Incidence of Indirect Taxation in India 1973-74

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and
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NATIONAL INSTITUTE OF PUBLIC FINANCE AND POLICY

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NATIONAL INSTITUTE OF PUBLIC FINANCE AND POLICY
NEW DELHI

Price: Rs. 10

Printed in India
at
Delhi Press
Jhandewalan Extension
New Delhi-110055

Published by V.S. Renganathan
National Institute of Public
Finance and Policy
12 Rajendra Place
New Delhi-110008

PREFACE

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The present study on *The Incidence of Indirect Taxes in India*, 1973-74 was undertaken at the instance of the Indirect Taxation Enquiry Committee appointed by the Government of India in July 1976 under the chairmanship of Shri L.K. Jha. The findings of the study have already been incorporated in Volume II of the report of the Jha Committee. However, as the study is likely to be of general public interest, it has been considered desirable to bring it out as a separate publication. This is being done with the permission of Ministry of Finance, Government of India.

R. J. CHELLIAH
Director

New Delhi
November 23, 1978

ACKNOWLEDGMENT

The authors wish to thank Dr. A.K. Bagchi and Shri A.V.N. Iyenger for their useful comments on the methodology employed in the study as well as on parts of the first draft.

The authors would also like to acknowledge research assistance by Shri B. Sathpathy, Shri Joseph Thachil and Miss Vijaya Devi.

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THE INCIDENCE OF INDIRECT TAXATION IN INDIA (1973-74)

I INTRODUCTION

1. The Concept and Measurement of Incidence

The question of incidence of taxation has been of long-standing interest and intense debate among professional economists. It is one of those economic questions the interest in which is shared by political leaders and the public at large, because taxes are seen and felt to affect the lives of households and fortunes of business. The incidence of taxation has traditionally been defined to mean the final resting place of the money burden of taxation. For every unit of revenue raised by the Government, there is a corresponding reduction in the income of some one or another and tracing the incidence of a tax is therefore to find out whose incomes are reduced as a result of the imposition of that tax. Going behind the monetary phenomena, one could consider the action of the governments in terms of the use of real resources. Generally speaking, it could be said that the government uses the tax proceeds to divert real resources to itself and that this causes a reduction in the real income available for private use. The incidence of taxation is on those who ultimately suffer the reduction in real incomes equivalent in total to the amount of resources which the Government has appropriated. A measure of incidence is hence obtained by expressing the money burden as a percentage of the money income of the individuals or groups concerned.

Besides enabling the Government to transfer real resources to itself, taxes (may) have other effects: they often interfere with consumers' choice and distort expenditure patterns; they may lead to less efficient use of factor inputs and thus affect total output; and they may affect the rate of savings and investment and hence the rate of growth. All these effects may impose additional burdens and hence the total reduction in income available for private use caused by a tax may be greater than that corresponding to the amount of revenue obtained. However, these secondary

effects are generally excluded from the concept and measurement of incidence of taxation and attention is concentrated on the direct money burden as being the most important aspect of the matter.

The traditional concept of incidence has been criticised in recent years and new ways of looking at the question have been suggested. It is pointed out that taxation by itself does not cause a reduction in real income available for private use; it is public expenditure that absorbs real resources. Taxes may be increased or reduced for any number of reasons without changing the level of real public expenditure. It is argued therefore that taxation only changes the distribution of income and that the incidence of taxation should accordingly be defined as the *change* in the distribution of real income available for private use.

The magnitude and nature of change in real income can only be studied by comparing two situations: the state of distribution before the tax with that after the imposition of the tax (or situations without and with the tax). The problem here is that if we assume that a tax is imposed (or an existing tax increased), something else also changes; either public expenditure increases or there will be a change in the budget balance. In either case, the change in the distribution of real income will be due to the combined effects of the tax and something else and not those of the tax alone. Professor Musgrave has suggested that the combined effect of an equal increase in tax and public expenditure might be termed "budget incidence". If the effect on the distribution of a given tax is to be isolated, other things must be held constant. This can only be done by replacing one tax by another of equal yield. The distributional consequence of substituting one tax for another of equal yield is termed "differential incidence". Currently, most fiscal theorists seem to prefer the concept of differential incidence.

However, the concept of differential incidence relates to a *change* in the tax system. It cannot, strictly speaking, be applied to measure the incidence of an *existing* structure of taxation. On the other hand, if one wishes to apply the concept of budget incidence, one would have to compare two situations—the state of distribution without a budget and that with the existing budget. But it is impossible to wish away the entire budget, for it would make no sense to make a comparison with a state of the economy without a Government. Some writers try to get out of this difficulty by assuming that the existing tax system is being substituted for a hypothetical, neutral tax, such as a proportional income

tax, of equal yield.[1] But this conceptual device would make no difference to the numerical results; one would get the same results if one simply measured the absolute incidence of the system as such.[2]

Despite the theoretical arguments that several economists have adduced in favour of the concept of differential incidence, the fact remains that the public are interested in knowing whether the existing tax system distributes the burden in an equitable manner. While from the econometric point of view, the concept of differential incidence lends itself to more accurate measurement, it would by no means be illegitimate to ask the question: "Who pays the existing taxes?", although there are difficulties in providing an accurate, quantitative answer. In the present exercise, according to our terms of reference, we shall be attempting to measure the incidence of the existing system of indirect taxes in India on the implicit assumption that the volume and pattern of government expenditure is given and that all the tax revenue is spent.

The theory of incidence in economic literature is largely based on deductive reasoning; it attempts to trace the direction and the relative magnitude of shifting of particular taxes under different circumstances. One way of measuring the incidence of a given tax or a set of taxes is to quantify the conclusion of such deductive reasoning. However, the results of this reasoning are not always logically conclusive; and furthermore, one would like to empirically test conclusions based on deductive reasoning before applying them to real world situations. Ideally, therefore, one should prefer the alternative method of specifying tentative hypotheses regarding shifting and of econometrically testing them. The results of the econometric exercise would provide the empirical basis for working out the incidence of the tax system. While this might be the conceptually perfect solution, formidable statistical and other difficulties arise in carrying out the needed econometric exercises. In fact, in order to deal satisfactorily with broad-based taxes such as excises and the general sales tax, we would need a full-fledged econometric model of the economy. The formulation and estimation of such a model for India lies in the future. Again, the econometric method is more relevant for the measurement of differential incidence than for estimating the incidence of an existing tax system. For these reasons, we have to

[1]Pechman, Joseph A. and Okner, Benjamin A., *Who Bears the Tax Burden?* Studies in Government Finance, The Brookings Institution, Washington, D.C., 1975.

[2]Luc De Wulf, "Fiscal Incidence Studies in Developing Countries: Survey and Critique", *IMF Staff Papers*, Vol. XXII, No. 3, March, 1975, p. 97.

take recourse to the method of quantifying the conclusion of deductive reasoning in the theory of incidence.

Commodity taxes could be selective or general. It is generally argued that the incidence of a selective tax on a commodity would be divided between the buyers and the producers (factor owners) in the proportion of the (price) elasticity of the supply of the commodity to the elasticity of the demand for it. Only if the supply were perfectly elastic, the entire burden would be shifted to the consumers; conversely, only if the demand were perfectly elastic, the entire burden would remain with the factor owners. The elasticity of supply depends crucially upon the capacity of, and the scope for, the factors of production in the taxed industry to move to untaxed fields. If a factor of production is specific to a particular industry, i.e., the industry that is taxed, then it would have to stay there and accept a cut in earnings. On the other hand, if the factor is capable of being employed in alternative industries, some units of the factor would move out, the supply of that factor to the taxed industry would be cut and the level of earnings would not be significantly affected. The price of the product would correspondingly rise. Now, in the short run, it may not be possible for several factors of production to move out of a taxed industry. In the long run, however, new vistas open up, old machines get worn out and need not be replaced, and similarly the existing work force is not fully replaced. As time passes, therefore, supply can be expected to become more and more elastic. Hence the assumption that in the long run supply is more or less perfectly elastic and that the incidence of a selective commodity tax will be fully shifted on to consumers.

Let us now consider a general excise or sales tax falling on all commodities and services. One school of thought believes that if such a tax were to be levied at one rate covering all goods and services, it would be equivalent to a proportional income tax on all factor earnings. This conclusion is based on the reasoning that since all industries are taxed, there are no untaxed fields to which factors could migrate even in the long run in an effort to avoid a cut in their earnings as a result of the tax. This means that all factors will have to accept a proportionate reduction in their incomes. One could even assume that prices rise as a result of the general tax. But since the general tax applies to consumer goods as well as capital goods, consumers as well as investors will be affected. In other words, the tax will fall on consumption and saving, which is equal to income. Thus, it is argued, whether the general price level rises or not as a result of the tax, the burden of the tax will be distributed

in proportion to incomes.

In examining the above view, one has to rule out the hypothetical case in which prices do not rise as a result of the general tax. Since we are assuming that all tax revenue is spent, the demand for factors and factor incomes will not fall and prices will have to rise. The argument of such writers as Professor Musgrave that even if prices rise, the burden of the general tax is distributed in proportion to income and not consumption is based on the premise that the tax on capital goods rests on the investors. A more plausible view is that in course of time the tax on the capital goods also will be shifted to the consumers of the products for whose manufacture the former are used. If this happens, the burden of a general commodity tax will rest ultimately with the consumers.

Even this last conclusion will be fully valid only on the assumption of the existence of competition and long-run mobility of factors of production and of the absence of controlled markets and wholly specific factors of production such as land that can be put to only one use. All these assumptions and the reasoning given in the previous paragraph are implicit in the view that all commodity taxes are, sooner or later, fully shifted on to the consumers. Since every one of the needed assumptions will not always be fulfilled, this view of incidence will not turn out to be entirely correct. Moreover, since considerable time may elapse before certain factors can move out of various taxed industries, part of the incidence of a number of taxes may be on the producers at any given time. What may broadly be true, however, is that the major part of the burden of commodity taxation as a whole will be on the consumers.

In the present exercise, we proceed on the assumption that the entire burden of commodity taxes is shifted to consumers who bear it in proportion to their consumption of the various taxed commodities. Indeed, in a sense, our empirical effort amounts to nothing more than working out and applying techniques of quantifying that assumption. Most of the earlier studies, referred to below, also had attempted to measure incidence on the basis of the same assumption.

2. Earlier Studies

A number of attempts have been made over the last two decades or so to estimate the incidence of taxes in India. Of these several relate to taxes in particular States or to particular taxes in the country. Examples of the former are the studies by the National Council of Applied Eco-

nomic Research (NCAER) on the incidence of taxation in the States of Gujarat and Mysore.[3] Agricultural taxation has claimed particular attention and several scholars have attempted to estimate the burden of taxes on agriculture or on agriculturists. Special mention may be made of Hanumantha Rao's study of agricultural taxation in Andhra Pradesh,[4] Pathak and Patel's study on the same in Gujarat[5] and Ved Gandhi's study on the burden on Indian agriculture.[6]

The first systematic study of the overall incidence of indirect taxes in India was carried out by the Taxation Enquiry Commission, 1953-54 (TEC). This study was based on consumer expenditure data collected by the National Sample Survey (NSS) in the fourth round for the period April/September, 1952, and worked out the burden of indirect taxes in terms of percentages of expenditure in different monthly expenditure classes. More or less the same exercise was repeated for the years 1958-59 and 1963-64 by the Economic Division in the Ministry of Finance, Government of India[7] (MF). The present study looks at the incidence of indirect taxes exactly a decade after the last comprehensive study employing the same methodology as the Ministry of Finance studies, two Taxation Enquiry Committees in Uttar Pradesh in 1968-69 and 1974 have also attempted to estimate the incidence of indirect taxes on NSS expenditure groups in rural and urban areas.[8]

The late Dr. Banamali Dey attempted a study of the shifting and incidence of indirect taxation for the year 1964-65[9]. His study was also based on the NSS consumption expenditure data, but it experimented with a more sophisticated methodology than the earlier studies. Dr. Dey's approach will be explained in the next Chapter which deals with the basic methodological issues relating to the allocation of the taxes on

[3]NCAER, *Incidence of Taxation in Gujarat*, New Delhi, 1970 and *Incidence of Taxation in Mysore State*, New Delhi, 1972.

[4]Rao, C. H. Hanumantha, *Taxation of Agricultural Land in Andhra Pradesh*, Asia Publishing House, Bombay, 1964.

[5]Pathak, Mahesh T. and Patel, Arun S., *Agricultural Taxation in Gujarat*, the Council of Economic Education, Bombay, 1970.

[6]Gandhi, Ved P., *The Tax Burden on Indian Agriculture*, Harvard Law School, Mass, 1966.

[7]Ministry of Finance, *Incidence of Indirect Taxation*, 1958-59 and *Incidence, of Indirect Taxation*, 1963-64, New Delhi, 1961 and 1969.

[8]Government of Uttar Pradesh: (i) *Taxation Enquiry Committee Reoprt*, 1968-69 (ii) *Taxation Enquiry Committee Report*, 1974.

[9]Dey, Banamali, "Impact of Indirect Taxes on the Distribution of Consumer Expenditure", *Economic and Political Weekly*, September 7, 1974.

different commodities.

