tax credit was limited to 10 per cent *ad valorem*. Under this scheme, a manufacturer could avail of the tax credit in regard to inputs purchased from small scale industries at the actual rate of excise duty paid increased by 10 percentage points or at the normal rate that would have been applicable if the purchases were made from the manufacturer other than the small scale, whichever is lower. The benefit of the notional tax credit scheme was reduced to 5 per cent *ad valorem* in the year 1988-89.

7. During the reforms of 1990s, scope of MODVAT scheme has been enlarged and the schemes of notional and deemed tax credits have been withdrawn.

small manufacturers who could not buy the minimum quantities specified for sale by certain primary manufacturers of metal items. They purchased these items in the open market with respect to which, many times, duty payment documents could not be obtained. Some such specified inputs were deemed to be duty paid unless they were clearly recognisable as exempt or zero-rated. The deemed tax credit allowed was generally less than the normal duty to discourage misuse of the provision and to allow for the possibility that the inputs so purchased may have been subjected to a concessional duty. The deemed tax credit facility was initially given to small scale industries in March 1986 and extended to all units after a month. During the year 1989-90, this facility was available in respect of steel ingots and rerollables, certain flat products of steel, unwrought aluminium, copper, lead and zinc and waste or scrap of aluminium, copper, lead and zinc.

Another characteristic of the system of Union excise duties was granting end use exemptions and tax concessions for many commodities through notifications issued throughout the year. Thereby, the rates prescribed through the budgets were basically the ceiling rates. With the system of notifications, it was difficult to keep track of the effective duty rates applicable at any time. The exemption of some of the commodities from CVD (a duty levied on an imported good, equivalent to the Union excise duty applicable to the good when produced domestically) and concessional duty rates on commodities imported from specified regions added to the complexity of the structure of Union excise duties.

### 2.2.2 Customs duties

Customs duties comprised basic customs duty, auxiliary customs duty<sup>8</sup> and additional customs duty (popularly known as

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8. Auxiliary customs duty has been merged with basic customs duty with effect from 1993-94, as a measure of simplification.

countervailing duty). The basic duties have been leviable under Section 12 of the Customs Act, 1962 on all goods imported into India, with a view to protecting the domestic industry from international competition. The rates of basic customs duty were fixed through the Customs Tariff Act. The auxiliary customs duty also was leviable on all goods imported into India, under Section 4 of the Finance Act. The main objective of the auxiliary duty was to raise revenue to meet the compelling revenue needs of the country. The tax base for the basic and auxiliary duties was the same. The countervailing duty (CVD) has been charged on all goods imported into India, under Section 3(1) of the Customs Tariff Act. The CVD was levied at the same rate as the Union excise duties to avoid any tax advantage in regard to commodities imported into the country *vis-a-vis* commodities produced in the country. The tax base for charging the CVD has been the value of imports inclusive of the basic and auxiliary duties.

As discussed above, a tax credit with respect to CVD paid on the imported inputs was available against the Union excise duty on the relevant output, whereas no such tax set off was allowed with respect to basic and auxiliary customs duties. This means that the price of even a domestically produced commodity will have in it an element of basic and auxiliary customs duties depending on the import content in the production of the commodity.

The structure of customs duties was as complex as that of Union excise duties. It also was loaded with multiplicity of tax rates varying from commodity to commodity, many exemptions and end use concessions. The duty rates were high. The rates as high as above 300 per cent applied to some commodities. The duty rates prescribed were *ad valorem*, specific and *ad valorem* plus specific for different commodities. The duty rates given in the budgets were basically the ceiling rates as many end use exemptions and tax reductions were granted through numerous notifications issued

throughout the year by the Revenue Department. This system of granting end use exemptions and tax concessions made it difficult to keep track of the effective duty rates applicable at any time. The exemptions and concessional rates of CVD in respect of commodities imported from specified regions added to the complexity of the structure of customs duties.

In the context of the current study, customs duties were classified into two broad categories: one with respect to which no set off was allowed for the duty paid on inputs and the other with respect to which set off was allowed for the duty paid on inputs. The former comprised basic and auxiliary duties and the latter consisted of countervailing duty.

### **2.2.3 Sales tax**

The State sales tax has been levied on the sale of all commodities except newspaper; and there has been special taxes in the nature of sales tax on selective services such as electricity, transportation (road and inland water ways) and entertainment. Sales tax comprised General sales tax (GST) and Central sales tax (CST). The former has been levied by the States on intra-State sales. The latter is legislated by the Centre, and has been applicable to inter-State sales. It is collected and retained by the exporting States. The goods sent out of a State, on consignment transfer, have not been subjected to CST. In some of the States, GST on certain commodities such as sugarcane has been levied in the form of purchase tax because of convenience in collection of tax. This advantage in tax collection has been possible because of a few major purchasers of such commodities as against many sellers (farmers).

Prior to the tax reforms of 1990s, sales tax structure has been changed considerably over time. During certain periods, multipoint or a retail level form of sales tax was found most common. By 1989-90, most of the States had resorted to single point sales tax, mainly at the first point, i.e., at the time of import, manufacture or wholesale. Some of the States continued to follow the system of double point tax or multipoint tax for certain commodities. A few commodities were subjected to multipoint tax in two Indian States, namely, Karnataka and Kerala. Similarly, a few commodities were subjected to double point tax in Gujarat.

The States had evolved the structures of sales tax depending on their revenue needs, without any regard for simplicity and rationality in taxation. Most of the States also imposed 'additional tax' in the form of surcharge (on sales tax) and/or turnover tax (based on the turnover of sales tax dealers). Some of the States had direct reference to surcharge or turnover tax in their legislation, while some referred to one of these forms as additional tax, giving an impression as if there were three forms of the tax (surcharge, turnover tax and additional tax<sup>9</sup>). Generally, the marginal rate of turnover tax was increased with turnover of the dealer. Also, the ceiling on the rate of CST was raised from 1 per cent to 4 per cent over time.

With a view to mitigating the impact of input taxation, most of the States gave some tax relief on inputs used up in the production of taxable commodities. Nevertheless, sales tax could be expected to result in substantial input taxation.

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9. See National Institute of Public Finance and Policy (1991, pp. 268-69; and 1994, Chapter 3).

The rate structures of sales tax varied widely across the States. There was no tax coordination among the States or between the Centre and the States. The tax rates varied from commodity to commodity and with end use of a given commodity. The tax bases tended to be low as each State allowed a large number of exemptions and concessions. Most of the States exempted or taxed at concessional rates, food items, and allowed the new firms a deferral of tax or retention of sales tax as interest free loan for a specified period provided these were located in less developed areas or engaged in production of specified commodities. In general, necessities in comparison to luxuries were taxed at lower rates. A brief description of the rate structures of sales tax for different States, as prevailed in the year 1989-90, is given in Table 2.2. From Table 2.2, it will be noted that the number of tax rates varied from 7 in Orissa and West Bengal to 25 in Gujarat. General (or standard) rate of sales tax varied across the States from 4 to 12 per cent. There was wide variation in the sales tax rates around the general rate in any of the States<sup>10</sup>.

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10. For a detailed description of the structures of sales tax in India see Purohit (1995).

TABLE 2.2

## A Brief Description of Rate Structure of Sales Tax: 1989-90

State	Mode of levy	Treatment of goods when used as raw materials	Additional tax	Tax rates		
				No.	Range (%)	General rate
Andhra Pradesh	SP	CR(≤4%)	TT,SC(10%)	8	1-25	6
Assam	SP	E(SED)	-	12	2-50	7
Bihar	SP	CR(≤3%)	TT,SC(10%)	17	2-25	8
Delhi	SP	E	-	9	1-12	7
Goa	SP	E(SRM) <sup>1</sup>	SC(10%)	10	1-15	7
Gujarat	SP,DP	SO(SRM)	TT,SC(20%)	25	0.5-54	4/8
Haryana	SP	SO	SC(10%)	10	0.5-20	10
Himachal Pradesh	SP	SO	SC(10%)	12	0.5-25	8
Karnataka	SP,DP,MP	CR(≤4%)	TT	14	1-150	7
Kerala	SP,DP,MP	CR(≤2%) <sup>2</sup>	TT,SC(25%)	16	2-75	5
Madhya Pradesh	SP	CR(≤4%)	-	18	0.5-50	8
Maharashtra	SP	SO(CR≤4 OR 6%) <sup>3</sup>	TT,SC(12%)	12	1-50	-
Orissa	SP	CR(≤4%)	SC(10%)	7	2-16	12
Punjab	SP	E <sup>4</sup>	SC(10%)	12	1-12	7
Rajasthan	SP	CR(≤3%)	-	15	2-30	10
Tamil Nadu	SP,MP <sup>5</sup>	CR(≤3%)	TT,SC(15%) <sup>6</sup>	17	1-50	8
Uttar Pradesh	SP	E(SRM),CR(SRM)	SC(25%)	14	2-32.5	8
West Bengal	SP,MP	CR(≤2%)	TT,SC(15%)	7	1-20	8

Notes:SP: Single point ; MP: Multi point ; TT: Turnover tax; SC: Surcharge ; CR: Concessional rate; E: Exempt ; SO: Set off; SED: Selected eligible dealers; SRM: Selected raw materials.

1. Raw materials and packing materials i.e., commodities subjected to last point tax, to be used as inputs, can be purchased without payment of tax.
2. The benefit of concessional rate is not available if the finished goods are exported or sent on consignment basis.
3. 6 per cent is applicable when the manufactured goods are sent on branch transfer outside Maharashtra. Set off is given in respect of the rate, to the extent it exceeds the concessional rate.
4. All transactions among the registered dealers are exempt.
5. In Tamil Nadu, SP and MP upto 31.3.1990 and only SP w.e.f. 1.4.1990.
6. An addition surcharge of 5 per cent is payable in the Madras area.

Source: Compiled on the basis of information furnished by the Sales Tax Departments of different States.

### 3. THE METHODOLOGY: A THEORETICAL PERSPECTIVE

#### 3.1 The Model

In this Chapter, a model based on the standard input-output technique is developed for computing the effective tax rates of different indirect taxes. The model is based on various assumptions such as constant returns to scale, 100 per cent forward shifting of tax to the consumers and complementarity of imported inputs to domestic inputs<sup>11</sup>. Wages are treated as exogenous. The assumption of constant returns to scale implies that the price of a commodity equals the average cost plus profits. Exogenous treatment of wages means that the effects of price and tax changes on wages and in return on prices are not endogenised within the model. In developing the model for computing effective tax rates of Union excise duties, customs duties and sales tax, we have drawn upon the earlier works of Ahmed and Stern (1983), and Jha and Srinivasan (1989). Hereinafter, these studies are referred to as AS (1983) and JS (1989). For convenience, notations similar to those of JS (1989) are used.

A crucial factor in the construction of a model of effective tax rates is the analogy of treating *ad-valorem* tax rates as if these are specific tax rates and the additivity of the rates relating to different taxes. Comprehension of any such model requires understanding of this analogy which can be explained as

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11. The justification for some of these assumptions was provided earlier.

follows. Let vectors  $t^d$ ,  $t^m$ ,  $\tau^m$  and  $t^s$  denote *ad-valorem* nominal rates of excise, customs, countervailing duty (CVD) and sales tax respectively. Let the vectors  $p^d$  and  $q^d$  respectively denote the producer prices and the consumer prices of the domestically produced goods (hereinafter referred to as domestic goods). These price concepts differ only by the element of tax embodied in the price of the commodity. The producer price of a commodity can be explained as the price that the producer receives and retains with him. Noting that the excise duty is applicable to the producer price of the commodity and that the sales tax is applicable to the producer price plus the excise duty, the consumer price of the  $j$ th commodity can be written as

$$q_j^d = p_j^d (1 + t_j^d) (1 + t_j^s) \quad (3.1)$$

$$\text{or } q_j^d = p_j^d (1 + t_j^d + (1 + t_j^d) t_j^s)$$

$$\text{or } q_j^d = p_j^d (1 + t_j^d + t_j^{ds}) \quad (3.2)$$

where

$$t_j^{ds} = (1 + t_j^d) t_j^s \quad (3.3)$$

Equations (3.2) and (3.3) indicate that the nominal rate of sales tax ' $t_j^s$ ', with reference to the tax base  $p_j^d(1 + t_j^d)$  is equivalent to the nominal rate of sales tax ' $t_j^{ds}$ ', with reference to the tax base ' $p_j^d$ ', which is the same as the tax base for excise duty. Defining the notional nominal tax rates with reference to a common tax base has facilitated transformation of equation (3.1) into equation (3.2). In equation (3.1), the tax rates appear in a multiplicative form whereas in equation (3.2), they appear in an additive form. This reveals that the multiplicative form of the tax rates can be expressed as an additive form of the tax rates by

defining the rates with reference to a common tax base. Further, if the quantity unit of a commodity is so chosen that the producer price is Re 1 per unit then equation (3.2) reduces to

$$q_j^d = 1 + t_j^d + t_j^{ds}$$

$$\text{or } q_j^d = p_j^d + t_j^d + t_j^{ds} \quad (3.4)$$

Where  $p_j^d$  is normalised to unity.

Clearly, the character of the nominal tax rates as they appear in equation (3.4) is those of specific rates rather than those of *ad-valorem* rates. This shows that *ad-valorem* tax rates can be treated as specific rates provided the *ad-valorem* rates for different taxes are defined with reference to a common tax base (value of domestic goods at producer prices) and that the quantity unit of the commodity is so chosen that the producer price is Re. 1 per unit.

The analogy discussed above can also be applied in the context of prices of imported commodities. Let the vectors  $p^w$  and  $q^m$  respectively denote the CIF prices (hereinafter referred to as world prices) and consumer prices of the imported goods. It may be noted that customs duty is applicable to the value of imports at the world prices, countervailing duty (CVD) is applicable to the value of imports at the world prices plus the customs duty, and sales tax is applicable to the value of imports plus both the customs duty and CVD. Now the consumer price of the  $j$ th imported commodity can be written as

$$q_j^m = p_j^w (1 + t_j^m) (1 + r_j^m) (1 + t_j^s) \quad (3.5)$$

$$\text{or } q_j^m = p_j^w [1 + t_j^m + (1 + t_j^m) r_j^m + (1 + t_j^m) (1 + r_j^m) t_j^s]$$

$$\text{or } q_j^m = p_j^w (1 + t_j^m + \tau_j^{m*} + t_j^{ms}) \quad (3.6)$$

where,

$$\tau_j^{m*} = (1 + t_j^m) \tau_j^m \quad (3.7)$$

$$t_j^{ms} = (1 + t_j^m) (1 + \tau_j^m) t_j^s \quad (3.8)$$

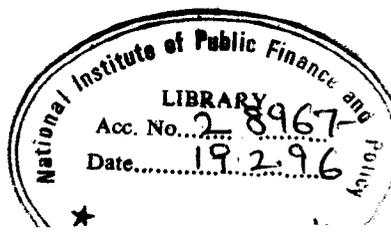
Choosing the quantity units such that the world price of a commodity is Re. 1 per unit, equation (3.6) can be written as

$$q_j^m = p_j^w + t_j^m + \tau_j^{m*} + t_j^{ms} \quad (3.9)$$

Clearly, the character of nominal tax rates as they appear in equation (3.9), like those in equation (3.4), is those of specific tax rates rather than those of ad-valorem rates. In equation (3.9), the nominal rates of different taxes are defined with reference to a common tax base, i.e., the value of imports at the world prices. By using these price equations, a model of effective tax rates is developed which is discussed below.

Let  $L$  be the number of all commodities with  $M$  MODVAT commodities and  $N$  non-MODVAT commodities. Let  $I_L$ ,  $I_M$  and  $I_N$  represent the sets of  $L$ ,  $M$  and  $N$  commodities respectively, with  $I_L = I_M \cup I_N = \{1, 2, \dots, L\}$ . Let the vectors  $t^d$  and  $t^{ds}$  denote ad-valorem nominal rates of excise and sales tax with reference to a common tax base, i.e., the value of domestic goods at producer prices, as discussed earlier. Let  $t^m$ ,  $\tau^{m*}$  and  $t^{ms}$  denote ad-valorem nominal rates of customs duty, CVD and sales tax with reference to a common tax base, i.e., the value of imports at world prices, as discussed earlier. Let  $A^d$  and  $A^m$  denote the 'commodity X commodity' input-output coefficients matrices of

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domestic and imported inputs respectively. Both the matrices are of size  $L \times L$ . It should be noted that in the construction of these input-output coefficients matrices, the quantity units are chosen such that the producer prices of the domestically produced goods and the world prices of the imported goods are normalised to Re. 1 per unit. Column vectors are denoted by small letters and the row vectors are indicated by the prime ('') superscript. Elements of matrices and vectors are denoted by small letters with appropriate subscripts.

The vector of gross value added (per unit) is denoted by  $y$  which is decomposed as

$$y = w + n \quad (3.10)$$

where  $w$  is the vector of 'per unit personal incomes'. It includes wages, distributed profits, interest etc.  $n$  is the vector of 'per unit non-personal incomes'. It consists of corporate and government incomes such as tax on profits, depreciation, retained profits, other overheads etc. (Hereinafter the vector  $n$  will be referred to as profit income.) It is obtained by applying a fixed mark-up to prime costs, namely, the material costs and personal incomes. The vector of fixed mark-up or fixed profit margins is denoted by  $\pi$ . The mark-up for the  $j$ th commodity,  $\pi_j$ , can be expressed as

$$n_j = \pi_j (\sum_i C_{ij} + w_j) \quad (3.11)$$

where  $C_{ij}$  denotes material cost of the  $i$ th commodity for the production of one unit of the  $j$ th commodity.

For any matrix  $B = (b_{ij})$ , the following variations are defined as

$$\bar{B} = (\bar{b}_{ij}) \text{ with } \bar{b}_{ij} = \begin{cases} b_{ij} & \text{if } i, j \in I_M \\ 0 & \text{otherwise} \end{cases}$$

$$\tilde{B} = (\tilde{b}_{ij}) \text{ with } \tilde{b}_{ij} = (1 + \pi_j) b_{ij}$$

$$\bar{B} = (\bar{b}_{ij}) \text{ with } \bar{b}_{ij} = (1 + \pi_j) \tilde{b}_{ij}$$

Similarly, for any vector  $Z$ ,  $\tilde{Z}$  is defined as:

$$\tilde{Z} = (\tilde{z}_j) \text{ with } \tilde{z}_j = (1 + \pi_j) z_j$$

Following the analogy discussed above, the relationship between the vector of consumer prices ( $q^d$ ) and the vector of producer prices ( $p^d$ ) of the domestic goods can be expressed as

$$q^d = p^d + t^d + t^{ds} \quad (3.12)$$

Similarly, the relationship between the vector of world prices ( $p^w$ ) and the vector of consumer prices ( $q^m$ ) of the imported goods can be expressed as

$$q^m = p^w + t^m + \tau^{m*} + t^{ms} \quad (3.13)$$

The above relationship (3.13) assumes that the imported commodities pass through the stage of domestic sale before these are actually used up as inputs or final consumption. Thus, these commodities bear the burden of sales tax in addition to customs

duties and CVD. If the imported goods do not pass through the stage of domestic sale before these are actually used up, sales tax on these goods will not apply.

Complementarity of imported inputs to domestic inputs implies that the production of a unit of good  $j$  requires  $a_{ij}^d$  ( $i=1,2,\dots,L$ ) units of domestic goods and  $a_{ij}^m$  ( $i=1,2,\dots,L$ ) units of imported goods. Assuming fixed mark-up over prime costs, the producer price for commodity  $j$  can be written as

$$p_j^d = (1 + \pi_j) [\Sigma_i (q_i^d a_{ij}^d + q_i^m a_{ij}^m) + w_j - \Sigma_i (t_i^d \bar{a}_{ij}^d + r_i^{m*} \bar{a}_{ij}^m)] \quad (3.14)$$

or

$$p_j^d = \Sigma_i (q_i^d \bar{a}_{ij}^d + q_i^m \bar{a}_{ij}^m) + \bar{w}_j - \Sigma_i (t_i^d \bar{a}_{ij}^{d*} + r_i^{m*} \bar{a}_{ij}^{m*}) \quad (3.15)$$

where  $w_j$  is the wage cost per unit of output of the  $j$ th commodity. It may be noted that multiplication of an input-output coefficient by the consumer price of the input commodity, simply changes the value of the input from that at the producer price to that at the consumer price.

In matrix notations, equation (3.15) can be written as

$$p^{d'} = q^{d'} \bar{A}^d + q^{m'} \bar{A}^m + \bar{w}' - t^{d'} \bar{A}^{d*} - r^{m*'} \bar{A}^{m*} \quad (3.16)$$

Substituting for  $q^{m'}$  from (3.13) in (3.16), we get

$$p^{d'} = q^{d'} \bar{A}^d + p^{w'} \bar{A}^m + t^{m'} \bar{A}^m + r^{m*'} \bar{A}^m + t^{ms'} \bar{A}^m + \bar{w}' - t^{d'} \bar{A}^{d*} - r^{m*'} \bar{A}^{m*}$$

$$\begin{aligned} \text{or } p^{d'} &= q^{d'} \tilde{A}^d + t^{m'} \tilde{A}^m + r^{m*'} (\tilde{A}^m - \overset{m}{A}^m) - t^{d'} \overset{m}{A}^d \\ &+ t^{ms'} \tilde{A}^m + p^{w'} \tilde{A}^m + \tilde{w}' \end{aligned} \quad (3.17)$$

Substituting for  $p^{d'}$  from (3.17) in (3.12), we get

$$\begin{aligned} (I - \tilde{A}^d) q^{d'} &= t^{d'} (I - \overset{m}{A}^d) + t^{m'} \tilde{A}^m + r^{m*'} (\tilde{A}^m - \overset{m}{A}^m) \\ &+ t^{ds'} + t^{ms'} \tilde{A}^m + p^{w'} \tilde{A}^m + \tilde{w}' \end{aligned}$$

$$\begin{aligned} \text{or } q^{d'} &= t^{d'} (I - \overset{m}{A}^d) (I - \tilde{A}^d)^{-1} + t^{m'} \tilde{A}^m (I - \tilde{A}^d)^{-1} \\ &+ r^{m*'} (\tilde{A}^m - \overset{m}{A}^m) (I - \tilde{A}^d)^{-1} + t^{ds'} (I - \tilde{A}^d)^{-1} \\ &+ t^{ms'} \tilde{A}^m (I - \tilde{A}^d)^{-1} + p^{w'} \tilde{A}^m (I - \tilde{A}^d)^{-1} \\ &+ \tilde{w}' (I - \tilde{A}^d)^{-1} \end{aligned} \quad (3.18)$$

Equation (3.18) gives decomposition of consumer price into elements of excise, customs duties, countervailing duty, sales tax and wage costs etc. Specifically, the effective rates of excise duty ( $t^{de'}$ ), customs duties ( $t^{me'}$ ), countervailing duty ( $r^{me'}$ ) and sales tax ( $t^{se'}$ ) are given as

$$t^{de'} = t^{d'} (I - \overset{m}{A}^d) (I - \tilde{A}^d)^{-1} \quad (3.19)$$

$$t^{me'} = t^{m'} \tilde{A}^m (I - \tilde{A}^d)^{-1} \quad (3.20)$$

$$r^{me'} = r^{m*'} (\tilde{A}^m - \overset{m}{A}^m) (I - \tilde{A}^d)^{-1} \quad (3.21)$$

$$t^{se'} = t^{ds'} (I - \tilde{A}^d)^{-1} + t^{ms'} \tilde{A}^m (I - \tilde{A}^d)^{-1} \quad (3.22)$$

Equations (3.18) to (3.22) indicate that the vector of effective rates of 'different taxes taken together' can be obtained as the sum of vectors of effective rates of different taxes. These effective rates can be referred to as the effective rates of 'combined tax'. Denoting the vector of effective rates of combined tax by  $t^e$ , the relationship between the effective rates of the combined tax and those of individual taxes can be written as

$$t^e = t^{de} + t^{me} + \tau^{me} + t^{se} \quad (3.23)$$

In equation (3.22), the first component on the right hand side gives effective sales tax corresponding to sales tax payable on the domestic produce and the second component gives effective sales tax corresponding to sales tax payable on the imported inputs usedup in the production process. In case the imported inputs do not pass through the stage of domestic sale that attracts sales tax, the second component in equation (3.22) will not apply. In that case, the effective sales tax would be given as

$$t^{se} = t^{ds} (I - A^d)^{-1} \quad (3.24)$$

Accordingly, the consumer price equation (3.13) for the imported goods would be

$$q^{m'} = p^{w'} + t^{m'} + \tau^{m*'} \quad (3.25)$$

Our expression for the effective rate of excise duty is the same as that of JS (1989). The sum of our expressions for 'customs duty and CVD' is found to be the same as the comparable expression of JS (1989) except for the definitional difference in the nominal rate of CVD. In our expression, notional nominal rate of CVD has been used (that is defined with reference to value of imports exclusive of customs duty), as it should be, whereas they have used nominal rate of CVD (that is defined with reference to value of imports inclusive of customs duty). Our expressions of

effective tax rates can also be compared with those of AS (1983). If we drop the terms relating to the set off of taxes (both for excise and CVD) paid on inputs, then our expressions for the effective tax rates reduce to those of AS (1983). Our expression for the effective rate of sales tax is the same as that of AS (1983) excepting for the definitional differences in the sales tax rates utilized. In our framework, notional nominal rates of sales tax have been utilized which are defined separately for domestic production and import of a good with reference to value of output at producer prices and value of imports at world prices respectively. Whereas, AS (1983) utilized sales tax rates which are defined with reference to consumer prices exclusive of sales tax.

An explanation of the elements of the inverse matrix  $(I - \tilde{A}^d)^{-1}$  will help in a better understanding of the expressions of effective tax rates. The  $ij$ th element of the inverse matrix, say  $\alpha_{ij}$ , shows the total direct and indirect amount of the  $i$ th domestic commodity required for producing one unit of the  $j$ th commodity. So, the elements in the  $j$ th column of the inverse matrix show direct and indirect amounts of each of the domestic goods required to satisfy the demand for one unit of the  $j$ th commodity. If no set off was available for the excise duty payable on inputs, then the effective tax rate for the  $j$ th commodity could have been obtained as  $\sum_i \alpha_{ij} t_i^d$ . It is evident from equation (3.19) that the multiplication of the inverse matrix by the matrix  $(I - \tilde{A}^d)$  takes care of the provision of set off under the excise duty. Denoting the  $ij$ th element of this modified inverse matrix by  $\beta_{ij}$ , the effective tax rate of excise duty of the  $j$ th commodity can be obtained as  $\sum_i \beta_{ij} t_i^d$ . Further, it is evident from equation (3.20) that the multiplication of the inverse matrix by the import matrix  $\tilde{A}^m$  transforms it into the inverse matrix for the imported goods. The  $ij$ th element of this modified inverse matrix, say  $\Gamma_{ij}$ , shows total direct and indirect amount of the  $i$ th imported commodity

required to satisfy the demand for one unit of the  $j$ th commodity. Accordingly, the effective rate of customs duty of the  $j$ th commodity can be given by  $\sum_i \Gamma_{ij} t_i^m$ . In equation (3.21), i.e., in the case of CVD, the matrix  $\tilde{A}^m$  is subtracted from the import matrix before multiplying it with the inverse matrix. This adjustment of the import matrix is attributable to the provision of set off available in regard to the CVD. Denoting the  $ij$ th element of this modified inverse matrix,  $(\tilde{A}^m - \tilde{A}^m)(I - \tilde{A}^d)^{-1}$ , by  $\delta_{ij}$ , the effective rate of CVD can be expressed as  $\sum_i \delta_{ij} \tau_i^{m*}$ . The forms of the inverse matrix involved in equation (3.22) have already been interpreted above. The components of the effective rate of sales tax relating to total direct and indirect use of domestic and imported goods in the process of satisfying the demand for one unit of the  $j$ th commodity can be interpreted accordingly. Thus, the effective rate of sales tax on the  $j$ th domestic commodity, attributable to sales tax payable on the domestic produce can be obtained as  $\sum_i \alpha_{ij} t_i^{ds}$  and that attributable to sales tax payable on the imported inputs used up in the process of production can be obtained as  $\sum_i \Gamma_{ij} t_i^{ms}$ . The overall effective rate of sales tax on the  $j$ th domestic commodity is given by  $\sum_i (\alpha_{ij} t_i^{ds} + \Gamma_{ij} t_i^{ms})$ . It may also be noted that the effective rate of sales tax on the  $j$ th imported commodity that constitutes part of final consumption is the same as the notional nominal rate of sales tax, i.e.,  $t_j^{ms}$ .

The difference between the nominal or the notional nominal (as the case may be) tax rate and the effective tax rate of a commodity can be taken to indicate the extent to which the inputs used in the production of the commodity are taxed. AS (1983) gave an alternative interpretation of this difference, which is as follows:

"If the taxation of a commodity via its inputs is in any sense 'unintended' or overlooked by policy makers in deciding how heavily different commodities should be taxed, then one might view the difference between effective and nominal rates as that between 'actual' and 'desired'."

With a view to discussing revenue equivalence in terms of nominal or notional nominal tax rates and in terms of effective tax rates, we decompose the vector of gross output 'x' into two components as

$$x = \tilde{A}^d x + (I - \tilde{A}^d) x \quad (3.26)$$

The component  $\tilde{A}^d x$  gives the vector of domestic commodities used up in the production process. The component  $(I - \tilde{A}^d)x$  gives the vector of net output, i.e., the vector of goods available for final consumption, export etc.

For a given tax, revenue from a commodity equals the product of the nominal or the notional nominal (as the case may be) tax rate and the gross output of the commodity. Accordingly, total revenue from the tax equals the product of the vector of nominal or notional nominal tax rates and the vector of gross output. In the analogy of effective tax rates, the vector of net output (i.e., output in excess of input use of commodities) multiplied by the vector of effective tax rates gives the same tax revenue. Therefore, in general, the effective tax rate of a commodity will be greater than the nominal or the notional nominal tax rate as the net output of a commodity is generally lower than the gross output. This is so, because the effective tax rates take into account the tax on inputs in addition to the tax on output. However, in case of negative tax or subsidy on some of the

commodities, the effective tax rate on a commodity may turn out to be lower than the nominal or the notional nominal tax rate. Accordingly, an effective tax rate lower than the nominal or the notional nominal tax rate would mean that some of the inputs are subsidised.

From the above discussion of the model, it follows that the vector of effective rates of 'different taxes taken together' can be obtained as the sum of separate vectors of effective rates of different taxes. It should, however, be noted that the computation of effective tax rates of different commodities has to be performed simultaneously. The additivity of vectors of effective rates of different taxes presumes or requires that the effective rates of different taxes are computed with reference to a common tax base. The nominal or notional nominal tax rates should be in consonance with this analogy.

Adopting the theory discussed above, requires commodity X commodity input-output coefficients matrices in regard to input requirements of domestic as well as imported goods. Generally, the commodity x commodity matrices are not readily available. The required matrices have to be obtained by using the available commodity X industry and industry x commodity matrices. The modalities for this are discussed below in Section 3.2. Further, the input-output coefficients matrices are available generally for a fewer groups of commodities/industries as compared to the number of tax rates. Therefore, many nominal tax rates may apply to a commodity group. Besides this, there are a large number of exemptions and tax concessions under different taxes. In fact, the nominal rates of excise duty specified in the budgets are basically the ceiling rates. The actual nominal rates are specified and given effect to through a large number of notifications. All this indicates that defining the nominal tax rates unambiguously, for the different commodity groups of the

input-output matrices is not an easy task and their computation would involve an enormous effort. An alternative to the use of nominal tax rates that avoids these intricacies is to work with implicit nominal tax rates which can be conveniently computed on the basis of figures of revenue collection and the relevant tax bases. The choice of tax bases and formulae for computation of implicit nominal tax rates is discussed in Section 3.3.