We have defined incidence of taxation to mean the distribution of the reduction in real income available for private use. Since incomes are the most important indicators of the relative economic positions (in terms of welfare) of different individuals, we are really interested in knowing how taxes affect the incomes of different individuals, households, or social groups. That is why, progression and regression are measured with reference to income. If the percentage of taxes increases with income, they are said to be progressive; and conversely, if the percentage falls as income rises, the taxes are said to be regressive. Unfortunately, however, we do not have for India adequate data on income distribution nor expenditure data by income groups. NSS provides details of expenditure only by expenditure groups. Hence, most of the earlier studies of the incidence of commodity taxation have had to be content with working out the burden in terms of percentages of expenditure of households in different total or per capita expenditure classes. Notable exceptions to this general practice are a study of the incidence of taxation undertaken by the Orissa Taxation Enquiry Committee, 1961[10] and an attempt by Lydall and Ahmed (1961) to allocate all taxes among income groups in urban and rural areas.[11]

In the former study, on the basis of certain assumed propensities to save, the expenditure groups were converted into income groups. In the Lydall and Ahmed study, income tax statistics, unsatisfactory as they were, were combined with NSS data to derive estimates of income distribution for 1955-56. The same distribution was assumed to exist in 1965-66. While such attempts are valuable as experiments in methodology, it is doubtful if the results obtained could really be taken as being reliable for policy formulation. Income tax revenue statistics themselves are subject to several limitations and in their present form cannot be combined with expenditure data for given years. It would seem that much remains to be done before we obtain a satisfactory picture of income distribution for our purpose. In the present exercise, therefore, we are following the example of TEC and the MF studies in working out the incidence only in terms of percentages of expenditure.

[10]Government of Orissa: *Orissa Taxation Enquiry Committee Report*, Bhubaneshwar, 1961.

[11]Lydall, H.F., and Ahmed M. "An Exercise in Forecasting Consumer Demand and Taxation Yields in India in 1965-66", *Indian Economic Review*, August, 1961.

II METHODOLOGY AND SCOPE

1. Basic Methodology

As would have become clear from the earlier discussion, the present study aims at allocating only the money burden of indirect taxes levied by the Central and State governments measured as equivalent to tax revenues collected from the non-government sector[12]. Moreover, it does not take into account the benefits accruing to different households as a result of government services financed by tax revenues. It is assumed that all commodity taxes are passed forward to the consumers except a certain portion which is taken to be borne by the Government itself.[13] The basic problem is to ascertain the tax element in the expenditure of households in different expenditure groups. NSS data provide details of consumption expenditure of households classified according to ranges of per capita monthly expenditure. Using these data, the taxes on different commodities could be allocated to different expenditure groups.

One way of doing this is to take the values or physical quantities of consumption of different commodities by each expenditure group and multiply them by the relevant tax rates. Apart from the fact that the data on the physical amounts of consumption are not readily usable, this method runs into a major difficulty, namely, that the total amount of allocable tax on a particular commodity obtained by multiplying tax rates with the value or volume of consumption is seldom equal to the actual yield of the tax on that commodity. This discrepancy is partly due to the concessions and exemptions granted, (for which proper allowance cannot be made while using the consumption data) and partly due to evasion. Moreover, it is not always possible to match the classifications in the consumption data with that used in the tax laws. Because of these reasons, an alternative method has been employed by us. We have

[12]For the purpose of the present study, the non-government sector is taken to include, apart from households and private business, departmental and non-departmental undertakings. The reason for this is explained later.

[13]In the case of taxes on capital goods, it is assumed that the relevant tax burden is passed on over the period of their lives.

allocated the actual tax yield from a commodity among the expenditure groups according to the proportions of their cash expenditure on the consumption of that commodity. The same procedure was also followed by the MF studies in relation to the allocation of Central taxes.

A number of problems arise in the apportionment of tax revenues among the households in the different expenditure classes. We shall deal with a few important ones here. The details of procedure adopted for allocating taxes on major individual items that created special difficulties are described in Appendix I.

The task of allocation would have been fairly straight-forward if only consumption goods and services were subjected to tax. As it is, not only consumer items, but also items of machinery, intermediate products and services that enter into productive processes such as transport are also subject to various levies at different stages. We have assumed, as indicated earlier, that the taxes on capital goods and inputs are also passed on to the consumers of the products for whose manufacture they are used. A large number of inputs are each used in the manufacture of several products. Also, many goods are used both as inputs and as final products. Hence not only are taxes on two portions of several goods to be allocated differently, but also the proportions in which the output of each input is used in the production of different products have to be ascertained. What is ultimately to be done is to add the proper fractions of taxes on the inputs to the taxes on the concerned final products in order to derive the cumulative burdens on the latter. The cumulative burdens can then be apportioned on the basis of expenditure on consumer or final goods. Theoretically, the most satisfactory way of working out the cumulative burden on final products would be to use an input-output model for the economy. Given the tax rates on individual products and the input-output relations, a tax "matrix" can be prepared which would enable one to allocate the taxes to "final products", i.e., units of goods used for consumption. Dr. Dey, in the study previously referred to, used the 144 sector input-output table constructed by Saluja for the year 1964-65.[14] His methodology marked a significant improvement over the approach of the MF studies in which the entire proceeds of taxes on capital goods and inputs were allocated on the basis of consumption of manufactured goods. The reliability of the empirical results derived through the use of the input-

[14]Saluja, M.R., "Structure of the Indian Economy, 1964-65", *Sankhya*, Vol. 34, 1972, pp. 433-462.

output model, however, depends on the reliability of the input-output relations as well as on the degree of disaggregation of data. Tax categories are usually more numerous than the commodity groupings in the input-output matrix; certainly they are more than the 144 sectors in Saluja's table.

For the present study, the original intention was to produce two alternative estimates: one based on a larger input-output table for 1968-69 being then put together at the Planning Commission; and the other to be derived through a more simple-minded, case by case allocation of taxes on inputs and machinery to the different expenditure groups on the basis of their pattern of consumption of final goods. As the construction of the input-output table was delayed for various reasons, we were unable to proceed with the first alternative. We are, therefore, presenting only one set of estimates, the manner of derivation of which is discussed later on.

Taxes on current inputs may be expected to be passed on to consumers without any time-lag. Taxes on machinery items, on the other hand, raise the cost of purchase of machinery and can only be passed on to the consumers of their products through higher depreciation charges over a period of time. In the MF studies, the entire taxes on machinery items were allocated to consumers in the year in which they were collected. By contrast, in the present study, the average life of plant and machinery is taken to be 10 years and, accordingly, only 1/10th of the taxes collected on machinery items in 1973-74 is assumed to be passed on to the consumers during that year.

Another major problem relates to the incidence of taxes on commodities and services purchased by the Central and State governments. If all government purchases are by law free of taxation, the government sector could be said to be paying no indirect taxes. As no such exemption has been provided for (except in certain cases such as the import of defence equipment), when the government buys, or pays for the use of, taxed materials, it may be said to be paying taxes to itself. In this connection, the government sector has to be defined carefully. If a governmental or public sector unit sells its services or goods to the public, then it may be expected to pass on to the consumers any taxes it pays on its inputs by charging correspondingly higher prices. It is only when a unit acts as part of what is called general government whose services are given free that the taxes cannot be shifted. Hence departmental and non-departmental *commercial* undertakings in the public sector should be excluded from the definition of the government sector

for this purpose, and the indirect taxes paid by them should be treated on par with those paid by private sector enterprises. But the taxes paid by the government sector proper should be excluded from the allocable pool.

In the MF study of 1969, it was stated, "As for the tax element in Governments' consumption expenditure, no adjustment could be made due to absence of data. It was, however, ascertained that the amount involved was not dimensionally significant and any adjustment on that account, if possible, would have at best made a marginal difference to the results of this study."[15] Since the government sector had expanded rapidly in the decade since 1963-64, we considered it important to make the needed adjustment. It is true, however, that information on the value of different kinds of goods bought by the Government is not readily available, and in some cases not available at all. We explored several possible sources of data. Ultimately, main reliance has been placed on the information contained in *A Technical Note on the Approaches to the Fifth Plan of India*, 1974-79, published by the Planning Commission (1973). We have been able to make adjustments with respect to goods bought for government consumption and the construction part of government capital formation. Details are given in Appendix II. We found that nearly 5 per cent of total indirect taxes in 1973-74 were to be allocated to the government sector.

One further problem may be referred to. Subsidies are in a true sense negative indirect taxes. Strictly speaking, they should be set off against indirect taxes. Thus, while consumers of electricity may be paying an electricity duty, the Government may be covering the loss of electricity undertakings through subsidies out of general revenue. Not to take into account the subsidies would mean overestimating the burden on the consumers of electricity. However, one might raise the question if subsidies should be brought in when other types of beneficial expenditures are not being considered. Moreover, subsidies are partly open and partly hidden and a vast new area would have to be covered, with its own several problems, if adequate note is to be taken of all subsidies granted by the Centre and the States. We have confined our attention to positive taxes.

[15]Ministry of Finance, *Incidence of Indirect Taxation* 1963-64, *op. cit.*, p. 3.

2. Scope

This study covers all the indirect taxes levied by the Central and State governments, excluding taxes on exports. They are: import duties, Union excise, sales taxes, State excise on liquor, tax on passengers and goods, motor vehicles tax, entertainment tax, electricity duty and other (minor) taxes and duties. Taxes levied by municipal and other local bodies have been left out. The most serious omission is that of octroi, on which the required data could not be obtained.

3. Sources and Limitations of Data

For carrying out this study, we need data on (i) collection of all taxes on goods and services except taxes on exports; (ii) pattern of expenditure of households in different per capita expenditure classes and (iii) in certain cases, value or quantity of commodities subject to tax.

(a) Since the patterns of consumption as between expenditure groups vary from commodity to commodity, the tax on each commodity has to be allocated separately. We needed, therefore, to obtain commodity-wise data on tax collections. Some indirect taxes fall on specific goods or services, e.g., the tax on motor spirit or the entertainment tax. Problems arise only in the case of general taxes. As regards import duties and excises, commodity-wise collection of these taxes is given in the *Statistical Year Book-Central Excise*. This source has been used. But the State government budgets do not give commodity-wise classification of sales tax yield. (The yield of sales tax on motor spirit is separately available.) However, a number of State governments have started collecting information on the yield of sales tax on different commodities or commodity groupings. We were able to obtain this information for 13 major States. The proportions worked out for the 13 States were applied to derive estimates of commodity-wise breakdown of total sales tax collections in India.

The figures of collections of other State taxes are taken from the Budgets of the State governments and Union Territories.

(b) The 28th round of NSS, carried out during the period October 1973 to June 1974, is the latest comprehensive survey of household expenditure. An advance tabulation of the 28th round data was specially carried out for this study at the request of the Ministry of Finance. In this tabulation, households were divided into seven monthly per capita expenditure classes, namely, Rs. 0-15, Rs. 15-28, Rs. 28-43, Rs. 43-55,

Rs. 55-75, Rs. 75-100 and Rs. 100 and above. Further, as in earlier tabulations, a vertical division of these expenditure groups into rural and urban households was also given so that we could work out the incidence of taxes on rural and urban households separately. Again, expenditures on particular items were divided, wherever necessary, into cash and non-cash expenditure. This division was essential because taxes on many commodities are paid only if they are bought for cash.

The MF study of 1969 used NSS data of the 18th round for the year 1963-64. The maximum number of items for which expenditure data were collected during the 18th round was 187. The 28th round of NSS canvassed information on 395 commodities and services including sub-items. This vastly increased disaggregation of expenditure data has made possible a more accurate allocation of the indirect tax burden than in the earlier study.

The number of urban households covered in the sample for the 28th round (the basis of the present study) was much higher than in the 18th round, while the number of rural households was kept lower. The faster rate of growth of urban population during the intervening period, raising the proportion of urban population to total population, has warranted this change. A comparative picture of the number of rural and urban households covered in the 13th, 18th and 28th rounds of NSS is given in the following table:

TABLE II.1

Coverage of Rural and Urban Households

(Numbers)

NSS round and the reference year	Number of sample households covered		
	Rural	Urban	Total
(1)	(2)	(3)	(4)
1. 13th (1957-58)	6738	3583	10321
2. 18th (1963-64)	21572	4337	25909
3. 28th (1973-74)	15467	7881	23348

Sources : 1. *Incidence of Indirect Taxation*, 1957-58 (MF)
2. *Incidence of Indirect Taxation*, 1963-64 (MF)
3. 28th NSS round, 1973-74

(c) For estimates of production and clearance, where necessary, we have used the *Statistical Year Book-Central Excise.*

The main limitations of the data used may be briefly indicated here.

(i) Consumption data

NSS data suffer from several limitations. First, the NSS concept of a household does not refer to a family unit, since a household is defined to comprise all persons who share a common kitchen irrespective of the number of earners. Domestic servants are also included if they eat from the same kitchen. This tends to understate the per capita expenditure of richer households. Second, the estimates of the non-cash component of expenditure are based on imputation. It is feared that in many cases where comparable market prices are not available, imputation is really based on rough guesses. To the extent that the consumption of home produced and home processed goods is wrongly estimated, biases are introduced. Third, the survey is spread over a period of six months during which prices of different commodities change, particularly during times of inflation. These price changes introduce distortions to some extent. Lastly, higher expenditure groups may tend to understate their consumption. Moreover, the value of perquisites enjoyed by the employees of private and public sector companies is not likely to be reflected in the NSS consumption expenditure data. To the extent that the consumption of richer employees is understated for this reason, the incidence will be shown to be more progressive (or less regressive) than it really is.

The aggregate value of consumption expenditure for the population as a whole in 1973-74, worked out on the basis of per capita NSS data and the population figures obtained from the office of the Registrar General, differs from the estimate of private consumption, derived from national accounts (given by CSO) for the same year. The CSO's figure is higher. Following earlier practice, we have raised the NSS estimate of consumption expenditure for each expenditure group in the rural and urban sectors so as to arrive at a total expenditure equal to the CSO estimate. The exact procedure of adjustment is as follows: First, the CSO estimate of aggregate private consumption expenditure was split into rural and urban households' expenditures on the basis of the proportions between them in the NSS estimates. Secondly, ratios were worked out between consumption estimates according to the CSO and those according to the NSS for the rural and urban sectors separately. And, finally, the per capita expenditure figures for the different expenditure groups in the rural and urban areas were multiplied by the relevant ratios in order to raise them, so that the total consumption figure was made equal to the CSO estimate.

(ii) Tax data

As stated earlier, an accurate classification of sales tax receipts by commodity groups is not available. We are forced to make use of estimates of yield of sales tax on different commodities, based on information furnished by 13 States. This would not have been a major limitation in itself. But we understand that the figures given by some of the States are themselves based on estimates. However, since the bulk of sales tax revenue is derived from a fairly limited number of staple commodities, the inaccuracies in the data furnished by the State governments are not likely to bias the results to any significant extent.

The more basic problem is that the classification of goods given in the consumer expenditure data does not often match the tax categories, i.e., the classification of goods under which tax collections are shown. Moreover, in cases where different varieties of the same goods are taxed differently, information on the total yield of the tax on those goods is not sufficient for our purpose. We need the breakdown of yield by varieties as also information on how much of thedi fferent varieties was consumed by each expenditure group. We cannot often get these details. Hence several assumptions regarding the pattern of consumption have had to be made in allocating these burdens in such cases. Appendix I describes the procedures adopted in relation to major commodity groups.

III THE DISTRIBUTION OF THE BURDEN OF INDIRECT TAXATION

1. Aggregate Burden

Indirect taxes levied by the Centre and the States rose from 8.9 per cent of national income in 1963-64—the year of the last MF study of incidence—to 11.2 per cent in 1973-74. Of this 11.2 per cent, 1.65 percentage points could be said to have fallen on the government sector and on the investors, and the rest to have been shifted to the consumers. The portion falling on the consumers is estimated to have amounted to 10.54 per cent of household consumption expenditure. This is an average of the burdens on the rural and the urban households, which differed considerably in percentage terms. While the burden on the rural households amounted only to 8.0 per cent of their consumption, that on the urban households amounted to 18.0 per cent. The rural sector accounted for 77 per cent of private consumption, and bore 57 per cent of the indirect taxes allocable to consumers. The share of the rural sector in total population is estimated to have been 80.1 per cent in that year. In the MF study of 1968-69, it had been estimated that, as of 1963-64, the rural sector, accounting for 81.5 per cent of the total population then, had paid 60 per cent of the indirect taxes. Thus the tax share of the rural sector is seen to have fallen, while its share in populotion also fell marginally.

The per capita indirect tax payment per annum for the urban households amounted to Rs. 174.5 in 1973-74 and was three times the per capita payment of Rs. 57.3 estimated for the rural household. The proportion was nearly the same (2.9) in 1963-64:

Table I in the Statistical Appendix presents the details of the indirect taxes paid by the different per capita expenditure groups in rural and urban areas and also indicates the percentage of consumption expenditure paid in taxes in each case. The information on the inter-group distribution of the burden of indirect taxation is abstracted from that table and presented below.

TABLE III.1

Indirect Taxes as Per Cent of Total Expenditure and Total Cash Expenditure by Per Capita Expenditure Groups

(1973-74)

	Rural		Urban		All India	
Monthly per capita expenditure group (in rupees)	Tax as percentage of total expenditure	Tax as percentage of total cash expenditure	Tax as percentage of total expenditure	Tax as percentage of total cash expenditure	Tax as percentage of total expenditure	Tax as percentage of total cash expenditure
0-15	2.91	4.55	3.63	4.44	2.96	4.56
15-28	3.33	5.25	6.31	6.79	3.63	5.46
28-43	4.45	7.27	7.36	7.93	4.89	7.41
43-55	6.18	10.32	9.66	10.31	6.85	10.31
55-75	6.71	11.40	11.86	12.70	7.92	11.82
75-100	10.02	16.43	14.80	15.85	11.40	16.21
100 and above	16.17	22.46	30.19	31.35	21.96	26.77
All households	8.03	12.87	17.96	19.03	10.54	14.96

The most important feature of the estimates presented is that they indicate a progressive distribution of the tax burden in terms of per cent of expenditure. Thus, taking rural and urban households together, we find that the indirect tax burden as a proportion of expenditure increases progressively from about 3 per cent for households with per capita monthly expenditure not exceeding Rs. 15 to nearly 22 per cent for those in the group with expenditure above Rs. 100. Even if the highest expenditure group is left out, the percentage burden is nearly four times on the next highest expenditure group (Rs. 75-100 per capita) as on the lowest expenditure group.

The progressive pattern of distribution of indirect tax burden is seen to prevail also among rural and urban households taken separately, except that the burden on the urban households is distinctly higher than on the rural households in the corresponding expenditure classes. This difference is partly due to the higher proportion of non-cash expenditures for the rural households and partly due to differences in the pattern of consumption between rural and urban households. The former was the more important factor. This can be seen from the

fact that tax burden as a percentage of cash expenditure is only marginally different as between rural and urban households in the same per capita expenditure classes, except for the class having per capita expenditurve of Rs. 100 and above. Table II in the Statistical Appendix gives the percentages of cash expenditure to total expenditure for the different per capita expenditure groups in rural and urban areas. In the rural sector, the proportion of cash expenditure remains more or less constant as one moves up the expenditure scale, except at the very top; whereas in the urban sector the proportion of cash expenditure rises with the level of per capita total expenditure. This is one of the causes of the higher degree of progression in the urban sector.

It should be remembered that the progression that we have found is only with reference to expenditure. One would like to know if the distribution is progressive also in terms of percentages of incomes of households, i.e., whether the upper income groups pay a higher proportion of their income as indirect taxes. As already indicated, we are unable to provide an answer to this question as satisfactory data on income distribution are not available. It is likely that at the upper end of the income scale, consumption forms a lower proportion of income than it is at the lower end. So indirect taxes may tend towards reduced progression, or even regression, at the top. However, the finding that the top expenditure group in urban areas (which would also be the top income group in the country), pays as much as 30 per cent of its expenditure as indirect taxes indicates that if the highly progressive direct taxes which the more well-to-do in that group pay (or should be paying) are also taken into account, the tax *structure* as a whole in India would be progressive with respect to income. Whether that structure is made effective depends, of course, on the degree of enforcement of the direct tax system. As far as the indirect taxes alone are concerned, it is noteworthy that, in spite of the widespread taxation of inputs, the tax structure turns out to be uniformly progressive over the entire range of expenditure considered.

While the structure of indirect taxes is progressive with reference to expenditure, it cannot be overlooked that indirect taxes fall even on the poorest sections of society. Thus, urban households with monthly per capita expenditure of Rs. 15 or less at 1973-74 prices (corresponding to Rs. 19.5 or less at 1976-77 prices) pay 3.6 per cent of their meagre expenditure, which is likely to equal or exceed their income, in taxes; and those in the Rs. 15—Rs. 28 per capita expenditure group (Rs. 19.5

—Rs. 36.4 at 1976-77 prices) pay as much as 6.3 per cent of expenditure in indirect taxes. In absolute terms, this means that an urban family of five members spending Rs. 75 per month pays about Rs. 2.52 per month as indirect taxes, whilst a similar family spending about Rs. 140 per month pays about Rs. 8.70 per month. As far as the first group is concerned, the main contributors to the burden are: Central excise on sugar, fertilisers (through consumption of agricultural products), tyres and tubes (used by buses and trucks) and jute manufactures (used for moving foodgrains), and sales taxation of foodgrains and *atta*. As far as the latter group is concerned, the main contributors to the burden are: Central excises on sugar, tobacco products, iron and steel, diesel oil (through use of trucks and buses) and jute manufactures (for moving foodgrains); and sales taxes on foodgrains and *atta*, vegetable oils and fats and jute manufactures.

2. Central and State Indirect Taxes

The incidence of indirect taxation given above represents the combined burden of Central and State taxes. The incidence of the individual taxes included in the study, on the various per capita expenditure classes, is shown separately in the following table :

TABLE III.2

Central and State Indirect Taxes as Per Cent of Consumer Expenditure by per Capita Expenditure Groups (1973-74)

(In rupees)

	Monthly per capita expenditure groups							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All households
1	2	3	4	5	6	7	8	9
Rural								
Central taxes	**1.68**	**1.86**	**2.58**	**3.68**	**4.25**	**6.32**	**10.30**	**4.99**
Central excise	1.42	1.50	2.01	2.92	3.27	4.85	7.87	3.85
Import duty	0.26	0.37	0.58	0.76	0.99	1.48	2.43	1.14
State taxes	**1.23**	**1.47**	**1.86**	**2.50**	**2.46**	**3.70**	**5.87**	**3.04**

(continued)

Table III. 2 (*Contd*)

1	2	3	4	5	6	7	8	9
Sales tax (including sales tax on motor spirit)	0.67	0.85	1.02	1.23	1.31	1.77	2.60	1.49
State excise	0.22	0.27	0.32	0.63	0.37	0.93	1.82	0.73
Others	0.34	0.35	0.53	0.64	0.78	1.00	1.44	0.83
All indirect taxes	**2.91**	**3.33**	**4.45**	**6.18**	**6.71**	**10.02**	**16.17**	**8.03**
Urban								
Central taxes	**2.42**	**3.74**	**4.56**	**5.97**	**7.61**	**9.41**	**20.99**	**12.03**
Central excise	2.42	3.11	3.75	4.94	6.25	7.77	16.78	9.73
Import duty	—	0.63	0.81	1.03	1.36	1.63	4.21	2.30
State taxes	**1.21**	**2.57**	**2.80**	**3.69**	**4.25**	**5.40**	**9.20**	**5.93**
Sales tax (including sales tax on motor spirit)	0.30	1.63	1.86	2.35	2.69	3.01	4.51	3.23
State excise	—	0.13	0.02	0.20	0.16	0.79	2.27	1.01
Others	0.91	0.82	0.92	1.14	1.41	1.60	2.41	1.69
All indirect taxes	**3.63**	**6.31**	**7.36**	**9.66**	**11.86**	**14.80**	**30.19**	**17.96**
Rural and urban combined								
Central taxes	**1.72**	**2.05**	**2.88**	**4.13**	**5.04**	**7.21**	**14.71**	**6.77**
Central excise	1.47	1.66	2.27	3.31	3.97	5.69	11.55	5.34
Import duty	0.24	0.39	0.61	0.81	1.07	1.52	3.16	1.43
State taxes	**1.24**	**1.58**	**2.01**	**2.73**	**2.88**	**4.19**	**7.24**	**3.77**
Sales tax (including sales tax on motor spirit)	0.65	0.93	1.16	1.44	1.63	2.13	3.39	1.93
State excise	0.21	0.25	0.27	0.54	0.32	0.89	2.01	0.80
Others	0.39	0.41	0.59	0.74	0.92	1.18	1.84	1.04
All indirect taxes	**2.96**	**3.63**	**4.89**	**6.85**	**7.92**	**11.40**	**21.96**	**10.54**

It will be observed that Central taxes account for the larger share of incidence in both rural and urban sectors. But the difference is much more substantial in relation to the urban sector (Central taxes accounting for 12.0 per cent and State taxes for 5.9 per cent) than in relation to the rural sector (Central taxes 5.0 per cent and State taxes 3.0 per cent).

Another important conclusion to be drawn from the table is that the Central indirect taxes are more progressive than State indirect taxes. Central excises, contributing about 50 per cent total incidence, is of course the single most important tax and is also seen to be the most progressive. However, the two taxes that fall more lightly on the lowest two expenditure groups are import duties and State excise on liquor, whereas Central excise and sales taxes account for 72 per cent of the incidence on them.