### 3.2 Obtaining Required Input-Output Matrices

Generally, the available input-output coefficients matrices are of dimensions commodity X industry, and industry X commodity. The matrices in the former category are referred to as 'absorption matrices' and in the latter category are referred to as 'make matrices'. Both the absorption and make matrices are available with regard to total (domestic and imported) flow of commodities. The absorption matrices separately for domestic and imported goods are also generally available. The  $ij$ th element of an absorption matrix represents the quantity of  $i$ th commodity required as an input for production of one unit of  $j$ th industry. Similarly, the  $ij$ th element of the make matrix represents the quantity of  $i$ th industry required as an input for production of one unit of  $j$ th commodity. It is important to note that, in the construction of input-output coefficients matrices, the quantity units are so chosen that all the producer prices are normalised to Re. 1 per unit. Denoting the absorption matrices of input-output coefficients of total flows, domestic goods and imported goods by  $B$ ,  $B^d$  and  $B^m$  respectively, and the make matrix of input-output coefficients of total flows by  $D$ , the required commodity X commodity input-output coefficients matrices of total flows ( $A$ ), domestic goods ( $A^d$ ) and imported goods ( $A^m$ ) can be obtained as

$$A = B D \quad (3.27)$$

$$A^d = B^d D \quad (3.28)$$

$$A^m = B^m D \quad (3.29)$$

### 3.3 Tax Bases and Implicit Nominal Tax Rates

The commodity-wise revenue collections from each tax can be converted into implicit nominal rates by using suitable tax bases. For a given tax, the implicit nominal rate ( $t_i$ ) for the  $i$ th good can be expressed as

$$t_i = T_i / b_i \quad (3.30)$$

where  $T_i$  denotes revenue collection from the  $i$ th commodity and  $b_i$  denotes appropriate tax base of the  $i$ th commodity. Generally, the tax base varies with the type of tax under consideration. The choice of appropriate tax bases for the taxes under consideration is discussed below. It may, however, be noted that adopting the theory discussed earlier, requires implicit nominal rates of different taxes with reference to a common tax base, namely, value of output at producer prices or value of imports at world prices, as the case may be. Such implicit nominal rates can be referred to as 'notional implicit nominal rates'. In order to avoid multiplicity of notations, we use the same notations to denote implicit nominal rates as were used to denote the corresponding nominal rates. Notional implicit nominal rates will continue to be denoted by the same notations as used earlier.

As discussed earlier, Union excise duties are levied on almost all goods manufactured by medium and large manufacturers, with a large number of exemptions and tax concessions. Therefore, value of gross output (which is the gross output at producer prices) is the appropriate tax base for computing implicit nominal

rates of Union excise duties. However, it is important to note that in a tax regime having provision of duty drawbacks on exports<sup>12</sup>, if the revenue collection figures are net of duty drawbacks then the tax base needs to be modified as the value of 'gross output net of exports'. So, the implicit nominal rate of excise duties for a commodity can be expressed as the ratio of revenue collection net (gross) of duty drawbacks from the commodity to the value of its 'gross output net (gross) of exports'. But the vector of implicit nominal tax rates obtained with revenue collection figures gross of duty drawbacks is likely to differ from that obtained with revenue collection figures net of duty drawbacks. This is likely to be so, because different tax rates may apply to different constituents of a commodity whereas the duty drawback relating to export of a commodity is based on the approximate actual burden of the tax on the commodity. The only scenario in which the two vectors of implicit nominal tax rates will not differ is that of equality between the rate of duty drawback and the implicit nominal tax rate of the commodity. Depending on the issue under consideration, one of the vectors of implicit nominal tax rates may be preferable to the other. If the objective is to analyse the burden of the tax on the residents (as consumers of different commodities) then the vector of implicit nominal tax rates based on the revenue collection figures net of duty drawbacks would be appropriate. So, it is this vector of implicit nominal tax rates that is appropriate in the context of this study. For our purposes, implicit nominal rates of excise duty can be obtained as

$$t_i^d = T_i^d / b_i^d \quad (3.31)$$

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 12. It may be noted that the excise duty relating to inputs used up in the production of commodities exported is refunded based on the approximate actual burden of tax on the inputs.

where  $T_i^d$  represents excise duty collection (net of duty drawbacks) from the  $i$ th commodity and  $b_i^d$  denotes value of 'gross output net of exports' of the  $i$ th commodity.

The duties on imports have been divided into two categories, namely, customs duties and countervailing duty (CVD). Both these duties are levied on the value of imports. While the customs duties are leviable on the CIF value of imports (referred to as the value of imports at world prices), the CVD is leviable on the value of imports gross of customs duties. Accordingly, the implicit nominal rate of customs duties, for a commodity, can be defined as the ratio of revenue collection from the commodity to the value of its imports (exclusive of customs duties). And the implicit nominal rate of CVD, for a commodity, can be defined as the ratio of revenue collection from the commodity to the value of its imports (inclusive of customs duties). The implicit nominal rates of customs duties ( $t_i^m$ ) and CVD ( $\tau_i^m$ ) can be expressed as

$$t_i^m = T_i^{m1} / b_i^{m1} \quad (3.32)$$

$$\tau_i^m = T_i^{m2} / b_i^{m2} \quad (3.33)$$

where  $T_i^{m1}$  represents collection of customs duties from the  $i$ th commodity and  $T_i^{m2}$  denotes collection of CVD from the  $i$ th commodity.  $b_i^{m1}$  ( $b_i^{m2}$ ) denotes value of imports of the  $i$ th commodity, exclusive (inclusive) of customs duties. The relationship between these tax bases can be expressed as

$$b_i^{m2} = (1 + t_i^m) b_i^{m1} \quad (3.34)$$

The required notional implicit nominal rates of CVD with reference to the value of imports net of customs duties can be obtained as

$$\tau_i^{m*} = T_i^{m2} / b_i^{m1} \quad (3.35)$$

or as

$$\tau_i^{m*} = (1 + t_i^m) \tau_i^m \quad (3.36)$$

Sales tax is levied on the domestic sale of a commodity irrespective of whether the commodity is produced domestically or imported. For the purposes of sales tax, the value of a commodity should be taken gross of Union excise duties, customs duties and CVD, wherever applicable. Normally, exports are not subjected to sales tax. So, for domestic goods, the appropriate tax base would be the value of 'gross output net of exports' but inclusive of Union excise duties, and for imported goods, the appropriate tax base would be the value of imports inclusive of customs duties and CVD. Denoting the tax bases for domestic production and import of *i*th commodity respectively by  $b_i^{s1}$  and  $b_i^{s2}$ , the implicit nominal rates of sales tax for domestic goods ( $t_i^{s1}$ ) and for imported goods ( $t_i^{s2}$ ) can be expressed as

$$t_i^{s1} = T_i^{ds} / b_i^{s1} \quad (3.37)$$

$$t_i^{s2} = T_i^{ms} / b_i^{s2} \quad (3.38)$$

where  $T_i^{ds}$  ( $T_i^{ms}$ ) denotes sales tax collection from the *i*th domestic (imported) commodity, and  $b_i^{s1} = b_i^d (1 + t_i^d)$  and  $b_i^{s2} = b_i^{m1} (1 + t_i^m) (1 + \tau_i^m)$ . The notations  $b_i^d$  and  $b_i^{m1}$  represent respectively gross output (net of exports) and value of imports (exclusive of customs duties), as explained earlier. The required notional implicit nominal rates of sales tax, separately for domestic goods ( $t^{ds}$ ) with reference to value of 'gross output net of exports' and for imported goods ( $t^{ms}$ ) with reference to value of imports exclusive of customs duties can be expressed as

$$t_i^{ds} = T_i^{ds} / b_i^d \quad (3.39)$$

$$t_i^{ms} = T_i^{ms} / b_i^{m1} \quad (3.40)$$

or as

$$t_i^{ds} = (1 + t_i^d) t_i^{s1} \quad (3.41)$$

and

$$t_i^{ms} = (1 + t_i^m) (1 + \tau_i^m) t_i^{s2} \quad (3.42)$$

In the absence of data on sales tax collections, separately for domestic and imported goods, the separate implicit nominal rates  $t_i^{s1}$  and  $t_i^{s2}$  may be equated to the global implicit nominal rate of sales tax  $t_i^s$ , which can be defined as

$$t_i^s = T_i^s / b_i^s \quad (3.43)$$

where  $T_i^s$  represents sales tax collection from the  $i$ th commodity, and  $b_i^s$  is the tax base of the  $i$ th commodity which consists of 'value of gross output net of exports', value of imports at world prices and revenue collection from Union excise duties, customs duties and CVD net of duty drawbacks, if any.

It may be emphasised that the notional implicit nominal rates applied to the relevant modified tax bases ( $b_i^d$  or  $b_i^{m1}$ ) give the same revenue as may be obtained by applying the implicit nominal rates to the actual tax bases ( $b_i^s$  or,  $b_i^{s1}$  and  $b_i^{s2}$ ).

In computing the implicit nominal tax rates, discussed above, a difficulty may arise if the commodity-wise figures of revenue collection or of the tax bases are not available. In such cases, nominal tax rates may be used in lieu of implicit nominal tax rates. It may, however, be noted that the nominal tax rates

would generally be greater than the implicit rates as the exemptions and tax concessions have become an integral part of any tax system. With the above mentioned substitution, the notional implicit nominal tax rates with reference to the relevant common tax bases can be obtained by using equations (3.36), (3.41) and (3.42).

### 3.4 Tax Incidence by Household Groups

It is a common practice to compare the tax burdens for different household groups in order to evaluate the progressivity or regressivity of different indirect taxes. Tax burden borne by a household group can be defined as the ratio of the taxes paid by the household group on its expenditures on different commodities to its total expenditure. Alternatively, it can be defined as the ratio of the taxes paid by the household group on its mean expenditures on different commodities to its total mean expenditure [see Chelliah and Lal (1973-74), AS (1983) and JS (1989)]. It is the latter definition of tax burden that is generally used, as the consumption expenditure data on the households are normally reported in terms of mean expenditures of the household groups. The mean expenditure of a household group can be defined in terms of expenditure per household or per person.

For  $h$ th household group, let  $\bar{x}^{dh}$ ,  $\bar{x}^{mh}$  and  $\bar{x}^h$  denote the vectors of mean consumption of domestic goods, imported goods and of both types of goods (domestic and imported) respectively. Its mean expenditure on  $i$ th commodity can be expressed as

$$\bar{x}_i^h = \bar{x}_i^{dh} + \bar{x}_i^{mh} \quad (3.44)$$

Total mean expenditure of the  $h$ th household group on all the  $k$  commodities ( $\bar{x}_a^h$ ) can be expressed as

$$\bar{x}_a^h = \sum_{i=1}^k \bar{x}_i^h \quad (3.45)$$

In terms of the above notations, the burden of excise duty on the hth household group ( $b^{dh}$ ) can be expressed as

$$b^{dh} = (t^{de'} \bar{x}^{dh}) / \bar{x}_a^h \quad (3.46)$$

where  $t^{de}$  is the vector of effective rates of excise duty on the domestic goods, as defined earlier.

The burden of customs duties ( $b^{mlh}$ ) as well as of countervailing duty ( $b^{m2h}$ ) consists of two components. One relating to the final consumption of domestic commodities and the second relating to the final consumption of imported goods. It should be noted that the tax burden on consumption from domestic goods has to be computed at the effective tax rates while that on consumption from imported goods has to be computed at the implicit nominal or the notional implicit nominal tax rates, as the case may be. Accordingly, the burdens of customs duties and CVD can be expressed as

$$b^{mlh} = (t^{me'} \bar{x}^{dh} + t^{m'} \bar{x}^{mh}) / \bar{x}_a^h \quad (3.47)$$

$$b^{m2h} = (r^{me'} \bar{x}^{dh} + r^{m*'} \bar{x}^{mh}) / \bar{x}_a^h \quad (3.48)$$

Similarly, the burden of sales tax ( $b^{sh}$ ) can be obtained as

$$b^{sh} = (t^{se'} \bar{x}^{dh} + t^{ms'} \bar{x}^{mh}) / \bar{x}_a^h \quad (3.49)$$

For the hth household group, the combined burden of excise, customs duties, CVD and sales tax, ( $b^{ah}$ ) can be obtained as

$$b^{ah} = b^{dh} + b^{mlh} + b^{m2h} + b^{sh} \quad (3.50)$$

In the above discussion, the consumption vector of a household is taken to comprise two components: one relating to the consumption of domestic goods and the other relating to the consumption of imported goods. It may, however, be noted that the former component can be further subdivided into two components: one relating to the consumption through cash purchases and the other relating to the consumption through barter exchange or from home-grown production. In this scenario, the element of excise duty or sales tax, in the former component of domestic goods, should continue to be computed at the relevant effective rate of tax while that in the latter component of domestic goods should be computed at the rate defined as 'the effective tax rate minus the implicit nominal or the notional implicit nominal tax rate', as the case may be. For this purpose, the implicit nominal or the notional implicit nominal tax rates (as the case may be) defined with reference to value of gross output would be considered appropriate. Accordingly, the numerators in the tax burden equations (3.46) and (3.49) can be modified to incorporate the distinction between domestic consumption through cash purchases and through barter exchange or from home-grown production. This distinction is likely to be important particularly in rural areas. It may be noted that the denominators in the tax burden equations do not require any modification owing to the modification of the numerators.

A tax system is said to be progressive (regressive) with reference to expenditure if the tax burden is higher (lower) for the higher expenditure group. Symbolically, tax 'j' can be said to be progressive, if

$$b^{j1} < b^{j2} < \dots < b^{jH} \text{ for } \bar{x}_a^1 < \bar{x}_a^2 < \dots < \bar{x}_a^H \quad (3.51)$$

where tax 'j' represents, excise, customs, CVD, sales tax and all taxes taken together.  $H$  is the number of household groups, and  $b^{ji}$  is the effective tax rate of the  $i$ th household for tax 'j'.

The extent of progressivity of a tax can be judged in terms of a measure of tax progressivity. For this purpose, a summary<sup>13</sup> (also known as global or distributional) measure of tax progressivity can be used. A global measure of tax progressivity can be said to focus on the distributional aspect of the tax and it gives rise to a single number representing the progressivity. The measures of tax progressivity are generally defined with reference to income, which can be adopted in measuring tax progressivity with reference to expenditure of individuals/households. The global measures of tax progressivity can be classified into two broad categories: (i) those based on inequality indices of tax and income defined in terms of Gini indices or defined with reference to Lorenz curves and (ii) those based on inequality indices of tax and income defined in terms of the concept of equally distributed equivalent level of income developed by Kolm (1969), Atkinson (1970) and Sen (1973) (hereinafter referred to as KAS inequality indices). The characteristics of various global measures of tax progressivity are discussed in Aggarwal (1992) and Pfahler (1987). Social Welfare Function (SWF) associated with the Gini index on which the

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13. The other categories of measures of tax progressivity are local (also known as structural or scheduler) and local-distributional. For an extensive discussion on the local measures see, for example, Aggarwal (1990) and Lambert (1989). And for an exposition of the local-distributional measures see Aggarwal (1994). In the present context, a local measure can be said to construct a schedule of tax burden along the expenditure scale of the household. A local-distributional measure can be said to display the relative tax burden of different households or household groups with reference to the tax burden of an average household.

former category of measures is based has been criticized by several researchers. The criticism is based primarily on two grounds. First, the Gini index attaches maximum weight to income transfers among individuals/households with income levels close to the mode of income distribution rather than evenly distributing the weight or attaching more weight to transfers at the tailends of the distribution. Second, the weight attached to an income transfer between any two individuals depends on their relative rankings in the income distribution rather than on the difference in their incomes<sup>14</sup>. These characteristics are considered as peculiar.

Blackorby and Donaldson (1984) point out that, unlike the Gini index, KAS inequality indices have the seemingly desirable property of attaching more weight to improving income distribution among the poor if the distribution is highly skewed, but treating improvements in the distribution above or below the mean more symmetrically if the income distribution is less skewed. So, the measures of progressivity based on KAS inequality indices are preferable to those based on Gini indices. Further, Aggarwal (1992) argues that the tax scale neutral measures of tax progressivity are the appropriate measures of tax progressivity while the others are appropriate for indicating the redistributive impact of the tax. Therefore, in the current study, the measure proposed by Aggarwal (1992), which is tax scale neutral<sup>15</sup>, is used. In fact, it is the only tax scale neutral measure of tax progressivity in the class of measures based on the KAS inequality indices.

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14. For an extensive discussion of these issues, see Atkinson (1970), Dasgupta, Sen and Starrett (1973) and Sen (1973). It may, however, be noted that the focus of discussion is generally the distribution of income rather than expenditure.

15. For the measures based on the KAS inequality indices, which are not tax scale neutral, see Blackorby and Donaldson (1984) and Kiefer (1984).

Aggarwal's measure of tax progressivity (AMP) defined in terms of distribution of income can be specified in terms of distribution of expenditure as

$$AMP = TI - EI \quad (3.52)$$

where TI and EI are KAS inequality indices of distributions of tax and expenditure respectively. For applied use, following Atkinson (1970), for an additively separable, symmetric, increasing and concave social welfare function, and constant inequality aversion ' $\epsilon$ ', the KAS inequality indices of tax and expenditure can be expressed as

$$TI_{\epsilon} = 1 - \left[ \sum_{h=1}^H (\bar{T}_h / \bar{T})^{1-\epsilon} f_h \right]^{1/(1-\epsilon)} \quad (3.53)$$

$$EI_{\epsilon} = 1 - \left[ \sum_{h=1}^H (\bar{E}_h / \bar{E})^{1-\epsilon} f_h \right]^{1/(1-\epsilon)} \quad (3.54)$$

where  $\bar{T}_h$  and  $\bar{E}_h$  denote respectively tax per person and expenditure per person for the  $h$ th household group,  $f_h$  is the proportion of persons in the  $h$ th household group.  $\bar{T}$  and  $\bar{E}$  are tax per person and expenditure per person for all household groups taken together. The progressivity index (AMP) can be computed for different values of inequality aversion by using equations (3.52) to (3.54).

As a test of robustness, an alternative measure of tax progressivity based on the Gini indices of tax and expenditure can be used. In this category of measures, a commonly used tax scale neutral measure of tax progressivity is Kakwanis' measure of tax progressivity (say KMP). It can be specified in terms of distributions of tax and expenditure as

$$KMP = TG - EG \quad (3.55)$$

where **TG** and **EG** are Gini indices of distributions of tax and expenditure respectively.

For a tax that is proportional with reference to expenditure, both the measures **AMP** and **KMP** take zero value. Positive (negative) values of these measures indicate progressivity (regressivity) of the tax.

## 4. THE DATA : REQUIREMENTS, AVAILABILITY AND MODIFICATIONS

### 4.1 Data Requirements

Adopting the theory discussed in Chapter 3 for computing effective rates of Union excise duties, customs duties and sales tax for different commodities and household groups required information at a disaggregative level for as many commodities as possible. The data on the following attributes were required at the same level of disaggregation:

- (i) Commodity x commodity matrices of input-output coefficients, separately for domestic and imported inputs.
- (ii) Vector of values of gross output of different commodities at producer prices, for computing implicit nominal or notional implicit nominal rates of excise duty and sales tax.
- (iii) Vector of CIF values of imports (referred to as the value of imports at world prices) of commodities for computing implicit nominal or notional implicit nominal rates of customs duties and CVD.
- (iv) Commodity-wise figures of collection of Union excise duties, customs duties, CVD and sales tax.
- (v) Distribution of households/persons by expenditure as well as income classes and the pattern of their consumption expenditure on different commodities

(separately for domestic and imported goods) preferably by rural and urban areas to study the tax incidence separately for rural and urban areas.

(vi) Character of each of the commodities with respect to coverage under MODVAT, i.e., whether it was a MODVAT commodity or non-MODVAT commodity.

(vii) Commodity-wise profit margins.

#### 4.2 Available Data and Modifications

The latest year for which matrices of input-output coefficients have been constructed was 1989-90. These matrices were obtained from the Planning Commission. These were based on 60 broad groups of commodities/industries. The commodity x commodity matrices of input-output coefficients were not readily available. The available matrices were the basic matrices relating to the commodity flows. These were absorption and make matrices of dimensions commodity x industry and industry x commodity respectively. Absorption matrix relating to imported inputs was also available separately. Corresponding to a matrix of commodity flows, the matrix of input-output coefficients was obtained by dividing the elements in the jth column of a flow matrix by the value of gross output of the jth commodity. The commodity x commodity matrices of input-output coefficients were obtained from these matrices by multiplying the absorption matrices of input-output coefficients by the make matrix of input-output coefficients as per equations (3.27) to (3.29) in Chapter 3. Commodity x commodity absorption matrix of input-output coefficients regarding use of domestic goods was obtained by subtracting the absorption matrix of input-output coefficients

relating to input use of imported goods from the absorption matrix of coefficients relating to the flow of both domestic and imported commodities.

The vectors of gross output, imports, exports, input use of domestic and imported goods, and final consumption of goods were also obtained from the Planning Commission along with the matrices of commodity flows for 60 broad groups of commodities. While the imported goods were valued at world prices, the domestic goods were valued at producer prices. These data are presented in Annexure 2, Table A2.1.

Commodity-wise collection figures of Union excise duties were obtained from the *Statistical Year Book : Central Excise (1989-90)*, Directorate of Statistics and Intelligence, Central Excise and Customs, Government of India. This publication gives revenue collection figures of basic and special Union excise duties and clearances by commodities at a highly disaggregated level. Each of these commodities was identified to be a MODVAT or non-MODVAT commodity. As per the then provisions, the  $i$ th commodity used for the production of  $j$ th commodity was modvated if both the  $i$ th and the  $j$ th commodities belonged to the set of MODVAT commodities. Further, these commodities were matched with the 60 sector classification of the commodities by using the composition of these sectors as per the information contained in "Input-Output Transactions Table 1983-84", a publication of the Central Statistical Organisation (CSO). Appendix III of the CSO publication gives composition of 115 broad commodities. Based on this information, composition of the 60 broad groups of commodities was obtained by matching these groups of commodities. The composition of 115 broad groups of commodities is reproduced in Annexure 2, Table A2.2. Based on this specification of 115 groups of commodities, the commodities for which revenue from excise and customs duties was reported were classified into the

same 115 sectors. The tariff codes of commodities subjected to excise and customs duties have been matched with 115 groups of commodities and reported respectively in Tables A2.3 and A2.4, in Annexure 2. With a view to grouping this information into the 60 broad groups of commodities, 115 groups were matched with 60 groups. Matching of 60 broad groups with the 115 broad commodities along with identification of MODVAT and Non-MODVAT commodities is given in Annexure 2, Table A2.5. The specification of 60 commodity groups is given in Annexure 2, Table A2.6. Matching of the 60 commodities with the statistical year book classification of excisable commodities is given in Annexure 2, Table A2.7, and that with the customs tariff codes is given in Annexure 2, Table A2.8.

It has been found that 8 out of 60 commodity groups comprised both types of commodities: those on which MODVAT relief with reference to Union excise duty and CVD was available and those on which MODVAT relief was not available. In order to take into account, MODVAT and non-MODVAT character of these commodities in computing effective tax rates, each of the 8 commodity groups was divided into two subgroups: one comprising MODVAT commodities and the other comprising non-MODVAT commodities. The total input flow of a composite commodity between two subgroups was divided in proportion to their shares in clearances of these commodities for excise. With these modifications, we obtained the input-output matrices for 68 commodities. So, all the matrices of input-output coefficients and inverse matrices, for estimating effective tax rates, were computed for 68 broad groups of commodities.

## 5. TAX INCIDENCE: RESULTS

### 5.1 Nominal Tax Rates

Implicit nominal rates of excise duty, CVD and customs duty are computed for 68 broad groups of commodities. Implicit nominal rate of excise duty for a commodity is derived as the ratio of revenue collection from the commodity to its output at producer prices. Implicit nominal rates of CVD and customs duty for a commodity are computed as the ratios of revenue collection to the value of imports exclusive of these duties. Where the revenue collection from a commodity is nil, that may be due to nil duty or nil import or clearance of the commodity, the implicit rate is taken to be zero. In the case of sales tax, the requisite data for computing the implicit rates were not available. Therefore, we have worked with nominal rates of sales tax inclusive of surcharge. However, it has not been possible to account for Central sales tax and turnover tax which were prevalent in some of the States. These rates when viewed with reference to producer prices, can be said to be underestimates of the required notional implicit nominal rates of sales tax. It may, however be noted that failure to account for exemptions and deferral of tax owing to firm size, location of industrial units and production of specified products, suggests that these rates could be overestimates of the required rates of sales tax. Thus, on balance, these nominal rates could be, to some extent, under- or over-estimates of the required notional implicit nominal rates of sales tax.

For a commodity group, nominal sales tax rate is obtained as the simple average of the nominal sales tax rates for the commodities falling within the broad commodity group. Sales tax

rates at the all-India level are obtained as simple averages over the 16 States/Union territories, namely, Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. These nominal rates are reported in columns 3 to 6 in Table 5.1.

It may be noted that nominal rates of different taxes are not additive as these are not computed with reference to the same tax base. From Table 5.1, it will be noted that nominal rates of both excise duty and sales tax were nil or low for essential commodities. High rates of excise duty (say 10% or above) were applicable to sugar, some beverages, some rubber products, some petroleum products, synthetic fibres, chemicals, cement, some other non-metallic mineral products, non-ferrous basic metals, some non-metallic machinery, electronic equipments and motor vehicles. High rates of sales tax were applicable to some beverages, leather and leather products, rubber products, some petroleum products, cement and machinery.

## 5.2 Effective Tax Rates

Effective rates of excise duty, sales tax, CVD and customs duty are computed by using equations (3.19) to (3.22). For this purpose, the nominal rates described above are used.<sup>16</sup> The effective rates also are given in Table 5.1 (columns 7 to 11). The effective rates of different taxes are computed with reference to

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16. In the case of sales tax, nominal rates applicable to input use of the commodities are used for computing effective tax rates for input use of the commodities. The excess of these effective rates over the nominal rates applicable to inputs is taken as the extent of input taxation. This excess is added to the nominal rates of sales tax (applicable to final consumption of goods) for obtaining the effective rates of sales tax. It may be recalled that the rate of sales tax for input use of a commodity has been nil or low.

the same tax base, i.e., the value of goods at producer prices. Therefore, these are taken to be additive. The combined effective rates of these major indirect taxes are shown in column 11.<sup>17</sup> With a view to indicating the contribution of individual taxes to the combined effective rates, composition of the latter is worked out and shown in columns 22 to 26. The extent of input taxation in domestic produce is computed and reported in columns 12 to 16. Input taxation in a commodity is obtained as the excess of effective tax rate over the nominal rate. For this purpose, the nominal rates of CVD and customs duty are nil as these duties do not apply to domestic produce. With a view to analysing the contribution of input taxation to the effective tax rates, the shares of the former in the latter are computed and reported in columns 17 to 21. Also, the contribution of individual taxes to the combined input taxation is calculated and given in columns 27 to 31.

From Table 5.1, it may be noted that the combined effective rate varied from about 3 to 40 per cent for most of the commodities. For a few commodities the rate varied from about 45 to 64 per cent. It was 45, 52, 54, 61 and 64 per cent for electronic equipment, petroleum products other than lubricating preparations, cement, cinematographic films, and synthetic yarn, respectively (column 11). As one would have expected, the combined effective rate for the commodities traditionally classified as luxuries was quite high. It was above 30 per cent on mineral water, tobacco products, rubber products, petroleum products, electronic equipment and motor vehicles. Even for those commodities, traditionally considered as necessities, the tax burden turned out to be substantial. The combined effective rate

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17. Strictly speaking, effective rate of sales tax can be said to have been computed with reference to consumer prices of goods exclusive of sales tax as their computation is based on nominal rates rather than on implicit nominal rates.

for necessities such as cereals, pulses, cotton & cotton textiles, animal husbandry, forestry & logging, sugar & khandsari, and jute, hemp & mesta textiles varied from about 3 to 12 per cent. Moreover, the combined effective rate for hydrogenated oils worked out to be as high as 26 per cent. The combined effective tax rate for services like construction, electricity and transport, which were not subjected to any of these taxes directly, worked out to about 10 per cent that could be attributed entirely to input taxation.

Regarding the contribution of individual taxes, sales tax accounted for a significant part of the combined effective tax rate for most commodities (columns 7 to 10). Its contribution exceeded 5 percentage points for most commodities, whereas the contribution of Union excise duty as well as of customs duty was found to be less than 5 percentage points. Contribution of CVD was found to be small. The effective rate of CVD did not exceed 1 per cent except in the case of articles of silk and synthetic fibre for which the rate was about 2 per cent.

Both customs duty and CVD have not been applicable to a domestically produced commodity. They contribute to the combined effective tax rate of a domestically produced commodity through taxation of imported inputs going into production of the commodity. As expected, the contribution of customs duty was larger for the commodities with larger import content such as plastic and petroleum products, fertilizers, non-ferrous basic metals, some machinery and transport equipments. Its contribution to the combined effective tax rates varied between 8 and 17 percentage points (column 10). As noted above, contribution of CVD was found to be small (column 9). The lower contribution of CVD as compared to the customs duty could be attributed to two factors: first, the lower rates of CVD as compared to customs duty on most commodities and second, the availability of tax credit for CVD

paid on inputs against the excise duty chargeable on output of the manufacturer (under the MODVAT scheme), whereas such tax credit has not been available for customs duty.

Variation in the contribution of individual taxes to the combined effective tax rates was found to be more prominent when viewed in terms of their shares in the combined effective tax rates (Table 5.1, columns 22 to 26). The share of sales tax exceeded 30 per cent for most commodities, whereas the share of Union excise duty as well as that of customs duty was less than 30 per cent for most commodities. The share of CVD was small. It did not exceed 4 per cent for most commodities.

In the case of items of necessity, sales tax accounted for a major part of the combined tax burden. Its share was above 60 per cent for cereals and pulses. It was so, because on many such commodities the excise duty was nil or very low while moderate rates of sales tax were applicable to these commodities. Also, sales tax was found to account for a major part (greater than 60 per cent) of the combined tax burden on minerals, woollen textiles, wood and wood products, leather and leather products, rubber products, tractor and other agricultural implements, and communication and transport equipments. In the case of sugar, cement and synthetic fibres, excise duty accounted for a major part (more than 60 per cent) of the combined tax burden as these commodities have not been subjected to sales tax.