3. Incidence by Type of Goods

One of the novel features of this study is that an attempt has been made for the first time in India to work out the incidence of tax on major types of goods separately. Goods subject to tax have been classified into three main groups according to the nature of use, namely, (i) mostly in the nature of consumption goods (hereafter called 'consumption goods'), (ii) mostly in the nature of intermediate goods including raw materials (hereafter called 'intermediate goods') and (iii) capital goods, partly capital goods and parts thereof. The contribution of the indirect taxes on each group of commodities to the aggregate incidence is brought out in the following table :

TABLE III.3

Tax Burden as Per Cent of Consumer Expenditure on All Indirect Taxes According to Type of Goods

	Monthly per capita expenditure groups (in rupees)							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All households
1	2	3	4	5	6	7	8	9
Rural								
1. Consumption goods	1.28	1.51	2.08	3.20	3.16	5.18	8.53	4.05
2. Intermediate goods	1.47	1.62	2.10	2.63	3.17	4.32	6.78	3.53
3. Capital goods, partly capital goods and parts thereof	0.16	0.21	0.27	0.35	0.39	0.53	0.86	0.45
4. Total (all indirect taxes)	**2.91**	**3.34**	**4.45**	**6.18**	**6.72**	**10.03**	**16.17**	**8.03**
Urban								
1. Consumption goods	1.82	3.06	3.62	5.16	6.36	8.38	14.78	9.17
2. Intermediate goods	1.81	2.90	3.38	4.10	5.00	5.80	12.57	7.48
3. Capital goods, partly capital goods and parts thereof	—	0.35	0.36	0.40	0.50	0.62	2.84	1.31
4. Total (all indirect taxes)	**3.63**	**6.31**	**7.36**	**9.66**	**11.86**	**14.80**	**30.19**	**17.96**

(*Continued*)

TABLE III.3 (*Contd*)

1	2	3	4	5	6	7	8	9
Rural and Urban combined								
1. Consumption goods	1.32	1.66	2.31	3.58	3.91	6.10	11.11	5.34
2. Intermediate goods	1.47	1.75	2.30	2.91	3.59	4.75	9.17	4.53
3. Capital goods, partly capital goods and parts thereof	0.16	0.22	0.28	0.36	0.42	0.55	1.68	0.67
4. Total (all indirect taxes)	**2.95**	**3.63**	**4.89**	**6.85**	**7.92**	**11.40**	**21.96**	**10.54**

It is observed that of the total incidence of 10.54 per cent of consumption expenditure for all households, the share of consumption goods is 5.34 percentage points, amounting to about 51 per cent of total incidence. 4.53 percentage points are accounted for by intermediate goods. Only the remaining 0.63 percentage point is contributed by capital goods, partly capital goods (including capital goods which are also used as household durables) and parts thereof. (This amounts to about 6 per cent of total incidence.) More or less the same proportions are observed in both the rural and urban sectors, even though the level of the incidence on urban households is nearly double that on rural households. In both the sectors, consumption goods account for around 50 per cent of the total incidence and the share of capital goods, partly capital goods and parts thereof amounts to about 6 to 7 per cent of the incidence. The remaining portion of incidence is attributable to intermediate goods. One point that deserves to be noted is that in the rural sector, the incidence of taxes on intermediate goods is higher than that of taxes on consumption goods for the lowest two per capita expenditure groups. For all the groups above them, the incidence of taxes on consumption goods is higher; whereas in the urban sector the incidence of taxes on intermediate goods is slightly lower for the same two lowest per capita expenditure groups.

When we look at the figures of incidence of Cenntral excise duties and import duties according to types of goods as given in the two tables below, we find a somewhat different story. In respect of excise as well as import duties, intermediate goods claim the largest share of the incidence both in the rural and the urban sectors.

TABLE III.4

Burden of Central Excises as Per Cent of Consumer Expenditure According to Type of Goods

(In rupees)

	Monthly per capita expenditure groups							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All households
1	2	3	4	5	6	7	8	9
Rural								
1. Consumption goods	0.39	0.39	0.61	1.16	1.21	2.11	3.64	1.57
2. Intermediate goods	1.03	1.10	1.39	1.74	2.04	2.70	4.13	2.24
3. Capital goods, partly capital goods and parts thereof	—	0.01	0.01	0.02	0.02	0.04	0.10	0.04
4. Total central excise	**1.42**	**1.50**	**2.01**	**2.92**	**3.27**	**4.85**	**7.87**	**3.85**
Urban								
1. Consumption goods	0.61	1.13	1.51	2.25	3.03	3.91	7.00	4.28
2. Intermediate goods	1.81	1.96	2.22	2.67	3.19	3.76	8.70	5.04
3. Capital goods, partly capital goods and parts thereof	—	0.02	0.02	0.02	0.03	0.10	1.08	0.41
4. Total central excise	**2.42**	**3.11**	**3.75**	**4.94**	**6.25**	**7.77**	**16.78**	**9.73**
Rural and urban combined								
1. Consumption goods	0.41	0.46	0.74	1.37	1.63	2.62	5.03	2.25
2. Intermediate goods	1.06	1.19	1.52	1.92	2.31	3.01	6.01	2.95
3. Capital goods, partly capital goods and parts thereof	—	0.01	0.01	0.02	0.03	0.06	0.51	0.14
4. Total central excise	**1.47**	**1.66**	**2.27**	**3.31**	**3.97**	**5.69**	**11.55**	**5.34**

— indicates negligible.

TABLE III.5

Burden of Import Duties as Per Cent of Consumer Expenditure According to Type of Goods

(In Rupees)

	Monthly per capita expenditure groups							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All households
1	2	3	4	5	6	7	8	9
Rural								
1. Consumption goods	0.02	0.04	0.11	0.16	0.24	0.34	0.56	0.25
2. Intermediate goods	0.23	0.30	0.42	0.52	0.67	1.01	1.65	0.79
3. Capital goods, partly capital goods and parts thereof	0.01	0.03	0.05	0.08	0.08	0.13	0.22	0.10
4. Total import duties	**0.26**	**0.37**	**0.58**	**0.76**	**0.99**	**1.48**	**2.43**	**1.14**
Urban								
1. Consumption goods	—	0.09	0.15	0.20	0.28	0.34	1.37	0.65
2. Intermediate goods	—	0.48	0.60	0.76	0.97	1.15	2.54	1.48
3. Capital goods, partly capital goods and parts thereof	—	0.06	0.06	0.07	0.11	0.14	0.30	0.17
4. Total import duties	—	**0.63**	**0.81**	**1.03**	**1.36**	**1.63**	**4.21**	**2.30**
Rural and urban combined								
1. Consumption goods	0.02	0.04	0.12	0.17	0.25	0.34	0.90	0.35
2. Intermediate goods	0.21	0.32	0.44	0.56	0.73	1.05	2.02	0.96
3. Capital goods, partly capital goods and parts thereof	0.01	0.03	0.05	0.08	0.09	0.13	0.25	0.12
4. Total import duties	**0.24**	**0.39**	**0.61**	**0.81**	**1.07**	**1.52**	**3.17**	**1.43**

— indicates negligible.

If we take Central excises, we find that the incidence of taxes on intermediate goods account for 2.95 percentage points, out of the total 5.34 per cent of consumption expenditure attributable to excises in respect of all households. In the case of import duties, the share of intermediate goods is 0.92 percentage points, out of 1.43 per cet of consump-

tion expenditure attributable to total import duties. In other words, 55 per cent of the incidence of Central excise duties and 67 per cent of the incidence of import duties are due to taxes on intermediate products. It is also noteworthy that in respect of both taxes, the relative contribution of intermediate goods to incidence was higher for the rural sector than for the urban sector. Taking into account this and the earlier conclusion regarding the burden of taxes on intermediates falling on the lowest expenditure groups, we can say that more reliance is placed on the taxation of intermediate goods for reaching the poorer sections and the rural sector.

In the case of State taxes, however, consumption goods account for a very high share of incidence as compared to the other two groups of commodities, for both the rural and urban sectors. As seen in the following table, of the aggregate incidence of 3.77 per cent of consumption expenditure attributable to State taxes, consumption goods contribute 2.74 percentage points.

TABLE III.6

Burden of State Taxes as Per Cent of Consumer Expenditure According to Type of Goods

(In rupees)

	Monthly per capita expenditure groups							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All households
1	2	3	4	5	6	7	8	9
Rural								
1. Consumption goods	0.87	1.08	1.36	1.88	1.71	2.73	4.33	2.23
2. Intermediate goods	0.21	0.22	0.29	0.37	0.46	0.61	1.00	0.50
3. Capital goods, partly capital goods and parts thereof	0.15	0.17	0.21	0.25	0.29	0.36	0.54	0.31
4. Total State taxes	**1.23**	**1.47**	**1.86**	**2.50**	**2.46**	**3.70**	**5.87**	**3.04**
Urban								
1. Consumption goods	1.21	1.84	1.96	2.71	3.05	4.13	6.41	4.24
2. Intermediate goods	—	0.46	0.56	0.67	0.84	0·89	1.33	0.96
3. Capital goods, partly capital goods and parts thereof	—	0.27	0.28	0.31	0.36	0.38	1.46	0.73
4. Total State taxes	**121**	**2.57**	**2.80**	**3.69**	**4.25**	**5.40**	**9.20**	**5.93**

(Continued)

TABLE III-6 (*Contd*)

1	2	3	4	5	6	7	8	9
Rural and urban combined								
1. Consumption goods	0.89	1.16	1.45	2.04	2.03	3.14	5.18	2.74
2. Intermediate goods	0.20	0.24	0.34	0.43	0.55	0.69	1.14	0.62
3. Capital goods, partly capital goods and parts thereof	0.15	0.18	0.22	0.26	0.30	0.36	0.92	0.41
4. Total State taxes	1.24	1.58	201	2.73	2.88	4.19	7.24	3.77

— indicates negligible.

4. Burden of Taxes on Specific Commodities

The following table gives a broad picture of the distribution of the burden of taxes on selected consumer goods and intermediates among *urban households* in different expenditure groups:

TABLE III.7

Distribution of the Burden of Indirect Taxes as Per Cent of Total Consumption Expenditure (1973-74)

(In rupees)

Commodity	Monthly per capita expenditure groups							
	0-15	15-28	28-43	43-55	55-75	75-100	100 and above	All urban households
1	2	3	4	5	6	7	8	9
1. Foodgrains and *atta**	0.30	0.37	0.36	0.33	0.28	0.24	0.18	0.26
2. Sugar	0.61	0.46	0.60	0.55	0.54	0.51	0.38	0.47
3. Tea & coffee	—	0.05	0.14	0.15	0.22	0.33	0.28	0.23
4. Vegetable products, oil and fats	—	0.33	0.46	0.52	0.50	0.50	0.40	0.47
5. Kerosene oil	—	0.48	0.51	0.54	0.51	0.50	0.45	0.50
6. Drugs and medicines	—	0.09	0.17	0.23	0.28	0.36	0.52	0.36
7. Tobacco products	—	0.34	0.57	1.03	1.16	1.55	3.12	1.80
8. Liquor**	—	0.13	0.02	0.20	0.16	0.74	2.46	1.03
9. Cotton fabrics	—	0.12	0.01	0.18	0.51	0.59	1.68	0.81

(*continued*)

TABLE III.7 (*Contd*)

1	2	3	4	5	6	7	8	9
10. Art and rayon silk	—	—	—	0.02	0.15	0.25	1.31	0.52
11. Matches	—	0.05	0.07	0.10	0.09	0.06	0.05	0.07
12. Soap and detergents	—	0.08	0.11	0.11	0.12	0.12	0.11	0.11
13. Paper and paper products	—	0.03	0.03	0.09	0.21	0.20	0.31	0.22
14. Motor spirit	—	0.18	0.21	0.26	0.28	0·29	4.45	1.66
15. Refined diesel oil	—	0.33	0.35	0.52	0.73	0.79	1.36	0.88
16. Tyres & tubes	0.61	0.10	0.10	0.13	0.16	0.17	0.39	0.23
17. Iron & steel	—	0.48	0.54	0.68	0.76	0.80	1.30	0.91
Total for 17 items	1.52	3.62	4.25	5.64	6.66	8.00	18.75	10.53
Total incidence for all indirect taxes	3.63	6.31	7.36	9.66	11.86	14.80	30.19	17.96

— indicates negligible.

*taxes on these commodities are levied only by the States.

**tax on this commodity is levied by the States.

From this one can see at what level of expenditure taxes on important consumer goods become significant and also whether the incidence of taxes on particular goods is regressive or progressive. Among the food products, the taxes on sugar and foodgrains and *atta* affect all expenditure groups. Even the lowest expenditure group pays nearly one per cent of its total expenditure of less than Rs. 15 per capita per month, as taxes on these products. As might be expected, taxes on these products are regressive even with respect to total expenditure. However, in the case of sugar it cannot be assumed with certainty that the entire quantity of levy sugar purchased by the lower expenditure groups is consumed by them. To the extent that such sugar gets diverted for other uses, the regressiveness may be overstated. On the other hand, the incidence in regard to cotton fabrics may be understated as the general tendency is to purchase them during certain seasons and the study may not have fully reflected such contingencies. The taxes on kerosene become significant at the level of the second lowest expenditure group (Rs. 15—Rs. 28 per capita per month), and its incidence tends to be proportional with respect to expenditure. This is also broadly true of the excise on matches, although the percentage burden is so low as to be of no great consequence. Taxes on drugs and medicines also affect the poorer classes, although in their cases the incidence is clearly progressive. A broad conclusion that emerges from this analysis is that

a reduction in the weightage of taxes on mass consumption goods such as foodgrains, sugar and kerosene that tend to be regressive or proportional, would serve to increase the degree of progression of the indirect tax system as a whole. As regards drugs and medicines, the same purpose could be served by reducing the weight of tax on the more widely used varieties of drugs.