From Table 5.1 (columns 12 to 21), it would also be noted that the effective tax rates incorporated substantial input taxation. For most of the commodities, the extent of input taxation varied from about 3 to 20 percentage points (column 16). A few commodities were found to incorporate still higher input taxation. It was 24 and 26 percentage points for petroleum products and fertilizers, respectively. Input taxation accounted

for more than 30 per cent of the effective tax rate for most commodities, and 100 per cent of the effective tax rates for iron ore and services (column 21). It accounted for 71, 74, 75, 76, 83 and 90 per cent of the effective tax rates for coal and lignite, lubricating preparations of petroleum, coal tar products, pesticides, jute, hemp & mesta textiles, and fertilizers. In the case of iron ore and services, the effective rates were made up only of input taxation as the taxes under consideration did not apply to services or iron ore. In the case of pesticides, high contribution of input taxation could be attributed to high intensity of imported inputs and high customs duty on these inputs, besides the sales tax on domestic inputs. In the case of other commodities, excise duty or CVD would also have contributed to input taxation as these commodities were not covered by the MODVAT scheme.

Input taxation accounted for more than 50 per cent of the combined effective rates of most of the items of necessity. High input taxation could be attributed to high effective tax rates of basic inputs. The effective tax rates for pesticides and fertilisers were 19 and 30 per cent, respectively. The effective tax rate was 7 per cent for iron ore and it exceeded 20 per cent for basic metals. The rates for iron and steel and non-ferrous basic metals were found to be 21 and 39 per cent, respectively. The effective rate for machinery and machine tools varied from about 21 to 45 per cent.

There was significant variation in the contribution of individual taxes to the combined input taxation because of varied character of structures of different taxes (columns 27 to 31). The relative contribution of sales tax was found to be highest. The share of sales tax exceeded 30 per cent for most commodities. In fact, it was more than 50 per cent for some commodities such as pulses, jute, animal husbandry, forestry and logging, mineral

water and tobacco products, and leather and leather products. This reveals high input taxation under the system of sales tax. Contribution of excise duty was found significant inspite of the provision of set off for the duty paid on inputs, through the scheme of MODVAT. Its share varied from 20 to 40 per cent for most commodities. This could be attributed to the then limited coverage of the MODVAT scheme. Customs duty was also found to make a significant contribution to input taxation reflecting on high import intensity of inputs and/or high duty rates. The share of customs duty was found to be more than 50 per cent for wood and wood products, plastic products, petroleum products, basic metals, machinery and tools, and transport equipments. The share of CVD was small. It did not exceed 4 per cent for most commodities.

It has been possible to indicate some of the implications of the above discussed effective tax rates in the context of ongoing debate in the country in respect of replacing the system of State sales tax by State value added taxes (State VATs).<sup>18</sup> For example, in the context of a harmonised VAT in place of sales tax, a tax rate of about 4 per cent on cereals and pulses would, on an average, leave the tax burden on these products unchanged. An exemption of these items under a VAT would mean a substantial reduction in the burden of sales tax on these items as the effective rate of tax on these items under the plausible schemes of VAT<sup>19</sup> is not likely to exceed 2 per cent.<sup>20</sup> On many other consumer items such as edible oils, products of paper, wood, leather, rubber and plastic, electronic equipment and motor vehicles, the effective rate of sales tax varied from about 11 to

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18. See, for example, National Institute of Public Finance and Policy (1994), henceforth referred to as NIPFP (1994).

19. For plausible schemes of VAT see NIPFP (1994).

20. It may be noted that, under the system of sales tax, input taxation in respect of cereals and pulses varied from 1 to 2 per cent.

TABLE 5.1

Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90  
(Per cent)

Commodity/Year	MODVAT comm yes( no(1)	Nominal rates of				Effective rates of				
		Excise tax	Sales tax	CVD	Customs	Excise tax	Sales tax	CVD	Custom	All 7 to 10
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 Paddy	1	0.00	2.08	0.00	0.03	1.01	3.72	0.06	1.07	5.87
2 Wheat	1	0.00	2.77	0.00	0.00	1.24	4.75	0.08	1.34	7.41
3 Other cereals	1	0.00	2.78	0.00	22.36	0.81	4.17	0.04	0.80	5.82
4 Pulses	1	0.00	2.78	7.95	32.70	0.58	4.08	0.03	0.57	5.26
5 Sugarcane	1	0.00	0.00	0.00	0.00	0.82	1.02	0.06	0.93	2.83
6 Raw jute	1	0.00	4.08	0.20	2.38	0.40	5.09	0.03	0.43	5.95
7 Raw cotton	1	0.00	4.37	0.00	0.00	1.74	7.20	0.13	2.24	11.32
8 Tea plantation	1	0.00	7.55	0.00	0.00	0.22	8.05	0.02	0.28	8.57
9 Coffee plantation	1	0.00	0.00	0.00	0.00	0.82	1.52	0.04	0.88	3.27
10 Rubber	0	1.87	0.00	0.00	0.00	2.70	1.37	0.09	1.37	5.52
11 Vegetable plaiting etc.	0	0.00	0.00	0.00	0.00	0.85	1.48	0.05	0.92	3.30
12 Unmanufactured tobacco & other crops	1	0.00	9.92	0.47	35.23	0.87	11.41	0.05	0.92	13.24
13 Milk, butter, ghee, lassi etc.	0	0.04	5.04	0.03	32.67	0.76	7.23	0.03	0.48	8.51
14 Animals, raw wool, horns etc.	1	0.00	3.25	0.39	13.16	0.78	5.44	0.03	0.48	6.73
15 Forestry & logging	1	0.00	3.32	0.42	19.02	0.46	3.72	0.02	0.36	4.54
16 Fish & pearls etc.	0	0.08	0.00	0.20	1.63	0.34	0.31	0.01	0.28	0.94
17 Coal & lignite	1	0.07	4.22	0.04	11.15	3.73	8.00	0.08	3.12	14.93
18 Crude petroleum, natural gas etc.	1	1.46	8.22	0.17	49.82	3.01	9.31	0.03	1.03	13.38
19 Iron ore	0	0.00	0.00	0.00	0.00	2.14	2.23	0.05	2.27	6.69
20 Other metallic minerals	0	0.00	8.50	0.03	40.13	1.30	10.42	0.05	1.92	13.70
21 Non-metallic & minor minerals	0	0.61	8.25	1.78	13.33	1.56	9.60	0.02	1.29	12.46
22 Sugar	0	10.00	0.00	0.19	0.61	11.18	1.43	0.08	1.25	13.93
23 Khandsari, boora	0	1.92	1.03	0.19	0.61	3.56	2.88	0.06	1.68	8.19
24 Hydrogenated oils	0	4.08	8.70	0.00	0.14	8.39	14.30	0.09	3.67	26.44
25 Other food items & beverages	0	2.10	10.19	0.72	67.38	3.59	13.85	0.07	1.36	18.87
26 Mineral water & tobacco products	1	20.20	5.94	44.26	6.99	22.24	9.60	0.10	1.36	33.29
27 Cotton textiles	1	1.14	2.01	0.56	2.76	3.60	4.98	0.22	2.24	11.05
28 Woollen textiles	1	0.50	5.71	0.75	4.35	3.00	8.31	0.54	2.40	14.25
29 Articles of silk or synthetic fibre etc.	1	8.90	0.00	30.23	82.67	14.91	2.55	2.13	6.34	25.93
30 Jute, hemp & mesta textiles	1	1.27	0.00	3.04	18.09	3.49	2.44	0.10	1.61	7.64
31 Coated fabrics etc.	0	1.72	7.03	17.14	46.70	3.38	8.81	0.18	1.47	13.83
32 Other textiles	1	0.69	3.37	2.29	16.64	2.62	5.15	0.24	1.47	9.47
33 Wood & wood products	0	2.58	8.96	2.97	19.07	3.16	11.19	0.09	3.38	17.82
34 Paper & paper products	0	3.66	3.90	3.63	16.03	5.34	8.49	0.09	3.30	17.22

TABLE 5.1 (Contd.)

Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90

(Per cent)

Commodity/Year	MODVAT comm yes( no(1)	Nominal rates of				Effective rates of				
		Excise tax	Sales tax	CVD	Customs	Excise tax	Sales tax	CVD	Custom to 10	All 7 to 10
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
35 Leather & leather products	0	1.14	10.99	1.03	7.68	2.44	16.34	0.10	2.51	21.39
36 Rubber products other than in 37	0	16.35	11.83	17.37	54.24	18.55	16.29	0.18	4.56	39.58
37 Rubber thread, cord etc. covered with textiles	1	0.00	9.19	7.48	37.96	6.00	13.66	0.58	4.56	24.79
38 Plastic products	0	3.10	8.88	30.74	71.57	5.17	11.31	0.55	9.39	26.42
39 Lubricating preparations etc.	0	2.02	6.45	28.01	220.34	5.33	10.71	0.09	16.65	32.77
40 Other petroleum products	1	14.78	12.72	12.13	10.59	18.37	16.98	0.09	16.65	52.08
41 Coal tar products	1	0.42	4.30	4.93	53.32	4.60	10.25	0.15	3.59	18.59
42 Fertilisers	1	0.11	3.29	0.15	0.50	7.83	10.84	0.83	10.09	29.58
43 Pesticides	0	0.38	4.08	2.02	12.30	2.27	10.06	0.13	6.55	19.01
44 Synthetic fibres:polymers etc.	0	16.35	0.00	33.07	46.52	20.06	5.36	0.15	4.44	30.00
45 Synthetic fibres:yarn etc.	1	46.58	0.00	13.82	81.33	53.59	5.36	0.34	4.44	63.72
46 Chemicals other than in 47	0	9.65	9.73	12.39	60.71	12.07	15.20	0.20	6.86	34.32
47 Cinematographic films etc.	1	32.84	9.73	17.81	20.14	38.14	15.20	0.87	6.86	61.06
48 Cement	0	36.59	11.54	12.97	78.59	38.21	13.91	0.07	1.84	54.03
49 Other non-metallic mineral products	0	17.69	8.41	0.95	3.36	19.91	11.54	0.06	4.36	35.88
50 Iron & steel	0	5.11	4.36	5.09	43.00	6.67	8.01	0.06	6.22	20.97
51 Non-ferrous basic metals	0	15.20	7.47	10.29	43.66	18.06	12.06	0.11	9.12	39.35
52 Tractors & other agricultural equipments	0	2.02	9.60	13.94	53.49	3.36	14.34	0.07	3.82	21.59
53 Machine tools	0	8.47	9.60	3.45	48.84	9.40	12.75	0.05	5.82	28.02
54 Other non-metallic machinery	0	10.63	12.13	9.74	43.45	11.63	16.25	0.06	9.42	37.36
55 Electrical machinery	0	7.46	11.13	15.28	53.16	8.54	14.67	0.07	7.09	30.37
56 Communication equipment	0	3.96	11.97	8.27	85.52	4.74	16.54	0.05	6.78	28.11
57 Electronic equipment etc.	0	21.97	13.00	16.84	58.84	22.56	17.92	0.04	4.81	45.33
58 Rail equipment	0	2.49	9.60	12.23	28.20	4.02	13.08	0.12	3.61	20.82
59 Motor vehicles	0	14.71	9.99	10.99	60.97	15.95	14.54	0.06	7.68	38.24
60 Other transport equipments	0	0.80	9.99	7.37	59.60	1.50	12.66	0.04	8.94	23.13
61 Other manufacturing goods	0	4.05	9.58	5.46	27.07	5.07	12.64	0.05	6.15	23.90
62 Construction	1	0.00	0.00	0.00	0.00	3.88	2.65	0.16	2.65	9.35
63 Electricity etc.	1	0.00	0.00	0.00	0.00	3.36	4.24	0.26	3.80	11.65
64 Rail transport service	1	0.00	0.00	0.00	0.00	2.87	3.34	0.18	2.65	9.03
65 Other transport service	1	0.00	0.00	0.00	0.00	3.77	3.12	0.28	3.11	10.29
66 Communication services	1	0.00	0.00	0.00	0.00	0.49	0.69	0.02	0.47	1.67
67 Trade	1	0.00	0.00	0.00	0.00	0.59	0.58	0.05	0.59	1.81
68 Other services	1	0.00	0.00	0.00	0.00	0.89	1.06	0.14	1.16	3.26

Table 5.1 (Contd.)

## Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90

Commodity/Year	MODVAT comm yes( no(1	Extent of input taxation (Percentage points)					Input taxation as percentage of effective tax rates				
		Excise	Sales tax	CVD	Customs	All 12 to 15	Excise	Sales tax	CVD	Customs	All 17 to 20
(1)	(2)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1 Paddy	1	1.01	1.64	0.06	1.07	3.79	100.00	44.15	100	100	64.62
2 Wheat	1	1.24	1.97	0.08	1.34	4.64	100.00	41.52	100	100	62.56
3 Other cereals	1	0.81	1.39	0.04	0.80	3.05	100.00	33.35	100	100	52.30
4 Pulses	1	0.58	1.30	0.03	0.57	2.48	100.00	31.94	100	100	47.20
5 Sugarcane	1	0.82	1.02	0.06	0.93	2.83	100.00	100.00	100	100	100.00
6 Raw jute	1	0.40	1.00	0.03	0.43	1.87	100.21	19.74	100	100	31.40
7 Raw cotton	1	1.74	2.83	0.13	2.24	6.95	100.00	39.36	100	100	61.42
8 Tea plantation	1	0.22	0.49	0.02	0.28	1.01	100.00	6.12	100	100	11.84
9 Coffee plantation	1	0.82	1.52	0.04	0.88	3.27	100.00	100.00	100	100	100.00
10 Rubber	0	0.83	1.37	0.09	1.37	3.65	30.80	100.00	100	100	66.15
11 Vegetable plaiting etc.	0	0.85	1.48	0.05	0.92	3.30	99.99	100.00	100	100	100.00
12 Unmanufactured tobacco & other crops	1	0.87	1.48	0.05	0.92	3.32	100.00	13.01	100	100	25.08
13 Milk, butter, ghee, lassi etc.	0	0.72	2.19	0.03	0.48	3.42	94.45	30.28	100	100	40.23
14 Animals, raw wool, horns etc.	1	0.78	2.19	0.03	0.48	3.49	99.78	40.28	100	100	51.76
15 Forestry & logging	1	0.45	0.39	0.02	0.36	1.22	99.60	10.58	100	100	26.86
16 Fish & pearls etc.	0	0.27	0.31	0.01	0.28	0.86	77.40	100.00	100	100	91.75
17 Coal & lignite	1	3.65	3.78	0.08	3.12	10.64	98.03	47.24	100	100	71.24
18 Crude petroleum, natural gas etc.	1	1.55	1.09	0.03	1.03	3.70	51.56	11.68	100	100	27.66
19 Iron ore	0	2.14	2.23	0.05	2.27	6.69	99.98	100.00	100	100	99.99
20 Other metallic minerals	0	1.30	1.92	0.05	1.92	5.20	99.77	18.45	100	100	37.94
21 Non-metallic & minor minerals	0	0.95	1.35	0.02	1.29	3.61	61.06	14.04	100	100	28.94
22 Sugar	0	1.17	1.43	0.08	1.25	3.93	10.50	100.00	100	100	28.20
23 Khandsari, boora	0	1.64	1.86	0.06	1.68	5.24	46.01	64.45	100	100	63.98
24 Hydrogenated oils	0	4.31	5.60	0.09	3.67	13.66	51.39	39.16	100	100	51.68
25 Other food items & beverages	0	1.49	3.66	0.07	1.36	6.58	41.48	26.41	100	100	34.85
26 Mineral water & tobacco products	1	2.05	3.66	0.10	1.36	7.15	9.20	38.10	100	100	21.49
27 Cotton textiles	1	2.46	2.97	0.22	2.24	7.90	68.34	59.61	100	100	71.46
28 Woollen textiles	1	2.50	2.60	0.54	2.40	8.04	83.28	31.26	100	100	56.41
29 Articles of silk or synthetic fibre etc.	1	6.02	2.55	2.13	6.34	17.03	40.35	100.00	100	100	65.69
30 Jute, hemp & mesta textiles	1	2.22	2.44	0.10	1.61	6.37	63.64	100.00	100	100	83.38
31 Coated fabrics etc.	0	1.66	1.78	0.18	1.47	5.08	49.06	20.20	100	100	36.74
32 Other textiles	1	1.93	1.78	0.24	1.47	5.41	73.58	34.57	100	100	57.15
33 Wood & wood products	0	0.58	2.23	0.09	3.38	6.29	18.47	19.90	100	100	35.26
34 Paper & paper products	0	1.68	4.58	0.09	3.30	9.65	31.38	54.00	100	100	56.05

Table 5.1 (Contd.)

## Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90

Commodity/Year	MODVAT comm yes( no(1	Extent of input taxation (Percentage points)					Input taxation as percentage of effective tax rates				
		Excise tax	Sales tax	CVD	Customs	All 12 to 15	Excise tax	Sales tax	CVD	Customs	All 17 to 20
(1)	(2)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
35 Leather & leather products	0	1.30	5.35	0.10	2.51	9.26	53.42	32.75	100	100	43.29
36 Rubber products other than in 37	0	2.21	4.46	0.18	4.56	11.41	11.89	27.39	100	100	28.82
37 Rubber thread, cord etc. covered with textiles	1	6.00	4.46	0.58	4.56	15.60	100.00	32.67	100	100	62.92
38 Plastic products	0	2.08	2.43	0.55	9.39	14.45	40.12	21.50	100	100	54.69
39 Lubricating preparations etc.	0	3.31	4.26	0.09	16.65	24.30	62.08	39.75	100	100	74.14
40 Other petroleum products	1	3.58	4.26	0.09	16.65	24.58	19.51	25.07	100	100	47.19
41 Coal tar products	1	4.18	5.95	0.15	3.59	13.87	90.87	58.07	100	100	74.61
42 Fertilisers	1	7.72	7.55	0.83	10.09	26.19	98.63	69.65	100	100	88.52
43 Pesticides	0	1.88	5.98	0.13	6.55	14.55	83.04	59.48	100	100	76.54
44 Synthetic fibres:polymers etc.	0	3.71	5.36	0.15	4.44	13.65	18.50	100.00	100	100	45.51
45 Synthetic fibres:yarn etc.	1	7.01	5.36	0.34	4.44	17.14	13.09	100.00	100	100	26.90
46 Chemicals other than in 47	0	2.41	5.47	0.20	6.86	14.93	20.00	35.97	100	100	43.51
47 Cinematographic films etc.	1	5.30	5.47	0.87	6.86	18.49	13.90	35.97	100	100	30.29
48 Cement	0	1.62	2.37	0.07	1.84	5.90	4.25	17.03	100	100	10.93
49 Other non-metallic mineral products	0	2.22	3.14	0.06	4.36	9.78	11.16	27.17	100	100	27.27
50 Iron & steel	0	1.56	3.66	0.06	6.22	11.50	23.35	45.65	100	100	54.85
51 Non-ferrous basic metals	0	2.86	4.58	0.11	9.12	16.67	15.83	38.02	100	100	42.37
52 Tractors & other agricultural equipments	0	1.34	4.74	0.07	3.82	9.97	39.85	33.04	100	100	46.17
53 Machine tools	0	0.94	3.15	0.05	5.82	9.95	9.97	24.69	100	100	35.52
54 Other non-metallic,machinery	0	1.00	4.12	0.06	9.42	14.60	8.63	25.35	100	100	39.09
55 Electrical machinery	0	1.08	3.54	0.07	7.09	11.78	12.68	24.14	100	100	38.80
56 Communication equipment	0	0.78	4.57	0.05	6.78	12.17	16.36	27.61	100	100	43.31
57 Electronic equipment etc.	0	0.59	4.92	0.04	4.81	10.36	2.63	27.44	100	100	22.85
58 Rail equipment	0	1.53	3.47	0.12	3.61	8.73	38.07	26.56	100	100	41.94
59 Motor vehicles	0	1.24	4.56	0.06	7.68	13.54	7.79	31.33	100	100	35.42
60 Other transport equipments	0	0.69	2.67	0.04	8.94	12.34	46.42	21.10	100	100	53.36
61 Other manufacturing goods	0	1.02	3.06	0.05	6.15	10.27	20.11	24.18	100	100	42.98
62 Construction	1	3.88	2.65	0.16	2.65	9.35	100.00	100.00	100	100	100.00
63 Electricity etc.	1	3.36	4.24	0.26	3.80	11.65	100.00	100.00	100	100	100.00
64 Rail transport service	1	2.87	3.34	0.18	2.65	9.03	100.00	100.00	100	100	100.00
65 Other transport service	1	3.77	3.12	0.28	3.11	10.29	100.00	100.00	100	100	100.00
66 Communication services	1	0.49	0.69	0.02	0.47	1.67	100.00	100.00	100	100	100.00
67 Trade	1	0.59	0.58	0.05	0.59	1.81	100.00	100.00	100	100	100.00
68 Other services	1	0.89	1.06	0.14	1.16	3.26	100.00	100.00	100	100	100.00

Table 5.1 (Contd.)

## Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90

(Per cent)

Commodity/Year	MODV comm yes( no(1)	Composition of effective tax rates					Composition of input taxation				
		Excise	Sales tax	CVD	Customs	All 22 to 25	Excise	Sales tax	CVD	Customs	All 27 to 30
(1)	(2)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
1 Paddy	1	17.28	63.36	1.08	18.29	100	26.74	43.29	1.67	28.30	100
2 Wheat	1	16.77	64.02	1.10	18.10	100	26.81	42.49	1.76	28.94	100
3 Other cereals	1	13.95	71.57	0.73	13.75	100	26.68	45.64	1.39	26.29	100
4 Pulses	1	11.10	77.58	0.50	10.82	100	23.53	52.50	1.05	22.93	100
5 Sugarcane	1	29.06	36.07	2.19	32.68	100	29.06	36.07	2.19	32.68	100
6 Raw jute	1	6.72	85.50	0.55	7.24	100	21.45	53.74	1.76	23.05	100
7 Raw cotton	1	15.38	63.62	1.17	19.83	100	25.04	40.76	1.91	32.29	100
8 Tea plantation	1	2.62	93.91	0.26	3.21	100	22.12	48.54	2.18	27.15	100
9 Coffee plantation	1	25.09	46.52	1.35	27.04	100	25.09	46.52	1.35	27.04	100
10 Rubber	0	48.92	24.76	1.56	24.76	100	22.78	37.43	2.35	37.43	100
11 Vegetable plaiting etc.	0	25.63	45.01	1.53	27.83	100	25.63	45.01	1.53	27.83	100
12 Unmanufactured tobacco & other crops	1	6.55	86.13	0.39	6.93	100	26.13	44.69	1.56	27.63	100
13 Milk, butter, ghee, lassi etc.	0	8.97	85.01	0.34	5.68	100	21.05	63.97	0.85	14.13	100
14 Animals, raw wool, horns etc.	1	11.65	80.74	0.43	7.18	100	22.45	62.83	0.84	13.88	100
15 Forestry & logging	1	10.02	81.75	0.38	7.85	100	37.14	32.22	1.41	29.23	100
16 Fish & pearls etc.	0	36.48	32.53	0.80	30.19	100	30.77	35.45	0.87	32.90	100
17 Coal & lignite	1	24.97	53.58	0.53	20.92	100	34.36	35.53	0.75	29.36	100
18 Crude petroleum,natural gas etc.	1	22.49	69.57	0.21	7.73	100	41.93	29.38	0.76	27.93	100
19 Iron ore	0	31.94	33.38	0.77	33.92	100	31.93	33.38	0.77	33.92	100
20 Other metallic minerals	0	9.49	76.07	0.40	14.04	100	24.96	36.98	1.05	37.00	100
21 Non-metallic & minor minerals	0	12.48	77.02	0.18	10.32	100	26.32	37.37	0.63	35.67	100
22 Sugar	0	80.22	10.29	0.54	8.95	100	29.86	36.51	1.91	31.73	100
23 Khandsari, boora	0	43.52	35.22	0.76	20.51	100	31.29	35.48	1.18	32.05	100
24 Hydrogenated oils	0	31.72	54.08	0.34	13.87	100	31.54	40.98	0.65	26.83	100
25 Other food items & beverages	0	19.04	73.38	0.40	7.18	100	22.66	55.61	1.14	20.60	100
26 Mineral water & tobacco products	1	66.80	28.84	0.29	4.07	100	28.59	51.13	1.33	18.95	100
27 Cotton textiles	1	32.63	45.08	2.00	20.29	100	31.20	37.60	2.80	28.39	100
28 Woollen textiles	1	21.06	58.29	3.82	16.83	100	31.09	32.31	6.77	29.83	100
29 Articles of silk or synthetic fibre etc.	1	57.52	9.84	8.20	24.44	100	35.33	14.97	12.49	37.21	100
30 Jute, hemp & mesta textiles	1	45.72	31.99	1.25	21.04	100	34.90	38.37	1.50	25.24	100
31 Coated fabrics etc.	0	24.42	63.69	1.28	10.61	100	32.61	35.02	3.48	28.89	100
32 Other textiles	1	27.64	54.33	2.53	15.50	100	35.59	32.87	4.43	27.11	100
33 Wood & wood products	0	17.74	62.76	0.52	18.98	100	9.29	35.41	1.47	53.83	100
34 Paper & paper products	0	31.01	49.28	0.55	19.15	100	17.36	47.48	0.98	34.17	100
35 Leather & leather products	0	11.42	76.41	0.45	11.72	100	14.09	57.81	1.04	27.07	100
36 Rubber products other than in 37	0	46.88	41.15	0.46	11.51	100	19.35	39.11	1.61	39.94	100
37 Rubber thread, cord etc. covered with textiles	1	24.19	55.08	2.36	18.37	100	38.46	28.60	3.75	29.20	100

Table 5.1 (Contd.)

Nominal and Effective Rates of Major Indirect Taxes for 68 Commodities:1989-90

(Per cent)

Commodity/Year	MODV comm yes( no(1)	Composition of effective tax rates					Composition of input taxation				
		Excise	Sales	CVD	Customs	All 22 to 25	Excise	Sales	CVD	Customs	All 27 to 30
(1)	(2)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
38 Plastic products	0	19.57	42.79	2.09	35.55	100	14.36	16.83	3.81	65.00	100
39 Lubricating preparations etc.	0	16.26	32.68	0.26	50.80	100	13.62	17.52	0.36	68.51	100
40 Other petroleum products	1	35.26	32.60	0.18	31.96	100	14.58	17.32	0.37	67.73	100
41 Coal tar products	1	24.74	55.15	0.79	19.31	100	30.13	42.92	1.06	25.88	100
42 Fertilisers	1	26.46	36.63	2.80	34.11	100	29.48	28.82	3.17	38.53	100
43 Pesticides	0	11.93	52.89	0.70	34.47	100	12.95	41.10	0.92	45.03	100
44 Synthetic fibres:polymers etc.	0	66.86	17.86	0.49	14.80	100	27.18	39.24	1.07	32.51	100
45 Synthetic fibres:yarn etc.	1	84.10	8.41	0.53	6.96	100	40.91	31.24	1.96	25.89	100
46 Chemicals other than in 47	0	35.16	44.29	0.57	19.98	100	16.16	36.62	1.31	45.92	100
47 Cinematographic films etc.	1	62.45	24.89	1.42	11.23	100	28.66	29.56	4.70	37.07	100
48 Cement	0	70.72	25.74	0.13	3.41	100	27.49	40.13	1.15	31.23	100
49 Other non-metallic mineral products	0	55.50	32.17	0.18	12.15	100	22.72	32.06	0.65	44.57	100
50 Iron & steel	0	31.81	38.21	0.31	29.68	100	13.54	31.80	0.56	54.10	100
51 Non-ferrous basic metals	0	45.90	30.64	0.27	23.18	100	17.15	27.50	0.64	54.71	100
52 Tractors & other agricultural equipments	0	15.55	66.44	0.32	17.70	100	13.42	47.56	0.69	38.34	100
53 Machine tools	0	33.56	45.50	0.18	20.75	100	9.42	31.63	0.51	58.43	100
54 Other non-metallic machinery	0	31.14	43.49	0.15	25.22	100	6.87	28.21	0.39	64.53	100
55 Electrical machinery	0	28.13	48.30	0.22	23.35	100	9.19	30.05	0.57	60.19	100
56 Communication equipment	0	16.86	58.83	0.17	24.14	100	6.37	37.50	0.39	55.73	100
57 Electronic equipment etc.	0	49.78	39.53	0.08	10.61	100	5.73	47.48	0.37	46.42	100
58 Rail equipment	0	19.29	62.79	0.56	17.36	100	17.51	39.76	1.33	41.40	100
59 Motor vehicles	0	41.71	38.04	0.17	20.09	100	9.18	33.64	0.47	56.71	100
60 Other transport equipments	0	6.47	54.72	0.17	38.64	100	5.63	21.64	0.31	72.42	100
61 Other manufacturing goods	0	21.21	52.86	0.22	25.71	100	9.92	29.74	0.51	59.82	100
62 Construction	1	41.55	28.31	1.74	28.40	100	41.55	28.31	1.74	28.40	100
63 Electricity etc.	1	28.81	36.36	2.22	32.60	100	28.81	36.36	2.22	32.60	100
64 Rail transport service	1	31.75	36.99	1.96	29.30	100	31.75	36.99	1.96	29.30	100
65 Other transport service	1	36.68	30.36	2.75	30.21	100	36.68	30.36	2.75	30.21	100
66 Communication services	1	29.38	41.62	0.95	28.05	100	29.38	41.62	0.95	28.05	100
67 Trade	1	32.52	32.26	2.85	32.37	100	32.52	32.26	2.85	32.37	100
68 Other services	1	27.38	32.61	4.32	35.69	100	27.38	32.61	4.32	35.69	100

Note: 1. Nominal rates of sales tax are inclusive of surcharge and are based on 16 States averages.

2. 16 States covered are Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

3. Nominal rates of Union excise duties, customs duties and CVD are implicit nominal rates.

18 per cent. Under the State VAT, a uniform rate of about 14 per cent for these items may, on an average, leave unchanged the tax burden on these commodities.

### 5.3 Tax Incidence by Expenditure Groups

The data on consumption expenditure of households could be compiled for the year 1988-89 by 27 broad groups of commodities, separately for rural and urban areas, for 12 expenditure classes from Sarvekshna, Vol. 14, No. 3, Issue No. 46, January-March, 1991, pp. S-7 & S-8<sup>21</sup>. The expenditure classes (defined in terms of monthly per capita expenditures) were not the same for rural and urban areas. These data have been reclassified into five comparable expenditure classes by simply matching the expenditure classes for rural and urban areas. Both the comparable and non-comparable sets of data have been used for studying the incidence of major indirect taxes by expenditure classes. Non-comparable data sets have been utilized for indicating tax incidence at a more disaggregative level. The required effective tax rates for 27 broad groups of commodities have been obtained by matching the set of 68 commodities with the set of 27 commodities. Wherever more than one of the commodities from the former set fell into one of the commodity in the latter set, a weighted average of the relevant effective rates have been taken. For taking the weighted average, proportions of outputs of the relevant commodities have been used. The effective rates of excise duty, sales tax, CVD, customs duty and all these taxes combined, for 27 broad groups of commodities, are given in Table 5.2. By using these rates, effective tax rates by expenditure classes have been obtained for rural, urban and all areas. The effective rates for all commodities taken together, for 5 expenditure classes

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21. For limitations of these data see Joshi, Konsal, Kumar and Minhas (1981), Mukherjee (1986) and Vaidyanathan (1986).

(comparable between rural and urban areas) are reported in Tables 5.3 and 5.4, for all major indirect taxes combined and individual taxes. The corresponding effective rates for 12 expenditure classes (non-comparable between rural and urban areas) are reported in Tables 5.5 and 5.6.