Another important fact brought out by the above table is that the taxation of certain intermediate products such as iron and steel, diesel oil and tyres and tubes, has a pervasive effect. Thus, as pointed out earlier, the tax on tyres and tubes is one of the important elements in the tax burden on the lowest expenditure group; the tax on iron and steel and refined diesel oil reaches all but the lowest expenditure groups. However, the incidence of these taxes turns out to be progressive. But when we look at the problem from the standpoint of equity and social justice, the mere fact of progression is not enough and our aim must be to have lower rates of taxation on what we regard as basic necessities and articles whose consumption we want to promote rather than discourage. From this angle, it would have to be examined whether the level of the levies on certain product groups such as drugs and medicines or those which impinge on transport costs, would need some reconsideration.

5. Share in Consumption and Indirect Taxes of Different Expenditure Groups

The shares of the different expenditure groups in total consumption expenditure and their respective shares of indirect taxes have also been worked out. The information presented in Table III. 8 also gives the percentage of the population in different expenditure groups.

It is seen that the highest expenditure group, forming about 8 per cent of the population, accounts for 22 per cent of consumption expenditure inclusive of taxes and contributes about 45 per cent to indirect taxes. These taxes have the effect of reducing the share of this group in consumption expenditure from 22 per cent to about 19 per cent (See column 4). At the other end of the scale, the lowest two expenditure groups, forming about 12 per cent of the population, account for only 4.7 per cent of expenditure and contribute 1.6 per cent of indirect taxes.

As might be expected, there is quite an unequal distribution of consumption expenditure with the share in population of the lowest three expenditure groups (41.6 per cent) being higher than their share in con-

TABLE III.8

Share in Consumption and Indirect Taxes of Different Expenditures Groups (1973-74)

(Percentage of total)

Per capita consumption expenditure (in rupees/ per month)	Share of			
	Population of households	Consumption expenditure of households	Consumption expenditure of households less indirect taxes	Indirect taxes
(1)	(2)	(3)	(4)	(5)
Upto 15	0.64	0.14	0.15	0.04
15-28	11.19	4.58	4.93	1.58
28-43	29.80	18.75	19.93	8.70
43-55	20.31	17.42	18.14	11.33
55-75	19.63	22.08	22.73	16.58
75-100	10.16	15.35	15.20	16.61
Above 100	8.27	21.68	18.92	45.16
Total	100.00	100.00	100.00	100.00

sumption expenditure (23.5 per cent). At the upper end of the scale the two highest expenditure groups account for 37 per cent of expenditure while their share in population is only around 18 per cent. But the most important conclusion from this analysis is that households having per capita monthly expenditure not exceeding Rs. 100 pay 55 per cent of all indirect taxes allocable to households.

6. Comparison with Estimates of Incidence of Earlier Studies

As already indicated, at the all India level, there have been 3 earlier studies of incidence of indirect taxes: one by the Taxation Enquiry Commission (for 1953-54) and the other two by the Ministry of Finance, Government of India (for 1958-59 and 1963-64). The results of the earlier studies, however, are not strictly comparable with those of the present study. There are three main reasons for this. First, all the earlier studies used NSS data on consumption expenditure according to household monthly expenditure groups. The expenditure groups considered in the first two studies were: Rs. 1-15, Rs. 51-100, Rs. 101-150, Rs. 151-300

and above Rs. 300; in the study of 1963-64, the household expenditure groups considered were: Rs. 0-50, Rs. 51-100, Rs. 101-150, Rs. 151-300 Rs. 301-500 and Rs. 501 and above. In the present study, households have been divided into monthly *per capita* expenditure groups because the relative economic positions of different households are more accurately reflected by per capita expenditure levels. This difference in the classification of households between the present study and the earlier studies makes the results strictly not comparable. Second, as we have already indicated, indirect taxes estimated to have been collected on the purchases of goods by government administrative departments have been excluded from the total taxes allocable to households, whereas no such adjustment was carried out in the earlier studies. Again in the present study only 1/10th of the taxes on capital goods has been assumed to be shifted to consumers in the year of levy whereas the total tax collections from capital goods were allocated to different consumer groups in the earlier studies. Third, owing to the availability of more disaggregated data, it has been possible to apportion tax burdens more accurately. In this connection, special mention may be made of the fact that we were able to obtain data on commodity-wise sales tax collections from 13 major States, which have been used in the allocation of sales taxes. Moreover, we have also been able to use information obtained from the material balances given in *A Technical Note on the Approaches to the Fifth Plan of India* 1974-79 for purposes of allocating the taxes on inputs.

Subject to these qualifications, we might make a rough comparison between the results of the present study with those of the Ministry of Finance for the year 1963-64 in respect of only two expenditure groups. On the assumption that an average family consists of five persons, the per capita expenditure group of Rs. 100 and above in the present study can be converted into the household expenditure group with an expenditure of Rs. 500 and above. The incidence of taxes on this group and on all households can then be compared as between the two studies.

TABLE III.9

A Comparative Statement of Incidence of Indirect Taxes in 1963-64 and 1973-74

Indirect taxes	Rural		Urban		All India	
	Rs. 500 and above	All house-holds	Rs. 500 and above	All house-holds	Rs. 500 and above	All house-holds
1	2	3	4	5	6	7
1963-64						
1. Central taxes	**10.47**	**5.76**	**23.16**	**11.07**	**15.65**	**7.08**
(a) Central excise	7.47	3.95	16.10	7.70	10.99	4.89
(b) Import duty	3.01	1.81	7.06	3.37	4.66	2.19
2. State taxes	**4.22**	**2.26**	**10.12**	**5.53**	**6.62**	**3·07**
(a) State excise	0.67	0.52	0.94	0.48	0.78	0.49
(b) Sales tax*	2.59	1.24	7.02	3.67	4.39	1.88
(c) Others	1.41	0.82	2.16	1.38	1.45	0.70
3. All indirect taxes	**14.69**	**8.02**	**33.28**	**16.60**	**22.27**	**10.15**
1973-74						
1. Central taxes	**10.30**	**4.99**	**20.99**	**12.03**	**14.71**	**6.77**
(a) Central excise	7.87	3.85	16.78	9.73	11.55	5.34
(b) Import duty	2.43	1.14	4.21	2.30	3.16	1.43
2. State taxes	**5.87**	**3.04**	**9.20**	**5.93**	**7.24**	**3.77**
(a) State excise	1.82	0.73	2.27	1.01	2.01	0.80
(b) Sales tax*	2.60	1.49	4.51	3.23	3.39	1.93
(c) Others	1.45	0.82	2.41	1.69	1.84	1.04
3. All indirect taxes	**16.17**	**8.03**	**30.19**	**17.96**	**21.95**	**10.54**

Source: *Incidence of Indirect Taxation*, 1963-64 (MF) for 1963-64 figures.
*Includes Central sales tax and sales tax on motor spirit.

It is seen that there are only marginal differences in the level of burden of total indirect taxes as between the two studies. The similarity particularly is noticeable in respect of all households. One of the reasons why the level of burden is not shown to have risen since 1963-64 is the fact that in the present study we have excluded as much as 15 per cent of total indirect tax revenue from the allocable pool. Therefore, the si-

milarity in the levels of incidence between the two studies should not be taken at face value.

All the three earlier studies had also revealed a progressive distribution of indirect taxes with reference to consumer expenditure. The present study indicates a much more progressive pattern of indirect taxation than the earlier studies. In the Ministry of Finance study for 1963-64, the incidence for the rural sector varied from 5.77 per cent for the lowest expenditure group to 14.69 per cent for the highest expenditure group; and for the urban sector the range was from 11.3 per cent to 13.28 per cent. In the present study for the rural sector the incidence varies from 2.91 per cent to 16.17 per cent and for the urban sector from 3.63 per cent to 30.19 per cent. The more progressive distribution shown in the study for 1973-74 may be partly attributed to changes in the pattern of taxation. However, the difference in methodology would also have contributed partly to the difference in results.

Appendix I

METHODOLOGY OF ESTIMATION OF INCIDENCE OF INDIRECT TAXES IN INDIA 1973-74

As already explained, the study is confined to measuring the money burden of indirect taxes in India on different expenditure classes in the rural and urban sectors of the economy as a percentage of the aggregate expenditure of each class. The entire amount of indirect taxes collected has not been allocated to the households. The tax revenue attributable to purchases made by government administrative departments has been excluded from the total allocable yield from indirect taxes because it has been considered that the taxes collected on the purchase of goods by the Government represent only an accounting transfer within the government sector and not a transfer to the government sector from the private sector. Purchases made by government departemental and non-departmental enterprises are, however, treated analogous to private sector purchases. A brief note on the method of arriving at the share of tax yield from government purchases is given in Appendix II.

For working out the incidence, two types of information are necessary: (i) data on total expenditure as well as expenditure on different consumption goods by different expenditure groups; and (ii) commodity-wise tax yield (exclusive of the share attributable to government purchases). We have already indicated in Section II the nature and sources of information on taxes and expenditure.

National Sample Survey (NSS) data on consumption expenditure are available in terms of quantity as well as value. Quantity data have not been generally used for working out the incidence due to the fact that in most cases while money expenditure data are given, quantity data are not given in the NSS report probably because sample households could not give dependable information on the quantity of consumption.

Taxes are levied not only on consumer goods but also on intermediate and capital goods. One of the major problems in the study of the incidence of indirect taxes is to trace the burden of taxes on these non-consumption goods. If we had a detailed input-output table for the eco-

nomy we could have determined how different inputs are allocated for use in the manufacture of various kinds of final goods. Unfortunately, we could not get a detailed table and so we had to make use of the information obtained otherwise.

I CENTRAL EXCISES

For measuring the incidence of excise as well as import duties, we have classified commodities into (A) mostly in the nature of consumption goods; (B) mostly in the nature of intermediate goods; (C) capital and partly capital goods and (D) components of capital and partly capital goods. We shall now proceed to indicate the methodology adopted in the case of these four groups of commodities.

A. Commodities Mostly in the Nature of Consumption Goods

There are a number of commodities which are mostly in the nature of consumption goods which bear Central excise duties and also appear with more or less the same description as NSS items of consumer expenditure. In such cases, the methodology of estimation of incidence is very simple. Tax yield (after allowing for government contribution) has been allocated to different expenditure groups in rural and urban sectors in proportion to their expenditure on such commodities. Difficulties arise, however, in cases where the commodities can be classified into grades or types and are subject to different tax rates in view of differences in quality, because tax categories often do not correspond to NSS categories. These cases are taken up after dealing with the simpler cases. The items for which the incidence can be worked out readily on the basis of consumer expenditures as made available in the NSS report are given below along with the NSS matching items :

Items bearing taxes	*NSS items of consumption*
1. Khandsari (sugar)	1. Khandsari (sugar)
2. Sugar	2. Sugar, Sugar candy, Sugar (other)
3. Confectioneries and chocolate	3. Biscuit, confectioneries
4. Aerated water	4. Drinking beverages other than tea and coffee
5. Glucose dextrose and preparations thereof	5. Baby food

6. Vegetable oils and fats	6. Vanaspati, groundnut oil, etc.
7. Patent and proprietary medicines	7. Allopathic medicine, Homeopathic medicine, Ayurvedic medicine, Unani medicine, other medicines
8. Soap	8. Toilet soap, washing soap
9. Cosmetic and toilet preparations	9. Powder, snow cream, hair oil, hair cream, hair lotion and other toilet requisites
10. Tooth paste	10. Tooth paste
11. Safety razor, blades stainless steel	11. Shaving blades, other shaving requisites
12. Matches	12. Matches (sticks)
13. Gramophone and parts	13. Other musical instruments (other than harmonium, radio and tape recorders)
14. Pressure cookers	14. Pressure cookers
15. Playing cards	15. Amusement (other than cinema, theatre, mela, fair, sports goods, toys, etc.)
16. Domestic electrical appliances	16. Electric fan, iron, electric heater, etc.
17. Rayon and art silk fabrics including synthetic fibres, nylon yarn and clothes	17. Rayon and art silk fabrics
18. Prepared or preserved food	18. Bread
19. Food products	19. Salted refreshments, prepared sweets, jam and jellies, processed food and others
20. Paper	20. Newspapers, journals, magazines, books, etc., taken together

For each of the remaining consumer goods subjected to excise taxes we have evolved a separate methodology for working out the incidence.

1. Coffee

Production, clearance and tax yield data are available from the *Statistical Year Book-Central Excise* (1973-74), Vol. I (henceforth termed

'*Central Excise Year Book*'). NSS data on consumption of coffee in quantity are available both in terms of number of cups consumed by the households and the quantity purchased in kilograms. Estimates of coffee powder purchased are given in terms of kilograms. From the publication, *Indian Customs and Central Excise Tariff* (hereafter termed '*Excise Tariff Book*'), we have the information on rates of duty in respect of different grades of coffee other than instant coffee.

Because of the difference in the price of coffee between the rural and urban sectors and also between different parts of the urban and rural sectors it has been considered desirable not to allocate the duty on this item on the basis of total expenditure on coffee by the different expenditure groups. Instead an attempt has been made in this case to allocate the tax yield on the basis of quantity consumed. As data on quantity are available in terms of both number of cups and kilograms, it is necessary to convert them into one standard unit. For this purpose, the quantity of powder purchased in kilograms was converted into quantity consumed in cups. On the basis of information available directly from the Coffee Board, it was assumed that 100 cups of coffee could be prepared from one kilogram of coffee powder. The tax yield on coffee, other than instant coffee, has been allocated to different expenditure groups in rural and urban areas on the basis of the total number of cups consumed. The yield from instant coffee has been allocated on the assumption that it is consumed exclusively by the groups with per capita expenditure of Rs. 100 and above in the urban sector.

2. Tea

Information on production, clearance and tax yield is available from *Central Excise Year Book*; rates of duty from *Excise Tariff Book* and consumption data from the NSS. Production, clearance and tax yield data are available separately for loose leaf tea and package tea. Consumption data are available in terms of number of cups for tea and in terms of kilograms for loose leaf tea. Tax rates are available separately for loose leaf tea, package tea and instant tea. Duty on package tea is higher than on loose leaf tea. The rate of duty on instant tea is still higher.

As in the case of coffee, we have first tried to work out consumption in terms of cups of tea. For this purpose, the quantity of tea leaves has been converted into tea cups on the assumption that from one kilogram of tea 600 cups of tea could be prepared. This assumption is

based on the estimates supplied by the Tea Board. In the case of loose leaf tea, we have assumed that the consumption proportions (tea cups) found for urban and rural sectors and for different expenditure groups will hold good for the allocation of tax yield also. A difficulty is faced, however, in the allocation of yield from package tea. It is tea of a superior quality. In a similar exercise done by the Ministry of Finance (*Incidence of Indirect Taxation*, 1963-64, published in 1969), it was assumed that 57.2 per cent of the package tea was consumed in the rural sector and 42.8 per cent in the urban sector. In the absence of any statistical evidence it has been considered simpler to assume that the rural and urban sectors consume 50 per cent each. The difficulty arises in determining the proportions of package tea consumed by different expenditure groups in the two sectors. We have made an assumption here that the bottom four expenditure groups do not consume package tea and the next three expenditure groups consume 20 per cent, 30 per cent and 50 per cent, respectively, of total package tea. After this, the incidence of the tax on tea was worked out as follows.

First, the estimates of consumption of package tea (in cups) for different expenditure groups in the rural and urban sectors were worked out and, accordingly, the incidence of tax yield attributable to package tea was estimated. Then, from the total number of cups of tea consumed by different expenditure groups in the rural and urban sectors, the number of cups of tea prepared from package tea was deducted. The remaining number of cups has been taken as tea prepared out of loose leaf tea and, accordingly, the tax yield from it was distributed.

The tax yield from instant tea has been wholly allocated to groups with per capita expenditure exceeding Rs. 100 per month in the urban sector.

3. Art silk, rayon and synthetic textiles

The data on consumption under this head relate to various items like dhoti, saree, cloth for shirt, pyjama, salvar, coat, suit, trousers, chaddar, headwear, lungi, bedsheet and knitted garments. There are marginal differences in the rates of duty on these items and the tax yield data are not available separately. The total tax yield therefore has been allocated to different expenditure groups in the urban and rural sectors on the basis of total expenditure on all these items taken together for each category.

4. Tobacco (unmanufactured and manufactured)

Data on tax yields and the rates of duty on different kinds of manufactured tobacco are available from *Central Excise Year Book* and *Excise Tariff Book*, respectively. Similarly, data on consumption of different kinds of tobacco could be obtained from the NSS. Estimates of tax yields by kind of tobacco are as follows :

			1973-74 (*Rs. lakh*)
1.	Cigarettes		23,826.0
2.	Smoking mixtures		84.0
3.	Unmanufactured tobacco		9,548.8
	of which		
	(a) flue cured and used in the manufacture of smoking mixtures for pipes and cigarettes	7.7	
	(b) flue cured and used in the manufacture of cigarettes	1,878.5	
	(c) flue cured and not otherwise specified	201.9	
	(d) other than flue cured used for the manufacture of cigarettes	867.0	
	(e) other than flue cured and not used for the manufacture of cigarettes	6,593.7	
	of which		
	(i) Snuffs	93.2	
	(ii) *Hukkahs*	499.8	
	(iii) Chewing	1,129.9	
	(iv) Cigars and cheroots	299.6	
	(v) *Biris*	2,647.5	
	(vi) Goods of special importance	1,499.8	
	(vii) Others	423.9	
	TOTAL		33,458.8

Sources : (i) *Statistical Year Book-Central Excise* 1973-74.
(ii) *Indian Customs and Central Excise Tariff*

1. Cigarettes—In 1973-74, there was a uniform duty for all types of cigarettes (200 per cent *ad valorem* plus an additional duty of 100 per cent *ad valorem*). Hence, the tax yield has been allocated to the various expenditure groups in the rural and urban sectors on the basis of their expenditure on cigarettes.

2. Smoking mixtures—Smoking mixtures are used by the urban people and there is little use of them in the rural sector. The tax yield from this item is therefore attributed to the group with per capita expenditure of Rs. 100 and above in the urban sector only.

3. Unmanufactured tobacco—In the case of item 3(a), for the same reason as given above in (2) the entire revenue has been attributed to the group with per capita expenditure of Rs. 100 and above in the urban sector. This is one of the costlier products which is taken to be beyond the pockets of people belonging to groups with per capita expenditure of less than Rs. 100 in the urban sector. The rate of duty is as high as Rs. 40 plus an additional duty of Rs. 5.50 per kilogram.

Tax yields from items 3(b), 3(c) and 3(d) are attributed to different expenditure groups in the rural and urban sectors on the basis of their expenditure on cigarettes. The rates of duty in these three cases do not vary much.

In the case of yields from items 3(e)(i)snuffs and 3 (e)(ii) *hukkah*, the allocation has been done on the basis of NSS estimates of consumption of snuffs and *hukkah* tobacco, respectively; yields from chewing tobacco on the basis of expenditure on *zarda*, *kamam* and *surti*. The yield from tobacco used for cigars and cheroots of special importance has been allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector. The yield from *biris* has been allocated to different expenditure groups on the basis of proportions of expenditure on *biris*. The yields from others have been allocated on the basis of household expenditure on other tobacco products.

5. *Cotton fabrics*

There may be two methods of estimation :

1. We may work out the quantity of clearance of cloth and tax yield according to fineness of cloth (superfine, fine, medium and coarse); make certain assumptions about the proportions in which different grades of cloth have been consumed (in quantity) by each expenditure group in the urban and rural sectors; and accordingly, allocate tax yield to different expenditure groups.

2. We may proceed from the expenditure side and work out the aggregate amount of expenditure on cotton cloth for the rural as well as urban sectors on the basis of NSS data; adjust the urban expenditures for price differential in the two sectors; make assumption about the proportions of expenditure on different grades of cloth by different expenditure groups in the rural and urban sectors; work out for each sector the total expenditure on cloth of each quality; and accordingly allocate the tax yield estimated to be derived from each type of cloth.

The second method has been adopted for mainly four reasons: (a) Data on the quantity of cloth cleared by types of cloth (according to fineness) are available for composite mill products but not for powerloom products. All units which have less than 49 looms installed paid a compounded levy based on the number of looms only and not on the quantity and grades of cloth produced. (b) *Indian Textile Bulletins* give data on the production of powerlooms and handlooms together. But separate data on the production flowing from powerlooms according to the quality of cloth are not available. Very crude etimates of cloth produced by powerlooms according to fineness can be worked out on the basis of yarn data but the conversion ratios of yarn into cloth may not be dependable. (c) The total quantity of cloth consumed as worked out on the basis of NSS data far exceeds the data on the total quantity produced and released. It may be pointed out that for 1973-74, NSS gives an estimate of 11410 million metres (exclusive of ready made cloth) while *Central Excise Year Book* and *Indian Textile Bulletins* give an estimate of 7770 million metres only. (d) In many cases quantity data on consumption are not given in NSS tables while for the corresponding expenditure groups value data are available. Basic assumptions that have been made can be explained as follows.

1. $C = C^R + C^U$

   where C = total consumption expenditure on cloth
   C^R = total expenditure for the rural sector on cloth
   C^U = total expenditure for the urban sector on cloth

2. $C = C_1^R + C_2^R + C_3^R + C_4^R$

   where C_1 = consumption expenditure for the group with per capita expenditure of Rs. 0-28,
   C_2 = consumption expenditure for the group with per capita expenditure of Rs. 28-55,
   C_3 = consumption expenditure for the group with per capita expenditure of Rs. 55-100,

C_4 = consumption expenditure for the group with per capita expenditure of Rs. 100 and above.

3. $C_1^R = C_{1c}^R + C_{1m}^R$

where C_{1c}^R = consumption of coarse cloth in rural areas by the group with per capita expenditure of Rs. 0-28,

C_{1m}^R = consumption of medium cloth in rural areas by the group with per capita expenditure of Rs. 0-28.

C_{1c}^R is assumed to be equal to 0.5 C_1^R

and C_{1m}^R is assumed to be equal to 0.5 C_1^R

4. $C_2^R = C_{2c}^R + C_{2m}^R$

where C_{2c}^R is assumed to be equal to 0.4 C_2^R

and C_{2m}^R is assumed to be equal to 0.6 C_2^R

5. $C_3^R = C_{3m}^R + C_{3f}^R$, subscript ^{f} representing fine cloth

where C_{3m}^R is assumed to be equal to 0.6 C_3^R

and C_{3f}^R is assumed to be equal to 0.4 C_3^R

6. $C_4^R = C_{4m}^R + C_{4f}^R + C_{4sf}^R$, subscript ^{sf} representing superfine cloth

where C_{4m}^R is assumed to be equal to 0.2 C_4^R

C_{4f}^R is assumed to be equal to 0.2 C_4^R

C_{4sf}^R is assumed to be equal to 0.6 C_4^R

Similarly,

7. $C^U = C_1^U + C_2^U + C_3^U + C_4^U$

8. $C_1^U = C_{1c}^U + C_{1m}^U$

where C_{1c}^U is assumed to be equal to 0.5 C_1^U

and C_{1m}^U is assumed to be equal to 0.5 C_2^U

9. $C_2^U = C_{2c}^U + C_{2m}^U$

where C_{2c}^U is assumed to be equal to 0.3 C_2^U

and C_{2m}^U is assumed to be equal to 0.7 C_2^U

10. $C_3^U = C_{3m}^U + C_{3f}^U$

where C_{3m}^U is assumed to be equal to 0.5 C_3^U

and C_{3f}^U is assumed to be equal to 0.5 C_3^U

11. $C_4^U = C_{4m}^U + C_{4f}^U + C_{4sf}^U$

where C_{4m}^U is assumed to be equal to 0.4 C_4^U

C_{4f}^U is assumed to be equal to 0.3 C_4^U

C_{4sf}^U is assumed to be equal to 0.3 C_4^U

It may be noted that a separate treatment of cotton yarn is not necessary. Collection of duty for cotton yarn is done along with the cloth itself (according to fineness). Thus, the yield from yarn may be added to the yield from cloth to work out the incidence. The methodology adopted here (expenditure approach rather than quantity approach) takes care of ready-made cotton garments also.

Data on cotton yarn and cotton fabrics are available from the following sources: (1) Production and clearance data (in metres and square metres) are available for composite mills according to fineness of cloth (superfine, fine, medium and coarse) in *Central Excise Year Book*, 1973-74. (2) Yield from basic duty according to fineness of cloth is also available from the same source. (3) Yield from additional duty and handloom cess according to grades of cloth could be obtained from the Directorate of Statistics and Intelligence (DSI).

In the following cases, information is not available in the needed detail. (1) Information on the yields from differential duty, according to fineness of cloth is not available but it was suggested by DSI that they could be allocated to different grades of cloth in proportion to the yields from the basic duty. (2) The breakdown of yield from miscellaneous duties, according to fineness of cloth, is also not available; hence their yield has been allocated in proportion to the yield from the basic duty. (3) Non-availability of similar breakdown in respect of tax yield from embroidery in strips and motifs and embroidery impregnated with cellulose has necessitated its allocation also in the same manner.

6. *Footwear*

Footwear was exempted from duty in the following cases : (1) the entire output of those factories (precincts) which employ less than 49 workers; (2) the output of those establishments in which the total of power used in the process of manufacturing footwear does not exceed the equivalent of two horse power; (3) footwear if made out of artificial or synthetic resins or plastic materials or both; (4) footwear made in Government Harness Factory and Saddlary Factory, Kanpur for consumption by the members of the armed forces, and (5) all samples (not exceeding 3 pairs of each variety) for exports. Because of these exemptions, we have been forced to make certain assumptions on the basis of subjective judgement. We have assumed that (a) in the rural areas all the expenditure on footwear by groups with per capita expenditure not exceeding Rs. 75 per month is incurred on the purchase of footwear

which is free of duty; (b) in the case of groups in the rural sector with per capita expenditure of Rs. 75 and above per month, only 25 per cent of the expenditure on footwear is on the kind which is free of duty; (c) for the urban sector in the case of groups with per capita expenditure not exceeding Rs. 75 per month, 50 per cent of the expenditure on footwear is on such footwear as is free from duty and (d) in the urban sector in the case of groups with per capita expenditure exceeding Rs. 75 per month, 75 per cent of the expenditure on footwear is on the kind which is subject to duty. On the basis of the above assumptions, we have worked out the expenditure on footwear by each expenditure group in the rural and urban sectors which can be said to contain tax elements. These figures form the basis of allocating the tax burden on footwear.