From Table 5.3, it may be noted that the combined tax incidence/burden on the consumers in rural areas was lower than that in urban areas. The combined effective tax rates for rural and urban areas were 11.2 and 12.2 per cent, respectively. The distribution of burden of indirect taxes has been found to be progressive in rural as well as urban areas. Tax progressivity with reference to consumer expenditure was higher in rural areas as compared to that in urban areas. The effective tax rate increased along low-expenditure to high-expenditure classes from 9.8 per cent to 13.7 per cent in rural areas, and from 10.2 per cent to 13.4 per cent in urban areas. These observations corroborated with the findings based on the progressivity indices employed (Kakwani's progressivity index, 1977, and Aggarwal's progressivity index, 1992) which are discussed below. It may, however, be noted that the tax progressivity would not have been so pronounced if it was viewed with reference to income instead of expenditure as the rich has a lower propensity to spend. If we assume zero savings by an average person in the lowest expenditure class and a 30 per cent savings rate for an average person in the top expenditure class, then their effective tax rates with respect to income will be approximately equal even in the rural areas. Such a pattern of savings rates is not implausible.

Kakwani's index of progressivity has been computed as the excess of concentration index of tax over the Gini index of expenditure. Aggarwal's index of progressivity has been computed as the excess of KAS (Kolm, Atkinson and Sen) index of tax over the KAS index of expenditure. It was computed for three values of

the parameter of inequality aversion, i.e., 0.5, 1.5 and 2.5. The values of these progressivity indices are also reported in Table 5.3. These progressivity indices were found to be higher for rural areas as compared to those for urban areas irrespective of the value of parameter of inequality aversion implying higher progressivity in rural areas. Also, the progressivity in all areas (rural and urban areas taken together) is found to be greater than that in rural or urban areas with either of the progressivity indices.

As one would have expected, inequality in expenditure was found to be lower in rural areas as compared to that in urban areas in terms of both the Gini index and the KAS index of inequality, for all values of inequality aversion considered in this study (Table 5.3). The KAS index of inequality in consumption expenditure has been found to rise with a rise in the parameter of inequality aversion reflecting on society's aversion to inequality. When the parameter of inequality aversion was assigned the value 2.5, the KAS index of inequality has taken value close to the Gini index of inequality. The Aggarwal index of progressivity, like the KAS index of inequality, has been found to increase with an increase in the society's aversion to inequality. The rise in the Aggarwal index of progressivity could be attributed to the rise in the KAS index of inequality following an increase in inequality aversion.

It would be noted from Table 5.4 that the distribution of burden of individual taxes was also progressive in rural as well as urban areas. For each tax, progressivity with reference to consumer expenditure was higher in rural areas as compared to that in urban areas. The effective rate of customs duty increased along low-expenditure to high-expenditure classes from 1.5 per cent to 2.4 per cent in rural areas, and from 1.5 per cent to 2.2 per cent

TABLE 5.2

Effective Rates of Major Indirect Taxes  
for 27 Commodities:1989-90

(Per cent)

Commodity	Effective rates of				
	Excise	Sales tax	CVD	Customs	All 2 to 5
(1)	(2)	(3)	(4)	(5)	(6)
1 Rice	1.01	3.72	0.06	1.07	5.87
2 Wheat	1.24	4.75	0.08	1.34	7.41
3 Jowar	0.81	4.17	0.04	0.80	5.82
4 Bajra	0.81	4.17	0.04	0.80	5.82
5 Maize	0.81	4.17	0.04	0.80	5.82
6 Barley	0.81	4.17	0.04	0.80	5.82
7 Small Millets	0.81	4.17	0.04	0.80	5.82
8 Ragi	0.81	4.17	0.04	0.80	5.82
9 Gram	0.81	4.17	0.04	0.80	5.82
10 Cereal substitute	0.81	4.17	0.04	0.80	5.82
11 Pulses & products	0.58	4.08	0.03	0.57	5.26
12 Milk & milk products	0.76	7.23	0.03	0.48	8.51
13 Edible oils	5.01	13.98	0.08	2.04	21.10
14 Meat, fish & egg	0.70	6.19	0.03	0.45	7.37
15 Vegetables	0.85	1.48	0.05	0.92	3.30
16 Fruits & nuts	1.44	4.03	0.06	1.02	6.55
17 Sugar	8.63	1.92	0.07	1.39	12.01
18 Salt	3.59	13.85	0.07	1.36	18.87
19 Spices	0.85	1.48	0.05	0.92	3.30
20 Beverages & others	22.24	9.60	0.10	1.36	33.29
21 Pan,tobacco,intoxicants	22.24	9.60	0.10	1.36	33.29
22 Fuel & light	3.33	4.32	0.14	3.30	11.10
23 Clothing	7.50	4.36	0.92	3.60	16.38
24 Footwear	11.43	16.31	0.14	3.65	31.54
25 Misc.goods & services	2.80	3.18	0.13	2.51	8.62
26 Rents	5.66	4.40	0.14	3.45	13.65
27 Durable goods	6.58	11.40	0.12	5.26	23.36

Notes: 1. Sales tax rates are inclusive of surcharge and are based on 16 States averages.

2. 16 States covered are Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

3. Within a composite commodity, the rates are weighted by gross output.

TABLE 5.3

Combined Effective Rates and Progressivity of Major  
Indirect Taxes by 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	All commodities		
		Rural areas	Urban areas	All areas
	(1)	(2)	(3)	(4)
1	<110	9.81	10.25	9.85
2	110-160	10.27	10.82	10.36
3	160-215	10.94	11.21	11.00
4	215-385	11.74	11.78	11.75
5	above 385	13.75	13.45	13.59
6	All classes	11.21	12.15	11.51
<b>Inequality in expenditure</b>				
7	Gini index	0.2430	0.2813	0.2711
8	KAS index( $\epsilon=0.5$ )	0.0154	0.0406	0.0305
9	KAS index( $\epsilon=1.5$ )	0.1262	0.1826	0.1581
10	KAS index( $\epsilon=2.5$ )	0.2052	0.2877	0.2464
<b>Progressivity</b>				
11	Kakwani index	0.0478	0.0406	0.0497
12	Aggarwal index( $\epsilon=0.5$ )	0.0185	0.0202	0.0226
13	Aggarwal index( $\epsilon=1.5$ )	0.0540	0.0545	0.0605
14	Aggarwal index( $\epsilon=2.5$ )	0.0695	0.0696	0.0760

Notes:1. The data were taken from SARVEKSHNA, vol.XIV, No.3, Issue No.46, January - March, 1991, pp.S-7 & S-8.

2. The data correspond to the second survey of the annual series of the NSS: 44th round (July 88-June 89). Appropriate corrections were made for reckoning the data with subtotals.

3. KAS index denotes Kolm, Atkinson and Sen index of inequality, and  $\epsilon$  denotes the parameter of aversion of the society, to inequality.

in urban areas. Similarly, the effective rate of sales tax increased along low-expenditure to high-expenditure classes from 4.8 per cent to 6.1 per cent in rural areas, and from 5.0 per cent to 6.1 per cent in urban areas. The effective rate of excise duty increased from 3.4 per cent to 5.1 per cent in rural areas, and from 3.6 per cent to 5.4 per cent in urban areas. These observations are supported by the progressivity indices. For all areas (rural and urban areas taken together), tax progressivity has been found to exceed that in rural or urban areas, excepting for CVD for which it was between the progressivity in rural and urban areas.

It is interesting to note from the above discussion that tax progressivity was higher in the rural areas while inequality in expenditure was higher in the urban areas. An implication of this finding is that the progressivity in rural areas as compared to that in urban areas has been higher mainly due to variation in the consumption baskets of the rural and urban consumers, for a given expenditure or expenditure class.

The effective tax rates obtained with more disaggregative data sets, based on twelve (non-comparable between rural and urban areas) expenditure classes (Tables 5.5 and 5.6), have been found to support the findings based on comparable data sets, discussed above. All the taxes taken together or individually, displayed progressivity in rural as well as urban areas. The progressivity and inequality indices support the findings relating to comparison between rural and urban areas though, strictly speaking, these parameters are not comparable between rural and urban areas. Inequality in expenditure has been found to be lower in rural areas as compared to that in urban areas in terms of both the Gini index and the KAS index of inequality for all values of inequality aversion. Progressivity of all major taxes taken together has been higher in rural areas as compared to that in urban areas.

TABLE 5.4

**Effective Rates and Progressivity of Major Indirect Taxes  
By 5 Expenditure Classes:1988-89**

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Customs duty			CVD		
		Rural areas	Urban areas	All areas	Rural areas	Urban areas	All areas
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<110	1.49	1.53	1.50	0.09	0.09	0.09
2	110-160	1.55	1.56	1.55	0.11	0.10	0.11
3	160-215	1.64	1.64	1.64	0.13	0.11	0.12
4	215-385	1.83	1.78	1.81	0.17	0.13	0.16
5	above 385	2.39	2.21	2.30	0.21	0.17	0.19
6	All classes	1.75	1.87	1.79	0.14	0.14	0.14
<b>Progressivity</b>							
7	Kakwani index	0.0680	0.0598	0.0682	0.1321	0.1036	0.1160
8	Aggarwal index ( $\epsilon=0.5$ )	0.0308	0.0278	0.0328	0.0618	0.0587	0.0580
9	Aggarwal index ( $\epsilon=1.5$ )	0.0762	0.0795	0.0813	0.1676	0.1527	0.1567
10	Aggarwal index ( $\epsilon=2.5$ )	0.0915	0.0973	0.0965	0.2085	0.1895	0.1944

TABLE 5.4 (Contd.)

**Effective Rates and Progressivity of Major Indirect Taxes  
By 5 Expenditure Classes:1988-89**

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Excise duty			sales tax		
		Rural areas	Urban areas	All areas	Rural areas	Urban areas	All areas
	(1)	(8)	(9)	(10)	(11)	(12)	(13)
1	<110	3.40	3.63	3.43	4.82	5.00	4.84
2	110-160	3.63	4.01	3.69	4.99	5.15	5.01
3	160-215	3.99	4.20	4.04	5.19	5.26	5.20
4	215-385	4.39	4.51	4.43	5.35	5.36	5.35
5	above 385	5.07	5.36	5.22	6.07	5.71	5.88
6	All classes	4.06	4.70	4.26	5.26	5.44	5.32
<b>Progressivity</b>							
7	Kakwani index	0.0574	0.0552	0.0648	0.0313	0.0197	0.0296
8	Aggarwal index ( $\epsilon=0.5$ )	0.0198	0.0290	0.0295	0.0130	0.0100	0.0137
9	Aggarwal index ( $\epsilon=1.5$ )	0.0669	0.0765	0.0815	0.0350	0.0261	0.0356
10	Aggarwal index ( $\epsilon=2.5$ )	0.0885	0.0983	0.1034	0.0448	0.0339	0.0453

Notes: Same as for Table 5.3.

TABLE 5.5

**Effective Rates and Progressivity of Major Indirect Taxes  
By 12 Expenditure Classes in Rural Areas:1988-89**

(Per cent)

	Monthly per capita expenditure class(Rs.)	Customs duty	CVD	Excise duty	Sales tax	All major taxes 2 to 5
	(1)	(2)	(3)	(4)	(5)	(6)
1	0-65	1.50	0.09	3.25	4.71	9.55
2	65-80	1.48	0.09	3.42	4.80	9.78
3	80-95	1.49	0.09	3.38	4.82	9.78
4	95-110	1.50	0.10	3.43	4.84	9.86
5	110-125	1.51	0.10	3.52	4.94	10.06
6	125-140	1.54	0.11	3.59	5.00	10.24
7	140-160	1.58	0.11	3.72	5.01	10.43
8	160-180	1.61	0.12	3.83	5.08	10.65
9	180-215	1.66	0.13	4.09	5.26	11.14
10	215-220	1.78	0.16	4.34	5.30	11.57
11	220-365	1.90	0.18	4.45	5.40	11.93
12	above 385	2.39	0.21	5.07	6.07	13.75
13	All classes	1.75	0.14	4.06	5.26	11.21
<b>Inequality in expenditure</b>						
14	Gini index	0.2553				
15	KAS index( $\epsilon=0.5$ )	0.0189				
16	KAS index( $\epsilon=1.5$ )	0.1384				
17	KAS index( $\epsilon=2.5$ )	0.2294				
<b>Progressivity</b>						
18	Kakwani index	0.0694	0.1373	0.0589	0.0319	0.0489
19	Aggarwal index( $\epsilon=0.5$ )	0.0316	0.0651	0.0207	0.0134	0.0192
20	Aggarwal index( $\epsilon=1.5$ )	0.0772	0.1733	0.0691	0.0360	0.0555
21	Aggarwal index( $\epsilon=2.5$ )	0.0913	0.2136	0.0918	0.0464	0.0714

Notes: Same as for Table 5.3.

TABLE 5.6

**Effective Rates and Progressivity of Major Indirect Taxes  
by 12 Expenditure Classes in Urban Areas:1988-89**

(Per cent)

	Monthly per capita expenditure class (Rs.)	Customs duty	CVD	Excise duty	Sales tax	All major taxes 2 to 5
	(1)	(2)	(3)	(4)	(5)	(6)
1	0-90	1.49	0.08	3.58	4.98	10.13
2	90-110	1.56	0.09	3.66	5.01	10.31
3	110-135	1.56	0.09	4.01	5.12	10.78
4	135-160	1.57	0.10	4.01	5.17	10.84
5	160-185	1.61	0.10	4.10	5.23	11.05
6	185-215	1.65	0.11	4.29	5.28	11.34
7	215-255	1.68	0.11	4.28	5.33	11.40
8	255-370	1.77	0.13	4.52	5.37	11.80
9	370-385	1.87	0.14	4.68	5.37	12.06
10	385-520	1.97	0.16	5.07	5.54	12.74
11	520-700	2.13	0.18	5.31	5.59	13.21
12	above 700	2.50	0.18	5.67	5.96	14.31
13	All classes	1.87	0.14	4.70	5.44	12.15
<b>Inequality in expenditure</b>						
14	Gini index		0.3087			
15	KAS index( $\epsilon=0.5$ )		0.0530			
16	KAS index( $\epsilon=1.5$ )		0.1995			
17	KAS index( $\epsilon=2.5$ )		0.3029			
<b>Progressivity</b>						
18	Kakwani index		0.0690	0.1132	0.0611	0.0217
19	Aggarwal index( $\epsilon=0.5$ )		0.0360	0.0642	0.0332	0.0119
20	Aggarwal index( $\epsilon=1.5$ )		0.0845	0.1561	0.0787	0.0271
21	Aggarwal index( $\epsilon=2.5$ )		0.0989	0.1914	0.0985	0.0340

Notes: Same as for Table 5.3.

### 5.3.1 Incidence by food and non-food items

With a view to having an idea about the incidence of tax by food and non-food items, effective rates of all the taxes combined as well as individual taxes were computed for food and non-food items, separately for rural and urban areas. These rates for the 5 expenditure classes are given in Tables 5.7 and 5.8, and for the 12 expenditure classes are given in Table 5.9. Similarly, the effective rates for cereals and other food items were computed separately for rural and urban areas. These rates for 5 expenditure classes are given in Tables 5.10 and 5.11, and for 12 expenditure classes are given in Table 5.12.

From Tables 5.7 and 5.8, it will be noted that effective rates of all taxes combined as well as of individual taxes were lower for food items as compared to those for non-food items, for each of the 5 expenditure classes, in rural as well as urban areas. Between rural and urban areas, the effective rates for food items were lower in rural areas while those for non-food items were lower in urban areas. This implies that people in rural areas as compared to those in urban areas, consumed relatively higher proportions of lower tax incidence food items and relatively higher proportions of higher tax incidence non-food items. The effective rates for food as well as non-food items have been found to rise along low-expenditure to high-expenditure classes for each of the taxes studied (taken separately or together), for rural, urban and all areas. This indicates that the taxes have been progressive also by subgroups of commodities like food and non-food items. These findings remained unchanged with reference to the effective tax rates for food and non-food items for 12 expenditure classes (Table 5.9).

TABLE 5.7

Combined Effective Rates of Major Indirect Taxes by Food and Non-food  
Items and by 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Rural areas		Urban areas		All areas	
		Food items	Non-food items	Food items	Non-food items	Food items	Non-food items
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<110	8.22	14.43	9.17	13.17	8.31	14.30
2	110-160	8.63	14.43	9.77	13.35	8.80	14.26
3	160-215	9.08	14.72	10.15	13.34	9.33	14.39
4	215-385	9.58	14.85	10.82	13.18	10.00	14.29
5	above 385	10.52	16.26	12.76	14.01	11.71	15.09
6	All classes	9.08	14.99	11.05	13.64	9.65	14.52

Notes: Same as for Table 5.3.

TABLE 5.8

Effective Rates of Major Indirect Taxes by Food and Non-food Items and  
By 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Excise duty						Sales tax					
		Rural area		Urban area		All areas		Rural area		Urban area		All areas	
		Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1	<110	2.34	6.50	2.89	5.63	2.39	6.41	4.77	4.96	5.14	4.61	4.81	4.92
2	110-160	2.54	6.38	3.29	5.75	2.65	6.28	5.00	4.97	5.37	4.61	5.05	4.91
3	160-215	2.77	6.47	3.49	5.65	2.94	6.27	5.24	5.08	5.57	4.64	5.32	4.97
4	215-385	3.08	6.28	3.88	5.43	3.35	5.99	5.46	5.18	5.87	4.61	5.60	4.99
5	above 385	3.67	6.16	5.34	5.37	4.56	5.75	5.82	6.28	6.35	5.19	6.10	5.71
6	All classes	2.80	6.29	4.11	5.48	3.18	6.01	5.21	5.34	5.86	4.89	5.40	5.18

TABLE 5.8 (Contd.)

Effective Rates of Major Indirect Taxes by Food and Non-food Items and  
by 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Customs duty						CVD					
		Rural area		Urban area		All areas		Rural area		Urban area		All areas	
		Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items	Food items	Non-food items
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	
1	<110	1.05	2.78	1.07	2.77	1.05	2.78	0.06	0.19	0.06	0.15	0.06	0.19
2	110-160	1.03	2.84	1.05	2.80	1.04	2.84	0.06	0.23	0.06	0.18	0.06	0.23
3	160-215	1.01	2.90	1.04	2.84	1.02	2.89	0.06	0.27	0.06	0.21	0.06	0.26
4	215-385	0.98	3.05	1.01	2.90	0.99	3.00	0.06	0.33	0.06	0.24	0.06	0.30
5	above 385	0.99	3.49	1.00	3.19	0.99	3.33	0.05	0.34	0.06	0.26	0.06	0.30
6	All classes	1.01	3.06	1.02	3.02	1.02	3.05	0.06	0.29	0.06	0.24	0.06	0.27

Notes: Same as for Table 5.3.

TABLE 5.9

1. Effective Rates of Major Indirect Taxes by Food and Non-food  
Items and by 12 Expenditure Classes in Rural Areas:1988-89

(Per cent)

Monthly per capita expenditure class(Rs.)	Customs duty		CVD		Excise duty		Sales tax		All major taxes	
	Food	Non Food	Food	Non Food	Food	Non Food	Food	Non Food	Food	Non Food
	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 0-65	1.05	2.79	0.06	0.18	2.04	6.63	4.59	5.03	7.73	14.63
2 65-80	1.06	2.74	0.06	0.16	2.38	6.56	4.74	4.97	8.24	14.44
3 80-95	1.05	2.78	0.06	0.18	2.32	6.50	4.77	4.95	8.20	14.42
4 95-110	1.04	2.80	0.06	0.20	2.38	6.46	4.80	4.94	8.29	14.41
5 110-125	1.03	2.80	0.06	0.21	2.41	6.58	4.91	5.01	8.41	14.60
6 125-140	1.04	2.86	0.06	0.23	2.52	6.38	5.00	5.01	8.62	14.49
7 140-160	1.03	2.86	0.06	0.25	2.64	6.26	5.05	4.92	8.78	14.29
8 160-180	1.02	2.88	0.06	0.26	2.71	6.26	5.14	4.96	8.93	14.37
9 180-215	1.01	2.91	0.06	0.28	2.80	6.59	5.31	5.15	9.18	14.94
10 215-220	1.00	2.99	0.06	0.31	3.03	6.39	5.39	5.16	9.47	14.86
11 220-365	0.97	3.11	0.05	0.36	3.15	6.16	5.55	5.21	9.72	14.84
12 above 385	0.99	3.49	0.05	0.34	3.67	6.16	5.82	6.28	10.52	16.26
13 All classes	1.01	3.06	0.06	0.29	2.80	6.29	5.21	5.34	9.08	14.99

TABLE 5.9 (Contd.)

2. Effective Rates of Major Indirect Taxes by Food and Non-food  
Items and by 12 Expenditure Classes in Urban Areas:1988-89

(Per cent)

Monthly per capita expenditure class(Rs.)	Customs duty		CVD		Excise duty		Sales tax		All major taxes	
	Food	Non Food	Food	Non Food	Food	Non Food	Food	Non Food	Food	Non Food
	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 0-90	1.07	2.74	0.06	0.15	2.88	5.70	5.09	4.63	9.11	13.23
2 90-110	1.07	2.79	0.06	0.16	2.90	5.60	5.17	4.60	9.20	13.14
3 110-135	1.07	2.78	0.06	0.18	3.27	5.85	5.31	4.64	9.71	13.45
4 135-160	1.05	2.81	0.06	0.19	3.31	5.68	5.41	4.59	9.82	13.27
5 160-185	1.05	2.82	0.06	0.19	3.44	5.51	5.54	4.58	10.08	13.10
6 185-215	1.03	2.86	0.06	0.22	3.52	5.75	5.59	4.68	10.20	13.51
7 215-255	1.02	2.87	0.06	0.22	3.59	5.52	5.74	4.58	10.41	13.18
8 255-370	1.02	2.93	0.06	0.25	3.82	5.60	5.83	4.66	10.73	13.44
9 370-385	1.00	2.91	0.06	0.23	4.21	5.23	6.03	4.58	11.30	12.95
10 385-520	1.01	3.06	0.06	0.28	4.71	5.48	6.20	4.79	11.97	13.61
11 520-700	0.99	3.12	0.06	0.29	5.11	5.49	6.29	4.99	12.44	13.89
12 above 700	1.01	3.31	0.06	0.24	6.49	5.23	6.64	5.59	14.20	14.37
13 All classes	1.02	3.02	0.06	0.24	4.11	5.48	5.86	4.89	11.05	13.64

Notes: Same as for Table 5.3.

From Tables 5.10 and 5.11, it may be noted that, within the food items, tax burden on cereals has been lower for each of the 5 expenditure classes, in rural as well as urban areas. Between the rural and urban areas, the effective rates for cereals, as for other food items, were lower in rural areas. This implies that the rural consumers as compared to urban consumers, consumed relatively higher proportions of lower tax incidence cereals. As in the case of food and non-food items, the effective rates for cereals as well as other food items have been found to rise along low-expenditure to high-expenditure classes for each of the taxes studied (taken separately or together), for rural, urban and all areas. This implies that the taxes have been progressive also by subgroups of food items such as cereals and other food items. These findings remained unchanged with reference to the effective tax rates for cereals and other food items for 12 expenditure classes (Table 5.12).

TABLE 5.10

Combined Effective Rates of Major Indirect  
Taxes by Cereals and Other-food Items and  
by 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class(Rs.)	Rural areas		Urban areas		All areas	
		Cereals	Other food items	Cereals	Other food items	Cereals	Other food items
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<110	6.20	10.58	6.42	11.55	6.22	10.69
2	110-160	6.26	10.70	6.39	11.90	6.28	10.91
3	160-215	6.29	10.94	6.40	11.99	6.31	11.21
4	215-385	6.34	11.19	6.44	12.36	6.37	11.61
5	above 385	6.45	11.81	6.51	14.02	6.48	13.04
6	All classes	6.28	11.01	6.43	12.76	6.31	11.59

Notes: Same as for Table 5.3.

TABLE 5.11

Effective Rates of Major Indirect Taxes by Cereals and Other-food Items and  
By 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Excise duty						Sales tax					
		Rural area		Urban area		All areas		Rural area		Urban area		All areas	
		Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1	<110	1.02	3.88	1.07	4.47	1.03	3.95	4.04	5.63	4.14	6.01	4.04	5.67
2	110-160	1.05	3.85	1.08	4.68	1.05	3.99	4.04	5.84	4.11	6.17	4.05	5.89
3	160-215	1.05	3.91	1.08	4.66	1.06	4.11	4.05	6.04	4.10	6.29	4.06	6.10
4	215-385	1.06	4.08	1.09	4.86	1.07	4.36	4.08	6.14	4.12	6.49	4.09	6.27
5	above 385	1.09	4.48	1.10	6.20	1.09	5.44	4.14	6.35	4.16	6.80	4.15	6.60
6	All classes	1.05	4.00	1.09	5.23	1.06	4.41	4.06	6.01	4.12	6.50	4.07	6.17

TABLE 5.11 (Contd.)

Effective Rates of Major Indirect Taxes by Cereal and Other-food Items and  
By 5 Expenditure Classes:1988-89

(Per cent)

S.No.	Monthly per capita expenditure class (Rs.)	Customs duty						CVD					
		Rural area		Urban area		All areas		Rural area		Urban area		All areas	
		Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items	Cereals	Other food items
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	
1	<110	1.08	1.02	1.14	1.02	1.082	1.02	0.06	0.05	0.07	0.05	0.06	0.05
2	110-160	1.11	0.97	1.14	1.00	1.11	0.97	0.07	0.05	0.07	0.05	0.07	0.05
3	160-215	1.12	0.94	1.15	0.98	1.12	0.95	0.07	0.05	0.07	0.05	0.07	0.05
4	215-385	1.13	0.91	1.16	0.96	1.14	0.93	0.07	0.05	0.07	0.05	0.07	0.05
5	above 385	1.15	0.93	1.18	0.97	1.16	0.95	0.07	0.05	0.07	0.05	0.07	0.05
6	All classes	1.11	0.95	1.16	0.97	1.12	0.96	0.07	0.05	0.07	0.05	0.07	0.05

Notes: Same as for Table 5.3.

TABLE 5.12

1. Effective Rates of Major Indirect Taxes by Cereal and other food  
Items and by 12 Expenditure Classes in Rural Areas:1988-89

(Per cent)

Monthly per capita expenditure class(Rs.)	Customs duty		CVD		Excise duty		Sales tax		All major taxes	
	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 0-65	1.04	1.05	0.06	0.05	1.00	3.64	4.04	5.45	6.13	10.20
2 65-80	1.08	1.04	0.06	0.05	1.02	4.12	4.05	5.62	6.21	10.84
3 80-95	1.08	1.02	0.06	0.05	1.03	3.85	4.05	5.62	6.22	10.55
4 95-110	1.08	1.00	0.06	0.05	1.03	3.86	4.02	5.65	6.19	10.56
5 110-125	1.09	0.98	0.06	0.05	1.04	3.72	4.04	5.75	6.23	10.49
6 125-140	1.12	0.96	0.07	0.05	1.05	3.84	4.05	5.84	6.29	10.69
7 140-160	1.11	0.96	0.07	0.05	1.05	3.94	4.04	5.89	6.27	10.85
8 160-180	1.11	0.95	0.07	0.05	1.05	3.97	4.03	5.98	6.25	10.95
9 180-215	1.13	0.94	0.07	0.05	1.06	3.87	4.07	6.08	6.32	10.94
10 215-220	1.12	0.93	0.07	0.05	1.06	4.10	4.08	6.10	6.33	11.17
11 220-365	1.13	0.90	0.07	0.05	1.07	4.06	4.08	6.19	6.35	11.21
12 above 385	1.15	0.93	0.07	0.05	1.09	4.48	4.14	6.35	6.45	11.81
13 All classes	1.11	0.95	0.07	0.05	1.05	4.00	4.06	6.01	6.28	11.01

TABLE 5.12 (Contd.)

2. Effective Rates of Major Indirect Taxes by Cereal and other food  
Items and by 12 Expenditure Classes in Urban Areas:1988-89

(Per cent)

Monthly per capita expenditure class(Rs.)	Customs duty		CVD		Excise duty		Sales tax		All major taxes	
	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals	Cereals	Other Cereals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 0-90	1.14	1.01	0.07	0.05	1.08	4.49	4.12	5.95	6.40	11.51
2 90-110	1.14	1.02	0.07	0.05	1.07	4.46	4.15	6.04	6.43	11.57
3 110-135	1.14	1.02	0.07	0.05	1.07	4.78	4.12	6.14	6.40	11.99
4 135-160	1.15	0.99	0.07	0.05	1.08	4.61	4.09	6.19	6.39	11.84
5 160-185	1.15	0.99	0.07	0.05	1.08	4.67	4.11	6.28	6.41	11.99
6 185-215	1.15	0.98	0.07	0.05	1.08	4.66	4.09	6.29	6.39	11.98
7 215-255	1.16	0.96	0.07	0.05	1.09	4.60	4.10	6.40	6.42	12.02
8 255-370	1.16	0.97	0.07	0.05	1.09	4.84	4.11	6.47	6.43	12.33
9 370-385	1.17	0.96	0.07	0.05	1.10	5.10	4.13	6.58	6.47	12.68
10 385-520	1.18	0.97	0.07	0.05	1.10	5.60	4.16	6.70	6.51	13.31
11 520-700	1.17	0.95	0.07	0.05	1.10	5.93	4.14	6.72	6.49	13.65
12 above 700	1.19	0.98	0.07	0.06	1.11	7.26	4.17	7.00	6.54	15.30
13 All classes	1.16	0.97	0.07	0.05	1.09	5.23	4.12	6.50	6.43	12.76

Notes: Same as for Table 5.3.

#### 5.4 Concluding Remarks

The study reveals that there has been substantial input taxation, with sales tax as the major contributor. The sharp cuts in the rates of customs duty and extension of the scheme of MODVAT to most commodities under the Union excise duty, during the 1990s, would have resulted in significant reduction in input taxation. In spite of these tax reforms, significant input taxation would have remained in the system of commodity taxation as no major reforms have been introduced in respect of sales tax that is the major contributor of input taxation. Appropriate steps need to be taken for reducing input taxation with a view to mitigating its ill effects such as inducement for vertical integration, and the rise in price by more than the element of tax in it. While the process of reforming Union excise duties and customs duties should be continued, there is urgent need to induce the States for reforming the system of sales tax which is the major contributor to input taxation. Replacing the system of sales tax by State VATs as recommended by the NIPFP (1994) study could provide the necessary remedy for its ill effects. The process of tax reforms can go a long way in mitigating input taxation and pave the way for developing a simple and rational system of commodity taxation.

The significance of the estimates of tax incidence relating to the tax structures that prevailed during the fiscal year 1989-90 can also be viewed with reference to the process of tax reforms of the 1990s. In the case of sales tax, the effective rates for the current rate structures could be expected to be close to those obtained in this study. These rates indicate the pattern of incidence of sales tax and thereby help in identifying unintended incidence of sales tax, and shed light on the extent of input taxation in the system of sales tax. The unintended incidence of tax can be checked through suitable reforms. The estimates of effective rates of other taxes as well as the combined effective rates of all these taxes taken together, would provide benchmark estimates to the future researchers for evaluating the impact of reforms of the 1990s, besides revealing the intricacies of the system of commodity taxation prior to the reforms.