7. Woollen fabrics and knitting wool

The incidence in this case has been worked out on the basis of separate estimates of expenditure on woollen fabrics and knitting wools. It might be indicated that the NSS records no expenditure on wool by groups with per capita expenditure not exceeding Rs. 43 in the rural sector as well as by groups with per capita expenditure not exceeding Rs. 55 in the urban sector.

It has been assumed that even rural folk make most of their purchases of woollen fabric and knitting wool from urban shops and hence the problem of price differential does not arise.

8. Mechanical lighters and vacuum flasks

The tax yield from vacuum flasks and mechanical lighters was Rs. 49 lakh and Rs. 1 lakh, respectively. In both cases it has been decided to allocate the yield entirely to the group with per capita expenditure of Rs. 100 and above in the urban sector only. The tax on vacuum flasks is distributed in proportion to the expenditure on manufactured goods and that on mechanical lighters in proportion to the expenditure on cigarettes.

B. Commodities Mostly in the Nature of Intermediate Goods

As indicated earlier, more serious problems arise in estimating the incidence of taxes on intermediate goods because these goods are not directly used by consumers. One has therefore to find out into what

final goods and in what proportions each of the taxed intermediate products gets embodied.

1. Jute manufactures and yarn

Data on production, clearance and tax yield are available from *Central Excise Year Book*, Vol. I, 1973-74. The necessary breakdown of yield, according to different jute manufactures and yarn, is available only in respect of the basic duty. Hence the tax yield from auxiliary and miscellaneous duties has been allocated to hessian and others in the same proportions as the basic duty.

For working out the incidence we have made the following assumptions: (i) hessian is used for packing, etc., of manufactured goods and hence the tax yield from this item may be allocated to different expenditure groups on the basis of their expenditure on manufactured goods; (ii) sacking is used for transporting foodgrains, etc., and can therefore be allocated on the basis of expenditure on foodgrains by different expenditure groups in the urban sector; and (iii) tax yield from others may be allocated to different expenditure groups on the basis of their expenditure on manufactured goods.

2. Fertilisers

Production, clearance and tax yield data are available in *Central Excise Year Book*. We have data on consumption of fertiliser according to type of crops for 1970-71 from the publication by National Council of Applied Economic Research (NCAER), entitled *Fertiliser Use on Selected Crops in India* (1974).

We have distributed the total quantity of clearance among the various crops on the basis of proportions obtained in 1970-71, as given in the NCAER publication mentioned above. The yield of tax on fertilisers has been attributed to the different crops on the basis of the above proportions, as shown in Table A-1.

TABLE A-1

Crop-wise Pattern of Use of Fertilisers—1970-71

Crop	Consumption of fertilisers during 1970-71 ('000 tonnes)	Percentage of total consumption	Yield from excise tax during 1973-74 (Rs. '000)
1. Rice	726.9	17.4	66193.4
2. Wheat	443.3	10.6	49324.7
3. Maize	92.3	2.2	8369.3
4. Sugarcane	420.9	10.0	38042.2
5. Cotton	181.7	4.4	16738.6
6. Pulses	2314.1	55.4	210753.8
TOTAL	4179.2	100.0	380422.0

Source : *Fertiliser Use on Selected Crops in India* (1974), NCAER.

3. Petroleum-domestic production

Data on tax yield (Central excise) from different petroleum products for 1973-74 are available from *Central Excise Year Book.*

TABLE A-2
Tax Yields from Petroleum Products (1973-74)

(Rs. lakh)

		Tax yields
1.	Furnace oil	3001
2.	Refined diesel oil and vaporising oil, diesel oil not otherwise specified	31406
3.	Asphalt bitumen and coal tar	1602
4.	Petroleum products not otherwise specified	4684
5.	Blended or compounded lubricating oils and greases	1737
6.	Calcined petroleum coke	120
7.	Motor spirit	30725
8.	Kerosene oil	14112
	TOTAL	87387

Source: *Statistical Year Book-Central Excise.*

The publication *Indian Petroleum and Petro-Chemicals Statistics*, (1973) issued by the Economics and Statistics Division of the Ministry of Petroleum, New Delhi (1973) (hereafter referred to as *Petroleum Statistics*), contains information on domestic production, imports, consumption and sales. It is possible to allocate the estimates of clearance (quantity) of different types of petroleum production to different broad uses on the basis of information contained in the above-mentioned publication.

The methodology used in each case is explained below.

(**a**) Furnace oil—We have obtained information about the broad uses of furnace oil from the Ministry of Petroleum. The estimates of the quantities used for different purposes in absolute terms as well as in terms of percentages are indicated in the following table:

TABLE A-3

Uses of Furnace Oil in India

Sectors of use	Quantity ('000 tonnes)	Per cent of total
Transport	417	7.0
of which		
Road transport	2	Neg.
Railways	61	1.0
Waterways	354	6.0
Agriculture/plantation	222	3.7
Power generation	1648	27.8
Other industries	3138	53.0
of which		
Iron and steel	438	7.4
Textile fibre	650	11.0
Cement	204	3.4
Ceramics and glass	218	3.7
Chemicals and allied	795	13.4
Fertilisers	266	4.5
Aluminium	110	1.9
Sugar	59	1.0
Mining and quarrying	35	0.6
Engineering	363	6.1
Other miscellaneous	507	8.5
TOTAL	5932	100.0

Source: *Indian Petroleum and Petro-Chemical Statistics* (1974).

In the NSS list of consumption items we have separate information on the expenditure of the households on road transport, railways and waterways. The tax yield attributable to transport has been distributed among the different expenditure groups in rural and urban sectors accordingly. We recognise that transport is also used for the carrying of goods.

But since the amount involved is not large, the approximation we have used may not significantly distort the total picture.

The tax yield attributable to agriculture/plantations can be allocated to different expenditure groups on the basis of their total expenditure on the following items indicated in the NSS list of consumption items: (i) total cereals, (ii) total pulses, (iii) total vegetables, (iv) fresh fruits, (v) tea and tea leaves, and (vi) coffee and coffee powder.

For other items, the basis of allocation is as follows :

(i) Power generation—total expenditure on consumption of electricity and manufactured goods with equal weight.

(ii) Iron and steel—total expenditure on consumption of manufacured goods.

(iii) Textile fibre—according to tax-yield from cotton and woollen fabrics allocated to different expenditure groups.

(iv) Cement ceramics and glasses—the total tax yield was divided into two broad categories:

(a) residential buildings, and

(b) others on the basis of the aggregate value of construction obtained in respect of each of the two groups from the CSO. The share of residential building has been distributed on the basis of household expenditure on house rent as given in the NSS and the share of 'others' on the basis of expenditure on manufactured goods.

(v) Chemicals—the method of allocation is the same as for the tax on chemicals to be discussed later.

(vi) Fertilisers—as in the case of tax on fertilisers.

(vii) Aluminium engineering, mining and quarrying and other miscellaneous—on the basis of total expenditure on manufactured goods.

(viii) Sugar—according to the methodology used for sugar.

(**b**) Refined diesel oil, and vaporising oil, diesel oil, not otherwise specified—This group of petroleum products mostly consists of high speed diesel oil (H.S.D.) and light diesel oil (L.D.O.). The uess of these two products have been worked out by the Ministry of Petroleum as follows:

High speed diesel	Quantity ('000 tonnes)
(i) State transport	599
(ii) Other road transport (including agriculture)	3359
(iii) Railways	581
(iv) Bunkers	28
(v) Miscellaneous	626
	5193

Similarly, for LDO the distribution according to end uses has been worked out as follows:

Light diesel oil	Quantity ('000 tonnes)
(i) Power	158
(ii) Bunkers	45
(iii) Rest (including agriculture and small scale industries)	1145
	1348

As no separate tax yield is available in respect of HSD and LDO, we have decided to club them together and classify their joint use as follows:

	Quantity of HSD and LDO used ('000 tonnes)
(i) Road transport	3958
(ii) Railways	581
(iii) Bunkers (steamship)	73
(iv) Power	158
(v) Others (agriculture and small scale)	1771
	6541

The tax yield has been allocated to various uses in proportion to the quantities consumed as given above. The yield attributed to items

(i), (ii) and (iii) has been apportioned on the basis of expenditure on railways, road and steamship fares, respectively; and the yield attributed to item (iv) on the basis of consumption of electricty. In the case of the yield attributed to item (v), 50 per cent is distributed on the basis of expenditure on manufacturing products and the remaining 50 per cent on that on agricultural products. The consumption of diesel oil for the purpose of transport (road, railways and steamship) would not be entirely for carrying passengers. A part would go also towards the transportation of goods. Hence, we made an alternative assumption that 50 per cent of the diesel oil was consumed for the transportation of passengers and the remaining 50 per cent for the transportation of goods. The share of tax yield attributable to the transportation of goods was allocated on the basis of household expenditure on manufactured goods. Surprisingly, the results thus obtained were almost the same. Only in the case of one or two expenditure groups the incidence came out to be different, and only at the second decimal point.

(c) Asphalt, bitumen and coal tar—These materials are used mainly in construction (including road making) activity. We can divide the total value of construction into (i) government construction, (ii) residential buildings (private), (iii) non-residential buildings, and (iv) roads and bridges.

We have obtained estimates in respect of each of the above categories of construction from CSO. The share of residential buildings can be distributed on the basis of rent on dwellings as given in NSS. The share of non-residential buildings is distributed on the basis of expenditure on manufactured items and the share of roads and bridges is distributed on the basis of expenditure on road transport.

(d) Petroleum products not otherwise specified—On the basis of information contained in *Central Excise Year Book* this item is split into:

	Quantity ('000 tonnes)
(i) Liquified petroleum gas	263
(ii) Waxes	47
(iii) Other mineral turpentine oil	699
	1009

According to the information given by the Ministry of Petroleum, liquified petroleum gas is used almost entirely for domestic purposes. It is assumed that this is used entirely by the groups with per capita expenditure of Rs. 100 and above in the urban sector. In the case of waxes, about 50 per cent goes to candle manufacturing (c.f. *Petroleum Statistics*) and the remaining 50 per cent to water proofing, match industry, paper waxing and hard board industry. The latter part is apportioned to manufacturing and the tax on it is allocated on the basis of expenditure on manufactured goods.

(e) Blended or compounded lubricating oils and greases—From the publication *Petroleum Statistics* (1973), the following breakdown of the use of compounded lubricating oils and greases has been obtained for the year 1972-73.

	Quantity ('000 tonnes)
(i) Automotive oils (automotive)	211
(ii) Railways oil/axle oil	19
(iii) Industrial lubricating oil	643
	873

The share of item (i) in the tax yield is attributed to road transport. The share of item (ii) to railway transport and the remaining item (iii) to manufactured items.

(f) Calcined petroleum coke—The whole of the tax yield has been distributed on the basis of expenditure on manufactured items.

(g) Motor spirit—The use of motor spirit is split into

	Quantity ('000 tonnes)
(i) ATF (aircraft turbine fuel)	798
(ii) Others (motor cars, etc.)	791
	1589

First, we have divided the total tax yield from motor spirit into two parts (i) 50 per cent is apportioned to use by aeroplanes, (ii) the remaining 50 per cent is apportioned to use in cars, motor-cycles, etc. Then,

70 per cent of the share attributable to item (i) is taken to be from commercial use of aeroplanes and is distributed among various expenditure groups on the basis of proportions of aggregate household expenditure; of the remaining 30 per cent, 10 per cent is attributed to governmental use of air-services, and 20 per cent is taken to be used by groups with per capita expenditure exceeding Rs. 100 per month, in the urban sector.

The share of tax yield attributed to motor spirit used for cars, motor-cycles, etc., is distributed as follows : *Estimates of Capital Formation in India*, 1969, published by the CSO, gives the percentage shares of the number of cars used for industrial and commercial purposes and of those used for private purposes. We have assumed the same proportions. The share of tax on motor spirit assumed to be used for industrial and commercial purposes is distributed on the basis of proportion of expenditure on manufactured goods. The share attributable to private use of cars is entirely allocated to groups with per capita expenditure exceeding Rs. 100 per month in the urban sector.

(**h**) Kerosene oil—The estimates of use of kerosene oil have been obtained from *Petroleum Statistics*. The uses in 1973-74 were as follows:

	Quantity ('000 tonnes)	Percentage of the total
(i) Domestic	3328	96.3
(ii) Industrial and commercial	129	3.7
	3457	100.0

The share attributable to domestic use is allocated on the basis of expenditure on kerosene oil by the households. The share attributable to industrial and commercial uses is distributed on the basis of total expenditure on manufactured items.