## **ANNEXURES**

Table.A1.1

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Andhra Pradesh	Assam	Bihar	Delhi	Gujarat	Haryana	Karnatka	Kerala
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>1. CEREALS, PULSES ECT.</b>								
1.1 Cereals and Pulses	4	E	4	E	E	4	2/3	4
1.2 Paddy	0	2	3	E	E	4	2	1
1.3 Atta, Maida and Suji	2	E	4	E	E	4	3	4
<b>2. OTHER FOOD ARTICLES</b>								
2.1 Edible oils	4	7	2	5	4	6	4/3	6
2.2 Vanaspati ghee	6	7	9	5	10	8	5	6
2.3 Ghee (pure)	6	7	8	5	10	8	13	6
2.4 Potatoes and Onions	E	E/8	5	E	E	E	E	E
2.5 Fresh Fruits	E	E	E	E	E	E	E	E
2.6 Meat and Fish in Containers	9	E	E	7	E	8	10/3	10
2.7 Eggs	E	E	E	E	E	E	E	E
2.8 Khandsari	E	E	E	E	E	E	2	8
2.9 Salt (in Containers)	E	E	E	E	E	E	E	E
2.10 Gur (Jaggery)	7	E	E	E	E	4	2	8
2.11 Tea Leaves	6	7	E	7	1	8	13	5
2.12 Coffee Powder	6	7	6	7	6	8	13	10
2.13 Pepper	5	7	9	7	6	8	6	6
2.14 Other Spices	5	7	9	7	6	8	5	5/8
2.15 Curd, Lassi and Buttermilk	E	E	E	E	E	E	E	5
2.16 Cooked Food and Sweets	5	7	6	6	18	8	5	5/10
2.17 Milk Food and Powder	4	8	E	7	4	8	4	8
<b>3. BOOKS AND STATIONERY</b>								
3.1 Students' Exercise Books	E	E	6	E	E	E	E	E
3.2 Writing and Other Papers	7	7	6	5	E	8	8	8
3.3 Other Stationery	6	7	E/6	7	10	8	7	E
3.4 Instrument Boxes	6	7	7	E	E	8	E	8
3.5 Books and Maps	E	7	E	E	E	E	E	8
<b>4. DOMESTIC FUEL ITEMS</b>								
4.1 Firewood	3	E	7	E	E	8	6	5
4.2 Coal and Coke	4	4	4	3	4	4	4	5
4.3 Kerosene	4	2	6	3	3	8	5	4
4.4 Kerosene Superior	4	2	6	3	3	8	5	4
4.5 Kerosene Inferior	4	2	6	3	3	8	-	4
4.6 Cooking Gas	10	8	9	5	14	8	15	15
4.7 Charcoal	3	7	7	E	E	4	6	5
4.8 Furance Oil	4	8	8	7	7	8	7	10
4.9 Candles	6	7	7	5	E	8	6	E
4.10 Match Boxes	3	7	9	4	E	8	5	4

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Andhra Pradesh	Assam	Bihar	Delhi	Gujarat	Haryana	Karnataka	Kerala
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>5. TOILET ARTICLES</b>								
5.1 Tooth Paste/Powder	10	7	8	5	8	8	15	8
5.2 Washing Soaps	5	7	9	8	6	8	8	5
5.3 Toilet Soaps	8	7	9	8	8	8	13	5
5.4 Hair Oils	10	7	8	10	12	8	15	15
5.5 Razors and Razor Blades	7	8	8	15	8	8	8	8
5.6 Other Shaving Products	10	8	8	10	8	8	15	-
5.7 Cosmetics	10	13	12	10	12	10	15	15
5.8 Boot-polish	6	8	8	5	8	8	-	5
5.9 Tooth Brushes	12	7	3	10	5+4	8	15	8
<b>6. MEDICINES</b>								
	5	4	7	4	8	8	10	6
<b>7. GARMENTS AND FOOTWEAR</b>								
7.1 Cotton Hoisery Products	4	6	5	2	1	5	2	5
7.2 Readymade Garments	5	3/7	7	5	4	4	5	5
7.3 Footwear	8	8	8	5,7	10	8	8	8
<b>8. CYCLES AND ACCESSORIES</b>								
	E	4/8	8	5,7	6	8	3	4
<b>9. REFRESHMENT ARTICLES</b>								
9.1 Bread	6	E	4	E	E	8	E	E
9.2 Cakes and Pastries	9	7	8	6	10	8	13	5
9.3 Toffees and Chocolates	8	8	8	9	8+4	8	13	10
9.4 Aerated Water	7	7	11	7	12	NIL	13+5	10
9.5 Country Liquor	25	20	E	7	45	NIL	20	45
9.6 Foreign Liquor	25	50	25	10	45	NIL	50	75
9.7 Indian made Foreign Liquor	25	50	25	25	-	NIL	45	60
9.8 Bhang	-	7	E	E	15	-	150	-
9.9 Ganja	10	7	E	E	15	-	150	55
9.10 Opium	10	7	E	E	15	-	150	55
9.11 Ice	6	7	7	5	12	8	8	5
9.12 Biscuits	7	7/8	9	7	18	-	10	5/8
<b>10. CONSUMER DURABLES INCLUDING GOLD AND SILVER</b>								
10.1 Gold, Silver and Coins	2	7	2	2	4	8	4	5
10.2 Bullion and Spices	2	7	2	1/2	1+1	1/2	3/1	2
10.3 Articles of Gold & Silver	2	7	4	1/2	1+1	2	4	5
10.4 Ivory Products	8	12	13	7	12+4	8	8	10
10.5 Marble and its Products	10	7	13	7	15	8	15	8
10.6 Synthetic Gems etc.	7	8	10	7	4	8	7	10
10.7 Gold and Embroidery Work	-	-	E	E	5	NIL	4	5

Table A1.1 (Contd.)

Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Andhra Pradesh	Assam	Bihar	Delhi	Gujarat	Haryana	Karnatka	Kerala
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.8 Articles of Stainless Steel	6	12	8	10	6	3	7	10
10.9 Ladies Hand-bags	7	8	10	7	8+4	8	13	8
10.10 All kinds of Leather Goods	7	8	8	10	8+4	8	13	8
10.11 Suit Cases and Attache Cases	6	8	10	10	12+4	8	15	10+1
10.12 All kinds of Stoves	7	8	8	7	3+4	8	15	1
10.13 Incandescent Lanterns & Lamps	-	8	9	5	5+4	8	8	8
10.14 Domestic Electrical Appliances	10	12	12	10	15	10	12+3	10
10.15 Clocks and Time Pieces	10	13	13	10	10	10	12	15
10.16 Refrigerators and Air-conditioners	10	13	16	10	12	10	15	15
10.17 Wooden Furniture	5	12	12	10	12	8	8	10
10.18 Steel Safes and Almirahs	10	13	13	10	12	10	15	10
10.19 Other Steel Furniture	10	12	13	10	12	10	15	10
10.20 Aluminium Furniture	6	7	12	10	12	8	15	10
10.21 Wireless Reception Instruments	10	12	10	10	15	12	15/4/6	15/4
10.22 Sound Transmitting Equipments	10	12	10	10	15	12	20/6	15
10.23 Cinema Equipments	10	12	8	10	12	12	15	15
10.24 Motor Cycles and Combinations	4	12	9	10	12	10	8	4
10.25 Heavy Motor Vehicles	10	8	9	10	12	4	10	4
10.26 Motor Cars	4	4	9	10	12	8/10	6	4
10.27 Lifts Operated by Power	10	8	8	10	10	10	15	15
10.28 Tyres and Tubes	7	12	9	17	12	10	9	-
10.29 Aluminium Wares	6	7	8	7	6	3	E	6
10.30 Motor Parts	10	12	10	10	12	10	13+3	12
10.31 Fur and its Articles	10	7	13	10	12	4	15	6
10.32 Tabulating and Calculating Machines	10	12	14	10	15	10	20/6	15/4
10.33 Binoculars and Telescopes	10	12	15	10	12	12	13	15
10.34 Sewing Machines	6	8	8	10	4	8	6	6
10.35 Vacuum Flasks	9	12	10	7	10	10	10	10
10.36 Playing Cards	10	7	13	10	8+4	8	15	10
10.37 Crockery and Cutlery	6	7	8	7	12+4	10	10	6
10.38 Floor and Wall Tiles	4	12/8	13	10	12	10	13	8
10.39 Arms and Ammunition	10	13	16	10	12	10	15	20
10.40 Fireworks	10	8	7	10	10	8	15	10
10.41 Cigarette Cases and Lighters	10	12	15	10	12	12	15	15
10.42 Sheets, Cushions and Pillows	10	13	10	-	15	10	15	15
10.43 Other Rubber Products	9	8	10	7	9	8	8	8
10.44 Pile Carpets	10	8	13	10	15	10	8	15
10.45 Precious Stones	7	8	10	7	10	8	15	10
10.46 Dry Fruits	6	8	9	7	7+4	8	10	8
10.47 Dry Cell Batteries	9	8	12	5	8+4	8	13	10
10.48 Glass Bangles	E	8	E	7	E	E	E	E
10.49 Locks and Keys	5	8	8	7	8+4	8	10	8

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Andhra Pradesh	Assam	Bihar	Delhi	Gujarat	Haryana	Karnataka	Kerala
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.50 Bedding Stuffed with Cotton	10	7	7	5	E	8	7	5
10.51 Musical Instruments	6	7	7	7	E	12	E	15
10.52 Plastic Goods	9	8	8	5,7	10	12	10+3	8
10.53 Synthetic Mica Products	-	7	13	-	E	10	7	8
10.54 Air Circulators and Fans	10	13	12	10	15	10	10+3	10
<b>11. RAW MATERIALS</b>								
11.1 Mica	3	7	E	7	4	8	13	15+2
11.2 Manganese	5	7	8	7	4	8	13	8
11.3 Hides and Skins	4	3	4	2	4	4	4	4
11.4 Coal and Coke	4	4	4	3	4	4	4	4
11.5 Oil Seeds	4	4	4	3	4	4	4	4
11.6 Jute	4	4	2	3	4	4	4	4
11.7 Cotton Yarn	4	E	2	-	4	2	2	2
11.8 Cotton Waste	5	7	8	5	4	2	8	6
11.9 Iron and Steel	4	4	4	4	4	4	4	4
11.10 Sewing Threads and Balls	5	2	2	2	4	1	5	4
11.11 Cement and its products	9	11	11/8	7	12	12	15	10
11.12 Manure (Organic)	E	E	E	E	E	E	3	2
11.13 Chemical Fertilisers	3	6	6	E	4	E	3	2
11.14 Pesticides	4	4	4	E	2+4	2	3	2
11.15 Fungicides	4	4	4	5	2+4	2	3	2
11.16 Bamboos	5	12	12	7	6	8	6	5
11.17 Timber	10	12	12	7	12	8	13	5
11.18 Betel Leaves	E	E	E	E	E	E	E	E
11.19 Tendu Leaves	6	12	12	E	E	-	7	5
11.20 Copper Wire	6	8	8	7	6	8	10	8
11.21 Goat Hair	4	7	8	7	8+4	8	15	5
11.22 Raw Wool, Wool Tops and Yarn	4	7	8	5	5	4	5	6
11.23 Woollen Knitting Yarn	E	7	8	5	E	2	7	6
11.24 Staple Yarn	5	6	E	2	1	2	4	2
11.25 Non-Ferrous Metals	-	7	8	7	6	8	8	8
11.26 Cotton	4	E	4	E	4	4	4	4
<b>12. FUEL ITEMS</b>								
12.1 Motor Spirits	18	12	9	7	20	8	20	20
12.2 Lights Diesel Oil	12	11	14	7	7	8	20	20
12.3 High-speed Diesel Oil	12	11	14	7	18	E	20	20
12.4 Aviation Spirits	18	25	25	7	9	8	20	10
12.5 Aviation Gasoline	18	25	-	7	20	8	20	10
12.6 Aviation Turbine Fuel	18	25	-	7	30	8	4	10
12.7 Crude Oil	14	4	4	7	4	8	20	4
12.8 Petrol	18	12	9	7	20	8	20	15

Table A1.1 (Contd.)

Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Andhra Pradesh	Assam	Bihar	Delhi	Gujarat	Haryana	Karnatka	Kerala
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>13. LUBRICANTS ETC.</b>								
13.1 Dyes, Paints and Lacquers	9	8	12	7	4	8	15	10
13.2 Lubricants	10	10	9	7	10	8	15	12
13.3 Caustic Soda and Soda Ash	5	8	7	7	6	8	7	8
13.4 Potash and Explosives	5	8	8	7	8+4	8	8	8
13.5 Other Chemicals	5	8	8	7	4	8	7	8
13.6 Starches	6	7	8	7	4	8	4	4
<b>14. MACHINERY OF ALL KINDS</b>	<b>6</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>13</b>	<b>8</b>
<b>15. PACKING MATERIALS</b>								
15.1 Empty Tins and Empty Barrels	5	7	8	7	5	8	8	4
15.2 Wooden Boxes	6	7	E	7	5	8	8	4
15.3 Empty Bottles and Corks	6	8	8	7	5	10	7	4
15.4 Polythene and Alkaline	6	8	8	7	5	8	8	4
15.5 Bitumen as Packing Materials	5	7	8	5	5	8	10	4
15.6 Cartons	7	7	8	7	5	8	8	4
<b>16. GENERAL RATE</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>8+4</b>	<b>8</b>	<b>7</b>	<b>5</b>
<b>SURCHARGE</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>25</b>

Notes: 1. (-) Indicates information not available.

2. E: Exempt

3. a+b indicates double point tax at the rates a and b.

4. a/b/c indicates rates applicable to subgroups of items under consideration.

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<b>1. CEREALS, PULSES ECT.</b>								
1.1 Cereals and Pulses	3/2	E	4	4	4	E/4	4	1
1.2 Paddy	2.5	E	4	4	4	E	4	-
1.3 Atta, Maida and Suji	3	E	4	4	4	4	4	-
<b>2. OTHER FOOD ARTICLES</b>								
2.1 Edible oils	3	4	4	8	6	4	5	1/8
2.2 Vanaspati ghee	12	8	12	8	8	8	8	8
2.3 Ghee (pure)	6	6	12	8	6	8	6	8
2.4 Potatoes and Onions	E	E	E	E	E	E	E	NIL
2.5 Fresh Fruits	E	E	E	E	E	E	E	NIL
2.6 Meat and Fish in Containers	12	2	12	8	10	10	8	15
2.7 Eggs	E	E	E	E	E	E	E	NIL
2.8 Khandsari	E	E	4	E	E	E	E	NIL
2.9 Salt (in Containers)	E	E	E	E	E	E	E	NIL
2.10 Gur (Jaggery)	2	E	4	8	E	-	E	NIL
2.11 Tea Leaves	12/10	6	12	8	10	6	8	4
2.12 Coffee Powder	10	6	12	8	10	6	8	15
2.13 Pepper	4	6	12	8	6	6	8	11
2.14 Other Spices	4	6	8/12	8	6	8	8	8/11
2.15 Curd, Lassi and Buttermilk	E	E	8/12	E	E	E	5	0/8
2.16 Cooked Food and Sweets	3	2/8/15	4	E	6	5	5	8/0
2.17 Milk Food and Powder	3/8	6	12	4	6	10	6	8
<b>3. BOOKS AND STATIONERY</b>								
3.1 Students' Exercise Books	5	NIL	E	E	E	E	6	NIL
3.2 Writing and Other Papers	5	6	12/16	8	6	6	6	8
3.3 Other Stationery	6	10	12/16	8	6	5	8	0/8
3.4 Instrument Boxes	6	NIL/4	12	8	E	E	8	NIL
3.5 Books and Maps	6	NIL	E	8	E	E	E	NIL
<b>4. DOMESTIC FUEL ITEMS</b>								
4.1 Firewood	3	NIL	E	E	E	E	4	8
4.2 Coal and Coke	4	4	4	4	4	3	4	4
4.3 Kerosene	3	4	E	8	10	4	8	5/0
4.4 Kerosene Superior	E	4	-	8	-	4	-	5
4.5 Kerosene Inferior	E	4	-	8	-	4	-	NIL
4.6 Cooking Gas	16	4	12	8	10	8	8	15
4.7 Charcoal	3	NIL	E	4	10	E	4	NIL
4.8 Furance Oil	14	8	12	8	10	10	5	8
4.9 Candles	12	10	12	8	10	E	8	NIL
4.10 Match Boxes	3	2	12	8	6	E	8	7

Table A1.1 (Contd.)

Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Madhya Pradesh		Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
	(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<b>5. TOILET ARTICLES</b>									
5.1 Tooth Paste/Powder		12	8	16	8	12	8	8	8
5.2 Washing Soaps		6	8	12	8	8	10	6	8
5.3 Toilet Soaps		6	8	12	8	8	10	8	8
5.4 Hair Oils		12	15	16	8	12	12	12	8
5.5 Razors and Razor Blades		12	8	12	8	12	10	8	11
5.6 Other Shaving Products		12	15	16	8	12	10/8	8	8
5.7 Cosmetics		16	15	16	12	12	12	12	15
5.8 Boot-polish		12	6	16	8	10	8	8	11
5.9 Tooth Brushes		12	8	12	8	12	8	8	8
<b>6. MEDICINES</b>									
		3	4/12	4	4	6	6	6	4
<b>7. GARMENTS AND FOOTWEAR</b>									
7.1 Cotton Hoisery Products		3	2	4	8	4	3	4	NIL
7.2 Readymade Garments		3	4	4	2	6	5	4	2
7.3 Footwear		12	8/12/15	12	8	10	5/8	8	4/8/11
<b>8. CYCLES AND ACCESSORIES</b>									
		8	8/4	4	5	4	3	8	3
<b>9. REFRESHMENT ARTICLES</b>									
9.1 Bread		E	NIL	E	8	2.5	10/5	5	NIL
9.2 Cakes and Pastries		12	8	12	8	10	10	5	8
9.3 Toffees and Chocolates		12	8	12	8	10	10/5	5	8
9.4 Aerated Water		8	12	12	12	15	8	E	15
9.5 Country Liquor		E	50	E	E	E	E	E	NIL
9.6 Foreign Liquor		E	20	4	12	40	50	26	NIL
9.7 Indian made Foreign Liquor		E	35	4	E	E	30	26	NIL
9.8 Bhang		E	15	E	E	36	E	E	NIL
9.9 Ganja		E	15	E	E	36	E	E	NIL
9.10 Opium		8	15	E	E	36	E	26	NIL
9.11 Ice		12	4	12	7	10	5	7	8
9.12 Biscuits		12	8	12	7	10	5	5	11/NIL
<b>10. CONSUMER DURABLES INCLUDING GOLD AND SILVER</b>									
10.1 Gold, Silver and Coins		8	2	4	2	1	1/2	4	1/8
10.2 Bullion and Spices		2.5	2	4	2	1	1	2	1
10.3 Articles of Gold & Silver		1	2	4	2	2.5	2	6	3/8/11
10.4 Ivory Products		16	8	16	7	10	E	8	8
10.5 Marble and its Products		16	15	16	7	15	15	6	15
10.6 Synthetic Gems etc.		12	12	16	7	E	8	8	11
10.7 Gold and Embroidery Work		6	6	16	7	E	E	E	3

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
10.8 Articles of Stainless Steel	8	12	12	10	15	5	12	8/11
10.9 Ladies Hand-bags	12	15	16	7	15	8	8	15
10.10 All kinds of Leather Goods	12	10	12	10	10	8	8	8/15
10.11 Suit Cases and Attache Cases	12	15	12	7	10	8	8	8/15
10.12 All kinds of Stoves	10	10	12	7	10	8	8	8
10.13 Incandescent Lanterns & Lamps	12	10	16	7	10	E	8	8
10.14 Domestic Electrical Appliances	12	15	12	10	12	12/8	12	8/11/15
10.15 Clocks and Time Pieces	12	15	16	10	12	10	12	11
10.16 Refrigerators and Air-conditioners	16	15	12/16	10	12	15	12	11/15
10.17 Wooden Furniture	14	8	16	10	12	8	12	8
10.18 Steel Safes and Almirahs	14	15	16	10	15	8	12	15
10.19 Other Steel Furniture	14	15	16	10	15	8	12	15
10.20 Aluminium Furniture	14	15	16	10	15	8	12	15
10.21 Wireless Reception Instruments	16	12	16	10	10	3	12	11
10.22 Sound Transmitting Equipments	16	12	16	10	12	3	12	11
10.23 Cinema Equipments	16	15	16	10	12	8	12	11
10.24 Motor Cycles and Combinations	10	15	8	10	12	4	10	6
10.25 Heavy Motor Vehicles	3	15	8	10	6	15/8	10	8
10.26 Motor Cars	10	15	8	10	6	5	10	6
10.27 Lifts Operated by Power	12	15	16	10	10	15	12	11
10.28 Tyres and Tubes	16	12	12	10	12	9	8	11
10.29 Aluminium Wares	3	6	8/12	7	10	4	8	8
10.30 Motor Parts	16	12	12	10	12	8	10	8
10.31 Fur and its Articles	16	20	16	10	10	8	12	11
10.32 Tabulating and Calculating Machines	16	15	16	10	12	8	12	11
10.33 Binoculars and Telescopes	16	12	16	10	10	15	12	15
10.34 Sewing Machines	6	6	12	7	10	15	8	8
10.35 Vacuum Flasks	16	12	16	10	10	5	12	15
10.36 Playing Cards	12	12	12	7	12	8	10	8
10.37 Crockery and Cutlery	14	12	12	10	12	9	10	15
10.38 Floor and Wall Tiles	16	12	16	10	15	8/5	12	15/8/11
10.39 Arms and Ammunition	16	15	16	10	5	15	12	11
10.40 Fireworks	16	15	16	7	10	8	12	15
10.41 Cigarette Cases and Lighters	16	12	16	10	10	15	8	15
10.42 Sheets, Cushions and Pillows	16	12	16	7	12	10	12	15/8
10.43 Other Rubber Products	16	8	12	7	E	9	8	8
10.44 Pile Carpets	16	15	16	10	E	15	10	11
10.45 Precious Stones	16	12	16	10	E	10	8	11
10.46 Dry Fruits	10	8	12	7	10	8	10	15
10.47 Dry Cell Batteries	10	12	12	7	8	9	8	8
10.48 Glass Bangles	-	NIL	E	4	E	E	8	E
10.49 Locks and Keys	12	10	12	7	10	8	6	8

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
10.50 Bedding Stuffed with Cotton	8	10	12	7	10	E	6	NIL
10.51 Musical Instruments	12	10	12	7	E	E	8	8
10.52 Plastic Goods	12	8	12	10	10	6	8	8
10.53 Synthetic Mica Products	16	10	16	7	5	8	10	8
10.54 Air Circulators and Fans	12	15	16	10	12	10	12	11
<b>11. RAW MATERIALS</b>								
11.1 Mica	4	10	16	7	5	8	3	8
11.2 Manganese	8	10	16	7	4	8	4	8
11.3 Hides and Skins	4	4	4	2	4	4	4	4
11.4 Coal and Coke	4	4	4	4	4	3	4	4
11.5 Oil Seeds	4	4	4	4	4	4	4	4
11.6 Jute	4	4	4	4	4	3	4	4
11.7 Cotton Yarn	2	2	E	2	2.5	3	2	NIL
11.8 Cotton Waste	4	4	E	2	4	6	4	8
11.9 Iron and Steel	4	4	4	4	4	4	4	4
11.10 Sewing Threads and Balls	3	2	E	2	4	3	2	2
11.11 Cement and its products	12	10	12	7	16/12	12	10	8
11.12 Manure (Organic)	3	NIL	12	E	E	3	E	NIL
11.13 Chemical Fertilisers	3	NIL	2	E	6	3/5	5	4
11.14 Pesticides	3	8	E	2	4	3	6	4
11.15 Fungicides	8	8	E	2	4	3	6	4
11.16 Bamboos	4	8	10	7	10	5	12	8
11.17 Timber	18	8	12	7	10	8	12	8
11.18 Betel Leaves	E	E	E	E	E	E	E	-
11.19 Tendu Leaves	16	10	16	E	10	E/5	8	8
11.20 Copper Wire	8	4	12	7	6	10	-	8
11.21 Goat Hair	8	10	12	7	E	2	8	8
11.22 Raw Wool, Wool Tops and Yarn	-	4	12	7	5	2	2	2
11.23 Woollen Knitting Yarn	12	10	12	2	8	8	2	2
11.24 Staple Yarn	3	2	12	2	8	4	2	2
11.25 Non-Ferrous Metals	8	4	12	7	4	8	2	8
11.26 Cotton	4	4	4	4	4	3	4	NIL
<b>12. FUEL ITEMS</b>								
12.1 Motor Spirits	16	12	12	E	18	18	E	10
12.2 Lights Diesel Oil	16	8	16	7	16	16	E	12
12.3 High-speed Diesel Oil	18	10	16	E	16	16	E	12
12.4 Aviation Spirits	14	12	16	7	18	20	E	25
12.5 Aviation Gasoline	14	9	12	7	18	20	E	9
12.6 Aviation Turbine Fuel	14	23	12	E	18	20	E	25
12.7 Crude Oil	4	30	4	7	4	4	E	4
12.8 Petrol	18	12	12	E	18	18	E	10

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Madhya Pradesh	Maharashtra	Orissa	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<b>13. LUBRICANTS ETC.</b>								
13.1 Dyes, Paints and Lacquers	16	12	16	7	15	5/10/1	12	11
13.2 Lubricants	12	8	16	7	10	10	8	11
13.3 Caustic Soda and Soda Ash	6	4	12	7	10	6/3/8	6	8
13.4 Potash and Explosives	16	10	16	7	12	8	8	8
13.5 Other Chemicals	12	10/4	12	7	10	8	8	8
13.6 Starches	3	4	12	7	10	8	8	8
<b>14. MACHINERY OF ALL KINDS</b>	12	10	16	7	10	10	5	8
<b>15. PACKING MATERIALS</b>								
15.1 Empty Tins and Empty Barrels	4	10	12	7	5	5/8	8	8
15.2 Wooden Boxes	4	10	12	7	5	8	8	8
15.3 Empty Bottles and Corks	4	10	12	7	5	10	8	8
15.4 Polythene and Alkaline	4	8	12	7	5	6	8	8/11
15.5 Bitumen as Packing Materials	4	10	12	7	5	8	8	8
15.6 Cartons	4	10	12	7	5	5	8	8
<b>16. GENERAL RATE</b>	8	-	12	7	10	8	8	8
<b>SURCHARGE</b>	0	12	10	10	0	15	25	15

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Arunachal Pradesh	Goa	Himachal Pradesh	Jammu & Kashmir	Lakshadweep	Manipur
(1)	(18)	(19)	(20)	(21)	(22)	(23)
<b>1. CEREALS, PULSES ECT.</b>						
1.1 Cereals and Pulses	-	E	3+5	E	-	E
1.2 Paddy	-	E	3+5	E	-	E
1.3 Atta, Maida and Suji	-	E	3+5	E	-	E
<b>2. OTHER FOOD ARTICLES</b>						
2.1 Edible oils	-	2	8	4	-	E
2.2 Vanaspati ghee	-	2	8	8	-	7
2.3 Ghee (pure)	-	E	8	8	-	7
2.4 Potatoes and Onions	-	E	E	E	-	E
2.5 Fresh Fruits	-	E	E	E	-	E
2.6 Meat and Fish in Containers	-	7	8	8	-	E
2.7 Eggs	-	E	E	E	-	E
2.8 Khandsari	-	E	8	E	-	E
2.9 Salt (in Containers)	-	E	E	E	-	E
2.10 Gur (Jaggery)	-	E	8	E	-	E
2.11 Tea Leaves	-	7	8	4	-	7
2.12 Coffee Powder	-	7	8	8	-	10
2.13 Pepper	-	7	8	4	-	7
2.14 Other Spices	-	7	8	4	-	7
2.15 Curd, Lassi and Buttermilk	-	E	E	E	-	E
2.16 Cooked Food and Sweets	-	12/6/3	8	8	-	7
2.17 Milk Food and Powder	-	2	8	8	-	7
<b>3. BOOKS AND STATIONERY</b>						
3.1 Students' Exercise Books	-	E	E	E	-	E
3.2 Writing and Other Papers	-	7	8	4	-	4
3.3 Other Stationery	-	7	8	4	-	4
3.4 Instrument Boxes	-	7	8	8	-	E
3.5 Books and Maps	-	E	E	E	-	E
<b>4. DOMESTIC FUEL ITEMS</b>						
4.1 Firewood	-	E	3	E	-	6
4.2 Coal and Coke	-	E	4	E	-	4
4.3 Kerosene	-	E	8	E	-	3
4.4 Kerosene Superior	-	E	8	E	-	3
4.5 Kerosene Inferior	-	E	8	E	-	3
4.6 Cooking Gas	-	E/7	8	8	-	7
4.7 Charcoal	-	7	8	E	-	7
4.8 Furance Oil	-	12	8	E	-	7
4.9 Candles	-	7	8	E	-	7
4.10 Match Boxes	-	E	4	E	-	4

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Arunachal Pradesh	Goa	Himachal Pradesh	Jammu & Kashmir	Lakshadweep	Manipur
(1)	(18)	(19)	(20)	(21)	(22)	(23)
<b>5. TOILET ARTICLES</b>						
5.1 Tooth Paste/Powder	-	7	8	8	-	7
5.2 Washing Soaps	-	7	8	E	-	7
5.3 Toilet Soaps	-	7	11	8	-	7
5.4 Hair Oils	-	7	11	10	-	7
5.5 Razors and Razor Blades	-	7	8/11	8	-	7
5.6 Other Shaving Products	-	7	11	8	-	7
5.7 Cosmetics	-	12	11	10	-	15
5.8 Boot-polish	-	7	8	8	-	7
5.9 Tooth Brushes	-	7	8	8	-	7
<b>6. MEDICINES</b>						
	-	E	8	4	-	6
<b>7. GARMENTS AND FOOTWEAR</b>						
7.1 Cotton Hoisery Products	-	E	8	4	-	4
7.2 Readymade Garments	-	7	4	5	-	10
7.3 Footwear	-	7	8	8	-	12
<b>8. CYCLES AND ACCESSORIES</b>						
	-	E/7	8	8	-	7
<b>9. REFRESHMENT ARTICLES</b>						
9.1 Bread	-	E	E	8	-	E
9.2 Cakes and Pastries	-	7	8	8	-	7
9.3 Toffees and Chocolates	-	7	8	8	-	7
9.4 Aerated Water	-	7	11	8	-	15
9.5 Country Liquor	-	7	E	E	-	7
9.6 Foreign Liquor	-	25	30	30	-	30
9.7 Indian made Foreign Liquor	-	17	30	E	-	30
9.8 Bhang	-	7	8	E	-	E
9.9 Ganja	-	7	8	E	-	E
9.10 Opium	-	7	8	E	-	E
9.11 Ice	-	7	8	4	-	7
9.12 Biscuits	-	7	8	8	-	7
<b>10. CONSUMER DURABLES INCLUDING GOLD AND SILVER</b>						
10.1 Gold, Silver and Coins	-	7	4	4	-	15
10.2 Bullion and Spices	-	7	4	4	-	15
10.3 Articles of Gold & Silver	-	7	8	4	-	15
10.4 Ivory Products	-	12	8	4	-	15
10.5 Marble and its Products	-	12	8	8	-	15
10.6 Synthetic Gems etc.	-	7	8	4	-	15
10.7 Gold and Embroidery Work	-	7	8	-	-	15

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Arunachal Pradesh	Goa	Himachal Pradesh	Jammu & Kashmir	Lakshadweep	Manipur
(1)	(18)	(19)	(20)	(21)	(22)	(23)
10.8 Articles of Stainless Steel	-	7	11	10	-	12
10.9 Ladies Hand-bags	-	12	8	8	-	12
10.10 All kinds of Leather Goods	-	12	11	4	-	10
10.11 Suit Cases and Attache Cases	-	7	11	8	-	7
10.12 All kinds of Stoves	-	7	8	8	-	7
10.13 Incandescent Lanterns & Lamps	-	7	8	8	-	7
10.14 Domestic Electrical Appliances	-	12	8/11	8	-	12
10.15 Clocks and Time Pieces	-	12	11	8	-	12
10.16 Refrigerators and Air-conditioners	-	12	11	10	-	15
10.17 Wooden Furniture	-	7	11	8	-	10
10.18 Steel Safes and Almirahs	-	12	11	10	-	10
10.19 Other Steel Furniture	-	12	11	10	-	10
10.20 Aluminium Furniture	-	7	11	10	-	10
10.21 Wireless Reception Instruments	-	12	11	10	-	12
10.22 Sound Transmitting Equipments	-	12	11	10	-	12
10.23 Cinema Equipments	-	12	11	10	-	12
10.24 Motor Cycles and Combinations	-	3	11	4	-	4
10.25 Heavy Motor Vehicles	-	3	11	4	-	4
10.26 Motor Cars	-	3	11	4	-	4
10.27 Lifts Operated by Power	-	7	8	8	-	-
10.28 Tyres and Tubes	-	6	11	10	-	7
10.29 Aluminium Wares	-	2	8	8	-	7
10.30 Motor Parts	-	3	11	10	-	10
10.31 Fur and its Articles	-	12	11	4	-	15
10.32 Tabulating and Calculating Machines	-	12	11	10	-	12
10.33 Binoculars and Telescopes	-	12	11	1	-	15
10.34 Sewing Machines	-	7	8	8	-	7
10.35 Vacuum Flasks	-	12	11	8	-	-
10.36 Playing Cards	-	12	8	8	-	12
10.37 Crockery and Cutlery	-	12	11	8	-	7
10.38 Floor and Wall Tiles	-	12	11	8	-	15
10.39 Arms and Ammunition	-	12	11	30	-	10
10.40 Fireworks	-	7	8	10	-	10
10.41 Cigarette Cases and Lighters	-	12	11	10	-	12
10.42 Sheets, Cushions and Pillows	-	12	8/11	10	-	12
10.43 Other Rubber Products	-	7	11	8	-	7
10.44 Pile Carpets	-	12	11	8	-	15
10.45 Precious Stones	-	7	8	4	-	15
10.46 Dry Fruits	-	7	8	8	-	10
10.47 Dry Cell Batteries	-	7	8	8	-	7
10.48 Glass Bangles	-	E/7	E	4	-	7
10.49 Locks and Keys	-	7	8	8	-	10

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Arunáchal Pradesh	Goa	Himachal Pradesh	Jammu & Kashmir	Lakshadweep	Manipur
(1)	(18)	(19)	(20)	(21)	(22)	(23)
10.50 Bedding Stuffed with Cotton	-	7	4	8	-	10
10.51 Musical Instruments	-	7	8	10	-	12
10.52 Plastic Goods	-	7	8	8	-	7
10.53 Synthetic Mica Products	-	7	11	8	-	12
10.54 Air Circulators and Fans	-	12	8	8	-	12
<b>11. RAW MATERIALS</b>						
11.1 Mica	-	E	8	8	-	7
11.2 Manganese	-	E	8	8	-	7
11.3 Hides and Skins	-	4	4	4	-	4
11.4 Coal and Coke	-	4	4	E	-	4
11.5 Oil Seeds	-	4	4	E	-	E
11.6 Jute	-	7	4	E	-	E
11.7 Cotton Yarn	-	E	4	4	-	E
11.8 Cotton Waste	-	7	4	4	-	E
11.9 Iron and Steel	-	4	4	4	-	4
11.10 Sewing Threads and Balls	-	E	4	4	-	7
11.11 Cement and its products	-	8	8	8	-	7
11.12 Manure (Organic)	-	E	E	E	-	6
11.13 Chemical Fertilisers	-	E	E	E	-	E
11.14 Pesticides	-	E	E	E	-	E
11.15 Fungicides	-	7	8	E	-	E
11.16 Bamboos	-	7	30	8	-	7
11.17 Timber	-	7	30	8	-	7
11.18 Betel Leaves	-	E	E	E	-	E
11.19 Tendu Leaves	-	E	8	E	-	E
11.20 Copper Wire	-	7	8	8	-	7
11.21 Goat Hair	-	7	8	E	-	6
11.22 Raw Wool, Wool Tops and Yarn	-	E	8/4	4	-	4
11.23 Woollen Knitting Yarn	-	E	4	4	-	4
11.24 Staple Yarn	-	E	4	4	-	E
11.25 Non-Ferrous Metals	-	7	8	8	-	7
11.26 Cotton	-	E	4	4	-	4
<b>12. FUEL ITEMS</b>						
12.1 Motor Spirits	-	12	5	E	-	7
12.2 Lights Diesel Oil	-	12	5	E	-	7
12.3 High-speed Diesel Oil	-	12	5	E	-	7
12.4 Aviation Spirits	-	12	5	E	-	10
12.5 Aviation Gasoline	-	12	5	E	-	10
12.6 Aviation Turbine Fuel	-	12	5	4	-	10
12.7 Crude Oil	-	7	4	E	-	4
12.8 Petrol	-	12	5	-	-	10

Table A1.1 (Contd.)

Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Arunachal Pradesh	Goa	Himachal Pradesh	Jammu & Kashmir	Lakshadweep	Manipur
(1)	(18)	(19)	(20)	(21)	(22)	(23)
<b>13. LUBRICANTS ETC.</b>						
13.1 Dyes, Paints and Lacquers	-	7	8	8	-	7/10
13.2 Lubricants	-	7	8	8	-	4
13.3 Caustic Soda and Soda Ash	-	7	8	8	-	7
13.4 Potash and Explosives	-	12	8	10	-	15
13.5 Other Chemicals	-	7	8	8	-	7
13.6 Starches	-	7	8	8	-	7
<b>14. MACHINERY OF ALL KINDS</b>	-	7	11/8	8	-	7
<b>15. PACKING MATERIALS</b>						
15.1 Empty Tins and Empty Barrels	-	7	11/8	4	-	7
15.2 Wooden Boxes	-	7	8	4	-	7
15.3 Empty Bottles and Corks	-	7	11/8	8	-	7
15.4 Polythene and Alkaline	-	7	8	4	-	7
15.5 Bitumen as Packing Materials	-	7	8	4	-	7
15.6 Cartons	-	7	8	4	-	7
<b>16. GENERAL RATE</b>	-	-	8	8	-	7

Table A1.1 (Contd.)

Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Meghalaya	Mizoram	Nagaland	Pondicherry	Sikkim	Tripura
(1)	(24)	(25)	(26)	(27)	(28)	(29)
<b>1. CEREALS, PULSES ECT.</b>						
1.1 Cereals and Pulses	-	-	-	1	E	-
1.2 Paddy	-	-	-	E	E	-
1.3 Atta, Maida and Suji	-	-	-	2	E	-
<b>2. OTHER FOOD ARTICLES</b>						
2.1 Edible oils	-	-	-	2	E	7
2.2 Vanaspati ghee	-	-	-	4	5	7
2.3 Ghee (pure)	-	-	-	3+5	5	8
2.4 Potatoes and Onions	-	-	-	E	E	E
2.5 Fresh Fruits	-	-	-	E	E	E
2.6 Meat and Fish in Containers	-	-	-	3+5	5	E
2.7 Eggs	-	-	-	E	E	E
2.8 Khandsari	-	-	-	E	E	E
2.9 Salt (in Containers)	-	-	-	E	5	E
2.10 Gur (Jaggery)	-	-	-	E	E	E
2.11 Tea Leaves	-	-	-	3+5	5	8
2.12 Coffee Powder	-	-	-	5	5	8
2.13 Pepper	-	-	-	3	5	E
2.14 Other Spices	-	-	-	3+5	5	E
2.15 Curd, Lassi and Buttermilk	-	-	-	E	5	E
2.16 Cooked Food and Sweets	-	-	-	3+5	E	E
2.17 Milk Food and Powder	-	-	-	3+5	5	8
<b>3. BOOKS AND STATIONERY</b>						
3.1 Students' Exercise Books	-	-	-	E	E	E
3.2 Writing and Other Papers	-	-	-	3+5	5	E
3.3 Other Stationery	-	-	-	3+5	5	E
3.4 Instrument Boxes	-	-	-	E	5	E
3.5 Books and Maps	-	-	-	E	5	E
<b>4. DOMESTIC FUEL ITEMS</b>						
4.1 Firewood	-	-	-	E	5	E
4.2 Coal and Coke	-	-	-	2	4	4
4.3 Kerosene	-	-	-	E	5	5
4.4 Kerosene Superior	-	-	-	E	5	5
4.5 Kerosene Inferior	-	-	-	E	5	-
4.6 Cooking Gas	-	-	-	5	5	12
4.7 Charcoal	-	-	-	3+5	5	E
4.8 Furance Oil	-	-	-	3+5	5	5
4.9 Candles	-	-	-	E	5	7
4.10 Match Boxes	-	-	-	E	5	7

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Meghalaya	Mizoram	Nagaland	Pondicherry	Sikkim	Tripura
(1)	(24)	(25)	(26)	(27)	(28)	(29)
<b>5. TOILET ARTICLES</b>						
5.1 Tooth Paste/Powder	-	-	-	4	5	7
5.2 Washing Soaps	-	-	-	2	5	6
5.3 Toilet Soaps	-	-	-	2	5	6
5.4 Hair Oils	-	-	-	5	E	5
5.5 Razors and Razor Blades	-	-	-	3+5	5	8
5.6 Other Shaving Products	-	-	-	3+5	5	8
5.7 Cosmetics	-	-	-	5	10	15
5.8 Boot-polish	-	-	-	3+5	5	6
5.9 Tooth Brushes	-	-	-	4	5	7
<b>6. MEDICINES</b>						
	-	-	-	3+5	E	3
<b>7. GARMENTS AND FOOTWEAR</b>						
7.1 Cotton Hoisery Products	-	-	-	3+5	5	6
7.2 Readymade Garments	-	-	-	3+5	5	6
7.3 Footwear	-	-	-	3+5	5	8
<b>8. CYCLES AND ACCESSORIES</b>						
	-	-	-	3	3	7
<b>9. REFRESHMENT ARTICLES</b>						
9.1 Bread	-	-	-	E	E	E
9.2 Cakes and Pastries	-	-	-	3+5	E	E
9.3 Toffees and Chocolates	-	-	-	3+5	5	8
9.4 Aerated Water	-	-	-	3+5	5	7
9.5 Country Liquor	-	-	-	E	5	E
9.6 Foreign Liquor	-	-	-	20	5	E
9.7 Indian made Foreign Liquor	-	-	-	20	5	E
9.8 Bhang	-	-	-	3+5	5	E
9.9 Ganja	-	-	-	3+5	5	-
9.10 Opium	-	-	-	3+5	5	-
9.11 Ice	-	-	-	3+5	5	-
9.12 Biscuits	-	-	-	3+5	5	8
<b>10. CONSUMER DURABLES INCLUDING GOLD AND SILVER</b>						
10.1 Gold, Silver and Coins	-	-	-	1	2.5	12
10.2 Bullion and Spices	-	-	-	1	10	12
10.3 Articles of Gold & Silver	-	-	-	3+5	2.5	12
10.4 Ivory Products	-	-	-	3+5	10	12
10.5 Marble and its Products	-	-	-	3+5	10	12
10.6 Synthetic Gems etc.	-	-	-	3+5	10	12
10.7 Gold and Embroidery Work	-	-	-	E	10	12

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Meghalaya	Mizoram	Nagaland	Pondicherry	Sikkim	Tripura
(1)	(24)	(25)	(26)	(27)	(28)	(29)
10.8 Articles of Stainless Steel	-	-	-	3	10	12
10.9 Ladies Hand-bags	-	-	-	3+5	5	10
10.10 All kinds of Leather Goods	-	-	-	3+5	5	8
10.11 Suit Cases and Attache Cases	-	-	-	3+5	5	8
10.12 All kinds of Stoves	-	-	-	3+5	5	6
10.13 Incandescent Lanterns & Lamps	-	-	-	E	5	6
10.14 Domestic Electrical Appliances	-	-	-	4	5	12
10.15 Clocks and Time Pieces	-	-	-	7/2	10	13
10.16 Refrigerators and Air-conditioners	-	-	-	4	10	15
10.17 Wooden Furniture	-	-	-	3+5	5	12
10.18 Steel Safes and Almirahs	-	-	-	12/6	10	12
10.19 Other Steel Furniture	-	-	-	4	10	20
10.20 Aluminium Furniture	-	-	-	3+5	10	12
10.21 Wireless Reception Instruments	-	-	-	2	10	12
10.22 Sound Transmitting Equipments	-	-	-	12	10	12
10.23 Cinema Equipments	-	-	-	12	10	12
10.24 Motor Cycles and Combinations	-	-	-	3	3	12
10.25 Heavy Motor Vehicles	-	-	-	4	2	6
10.26 Motor Cars	-	-	-	4	2	6
10.27 Lifts Operated by Power	-	-	-	4	5	-
10.28 Tyres and Tubes	-	-	-	5	10	12
10.29 Aluminium Wares	-	-	-	3+5	7	7
10.30 Motor Parts	-	-	-	7	7	7
10.31 Fur and its Articles	-	-	-	3	5	-
10.32 Tabulating and Calculating Machines	-	-	-	2	10	12
10.33 Binoculars and Telescopes	-	-	-	12	10	14
10.34 Sewing Machines	-	-	-	3+5	5	6
10.35 Vacuum Flasks	-	-	-	3	10	12
10.36 Playing Cards	-	-	-	3+5	5	10
10.37 Crockery and Cutlery	-	-	-	3+5	5	7
10.38 Floor and Wall Tiles	-	-	-	3	10	12
10.39 Arms and Ammunition	-	-	-	6	10	13
10.40 Fireworks	-	-	-	12	5	15
10.41 Cigarette Cases and Lighters	-	-	-	3+5	10	14
10.42 Sheets, Cushions and Pillows	-	-	-	12	10	12
10.43 Other Rubber Products	-	-	-	3+5	10	8
10.44 Pile Carpets	-	-	-	6	5	12
10.45 Precious Stones	-	-	-	3	10	12
10.46 Dry Fruits	-	-	-	E	10	8
10.47 Dry Cell Batteries	-	-	-	3	5	10
10.48 Glass Bangles	-	-	-	3+5	5	8
10.49 Locks and Keys	-	-	-	3+5	5	8

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Meghalaya	Mizoram	Nagaland	Pondicherry	Sikkim	Tripura
(1)	(24)	(25)	(26)	(27)	(28)	(29)
10.50 Bedding Stuffed with Cotton	-	-	-	3+5	5	-
10.51 Musical Instruments	-	-	-	E	5	-
10.52 Plastic Goods	-	-	-	3	5	8
10.53 Synthetic Mica Products	-	-	-	3+5	10	12
10.54 Air Circulators and Fans	-	-	-	4	10	12
<b>11. RAW MATERIALS</b>						
11.1 Mica	-	-	-	3+5	5	-
11.2 Manganese	-	-	-	3+5	5	-
11.3 Hides and Skins	-	-	-	2	4	4
11.4 Coal and Coke	-	-	-	2	4	4
11.5 Oil Seeds	-	-	-	2	E	-
11.6 Jute	-	-	-	2	4	-
11.7 Cotton Yarn	-	-	-	2	E	-
11.8 Cotton Waste	-	-	-	2	4	-
11.9 Iron and Steel	-	-	-	1	4	4
11.10 Sewing Threads and Balls	-	-	-	3	5	-
11.11 Cement and its products	-	-	-	3+5	5	7
11.12 Manure (Organic)	-	-	-	7	5	-
11.13 Chemical Fertilisers	-	-	-	3+5	5	-
11.14 Pesticides	-	-	-	7	5	-
11.15 Fungicides	-	-	-	3+5	5	-
11.16 Bamboos	-	-	-	3+5	5	-
11.17 Timber	-	-	-	5	5	-
11.18 Betel Leaves	-	-	-	E	E	10
11.19 Tendu Leaves	-	-	-	3+5	E	-
11.20 Copper Wire	-	-	-	4	5	10
11.21 Goat Hair	-	-	-	3+5	E	-
11.22 Raw Wool, Wool Tops and Yarn	-	-	-	E	5	-
11.23 Woollen Knitting Yarn	-	-	-	3+5	5	6
11.24 Staple Yarn	-	-	-	1	5	-
11.25 Non-Ferrous Metals	-	-	-	3+5	5	-
11.26 Cotton	-	-	-	2	E	-
<b>12. FUEL ITEMS</b>						
12.1 Motor Spirits	-	-	-	9	2.5	8
12.2 Lights Diesel Oil	-	-	-	9	3	12
12.3 High-speed Diesel Oil	-	-	-	9	3	12
12.4 Aviation Spirits	-	-	-	9	2.5	-
12.5 Aviation Gasoline	-	-	-	9	5	-
12.6 Aviation Turbine Fuel	-	-	-	9	5	25
12.7 Crude Oil	-	-	-	3	5	-
12.8 Petrol	-	-	-	9	2.5	12

Table A1.1 (Contd.)

## Commodity-wise Nominal Rates of Sales Tax in the States:1989-90

(Per cent)

Commodity	Meghalaya	Mizoram	Nagaland	Pondicherry	Sikkim	Tripura
(1)	(24)	(25)	(26)	(27)	(28)	(29)
<b>13. LUBRICANTS ETC.</b>						
13.1 Dyes, Paints and Lacquers	-	-	-	3	10	12
13.2 Lubricants	-	-	-	9	5	12
13.3 Caustic Soda and Soda Ash	-	-	-	5	5	-
13.4 Potash and Explosives	-	-	-	5	5	-
13.5 Other Chemicals	-	-	-	5	5	-
13.6 Starches	-	-	-	3+5	5	-
<b>14. MACHINERY OF ALL KINDS</b>						
	-	-	-	4	-	10
<b>15. PACKING MATERIALS</b>						
15.1 Empty Tins and Empty Barrels	-	-	-	3+5	5	8
15.2 Wooden Boxes	-	-	-	3+5	5	10
15.3 Empty Bottles and Corks	-	-	-	5	5	8
15.4 Polythene and Alkaline	-	-	-	3	5	8
15.5 Bitumen as Packing Materials	-	-	-	3+5	5	8
15.6 Cartons	-	-	-	3+5	5	12
<b>16. GENERAL RATE</b>						
	-	-	-	3+5	5	-

TABLE A2.1

Value of Output, Exports, Imports and Their Use: 1989-90

(Rs million)

S.No.	Commodity/Sector	Total consumption of different commodities					Exports	Value of imports	Gross output
		Input use	Private con.	Govt. con.	Govt.fixed inv.	Change in stock			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Paddy	53076.6	248374.4	299.0	0.0	2516.0	3836.0	2829.0	305273.0
2	Wheat	37373.1	111860.5	299.3	0.0	4457.0	19.0	214.0	153795.0
3	Other cereals	7608.0	67795.0	0.0	0.0	811.0	19.0	235.0	75998.0
4	Pulses	28956.0	63441.8	151.2	0.0	569.0	0.0	2279.0	90839.0
5	Sugarcane	36279.0	31528.0	0.0	0.0	11.0	0.0	0.0	67818.0
6	Jute	6584.0	0.0	0.0	0.0	95.0	0.0	73.0	6606.0
7	Cotton	62235.0	0.0	0.0	0.0	13.0	937.0	1099.0	62086.0
8	Tea	20015.0	0.0	0.0	0.0	0.0	0.0	0.0	20015.0
9	Coffee	597.0	0.0	0.0	0.0	0.0	2029.0	0.0	2626.0
10	Rubber	4711.0	0.0	0.0	0.0	16.0	0.0	656.0	4071.0
11	Other crops	240327.1	207790.4	236.5	0.0	1730.0	15713.0	1863.0	463934.0
12	Animal husbandry	133851.8	271103.6	282.2	33260.4	1025.0	940.0	3033.0	437430.0
13	Forestry & logging	38213.2	46106.2	121.6	0.0	296.0	0.0	3972.0	80765.0
14	Fishing	4850.1	28219.9	3.0	0.0	4.0	5499.0	24.0	38552.0
15	Coal & lignite	66768.0	2073.5	72.4	0.0	142.0	89.0	5620.0	63525.0
16	Crude petroleum & natural gas	85673.6	0.0	0.0	0.0	394.0	0.0	40896.0	45171.6
17	Iron ore	1472.0	0.0	0.0	0.0	72.0	2738.0	0.0	4282.0
18	Other metallic minerals	5285.0	0.0	0.0	0.0	207.0	1604.0	706.0	6390.0
19	Non met.& minor minerals	53643.0	0.0	0.0	0.0	5080.0	557.0	47876.0	11404.0
20	Sugar	3717.7	53147.3	0.0	0.0	104.0	266.0	971.0	56264.0
21	Khandsari boora	22131.2	6029.8	0.0	0.0	15.0	0.0	0.0	28176.0
22	Hydrogenated oil	1519.0	16616.0	0.0	0.0	444.0	0.0	106.0	18473.0
23	Other food & bererage ind.	41733.6	196308.5	195.9	0.0	115.0	10648.0	3984.0	245017.0
24	Cotton textiles	70080.2	145126.2	68.5	0.0	190.0	13010.0	397.0	228078.0
25	Woollen textile	6027.1	12695.9	0.0	0.0	230.0	248.0	590.0	18611.0
26	Art silk & synth.fibre	58709.4	104039.6	0.0	0.0	14518.0	4809.0	2075.0	180001.0
27	Jute,hemp,mesta,textiles	26575.6	0.0	10.4	0.0	24.0	2623.0	56.0	29177.0
28	Other textile	30804.6	65894.9	662.6	19822.8	1587.0	35286.0	1098.0	152960.0
29	Wood & wood products	23546.1	1999.1	300.2	2114.6	1.0	141.0	351.0	27751.0
30	Paper & paper products	72989.2	12238.6	7976.1	0.0	623.0	248.0	8153.0	85922.0
31	Leather & leather products	7069.6	12006.4	0.9	0.0	226.0	17213.0	314.0	36202.0
32	Rubber products	19509.0	10095.8	466.8	9247.4	287.0	6765.0	629.0	45742.0
33	Plastic products	8567.3	2521.3	1.3	0.0	5097.0	1262.0	630.0	16819.0
34	Petroleum products	130507.0	42136.5	9966.3	0.0	792.0	5303.0	15323.0	173381.8
35	Coal tar products	22407.0	0.0	0.0	0.0	161.0	7.0	555.0	22020.0
36	Fertilizers	71767.7	0.0	612.3	0.0	2178.0	15.0	12279.0	62293.9

TABLE A2.1 (Contd.)

Value of Output, Exports, Imports and Their Use: 1989-90

(Rs million)

S.No.	Commodity/Sector	Total consumption of different commodities					Exports	Value of imports	Gross output
		Input use	Private con.	Govt. con.	Govt.fixed inv.	Change in stock			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
37	Pesticides	10517.6	0.0	6.4	0.0	524.0	646.0	925.0	10769.0
38	Synth.fibre & resin	21371.0	0.0	0.0	0.0	20013.0	636.0	11359.0	30661.0
39	Other chemicals	139344.1	64303.2	1599.5	0.0	1107.0	14740.0	31093.0	190000.9
40	Cement	26340.0	0.0	0.0	0.0	0.0	0.0	32.0	26308.0
41	Oth.non met.mineral prod.	21224.4	12864.6	0.8	243.2	669.0	48373.0	1680.0	81695.0
42	Iron & steel	192814.4	0.0	0.0	11999.4	705.0	2258.0	30619.0	177157.9
43	Non ferrous metals	49949.0	0.0	0.0	0.0	538.0	906.0	14059.0	37334.0
44	Tractors & oth.agri.mach.	11266.1	0.0	138.7	10540.2	183.0	184.0	66.0	22246.0
45	Machine tools	556.7	0.0	0.0	7451.3	288.0	2340.0	3194.0	7442.0
46	Oth.non electrical mach.	38179.2	1093.7	3791.6	134416.5	5361.0	10509.0	87334.0	106017.0
47	Electrical machinery	55909.4	5075.3	478.0	70171.4	2012.0	5023.0	13427.0	125242.0
48	Communications equipment	9727.1	1393.3	444.0	17864.5	4080.0	306.0	3838.0	29977.0
49	Electronic equipment	1361.5	11581.8	30.3	6115.3	5875.0	4731.0	16229.0	13466.0
50	Rail equipment	29615.7	0.0	0.0	17039.3	136.0	247.0	1468.0	45570.0
51	Motor vehicles	22628.8	3659.3	2545.6	47326.3	86.0	3701.0	3880.0	76067.0
52	Other transport equipment	14544.2	8336.0	43.4	23091.4	6957.0	3265.0	16056.0	40181.0
53	Other manufacturing	102019.0	33673.0	21828.8	29718.2	3026.0	8419.0	28655.0	170028.9
54	Construction	101607.2	0.0	46616.9	413738.8	0.0	0.0	0.0	561963.0
55	Electricity etc.	185000.5	17140.6	12962.8	0.0	0.0	67.0	0.0	215170.9
56	Rail transport service	50389.2	34361.8	6565.6	1707.5	0.0	7777.0	0.0	100801.0
57	Other transport service	184699.3	138122.8	6612.4	3901.3	0.0	23183.0	39484.0	317034.9
58	Communication	23910.0	18441.0	4706.0	0.0	0.0	842.0	1598.0	46301.0
59	Trade	293855.1	241285.5	5564.6	35547.5	0.0	38434.0	0.0	614686.8
60	Other services	279036.7	481090.3	376229.8	0.0	0.0	59650.0	25148.0	1170858.9
61	Total	3371045.8	2831571.2	511891.8	895317.4	95590.0	368061.0	489030.0	7584449.0
62	Indirect tax	261971.5	119218.3	18778.2	74102.6	0.0	2189.0	0.0	476260.0
63	Gross value added	3951430.0	0.0	0.0	0.0	0.0	0.0	0.0	3951430.0
64	Gross output (GOP)	7584447.0	2950789.5	530670.0	969420.1	95590.0	370250.0	489030.0	

TABLE A2.1 (Contd.)

Value of Output, Exports, Imports and Their Use: 1989-90

(Rs million)

S.No.	Commodity/Sector	Consumption of imports				
		Input use	Private con.	Govt. con.	Fixed investment	Total
(1)	(2)	(11)	(12)	(13)	(14)	(15)
1	Paddy	16.0	2813.0	0.0	0.0	2829.0
2	Wheat	7.0	207.0	0.0	0.0	214.0
3	Other cereals	3.0	232.0	0.0	0.0	235.0
4	Pulses	27.4	2251.5	0.0	0.0	2279.0
5	Sugarcane	0.0	0.0	0.0	0.0	0.0
6	Jute	73.0	0.0	0.0	0.0	73.0
7	Cotton	1099.0	0.0	0.0	0.0	1099.0
8	Tea	0.0	0.0	0.0	0.0	0.0
9	Coffee	0.0	0.0	0.0	0.0	0.0
10	Rubber	656.0	0.0	0.0	0.0	656.0
11	Other crops	443.1	1419.9	0.0	0.0	1863.0
12	Animal husbandry	327.2	2703.0	2.8	0.0	3033.0
13	Forestry & logging	3972.0	0.0	0.0	0.0	3972.0
14	Fishing	2.0	22.0	0.0	0.0	24.0
15	Coal & lignite	5620.0	0.0	0.0	0.0	5620.0
16	Crude petroleum & natural gas	40896.0	0.0	0.0	0.0	40896.0
17	Iron ore	0.0	0.0	0.0	0.0	0.0
18	Other metallic minerals	706.0	0.0	0.0	0.0	706.0
19	Non met.& minor minerals	47876.0	0.0	0.0	0.0	47876.0
20	Sugar	26.0	945.0	0.0	0.0	971.0
21	Khandsari boora	0.0	0.0	0.0	0.0	0.0
22	Hydrogenated oil	3.8	102.2	0.0	0.0	106.0
23	Other food & bererage in	394.3	3586.1	3.6	0.0	3984.0
24	Cotton textiles	82.0	315.0	0.0	0.0	397.0
25	Woollen textile	186.7	403.3	0.0	0.0	590.0
26	Art silk & synth.fibre	727.9	1347.1	0.0	0.0	2075.0
27	Jute,hemp,mesta,textiles	55.9	0.0	0.1	0.0	56.0
28	Other textile	23.4	1063.9	10.7	0.0	1098.0
29	Wood & wood products	351.0	0.0	0.0	0.0	351.0
30	Paper & paper products	3453.3	2845.3	1854.4	0.0	8153.0
31	Leather & leather produc	314.0	0.0	0.0	0.0	314.0
32	Rubber products	224.0	245.6	0.0	159.4	629.0
33	Plastic products	236.4	393.6	0.0	0.0	630.0
34	Petroleum products	7534.4	6298.8	1489.8	0.0	15323.0
35	Coal tar products	555.0	0.0	0.0	0.0	555.0
36	Fertilizers	12279.0	0.0	0.0	0.0	12279.0

TABLE A2.1 (Contd.)

Value of Output, Exports, Imports and Their Use: 1989-90

(Rs million)

S.No.	Commodity/Sector	Consumption of imports				
		Input use	Private con.	Govt. con.	Fixed investment	Total
(1)	(2)	(11)	(12)	(13)	(14)	(15)
37	Pesticides	925.0	0.0	0.0	0.0	925.0
38	Synth.fibre & resin	11359.0	0.0	0.0	0.0	11359.0
39	Other chemicals	19827.3	10992.3	273.4	0.0	31093.0
40	Cement	32.0	0.0	0.0	0.0	32.0
41	Oth.non met.mineral prod	963.4	703.3	0.0	13.3	1680.0
42	Iron & steel	30619.0	0.0	0.0	0.0	30619.0
43	Non ferrous metals	14059.0	0.0	0.0	0.0	14059.0
44	Tractors & oth.agri.mach	35.2	0.0	0.0	30.8	66.0
45	Machine tools	179.8	0.0	0.0	3014.2	3194.0
46	Oth.non electrical mach.	11188.8	597.8	2072.6	73474.8	87334.0
47	Electrical machinery	3363.5	674.5	63.5	9325.5	13427.0
48	Communications equipment	844.7	220.7	70.3	2702.2	3838.0
49	Electronic equipment	916.8	10003.9	26.2	5282.1	16229.0
50	Rail equipment	271.2	0.0	0.0	1196.8	1468.0
51	Motor vehicles	578.0	242.1	168.4	2891.5	3880.0
52	Other transport equipmen	4039.0	0.0	22.5	11994.4	16056.0
53	Other manufacturing	7632.0	8306.8	5385.0	7331.2	28655.0
54	Construction	0.0	0.0	0.0	0.0	0.0
55	Electricity etc.	0.0	0.0	0.0	0.0	0.0
56	Rail transport service	0.0	0.0	0.0	0.0	0.0
57	Other transport service	5504.5	32427.1	1552.4	0.0	39484.0
58	Communication	0.0	1273.1	324.9	0.0	1598.0
59	Trade	0.0	0.0	0.0	0.0	0.0
60	Other services	3394.9	21753.1	0.0	0.0	25148.0
61	Total	243904.0	114389.2	13320.6	117416.3	489030.0
62	Indirect tax					
63	Gross value added					
64	Gross output (GOP)					

TABLE A2.2

Sector Specification for Input-Output Transaction  
for 115 Commodities

Sector number	Name	Specification
(1)	(2)	(3)
001	Paddy	Paddy, rice milling
002	Wheat	Wheat, flour milling
003	Jowar	Jowar
004	Bajra	Bajra
005	Maize	Maize
006	Gram	Gram
007	Pulses	Milled and unmilled tur, urad, moong, matar, masur and gram dal including flour.
008	Sugarcane	Sugarcane, gur (indigenous production)
009	Groundnut	Groundnut
010	Jute	Raw jute
011	Cotton	Raw cotton
012	Tea	Tea plantation
013	Coffee	Coffee plantation
014	Rubber	Rubber plantation
015	Coconut	Coconut, copra
016	Tobacco	Tobacco plantation
017	Other crops	Other cereals and their milling, sesamum, rape and mustard, linseed, castor, mesta, sannhemp, dry chillies, black pepper, dry ginger, turmeric, indigo, opium, potato, sweet, potato, tapioca, banana, cashewnut, arecanut, cardamom, citrus fruits, grapes, mangoes, other fibres, other oilseeds, other sugars, other dyes and tanning materials, other drugs and narcotics, other condiments and spices, other fruits and vegetables, fodder, grass, rice bran, rice husk, straw and stalks, bagasse, cane trash and miscellaneous food and non-food crops.
018	Milk and milk products	Milk consumed as such, ghee, butter, lassi
019	Animal services (agricultural)	Agricultural animal services by rural bullocks and camels

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
020	Other livestock products	Production of meat, mutton, pork and glands, other meat products, raw hides and skins, animal hair, bristles, wool, eggs, poultry meat, honey, silk worm cocoons, bones, horns, hoofs, dung fuel and manure, increment in livestock.
021	Forestry and logging	Planting, replanting, conservation of forests, production of fuel including charcoal, farm year wood, felling and cutting of trees, hewing or rough shaping of poles, blocks etc. and transportation of logs upto the permanent lines of transport, industrial wood (timber, match and pulp wood) bamboo, sandal wood, gathering of uncultivated materials such as gums, lacs, resins, forest grown fruits, nuts, herbs, barks and cane.
022	Fishing	Rearing and catching of fish, sea weeds, shells, pearls, sponges etc. fish curing viz., salting and sundrying of fish.
023	Coal and lignite	Coal and lignite mining
024	Crud petroleum, natural gas	Crude petroleum, natural gas
025	Iron ore	Iron ore mining
026	Manganese ore	Manganese ore mining
027	Bauxite	Bauxite mining
028	Copper ore	Copper ore mining
029	Other metallic minerals	Chromite, lead and zinc ore, silver ores, gold ores, ilmenite and rutile
030	Lime stone	Lime stone mining
031	Mica	Mica mining
032	Other non metallic minerals	Dolomite, apatite, asbestos, barytes, chinaclay, gypsum, kyanite, magnesite, diamond, calcite, ochre, garnet, graphite, feldspar, fireclay, flourite, quartz and silica, sillimanite, steatite, minor minerals, salt mining and quarrying, sand and stone quarring, mining of clay, sandpits, chemical and fertilizer, mineral mining, precious and semi precious stone mining.

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
033	Sugar	Manufacture and refining of sugar
034	Khandsari, boora	Boora, candy and khandsari
035	Hydrogenated oil (vanaspati)	Hydrogenated oils, vanaspati ghee
036	Edible oils other vanaspati	Edible oils such as linseed oil, sesamum oil, mustard oil, coconut oil, groundnut oil, cotton seed oil, til oil, mahua oil etc.
037	Tea and coffee processing	Blended and unblended black tea leaf grade, dust and waste, coffee curing, roasting and grinding.
038	Miscellaneous food products	Preservation, processing and canning of meat, milk foods and manufacture of dairy products, manufacture of fruit juice, jams, jellies, pickles and canning and bottling of fruits and vegetables, canning, preserving and processing of fish, crustacea and similar foods, manufacture of bakery products, production of common salt, manufacture of cocoa, chocolate, sugar confectionery and sweetmeats, cashewnut drying, shelling, roasting, salting etc., manufacture of ice, prepared cattle, poultry and other animal feeds, starch processed from maize, tapioca, tamarind, potato etc., manufacture of malted foods, grinding and processing of spices, papads, appalam, egg powder, semi-processed foods and instant foods, sago and sago products, vitaminised high protein flour (multi purpose foods), frying of dals, nuts and foods n.e.c., residuary snacks n.e.c., other food processing activities.
039	Beverages	Distilling, rectifying and blending of spirits, wines, beer, malt, liquors, other malt country liquor, toddy, manufacture of aerated drinks, aerated natural flavoured syrups, synthetic flavoured syrups, fruit juices and beverages n.e.c.

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
040	Tobacco products	Tobacco stemming, redrying, grading etc., and manufacture of bidi, cigars, cigarette, cheroots cigarette tobacco, chewing tobacco, zarda and snuff.
041	Khadi, cotton textiles in handlooms	Cotton spinning in charkha, khadi weaving and finishing of cotton textiles in handlooms
042	Cotton textiles	Cotton ginning, cleaning and baling, spinning, weaving and finishing of cotton textiles in mills and powerlooms, printing, dyeing and bleaching of cotton textiles, cotton textiles n.e.c.
043	Woolen textiles	Wool cleaning, baling and pressing, wool spinning, weaving etc., (handloom, powerlooms and mills), dyeing, bleaching and manufacture of woolen blankets, shawls, felts and others.
044	Silk textiles	Spinning, weaving, finishing, printing, dyeing and bleaching of silk textiles
045	Art silk, synthetic fibre textiles	Spinning, weaving and finishing of synthetic fibres, rayons, nylons etc., printing, dyeing and bleaching of synthetic textiles, other silk and synthetic fibre textiles
046	Jute, hemp, mesta textiles	Pressing, baling, spinning and weaving, finishing of jute, mesta hemp and other coarse fibre, dyeing, printing and bleaching of jute textiles, manufacture of jute bags and other jute textiles
047	Carpet weaving	Weaving carpets, rugs, durries and others
048	Ready made garments and made up textile goods	Readymade garments, clothing and tailoring, made up textile goods, curtains, bed covers, furnishings, mosquito nets
049	Miscellaneous textile products	Cotton, woollen and synthetic fibres, knitting in mills or otherwise, thread and thread ball making, jute, cotton, hemp, sisal, nylon rope, cordage and twines, nets, webbing, narrow fabrics, embroidery work, laces, fringes, zari and zari products, manufacture of rain coats, hats, umbrellas etc., oil cloth, rubberised cloth, tarpaulin, artificial leather, made-up canvas goods, coir fibre, yarn and

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		coir products, linoleum and similar products, gas mantles and other textiles viz., bandage, gauze, dressing cloth.
050	Furniture and fixtures - wooden	Wooden, bamboo, cane furniture and fixtures and repair of such furniture
051	Wood and wood products except furniture	Manufacture of veneer, plywood and their products, sawing and planning of wood, container made of wood, cane, bamboo, reed etc., structural wooden goods such as beams, posts etc., wooden industrial goods, cork and cork products and miscellaneous wood, bamboo and cane products.
052	Paper, paper products and newsprint	Manufacture of machine made and hand made pulp, paper and paper board including newsprint, containers and boxes of paper and paper board, miscellaneous pulp products, paper and paper board articles.
053	Printing, publishing and allied activities	Printing and publishing of newspapers, periodicals, books, journals, atlases, maps, sheet music, directories, bank notes, currency notes, postage stamps, security passes, engraving, etching, block making, book binding, allied activities like envelope printing, picture post card printing, embossing.
054	Leather footwear	Manufacture and repair of leather footwear, leather-cum-rubber/plastic cloth footwear
055	Leather and leather products except footwear	Tanning, curing, finishing, embossing and japanning of leather, manufacture of wearing apparel and consumer goods of leather and substitutes of leather, scrapping curving and tanning, bleaching, dyeing of fur and other pelts, manufacture of wearing apparel, rugs and other articles of fur and pelts.
056	Rubber products	Rubber tyres and tubes for motor vehicles, tractors, aircraft, scooters, motor cycles and cycles and other rubber and plastic footwear, rubber surgical and medical equipment, rubber contraceptives, rubber pipes, ballons, rubber industrial and domestic goods and miscellaneous rubber products.

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
057	Plastic products	Plastic moulded goods such as containers, sheets, nets, cords, polythene bags, spectacles frames, industrial accessories, domestic goods and miscellaneous plastic products.
058	Petroleum products	Products of petroleum refineries
059	Coal tar products	Coke and other coal tar products
060	Inorganic heavy chemicals	Basic heavy inorganic chemicals
061	Organic heavy chemicals	Basic heavy organic chemicals
062	Fertilizers	Inorganic, organic, mixed and other fertilizers
063	Pesticides	Insecticides, fungicides, weedicides and pesticides formulations
064	Paints, varnishes and lacquers	Paints, varnishes, lacquers and dyestuffs, waxes and polishes
065	Drugs and medicines	Drugs and medicines - allopathic, ayurvedic, unani, homeopathic and others
066	Soaps, cosmetics, glycerine	Soaps, perfumes, cosmetics, toothpastes, soap in any form and other toilet aids, glycerine and detergents
067	Synthetic fibres, resin	Turpentine, resin, synthetic resin, plastic materials and synthetic fibres like celluloid nylon, terylene and miscellaneous products of fermentation industries other than alcohol
068	Other chemicals	Inedible vegetable oils including solvent extracted oils, animal oils and fats, matches, explosives, ammunition, safety fuses, fireworks, photochemical materials, sensitised films and paper, fine chemicals, drug and dye intermediaries, glue and gelatin, shellac, synthetic sweeteners, textile chemical auxiliaries and other chemical products
069	Structural clay products	Structural clay products such as fire bricks, refractories, tiles and others
070	Cement	Cement

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
071	Other non-metallic mineral products	Manufacture of glass and glass products, earthenware and pottery, chinaware, sanitaryware, porcelainware, insulators, lime and plaster, mica products, structural stone goods, stoneware, stone dressing and crushing, earthen and laster statues and products, asbestos cement and its products, slate products, cement and concrete products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products
072	Iron and steel ferro alloys	Iron and steel, special steel and ferro-alloys
073	Iron and steel casting and forging	Iron and steel castings and forgings
074	Iron and steel foundaries	Iron and steel structurals, pipes, plates, wire drawings, tools and others
075	non-ferrous basic metals (including alloys)	Melting, refining, rolling into basic forms, wire drawings etc., of non-ferrous basic metals and alloys
076	Hand tools, hardware	Hand tools, bolts, nuts, locks, metal chains, agricultural hand tools and implements, general hardware
077	Miscellaneous metal products.	Metal containers, steel trunks, safes, vaults, sanitary and plumbing fixtures and fittings of metal, stoves, hurricane lanterns, welded products, enamelling, galvanishing, plating and polishing of metal products, metal utensils, cutlery and kitchenware, metal furniture and fixtures, blades, springs, art metal ware, other metal products
078	Tractors and other agricultural implements	Tractors and other agricultural machinery, equipment and implements
079	Industrial machinery for food and textile industries	Rice, dal, flour and oil mill machinery, sugar machinery, tea machinery, textile machinery and jute machinery
080	Industrial machinery (except food and textiles)	Pharmaceutical machinery, chemical machinery, paper machinery, mining machinery, cement machinery

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
081	Machine tools	Automatic capstans, turrets and lathes, boring, broaching, drilling and threading machines, milling, planning, shaping, gear cutting and slotting machines, grinding, lapping, honing and polishing machines, sawing, filling and cutoff machines, metal forming machinery and other metal work machine tools.
082	Office computing and accounting machinery	Computing and accounting, office copying machines, calculating machines, typewriters, duplicators, postal franking machines, addressing machines, weighing machines
083	Other non-electrical machinery	Drills, coal cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries, prime movers, boilers and steam generating plants such as diesel engines, refrigerating, air conditioning plants for industrial use, domestic air conditioners and refrigerators, fire fighting equipment and appliances including fire engines, conveying equipment such as bucket elevators, derrick and sizes reduction equipment like crushers, ball mills etc., centrifugal machines, pumps, air and gas compressors and vacuum pumps, ball roller and tapered bearings, speed reduction units, sewing and knitting machines, washing machines, filtration and distillation equipment, arms and armaments and miscellaneous non-electrical machinery and their repair services.
084	Electrical machinery	Generators, transformers, switch gears, electric motors
085	Electrical cables, wires	Insulated cables and wires
086	Batteries	Storage batteries, dry cells

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
087	Electrical appliances	Electrical fans, lamps, fluorescent tubes miniature lamps, household appliances like iron, heaters etc. and their repair services
088	Communication equipment	Manufacture of wireless communication apparatus, manufacture of radios, teleprinters, telephones, telegraph equipments, phonographs and record changers, manufacture of parts and accessories and other including public address equipment
089	Other electrical machinery	Manufacture and repair of radiographic X-ray apparatus and tubes and parts, manufacture of light fittings, emergency lighting equipment, flash lights, stage lighting equipment, electric furnaces and oven telescopic aerials and parts and accessories.
090	Electronic equipment including TV	Manufacture of television sets, electronic computers, electronic control instruments, other parts and accessories
091	Ships and boats	Making of ships and other vessels drawn by power, boat building, and their repairing
092	Rail equipment	Manufacture of diesel locomotives, steam locomotives, electric locomotives, railway coaches, wagons, parts and accessories
093	Motor vehicles	Manufacture of motor cars, buses, trucks, jeeps, station wagons and parts and repair of motor vehicles
094	Motor cycles and scooters	Manufacture of motor cycles, scooters and scooterettes parts and accessories and their repair
095	Bicycles, cycle-rickshaw	Manufacture of cycles, cycle rickshaws and repair of bicycles and cycle-rickshaw
096	Other transport equipment	Manufacture of other rail-road equipments, tramway works, bullock carts, push-carts, hand-carts and transport equipments not elsewhere classified
097	Watches and clocks	Manufacture of clocks, table time pieces, watches and their parts and repair of watches and clocks

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
098	Miscellaneous manufacturing	<p>Manufacture of surgical, medical, laboratory scientific and mathematical instruments, water meters, steam meters and electricity meters, recording and regulating devices for pressure, temperature, weight, level etc., photographic and optical goods (excluding photochemicals, sensitised paper and film), jewellery and related articles, minting coins, sports and atheletic goods and play equipment, musical instruments, stationery articles like fountain pens, pencils, pens, pin cushions, tags, hair brushes, dusters, feather articles, signs and advertising displays, mechanical toys, other toys, bones, ivory, horns and similar products, wigs, costume and imitation jewellery novelties, lampshades, presentation articles, badges and others, manufacture of aircrafts and parts and repair of enterprises not elsewhere classified.</p> <p>Construction and maintenance of buildings, aerodromes, roads, railways, bridges, tunnels, pipelines, ports, harbours, runways, communication systems, waterways, water reservoirs, hydro electric projects and industrial plants and activities allied to construction</p>
100	Electricity	Generation and transmission of electric energy and its distribution to households, industrial and commercial and other users.
101	Gas	Manufacture of gas in gasworks and distribution through mains to household, industrial and commercial and other users, L.P.G., Gobar gas.
102	Water supply	Collection, purification and distribution of water
103	Railway transport services	Government railways, private railways, services incidental to this transport.

TABLE A2.2 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
104	Other transport services	Buses, tramways, trucks, taxies, auto-rickshaws, animal services, urban bullock, urban buffallo, horses and other animals drawn carts, cycles, hand pulled rickshaw and pack animals, shipping transport by boats, steamer, ferry etc. by canal or rivers and unorganised water transport by sea, air transport and services incidental to these transports.
105	Storage and warehousing	Warehousing, cold storage and storage and warehousing not elsewhere classified
106	Communication	Postal, telephones, telegraph services rendered by postal and telegraph department and overseas communication services
107	Trade	Wholesale and retail trade
108	Hotels and restaurants	Services rendered by hotels, boarding houses, eating houses, cafes, restaurants, canteen etc.
109	Banking	Commercial banks, banking department of RBI, other financial companies, industrial development and financial corporations, post office saving banks, cumulative time deposit accounts, cooperative credit societies
110	Insurance	Life insurance corporation, postal life insurance, employees state insurance and non-life insurances such as fire, marine, accidents etc.
111	Ownership of dwellings	Residential houses
112	Education and research	Education, scientific and research services
113	Medical and health	Medical and health services
114	Other services	Real estate, religious, legal, recreation and entertainment, domestic laundry, cleaning and dying, barbers and beauty shops and other personal services, sanitary services etc. wrapping packing and filling of articles, information and broadcasting services
115	Public administration and defence	Public administration and defence.

TABLE A2.3

Matching of Excise Tariff Codes with 115  
Sectors of Input-output Matrices

Sectors	Excise code at the 4-digit level
(1)	(2)
1 Paddy	10.06
2 Wheat	10.01
3 Jowar	-
4 Bajra	-
5 Maize	10.05
6 Gram	-
7 Pulses	07.01
8 Sugarcane	-
9 Groundnut	-
10 Jute	53.01, 53.02
11 Cotton	52.01
12 Tea	-
13 Coffee	-
14 Rubber	40.01
15 Coconut	-
16 Tobacco	24.01
17 Other crops	06.01,07.02,10.02-10.04, 10.06-10.08,14.01
18 Milk & Milk products	04.01, 04.04
19 Animal services(Agricultural)	-
20 Other Livestock products	01.01,05.01,15.01,31.01, 50.02,51.01
21 Forestry & Logging	13.01
22 Fishing	03.01,71.01
23 Coal & Lignite	27.01-27.03
24 Crude Petroleum,Natural gas	27.09,27.11
25 Iron ore	26.01
26 Maganese ore	26.02
27 Bauxite	26.06
28 Copper ore	26.03
29 Other Metallic minerals	26.04,26.05,26.07-26.17, 26.21
30+31 Lime Stone incl.Mica	25.05
32 Other Non-metallic minerals	25.01-25.04
33 Sugar	17.01
34 Khandsari & Boora	17.03
35 Hydrogenated oil	15.04,15.08
36 Edible oils other than Vanaspati	15.02,15.03

TABLE A2.3 (Contd.)

(1)	(2)
37 Tea & Coffee processing	09.01-09.03,21.01
38 Miscellaneous food products	02.01,04.02,04.03,07.01,08.01,09.03, 11.01,11.03,11.04,16.01,17.02,17.04, 18.01-18.04,19.01-19.05,20.01,21.02- 21.05,21.07,22.03,23.01,23.02
39 Beverages	11.02,22.02,22.04
40 Tobacco products	21.06,24.02-24.04
41+42 Khadi,Cotton textiles	52.02-52.12
43 Woolen textile	51.02-51.07
44 Silk textiles	50.01
45 Art silk,Synthetic fiber textiles	54.01-54.03,54.06-54.12,55.08-55.12
46 Jute,Hemp,Mesta textiles	53.01,53.03-53.08,63.01
47 Carpet Weaving	57.01,57.02
48 Ready made garments	61.01,61.02,62.01,62.02,63.01,65.01
49 Miscellaneous textile products	56.01-56.03,56.05-56.08,58.01-58.06, 59.01,59.03-59.09,60.01
50 Furniture & Fixtures	94.01,94.03
51 Wood products excluding furniture	44.01-44.10,45.01,46.01
52 Paper,Paper products	38.03-38.04,47.01,47.02,48.01-48.23
53 Printing Publishing & Allied activie	49.01
54 Leather footwear	64.01
55 Leather & its products excluding footwear	41.01,42.01,43.01
56 Rubbber products	40.03-40.17,56.04,64.02
57 Plastic products	39.15-39.26,94.04
58 Petroleum products	27.10,27.12-27.15,34.03
59 Coal tar products	27.04-27.08
60 Inorganic heavy chemicals	28.01-28.51
61 Organic heavy chemicals	29.01-29.35,29.40,29.42
62 Fertilisers	31.02-31.05
63 Pesticides	38.08
64 Paints, Varnishes & Lacquers	32.01-32.14
65 Drugs & Medicines	29.36-29.39,29.41,30.01-30.05
66 Soaps,Cosmetics & Glycerine	15.06,33.01-33.07,34.01-34.02
67 Synthetic fibres,Resin	38.05-38.07,39.01-39.14,40.02,54.07, 55.01-55.07,59.02
68 Other chemicals	15.05,15.07,32.15,34.04-34.07,35.01- 35.07,36.01-36.06,37.01-37.07,38.01, 38.02,38.09-38.14,38.15,38.17-38.23

TABLE A2.3 (Contd.)

(1)	(2)
69 Structural clay products	38.16, 69.01-69.08
70 Cement	25.02
71 Other Non-metallic mineral products	25.03, 68.01-68.07, 69.09-69.11, 70.01-70.15, 71.02-71.05, 85.46
72 Iron & Steel & Ferro-alloys	26.18-26.19, 72.01-72.07, 72.18, 72.24, 72.30
73 Iron & Steel casting & forging	73.25-73.27
74 Iron & Steel foundries	72.08-72.17, 72.19-72.23, 72.25-72.29, 73.01-73.14
75 Non-ferrous basic metals	26.20, 71.06-71.12, 74.01-74.12, 75.01-75.05, 76.01-76.09, 78.01-78.05, 78.07, 79.01-79.05, 80.01-80.06, 81.01-81.13
76 Hand tools, hardware	73.17, 73.18, 74.15, 82.01-82.10, 83.01-83.02
77 Miscellaneous metal products	73.09-73.11, 73.15, 73.16, 73.19-73.24, 74.13, 74.14, 74.16-74.19, 75.06-75.08, 76.10-76.16, 78.06, 78.08, 79.06, 79.07, 80.07, 82.11-82.15, 83.03-83.11, 84.81
78 Tractors & other Agricultural machines	84.32, 84.33, 84.36, 84.37, 87.01
79 Food & Textile industrial machinery	84.34, 84.35, 84.38, 84.45-84.49
80 Industrial machinery (except food and textiles)	84.39, 84.41, 84.74, 84.77, 84.78
81 Machine tools	84.56-84.68, 85.08
82 Office computing & Accounting machinery	84.23, 84.69, 84.70, 84.72, 84.73, 90.09
83 Other Non-electrical machinery	84.02-84.18, 84.20-84.22, 74.24-84.31, 84.40, 84.42-84.44, 84.50-84.55, 84.75, 84.76, 84.79, 84.80, 84.82-84.85, 93.01-93.07
84 Electrical industrial machinery	85.01-85.05, 85.11
85 Electrical cables, wires	85.44
86 Batteries	85.06, 85.07
87 Electrical appliances	85.09-85.10, 85.16, 85.39, 85.40
88 Communication equipment	85.17, 85.25-85.27, 85.30, 85.31
89 Other Electrical machinery	85.12-85.15, 85.18, 85.35-85.38, 85.43, 85.45, 85.47, 85.48, 90.22, 94.05
90 Electronic equipment & T.V.	84.71, 85.19-85.24, 85.28, 85.29, 85.32-85.34, 85.41, 85.42
91 Ships & Boats	89.01-89.08

TABLE A2.3 (Contd.)

(1)	(2)
92 Rail equipment	86.01-86.08
93 Motor vehicles	87.02-87.04, 87.06, 87.08
94 Motor cycles & Scooters	87.11, 87.14
95 Bicycles, Cycle-rickshaws	87.12
96 Other Transport equipment	87.09, 87.13, 87.15, 87.16
97 Watches & Clocks	91.01-91.14
98 Miscellaneous manufacturing	66.01, 66.02, 67.01, 67.02, 71.13-71.18, 84.19, 86.09, 87.05, 87.10, 88.01-88.05, 90.01-90.08, 90.10-90.21, 90.23-90.33, 92.01-92.09, 94.02, 94.06, 95.01-95.08, 96.01-96.18
99 Construction	-
100 Electricity	-
101 Gas	-
102 Water supply	-
103 Railway transport services	-
104 Other transport services	-
105 Storage and warehousing	-
106 Communication	-
107 Trade	-
108 Hotels and testaurants	-
109 Banking	-
110 Insurance	-
111 Ownership of dwellings	-
112 Education and research	-
113 Medical and health	-
114 Other services	-
115 Public administration and defence	-

TABLE A2.4

Matching of Customs Tariff Codes with 115  
Sectors of Input-Output Matrices

Sectors	Customs code at the 4-digit level
(1)	(2)
1 Paddy	10.06
2 Wheat	10.01
3+4 Jowar & Bajra	10.08
5 Maize	10.05
6 Gram	07.08
7 Pulses	07.13
8 Sugarcane	12.12
9 Groundnut	12.02
10 Jute	53.03
11 Cotton	14.04, 52.01
12 Tea	09.02
13 Coffee	09.01
14 Rubber	40.01
15 Coconut	12.03
16 Tobacco	24.01
17 Other crops	06.01-06.04, 07.01-07.09, 07.14, 08.01- 08.11, 10.02-10.04, 10.07, 10.08, 12.01, 12.04-12.07, 12.09-12.14, 13.02, 14.03- 14.04, 18.01, 53.01, 53.02, 53.04
18 Milk & Milk products	04.01-04.03
19 Animal services (Agricultural)	-
20 Other Livestock products	01.01-01.06, 04.07, 04.09, 05.04-05.11, 15.01-15.06, 31.01, 41.01-41.03, 43.01, 50.01, 50.02, 51.01-51.02, 67.01
21 Forestry & Logging	13.01, 13.02, 14.01, 14.02, 44.01-44.04
22 Fishing	03.01-03.04, 71.01
23 Coal & Lignite	27.01-27.03
24 Crude Petroleum, Natural gas	27.09, 27.11
25 Iron ore	26.01
26 Maganese ore	26.02
27 Bauxite	26.06
28 Copper ore	26.03
29 Other Metallic minerals	26.04-26.05, 26.07-26.17, 26.21
30 Lime stone	25.21, 25.22
31 Mica	25.25
32 Other Non-metallic minerals	25.01-25.20, 25.24, 25.26-25.30
33+34 Sugar, Khandsari & Boora	17.01, 17.03, 23.03
35 Hydrogenated oil	15.16, 15.17
36 Edible oils other than Vanaspati	15.07-15.15, 23.04-23.06
37 Tea & Coffee processing	09.01-09.03, 21.01

TABLE A2.4 (Contd.)

(1)	(2)
38 Miscellaneous food products	02.01-02.10,03.05-03.07,04.04-04.06, 04.08,04.10,07.10-07.12,08.12-08.14, 09.04-09.10,11.01-11.06,11.08-11.09, 12.08,16.01-16.05,17.02,17.04,18.02- 18.06,19.01-19.05,20.01-20.09,21.02- 21.06,22.09,23.01-23.03,23.07-23.09
39 Beverages	11.07,22.01-22.08
40 Tobacco products	24.02,24.03
41+42 Khadi,Cotton textiles	52.02-52.12
43 Woolen textile	51.03-51.13,99.17,99.91
44 Silk textiles	50.03-50.07
45 Art silk, synthetic fiber textiles	54.01-54.03,54.06-54.08,55.08-55.16, 56.04
46 Jute,Hemp,Mesta textiles	53.06-53.11,63.05
47 Carpet Weaving	46.01,57.01-57.05,99.91
48 Ready made garments	43.03,61.01-61.17,62.01-62.17,63.09, 65.01-65.07
49 Miscellaneous textile products	53.05,56.01-56.03,56.05-56.09,58.01- 58.11,59.01,59.03-59.11,60.01,60.02, 63.01-63.08,63.10
50 Furniture & Fixtures:wooden	94.01,94.03
51 Wood products excluding furniture	44.05-44.21,45.01-45.04,46.02,64.06
52 Paper,Paper products	38.03,38.04,47.01-47.07,48.01-48.23
53 Printing Publishing & Allied activities	49.01-49.11
54 Leather footwear	64.03-64.06
55 Leather & its products excluding footwear	41.04-41.11,42.01-42.06,43.02-43.04
56 Rubber products	40.03-40.17,56.04,64.01-64.06
57 Plastic products	39.15-39.26,94.03,94.04
58 Petroleum products	27.10-27.15,34.03,68.07
59 Coal tar products	27.04-27.08
60 Inorganic heavy chemicals	28.01-28.51
61 Organic heavy chemicals	29 (ex 29.03)
62 Fertilisers	31.02-31.05
63 Pesticides	38.08
64 Paints, Varnishes & Lacquers	32.01-32.14
65 Drugs & Medicines	29.36-29.39,29.41,30.01-30.06
66 Soaps,Cosmetics & Glycerine	15.20,33.01-33.07,34.01-34.02
67 Synthetic fibres,Resin	38.05-38.07,39.01-39.14,40.02,54.04, 54.05,55.01-55.07,59.02

TABLE A2.4 (Contd.)

(1)	(2)
68 Other chemicals	15.19-15.22, 32.15, 34.03-34.07, 35.01-35.07, 36.01-36.06, 37.01-37.07, 38.01, 38.02, 38.09-38.13, 38.15, 38.17-38.23
69 Structural clay products	38.16, 69.01-69.08
70 Cement	25.23
71 Other Non-metallic mineral products	68.01-68.15, 69.09-69.14, 70.01-70.20, 71.02-71.05, 85.46-85.47
72 Iron & Steel & Ferro-alloys	26.18, 26.19, 72.01-72.07, 72.18, 72.24
73 Iron & Steel casting & forging	73.25, 73.26
74 Iron & Steel foundries	72.08-72.29, 73.01-73.14
75 Non-ferrous basic metals	26.20, 71.06-71.12, 71.15, 74.01-74.12, 75.01-75.07, 76.01-76.09, 78.01-78.05, 79.01-79.06, 80.01-80.06, 81.01-81.13
76 Hand tools, hardware	73.16, 73.18, 74.15, 82.01-82.15, 83.01-83.02
77 Miscellaneous metal products	73.09-73.11, 73.15, 73.16, 73.19-73.24, 73.26, 74.13-74.14, 74.16-74.19, 75.06-75.08, 76.10-76.16, 78.06, 79.06, 79.07, 80.07, 82.11-82.15, 83.03-83.11, 84.81, 94.01, 94.03
78 Tractors & other Agricultural machinery	84.32, 84.33, 84.36, 84.37, 87.01
79 Food & Textile industrial machinery	84.34-84.38, 84.44-84.49, 84.79
80 Industrial machinery (except food & textile)	84.74, 84.75, 84.77-84.79
81 Machine tools	84.56-84.63, 85.08
82 Office computing & Accounting machinery	84.23, 84.69-84.73, 90.09
83 Other Non-electrical machinery	84.02-84.22, 84.24-84.31, 84.39-84.44, 84.50-84.55, 84.76, 84.79, 84.80, 84.82-84.84, 93.01-93.07
84 Electrical industrial machinery	85.01-85.05, 85.11, 85.14-85.15
85 Electrical cables, wires	85.44
86 Batteries	85.06, 85.07
87 Electrical appliances	85.09, 85.10, 85.12-85.16, 85.39, 85.46, 94.05
88 Communication equipment	85.17, 85.25-85.27, 85.30, 85.31
89 Other Electrical machinery	85.13, 85.35-85.38, 85.43, 85.45, 85.47, 85.48, 90.22
90 Electronic equipment & T.V.	84.71, 85.18-85.24, 85.28, 85.29, 85.32-85.34, 85.40-85.42
91 Ships & Boats	84.07, 84.85, 89.01-89.08
92 Rail equipment	86.01-86.09

TABLE A2.4 (Contd.)

(1)	(2)
93 Motor vehicles	84.07,85.12,87.02-87.10
94 Motor cycles & Scooters	85.12,87.11,87.14
95 Bicycles,Cycle-rickshaws	87.12,87.14
96 Other Transport equipment	87.09,87.13,87.15,87.16
97 Watches & Clocks	91.01-91.14
98 Miscellaneous manufacturing	66.01-66.03,67.01-67.04,71.13,71.14, 71.16-71.18,84.07,86.09,88.01-88.05, 90.01-90.08,90.10-90.21,90.23-90.33, 92.01-92.09,94.02,94.05,94.06,95.01- 95.08,96.01-96.18
99 Construction	-
100 Electricity	-
101 Gas	-
102 Water supply	-
103 Railway transport services	-
104 Other transport services	-
105 Storage and warehousing	-
106 Communication	-
107 Trade	-
108 Hotels and testaurants	-
109 Banking	-
110 Insurance	-
111 Ownership of dwellings	-
112 Education and research	-
113 Medical and health	-
114 Other services	-
115 Public administration and defence	-

TABLE A2.5

Matching of 115 Sector Codes  
with 60 Sector Codes

60 Sector code	Description of 60 sector codes	115 sector codes
(1)	(2)	(3)
1	Paddy	1
2	Wheat	2
3	Other cereals	3-6
4	Pulses	7
5	Sugarcane	8
6	Jute	10
7	Cotton	11
8	Tea	12
9	Coffee	13
10	Rubber	14
11	Other crops	9,15-17
12	Animal husbandry	18-20
13	Forestry & logging	21
14	Fishing	22
15	Coal and lignite	23
16	Crud petroleum, natural gas	24
17	Iron ore	25
18	Other metallic mine	26-29
19	Non-metallic & minor minerals	30-32
20	Sugar	33
21	Khandsari, boora	34
22	Hydrogenated oil	35
23	Other food and beverages	36-40
24	Cotton textiles	41,42
25	Woollen textile	43
26	Artificial of silk, synthetic fibre	45
27	Jute, hemp, mesta textiles	46
28	Other textiles	44,47-49
29	Wood & wood products	50,51
30	Paper and paper products	52,53
31	Leather and leather products	54,55
32	Rubber products	56
33	Plastic products	57
34	Petroleum products	58
35	Coal tar products	59

TABLE A2.5 (Contd.)

60 Sector code	Description of 60 sector codes	116 sector codes code
(1)	(2)	(3)
36	Fertilisers	62
37	Pesticides	63
38	Synthetic fibres, resins	67
39	Other chemicals	60,61,64-66,68
40	Cement	70
41	Other non-metallic mineral products	69,71
42	Iron and steel	72-74
43	Non-ferrous basic metals	75
44	Tractors & other agricultural machinery	78
45	Machine tools	81
46	Other non-electrical machinery	82,83
47	Electrical machinery	84-87,89
48	Communication equipment	88
49	Electronic equipment	90
50	Rail equipment	92
51	Motor vehicles	91,93,94
52	Other transport equipment	95,96
53	Other manufacturing	76,77,79,80,97,98
54	Construction	99
55	Electricity	100
56	Rail transport service	103
57	Other transport service	104
58	Communication	106
59	Trade	107
60	Other services	101,102,105,108-115

TABLE A2.6

Sector Specification for Input-Output Transactions  
for 60 Broad Groups of Commodities

Sector number	Name	Specification
(1)	(2)	(3)
1	Paddy	Paddy, rice milling
2	Wheat	Wheat, flour milling
3	Other cereals	Jowar, Bajra, Maize, Gram
4	Pulses	Milled and unmilled tur, urad, moong, matar, masur and gram dal including flour.
5	Sugarcane	Sugarcane.
6	Jute	Raw jute
7	Cotton	Raw cotton
8	Tea	Tea plantation
9	Coffee	Coffee plantation
10	Rubber	Rubber plantation
11a	Vegetables plaiting etc.	Dry vegetables not elsewhere specified and vegetable plaiting materials
11b	Other crops	Groundnut, coconut, copra, Tobacco plantation, other cereals and their milling, sesamum, rape and mustard, linseed, castor, mesta, sannhemp, dry chillies, black pepper, dry ginger, turmeric, indigo, opium, potato, sweet potato, tapioca, banana, cashewnut, arecanut, cardamom, citrus fruits, grapes, mangoes, other fibres, other oilseeds, other sugars, other dyes and tanning materials, other drugs and narcotics, other condiments and spices, other fruits and vegetables, fodder, grass, rice bran, rice husk, straw and stalks, bagasse, cane trash and miscellaneous food and non-food crops.
12a	Animal husbandry: milk, butter, lassi etc.	Milk, ghee, butter, lassi.
12b.	Animal husbandry: Animals and their body parts	Agricultural animal services by rural bullocks and locks and camels, production of meat, mutton, pork and glands, other meat products, raw hides and skins, animal hair, bristles, wool, eggs, poultry meat, honey, silk worm cocoons, bones, horns, hoofs, dung fuel and manure, increment in livestock.

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
13	Forestry & logging	Planting, replanting, conservation of forests, production of fuel including charcoal, farm year wood, felling and cutting of trees, hewing or rough shaping of poles, blocks etc. and transportation of logs upto the permanent lines of transport, industrial wood (timber, match and pulp wood) bamboo, sandal wood, gathering of uncultivated materials such as gums, lacs, resins, forest grown fruits, nuts, herbs, barks and cane.
14	Fishing	Rearing and catching of fish, sea weeds, shells, pearls, sponges etc. fish curing viz., salting and sundrying of fish.
15	Coal and lignite	Coal and lignite mining
16	Crud petroleum,	Crude petroleum, natural gas natural gas
17	Iron ore	Iron ore mining
18	Other metallic minearls	Manganese ore mining, bauxite mining, copper ore mining, chromite, lead and zinc ore, silver ores, gold ores, ilmenite and rutile
19	Non-metalic & minor minerals	Lime stone mining, mica mining, dolomite, apatite, asbestos, barytes, mineral, chinaclay, gypsum, kyanite, magnesite, diamond, calcite, ochre, garnet, graphite, feldspar, fireclay, flourite, quartz and silica, sillimanite, steatite, minor minerals, salt mining and quarrying, sand and stone quarring, mining of clay, sandpits, chemical and fertilizer, mineral mining, precious and semi precious stone mining.
20	Sugar	Manufacture and refining of sugar
21	Khandsari, boora	Boora, candy and khandsari, gur (indigenous production).
22	Hydrogenated oil	Hydrogenated oils, vanaspati ghee
23	Other food and beverages	Edible oils such as linseed oil, sesamum, oil mustard oil, coconut oil, groundnut oil, cotton seed oil, til oil, mahua oil etc., blended and unblended black tea leaf grade, dust and waste, coffee curing, roasting and grinding, preservation, processing and canning of meat, milk foods

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		and manufacture of dairy products, manufacture of fruit juice, jams, jellies, pickles and canning and botteling of fruits and vegetables, canning, preserving and processing of fish, crustacea and similar foods, manufacture of bakery products, production of common salt, manufacture of cocoa, chocolate, sugar confectionery and sweetmeats, cashewnut drying, shelling, roasting, salting etc., manufacture of ice, prepared cattle, poultry and other animal feeds, starch processed from maize, tapioca, tamarind, potato etc., manufacture of malted foods, grinding and processing of spices, papads, appalam, egg powder, semi-processed foods and instant foods, sago and sago products, vitaminised high protein flour (multi purpose foods), frying of dals, nuts and foods n.e.c., residuary snacks n.e.c., other food processing activities, distilling, rectifying and blending of spirits, wines, beer, malt, liquors, other malt country liquor, toddy.
23b	Mineral water and tobacco products	Manufacture of aerated drinks, aerated natural flavoured syrups, synthetic flavoured syrups, fruit juices and beverages n.e.c., tobacco stemming, redrying, grading etc., and manufacture of bidi, cigars, cigarette, cheroots cigarette tobacco, chewing tobacco, zarda and snuff.
24	Cotton textiles	Cotton spinning in charkha, khadi weaving and finishing of cotton textiles in handlooms, cotton ginning, cleaning and baling, spinning, weaving and finishing of cotton textiles in mills and powerlooms, printing, dyeing and bleaching of cotton textiles, cotton textiles n.e.c.
25	Woollen textile	Wool cleaning, baling and pressing, wool spinning, weaving etc., (handloom, powerlooms and mills), dyeing, bleaching and manufacture of woollen blankets, shawls, felts and others.

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
26	Articles of silk, synthetic fibre	Spinning, weaving and finishing of synthetic fibres, rayons, nylons etc., printing, dyeing and bleaching of synthetic textiles, other silk and synthetic fibre textiles
27	Jute, hemp, mesta textiles	Pressing, baling, spinning and weaving, finishing of jute, mesta hemp and other coarse fibre, dyeing, printing and bleaching of jute textiles, manufacture of jute bags and other jute textiles
28a	Coated fabrics	Manufacture of rain coats, hats, umbrellas etc., oil cloth, rubberised cloth, tarpaulin, artificial leather, made-up canvas goods, coir fibre, yarn and coir products.
28b	Other textiles	Spinning, weaving, finishing, printing, dyeing and bleaching of silk textiles, weaving carpets, rugs, durries and others, readymade garments, clothing and tailoring, made up textile goods, curtains, bed covers, furnishings, mosquito nets, cotton, woollen and synthetic fibres, knitting in mills or otherwise, thread and thread ball making, jute, cotton, hemp, sisal, nylon rope, cordage and twines, nets, webbing, narrow fabrics, embroidery work, laces, fringes, zari and zari products, linoleum and similar products, gas mantles and other textiles viz., bandage, gauze, dressing cloth.
29	Wood & wood products	Wooden, bamboo, cane furniture and fixtures and repair of such furniture, manufacture of veneer, plywood and theirs products, sawing and planning of wood, container made of wood, cane, bamboo, reed etc., structural wooden goods such as beams, posts etc., wooden industrial goods, cork and cork products and miscellaneous wood, bamboo and cane products.

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
30	Paper and paper products	Manufacture of machine made and hand made pulp, paper and paper board including newsprint, containers and boxes of paper and paper board, miscellaneous pulp products, paper and paper board articles, printing and publishing of newspapers, periodicals, books, journals, atlases, maps, sheet music, directories, bank notes, currency notes, postage stamps, security passes, engraving, etching, block making, book binding, allied activities like envelope printing, picture post card printing, embossing.
31	Leather and leather products	Manufacture and repair of leather footwear, leather-cum-rubber/plastic cloth footwear Tanning, curing, finishing, embossing and japanning of leather, manufacture of wearing apparel and consumer goods of leather and substitutes of leather, scrapping curving and tanning, bleaching, dyeing of fur and other pelts, manufacture of wearing apparel, rugs and other articles of fur and pelts.
32a	Rubber products	Rubber tyres and tubes for motor vehicles, tractors, aircraft, scooters, motor cycles and cycles and other rubber and plastic footwear, rubber surgical and medical equipment, rubber contraceptives, rubber pipes, ballons, rubber industrial and domestic goods and miscellaneous rubber products.
32b	Rubber products covered with textiles	Rubber thread, cord etc., covered with textile materials
33	Plastic products	Plastic moulded goods such as containers, sheets, nets, cords, polythene bags, spectacles frames, industrial accessories, domestic goods and miscellaneous plastic products.
34a	Lubricating preparations	Lubricating preparations etc.
34b	Petroleum products	Products of petroleum refineries

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
35	Coal tar products	Coke and other coal tar products
36	Fertilisers	Inorganic, organic, mixed and other fertilizers
37	Pesticides	Insecticides, fungicides, weedicides and pesticides formulations
38a	Synthetic fibres: polymers etc.	Turpentine, resin, synthetic resin, plastic materials and synthetic fibres like celluloid nylon, terylene and miscellaneous products of fermentation industries other than alcohol
38b	Synthetic fibres: yarn etc.	Artificial filament yarn and sewing thread etc., man made filament yarn etc.
39a	Other chemicals	Basic heavy inorganic chemicals, basic heavy organic chemicals, paints, varnishes, lacquers and dyestuffs, waxes and polishes, drugs and medicines - allopathic, ayurvedic, unani, homeopathic and others, soaps, perfumes, cosmetics, toothpastes, soap in any form and other toilet aids, glycerine and detergents, inedible vegetable oils including solvent extracted oils, animal oils and fats, matches, explosives, ammunition, safety fuses, fireworks, photochemical materials, fine chemicals, drug and dye intermediaries, glue and gelatin, shellac, synthetic sweeteners, textile chemical auxiliaries and other chemical products.
39b	Cinematographic films	Sensitised films and paper, matchsticks other than fireworks.
40	Cement	Cement
41	Other non-metallic mineral products	Structural clay products such as fire bricks, refractories, tiles and others, manufacture of glass and glass products, earthenware and pottery, chinaware, sanitaryware, porcelainware, insulators, lime and plaster, mica products, structural stone goods, stoneware, stone dressing and crushing, earthen and plaster statues and products,

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		asbestos cement and its products, slate products, cement and concrete products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products
42	Iron and steel	Iron and steel, special steel and ferro alloys, Iron and steel castings and forgings, iron and steel structurals, pipes, plates, wire drawings, tools and others.
43	Non-ferrous basic metals	Melting, refining, rolling into basic forms, wire drawings etc., of non-ferrous basic metals and alloys.
44	Tractors & other agricultural machinery	Tractors and other agricultural machinery, equipment and implements
45	Machine tools	Automatic capstans, turrets and lathes, boring, broaching, drilling and threading machines, milling, planning, shaping, gear cutting and slotting machines, grinding, lapping, honing and polishing machines, sawing, filling and cutoff machines, metal forming machinery and other metal work machine tools.
46	Other non-electrical machinery	Computing and accounting, office copying machines, calculating machines, typewriters, duplicators, postal franking machines, addressing machines, weighing machines, drills, coal cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries, prime movers, boilers and steam generating plants such as diesel engines, refrigerating, air conditioning plants for industrial use, domestic air conditioners and refrigerators, fire fighting equipment and appliances including fire engines, conveying equipment such as bucket elevators, derrick and sizes reduction equipment like crushers, ball mills etc.,

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		centrifugal machines, pumps, air and gas compressors and vacuum pumps, ball roller and tapered bearings, speed reduction units, sewing and knitting machines, washing machines, filtration and distillation equipment, arms and armaments and miscellaneous non-electrical machinery and their repair services.
47	Electrical machinery	Generators, transformers, switch gears, electric motors, insulated cables and wires Storage batteries, dry cells, electrical fans, lamps, flourescent tubes miniature lamps, household appliances like iron, heaters etc. and their repair services, manufacture and repair of radiographic, X-ray apparatus and tubes and parts, manufacture of light fittings, emergency lighting equipment, flash lights, stage lighting equipment, electric furnaces and oven telescopic aerials and parts and accessories.
48	Communication equipment	Manufacture of wireless communication apparatus, manufacture of radios, teleprinters, telephones, telegraph equipments, phonographs and record changers, manufacture of parts and accessories and other including public address equipment
49	Electronic equipment	Manufacture of television sets, electronic computers, electronic control instruments, other parts and accessories
50	Rail equipment	Manufacture of diesel locomotives, steam locomotives, electric locomotives, railway coaches, wagons, parts and accessories
51	Motor vehicles	Manufacture of motor cars, buses, trucks, jeeps, station wagons and parts and repair of motor vehicles, manufacture of motor cycles, scooters and scooterettes parts and accessories and their repair

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
52	Other transport equipment	Making of ships and other vessels drawn by power, boat building and their repairing. Manufacture of cycles, cycle rickshaws and repair of bicycles and cycle-rickshaw, manufacture of other rail-road equipments, tramway works, bullock carts, push-carts, hand-carts and transport equipments not elsewhere classified
53	Other manufacturing	Hand tools, bolts, nuts, locks, metal chains, agricultural hand tools and implements, general hardware, metal containers, steel trunks, safes, vaults, sanitary and plumbing fixtures and fittings of metal, stoves, hurricane lanterns, welded products, enamelling, galvanising, plating and polishing of metal products, metal utensils, cutlery and kitchenware, metal furniture and fixtures, blades, springs, art metal ware, other metal products, industrial machinery rice, dal, flour and oil mill machinery, sugar machinery, tea machinery, textile machinery and jute machinery, pharmaceutical machinery, chemical machinery, paper machinery, mining machinery, cement machinery, manufacture of clocks, table time pieces, watches and their parts and repair of watches and clocks, manufacture of surgical, medical, laboratory scientific and mathematical instruments, water meters, steam meters and electricity meters, recording and regulating devices for pressure, temperature, weight, level etc., photographic and optical goods (excluding photochemicals, sensitised paper and film), jewellery and related articles, minting coins, sports and atheletic goods and play equipment, musical instruments, stationery articles like fountain pens, pencils, pens, pin cushions, tags, hair brushes, dusters, feather articles, signs and advertising displays, mechanical toys, other toys, bones, ivory, horns and similar products,

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		wigs, costume and imitation jewellery novelties, lampshades, presentation articles, badges and others, manufacture of aircrafts and parts and repair of enterprises not elsewhere classified.
54	Construction	Construction and maintenance of buildings, aerodromes, roads, railways, bridges, tunnels, pipelines, ports, harbours, runways, communication systems, waterways, water reservoirs, hydro electric projects and industrial plants and activities allied to construction
55	Electricity	Generation and transmission of electric energy and its distribution to households, industrial and commercial and other users.
56	Rail transport	Government railways, private railways, services incidental to this transport.
57	Other transport	Buses, tramways, trucks, taxies, auto-rickshaws, animal services, urban bullock, urban buffalo, horses and other animals drawn carts, cycles, hand pulled rickshaw and pack animals, shipping transport by boats, steamer, ferry etc. by canal or rivers and unorganised water transport by sea, air transport and services incidental to these transports.
58	Communication	Postal, telephones, telegraph services rendered by postal and telegraph department and overseas communication services.
59	Trade	Wholesale and retail trade
60	Other services	Manufacture of gas in gasworks and distribution through mains to household, industrial and commercial and other users, L.P.G., Gobar gas. Collection, purification and distribution of water. Warehousing, cold storage and storage and warehousing not elsewhere classified, services rendered by hotels, boarding houses, eating houses, cafes, restaurants, canteen etc. commercial banks, banking department of RBI, other financial companies, industrial development and financial corporations,

TABLE A2.6 (Contd.)

Sector number	Name	Specification
(1)	(2)	(3)
		<p>post office saving banks, cumulative time deposit accounts, cooperative credit societies, life insurance corporation, postal life insurance, employees state insurance and non-life insurances such as fire, marine, accidents etc., residential houses, education, scientific and research services research, medical and health services, real estate, religious, legal, recreation and entertainment, domestic laundry, cleaning and dying, barbers and beauty shops and other personal services, sanitary services etc. wrapping packing and filling of articles, information and broadcasting services, public administration and defence.</p>

TABLE A2.7

Matching of Excise Tariff Codes with  
60 Sectors of Input-Output Matrices

Sectors	Excise code at the 4-digit level
(1)	(2)
1 Paddy	10.06
2 Wheat	10.01
3 Other cereals	10.05
4 Pulses	07.01
5 Sugarcane	-
6 Jute	53.01,53.02
7 Cotton	52.01
8 Tea	-
9 Coffee	-
10 Rubber	40.01
11a Dry vegetables etc.	07.02,14.01
11b Other crops	06.01,07.02,10.02-10.04,10.06-10.08, 24.01
12a Animal husbandry: milk products	04.01,04.04,05.01,15.01,50.02,51.01
12b Animal husbandry: Animals and their body parts	01.01, 31.01
13 Forestry & Logging	13.01
14 Fishing	03.01,71.01
15 Coal & Lignite	27.01-27.03
16 Crude Petroleum, Natural gas	27.09,27.11
17 Iron ore	26.01
18 Other metallic mineral	26.02-26.17,26.21
19 Non metallic and minor mineral	25.01-25.05
20 Sugar	17.01
21 Khandsari & boora	17.03
22 Hydrogenated oil	15.04,15.08
23a Other food & beverages	02.01,04.02,04.03,07.10,08.01,09.01- 09.03,11.01-11.04,15.02,15.03,16.01, 17.02,17.04,18.01-18.04,19.01-19.05, 20.01,21.02-21.07,22.03,22.04,23.01, 23.02
23b Mineral water and tobacco products	22.01, 22.02, 24.02-24.04
24 Cotton textiles	52.02-52.12
25 Woollen textile	51.02-51.07

TABLE A2.7 (Contd.)

Sectors	Excise code at the 4-digit level
(1)	(2)
26 Articles of silk, synthetic fibre	54.01-54.03,54.06-54.12,55.08-55.12
27 Jute,Hemp,Mesta textiles	53.01,53.03-53.08,63.01
28a Coated fabrics	59.01,59.03-59.09
28b Other textiles	50.01,56.01-56.03,56.05-56.08,57.01,57.02,58.01-58.06,60.01, 61.01,61.02,62.01,62.02,63.01,65.01
29 Wood & wood products	44.01-44.10,45.01,46.01,94.01,94.03
30 Paper and paper products	38.03-38.04,44.01-44.10,45.01,46.01,47.01,47.02,48.01-48.23,49.01
31 Leather and leather products	41.01,42.01,43.01,64.01
32a Rubber product	40.03-40.17,64.02
32b Rubber products coated with textiles	56.04
33 Plastic product	39.15-39.26,94.04
34a Lubricating preparations	34.03
34b Petroleum products	27.10,27.12-27.15
35 Coal tar products	27.04-27.08
36 Fertilisers	31.02-31.05
37 Pesticides	38.08
38a Synthetic fibres:polymers etc.	38.05-38.07,39.01-39.14,40.02,59.02
38b Synthetic fibres: yarn etc.	54.04, 54.05, 54.07, 55.01-55.07
39a Other chemicals	15.05-15.07,28.01-28.51,29.01-29.42,30.01-30.05,32.01-32.15,33.01-33.07,34.01,34.02,34.04-34.07,35.01-35.07,36.01-36.04,36.06,37.01-37.05,37.07,38.01,38.02,38.09-38.15,38.17,38.23
39b Cinematographic films	36.05, 37.06
40 Cement	25.02
41 Other Non-metallic mineral products	25.03,38.16,68.01-68.07,69.01-69.11,70.01-70.15,71.02-71.05,85.46
42 Iron & Steel	26.18-26.19,72.01-72.30,73.01-73.14
43 Non-ferrous basic metals	26.20,71.06-71.12,74.01-74.12,75.01-75.05,76.01-76.09,78.01-78.05,78.07,79.01-79.05
44 Tractors & other agricultural machinery	84.32,84.33,84.36,84.37,87.01
45 Machine tools	84.56-84.68,85.08
46 Other Non-electrical machinery	84.02-84.18,84.20-84.31,84.40,84.42-84.44,84.50-84.55,84.69,84.70,84.72,84.73,84.75,84.76,84.79,84.80,84.82-84.85,90.09,93.01-93.07

TABLE A2.7 (Contd.)

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Sectors	Excise code at the 4-digit level
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(1)	(2)
-----	
47 Electrical machinery	85.01-85.07, 85.09-85.16, 85.18, 85.35-85.40, 85.43-85.45, 85.47, 85.48, 90.22, 94.05
48 Communication equipment	85.17, 85.25-85.27, 85.30, 85.31
49 Electronic equipment	84.71, 85.19-85.24, 85.28, 85.29, 85.32-85.34, 85.41, 85.42, 89.01-89.08
50 Rail equipment	86.01-86.08
51 Motor vehicles	87.02-87.04, 87.06, 87.08, 87.11, 87.14
52 Other transport equipment	87.09, 87.12, 87.13, 87.15, 87.16, 89.01-89.08
53 Other manufacturing	66.01, 66.02, 67.01, 67.02, 71.13-71.18, 73.09-73.11, 73.15-73.24, 74.13-74.19, 75.06-75.08, 76.10-76.16, 78.06, 78.08, 79.06, 79.07, 80.07, 82.01-82.15, 83.01-83.11, 84.19, 84.34, 84.35, 84.38, 84.39, 84.41, 84.45-84.49, 84.74, 84.77, 84.78, 84.81, 86.09, 87.05, 87.10, 88.01-88.05, 90.01-90.08, 90.10-90.21, 90.23-90.33, 91.01-91.14, 92.01-92.09, 94.02, 94.06, 95.01-95.08, 96.01-96.18
54 Construction	-
55 Electricity	-
56 Rail construction service	-
57 Other transport service	-
58 Communication	-
59 Trade	-
60 Other services	-
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TABLE A2.8

Matching of Customs Tariff Codes with 60  
Sectors of Input-Output Matrices

Sectors	Customs code at the 4-digit level
(1)	(2)
1 Paddy	10.06
2 Wheat	10.01
3 Other cereals	07.08,10.05,10.08
4 Pulses	07.13
5 Sugarcane	12.12
6 Jute	53.03
7 Cotton	14.04,52.01
8 Tea	09.02
9 Coffee	09.01
10 Rubber	40.01
11a Dry vegetables etc.	7.02, 14.01
11b Other crops	06.01-06.04,07.01,07.03-07.09,07.14,08.01- 08.11,10.02-10.04,10.07,10.08,12.01-12.07, 12.09-12.14,13.02,14.03-14.04,18.01,24.01, 53.01,53.02,53.04
12a Animal husbandary: milk products	04.01-04.03,04.07,04.09,05.04-05.11,15.01- 15.06
12b Animal husbandry:Animals and their body parts	01.01-01.06,13.01,31.01,41.01-41.03,43.01, 50.01,50.02,51.01,51.02,67.01
13 Forestry & logging	13.01,13.02,14.01,14.02,44.01-44.04
14 Fishing	03.01-03.04,71.01
15 Coal & lignite	27.01-27.03
16 Crude petroleum, natural gas	27.09,27.11
17 Iron ore	26.01
18 Other metallic mineral	26.02-26.17,26.21
19 Non metallic and minor mineral	25.01-25.22,25.24-25.30
20 Sugar	17.01
21 Khandsari & boora	17.03,23.03
22 Hydrogenated oil	15.16,15.17
23a Other food & beverages	02.01-02.10,03.05-03.07,04.04-04.06,04.08, 04.10,07.10-07.12,08.12-08.14,09.01-09.10, 11.01-11.09,12.08,15.07-15.15,16.01-16.05, 17.02,17.04,18.02-18.06,19.01-19.05,20.01- 20.09,21.01-21.06,22.03-22.09,23.01-23.09,

TABLE A2.8 (Contd.)

Sectors	Customs code at the 4-digit level
(1)	(2)
23b Mineral water and tobacco products	22.01, 22.02, 24.02-24.03
24 Cotton textiles	52.02-52.12
25 Woolen textile	51.03-51.13, 99.17, 99.91
26 Art silk, synthetic	54.01-54.03, 54.06-54.08, 55.08-55.16, 56.04
27 Jute, Hemp, Mesta textiles	53.06-53.11, 63.05
28a Coated fabrics	59.01, 59.03-59.11
28b Other textiles	43.03, 46.01, 50.05-50.07, 53.05, 56.01-56.03, 56.05-56.09, 57.01-57.05, 58.01-58.11, 60.01, 60.02, 61.01-61.17, 62.01-62.17, 63.01-63.10, 65.01-65.07, 99.91
29 Wood & wood product	45.04-44.21, 45.01-45.04, 46.02, 64.06, 94.01, 94.03
30 Paper and paper product	38.03, 38.04, 47.01-47.07, 48.01-48.23, 49.01-49.11
31 Leather and leather product	41.01-41.11, 42.01-42.06, 43.02-43.04, 64.03-64.06
32a Rubber product	40.03-40.17, 64.01-64.06
32b Rubber products coated with textiles	56.04
33 Plastic product	39.15-39.26, 94.03, 94.04
34a Lubricating preparations	34.03
34b Petroleum products	27.10-27.15, 68.07
35 Coal tar products	27.04-27.08
36 Fertilisers	31.02-31.05
37 Pesticides	38.08
38a Synthetic fibres: polymers etc.	38.05-38.07, 39.01-39.14, 40.02, 59.02
38b Synthetic fibres: yarn etc.	54.04, 54.05, 55.01-55.07
39a Other chemicals	15.19-15.22, 28.01-28.51, 29 (ex 29.03), 30.01-30.06, 32.01-32.15, 33.01-33.07, 34.01-34.07, 35.01-35.07, 36.01-36.04, 36.06, 37.01-37.05, 37.07, 38.01, 38.02, 38.09-38.13, 38.15, 38.17-38.23
39b Cinematographic films	36.05, 37.06
40 Cement	25.23
41 Other Non-metallic mineral products	38.16, 68.01-68.15, 69.01-69.14, 70.01-70.20, 71.02-71.05, 85.46-85.47
42 Iron & Steel	26.18, 26.19, 72.01-72.29, 73.01-73.14, 73.25, 73.26

TABLE A2.8 (Contd.)

Sectors	Customs code at the 4-digit level
(1)	(2)
43 Non-ferrous basic metals	26.20,71.06-71.12,71.15,74.01-74.12,75.01-75.07,76.01-76.09,78.01-78.05,79.01-79.06,80.01-80.06,81.01-81.13
44 Tractors & other agricultural machinery	84.32,84.33,84.36,84.37,87.01
45 Machine tools	84.56-84.63,85.08
46 Other Non-electrical machinery	84.02-84.31,84.39-84.44,84.50-84.55,84.69-84.73,84.76,84.79,84.80,84.82-84.84,90.09,93.01-93.07
47 Electrical machinery	85.01-85.07,85.09-85.16,85.35-85.39,85.43-85.48,90.22,94.05
48 Communication equipment	85.17,85.25-85.27,85.30,85.31
49 Electronic equipment	84.71,85.18-85.24,85.28,85.29,85.32-85.34,85.40-85.42
50 Rail equipment	86.01-86.09
51 Motor vehicles	84.07,85.12,87.02-87.11,87.14
52 Other transport equipment	84.07,84.85,87.09,87.12-87.16,89.01-89.08
53 Other manufacturing	66.01-66.03,67.01,67.04,71.13,71.14,71.16-71.18,73.09-73.11,73.15,73.16,73.18-73.24,73.26,74.13-74.19,75.06-75.08,76.10-76.16,78.06,79.06,79.07,80.07,82.01-82.15,83.01-83.11,84.07,84.34-84.38,84.44-84.49,84.74,84.75,84.77-84.79,84.81,86.09,88.01-88.05,90.01-90.08,90.10-90.21,90.23-90.33,91.01-91.14,92.01-92.09,94.01-94.03,94.05,94.06,95.01-95.08,96.01-96.18
54 Construction	-
55 Electricity	-
56 Rail construction service	-
57 Other transport service-	-
58 Communication	-
59 Trade	-
60 Other services	-

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