4. Iron and steel

Central Excise Year Book gives the estimates of tax yield from the various categories of iron and steel being produced in the country. They are reproduced below:

	(Rs. lakh)
(a) Iron and steel in any crude form	602
(b) Steel ingots	1141

(c) Iron and steel products	15585
(d) Steel furniture	373
(e) Others (including slotted angles and channels of steel wire-ropes)	82
	17783

Item (c) iron and steel products can further be broken into the following:

(Rs. lakh)

	Total yield	Basic duty	Auxiliary duty
(i) Semi-finished steel (including blooms, billets, etc.)	4742	2710	2032
(ii) Bars and rods, wires, etc.	3244	1854	1390
(iii) Plates and sheets	3453	1973	1480
(iv) Flats, skelps and strips	3579	2045	1534
(v) Pipes and tubes	94	54	40
(vi) Other steel castings	144	82	62
(vii) Rails and sleepers	326	186	140
(viii) Others	3	2	1
TOTAL	15585	8906	6679

On the use of steel, we were able to obtain two studies: (1) *The Iron and Steel Industry of India* (1964) by Mr. Choudhuri, and (2) an unpublished study by the Steel Authority of India (SAIL) for the year 1975. Choudhuri's book gives data on the demand for steel for the years 1956-57 to 1960-61 by different Industrial sectors. The information obtained from the SAIL is more up-to-date and, therefore, we have made use of the SAIL data.

SAIL have divided iron and steel products into eight major groups as against five groups availble in *Central Excise Year Book*. These major groups are (i) pig iron, (ii) semi-finished steel, (iii) railway materials, (iv) structures, (v) bars and rods, (vi) plates, (vii) sheets and (viii) skelp and H. R. strips. Each of the above iron and steel products has been apportioned by SAIL among twenty-nine uses; namely, steel and coal, defence, power, other government departments, railway wagon,

ports (ship yards), Posts and Telegraphs, Public Works Department, auto-manufactures, bright bar electric manufactures, re-rollers, tube manufactures, wire drawings, basic metals, main fabricators, furniture makers, drum, barrel, fastner industries, foundry, corporate bodies and agro-industries, trade, etc.

First, we have tried to match SAIL's eight major groups of iron and steel with the five major groups of iron and steel given by *Central Excise Year Book* indicated earlier. This has been done in the following manner. Iron in any crude form given in *Central Excise Year Book* is taken to represent pig iron. Similarly, steel ingots have been taken to include plates and sheets structures and iron and steel products; the remaining important groups given in *Central Excise Year Book* are taken to include the remaining groups of items in the SAIL report.

The many uses for each of the above mentioned groups have then been reclassified into seven major uses: (i) Government services, (ii) furniture makers, (iii) irrigation, (iv) manufacturing, (v) power, (vi) transport and communication and (vii) others.

The share attributable to government services has not been allocated to households. Furniture makers make steel furniture and structurals partly for permanent fitting in the buildings. This part is to be treated as capital formation and the remaining part as household consumption. Following the CSO estimates given in the *Estimates of Capital Formation*, 1969, 50 per cent is treated as part of capital formation in non-residential construction and 50 per cent as household consumption of furniture. The share going to non-residential construction has been distributed on the basis of household expenditure on manufactured goods. The share going to household consumption of furniture is distributed on the basis of expenditure on furniture by different expenditure groups. The share going to irrigation has been allocated on the basis of expenditure on agricultural goods. Similarly, shares of manufacturing and power have been distributed on the basis of expenditure on manufactured goods and electricity, respectively. Transport and communication has been broken up into Posts and Telegraphs, auto-manufacturers, railway wagons, trade and ports. The share of Posts and Telegraphs has been allocated on the basis of household expenditure on postage and telephone; the aggregate share of railway wagons, trade and ports, on the basis of expenditure on manufactured goods; the share of item (vii) 'others' on the basis of expenditure on manufactured goods.

5. *Chemicals*

(A) Paints and varnishes—On the basis of the information contained in *Input-Output Table For India*, 1963 prepared at the Gokhale Institute of Politics and Economics and published in *Artha Vijnan*, March 1972 (hereafter referred to as *Input--output Table For India*, (1963) and in *Draft Fourth Plan, Material and Financial Balances*, published by the Planning Commission in September 1966, (hereafter referred to as *Material and Financial Balances*, 1966), we first allocated the total of this item among different uses, in the following manner :

	(Rs. crore)
(i) Construction	32.6
(ii) Electrical equipment	2.9
(iii) Non-electrical equipment	1.4
(iv) Transport	5.7
(v) Metal products	5.7
(vi) Glass and glass wares	2.4
(vii) Final consumption	1.1
TOTAL	51.8

For the purpose of estimating incidence, we had to compress the above into a smaller number of groups as given below:

	(Rs. crore)
(i) Construction	32.6
(ii) Transport	5.7
(iii) Manufacturing	7.0
(iv) Domestic	6.5
TOTAL	51.8

Construction is broken down into (a) Government (b) residential and (c) others, on the basis of information obtained from the CSO. The tax yield from paints and varnishes attributable to government construction has been excluded from the allocable pool. Residential construction is broken into rural and urban on the basis of estimates obtained from the CSO. The tax yield attributable to residential buildings in

each sector is then apportioned among the different per capita expenditure groups in that sector in proportion to their expenditure on rent of (owned and rented) residential buildings. The amounts of tax yield attributable to 'others' is apportioned on the basis of expenditure on manufactured goods.

The share of tax yield attributable to 'transport' is allocated in the same manner as yield of other taxes attributable to transport (mentioned in earlier cases).

The share of manufacturing, item (iii), is allocated on the basis of expenditure on manufactured goods; and the share of domestic uses, item (iv), has been allocated on the basis of expenditure on furniture.

(B) Synthetic and organic dye stuffs—From the report of the Tariff Commission on the *Review of Dye Stuffs Industry* for the year 1974, we could get the following break-up of the uses of this chemical :

(i) Textile industry	80 per cent
(ii) Leather, plastic and printing ink for paper and coir	20 per cent

The share of tax yield attributable to the textile industry has been allocated to different expenditure groups in the urban and rural sectors on the basis of their total expenditure on woollen, cotton and silk fabrics. The tax yield attributable to leather, plastic, printing ink for paper and coir has been allocated on the basis of total expenditure of the households on (i) leather (ii) plastic articles (iii) books and periodicals and (iv) coir ropes and coir mats.

(C) Caustic soda and caustic potash—We have information about the end uses of these products from *Indian Chemicals and Pharmaceutical Industry—A Survey*, 1963-64 published by Indian Chemical Manufacturers Association.

The shares of the different end uses during the Third Five Year Plan have been assumed for the year 1973-74.

Industry	Demand (percentage of total)
(i) Paper and paper board	28
(ii) Rayon and staple fibre	23
(iii) Textiles	15
(iv) Soap	14
(v) Aluminium	7

(vi) Petroleum refining	2
(vii) Vanaspati	1
(viii) Dye stuffs	10
	100

The share of tax yield on caustic soda and caustic potash attributable to paper and paper board has been allocated on the basis of consumption expenditure on books and journals and newspapers and periodicals; that attributable to rayon and staple fibre has been allocated on the basis of expenditure on artificial silk. The shares of textiles and dye stuffs have been allocated on the basis of expenditure on cotton and woollen fabrics.

The shares of tax yield attributable to soap and vanaspati have been allocated on the basis of NSS consumption expenditure on soap and vegetable oil, respectively. The share of yield attributable to caustic soda and caustic potash used in the production of aluminium has been allocated in the same fashion as the tax on aluminium.

(D) Organic surface active agents—The yield from this item has been allocated on the basis of expenditure on manufactured goods.

(E) Calcium carbide, bleaching powder and sodium hydrosulphate—The yield from these items has been allocated on the basis of expenditure on manufactured goods.

(F) Soda ash—Information about its uses is available from *Indian Chemical and Pharmaceutical Industry—A Survey*, 1963-64. For the Third Plan period, the uses have been indicated as follows :

(Percentage of total)

(i) Laundry, *dhobi* and miscellaneous	37
(ii) Glass	31
(iii) Chemicals, caustic soda	12
(iv) Silicate	8
(v) Paper	4
(vi) Textiles	3
(vii) Sodium bicarbonate	3
(viii) Bichromate	2
	100

The shares of laundry, *dhobi* and miscellaneous have been allocated on the basis of expenditure by households on washermen, laundries, etc. Of the total share of glass, 50 per cent has been allocated on the basis of expenditure of households on crockery and other utensils, and the remaining 50 percent is attributed to construction. The distribution in regard to the tax yield of the share allocated to construction is the same as in case of other construction inputs.

The shares attributable to chemicals, caustic soda, silicate, sodium bicarbonate and bichromate have been allocated on the basis of expenditures on manufactured goods.

The share attributable to paper has been distributed on the *basis* of expenditure on books, journals and newspapers, etc., and that attributable to textiles on the basis of expenditure on cotton, silk and woollen fabrics.

(G) Rubber processing chemicals—The entire yield has been allocated on the basis of expenditure on road transport because most of the consumption of rubber is used in the preparation of tubes, tyres, etc., for motor vehicles.

(H) Carbon black—This is used mostly in the preparation of tyres and tubes and hence the whole of it has been distributed on the basis of expenditure on road transport.

(I) Optical bleaching agents—Expenditure of households on laundries has been taken as the basis of allocation.

(J) Other chemicals—the yields from the remaining chemical items like sodium silicate, cellophane, acids, camphor, menthol and glycerine, etc., have been distributed on the basis of expenditure on manufactured goods.

6. Cement

Cement is used mainly for construction. Only a very small part of it goes to other uses like production of asbestos, which is also used in construction. The total value of construction consists of (i) construction covered by the commodity-flow approach and (ii) construction not covered by the commodity-flow approach. Cement is used only in construction works covered by the commodity-flow approach. The total value of construction covered by the commodity-flow approach and the break-up thereof in 1973-74 have been supplied by the CSO. These are as follows:

	(Rs. crore)
Total value of construction covered by the commodity-flow approach	4780
of which	
(i) construction by and for government administration	1522
(ii) departmental enterprises	1162
(iii) non-departmental enterprises	816
(iv) construction in the private sector	1280

First, the total tax yield has been distributed among the shares of construction of the items indicated above. The share going to government construction is excluded. The share attributable to departmental enterprises relates mostly to railways, posts and telegraphs and road transport. Hence, the share of the tax yield attributable to item (ii) can be distributed among the expenditure groups on the basis of their total expenditure on road and railway transport and communication. The yield attributable to non-departmental enterprises has been allocated on the basis of expenditure on manufactured goods. Private construction can be broken up into private construction of residential buildings and others. On the basis of data published by the CSO it has been assumed that about 60 per cent of private construction goes for private residential buildings and the remaining part goes for non-residential construction. Hence, 60 per cent of the share allotted to private construction has been distributed among various expenditure groups on the basis of expenditure on residential rents and the remaining 40 per cent on the basis of expenditure on manufactured goods. No share has been allotted to agricultural goods because it is assumed that the nature of construction in the agricultural sector is mostly *kutcha* and that there is very little use of cement in such construction works.

7. *Coal and Coke*

This item is used in a number of ways. On the basis of information available in *Material and Financial Balances*, 1966, we could work out the percentage shares of different uses as follows: electricity thermal 25 per cent; railways 23 percent; pig iron 12 per cent; soft coke 8 per cent; cement 7 per cent; brick burning 6 per cent; chemicals 2 per cent; paper and paper board 3 per cent; foundries 2 per cent; fertilisers 2 per cent; cotton textiles 2 per cent; engineering works 1 per cent; ceramics and potteries 1 per cent; glass 1 per cent; jute 1 per cent; others 4 per cent. The allocation of tax yield has been done in the following

manner. In the case of electricity, 50 per cent on the basis of electricity consumption by households and 50 per cent on the basis of expenditure on manufactured goods; for railways on the basis of expenditure on railway fares; for pig iron on the basis of uses of pig iron discussed in the case of iron and steel; for soft coke on the basis of consumption of coke and coal given in NSS consumption data; for cement, as discussed in the case of cement; for brick burning, according to construction as discussed in the case of cement; for chemicals on the basis of expenditure on manufactured goods; for paper and paper board on the basis of expenditure on books, periodicals, papers, etc.; for foundries on the basis of expenditure on manufactured goods; for fertilisers on the basis of expenditure on agricultural goods; for cotton textiles on the basis of expenditure on cotton fabrics; for engineering works on the basis of expenditure on manufactured goods; for ceramics and potteries on the basis of expenditure on crockery; for glass, 50 per cent through construction as discussed in the case of cement and 50 per cent on the basis of household expenditure on "other utensils"; for jute, as in the case of jute manufactures; for others on the basis of expenditure on manufactured goods.

8. Tyres and Tubes

Production data in regard to automobiles are available in the annual report of the Directorate General of Technical Development (DGTD). The figures for 1973-74 are as follows:

	Quantity (nos)
a. (i) Commercial vehicles (buses and trucks)	40580
(ii) Passenger cars	36756
(iii) Jeeps	10015
(iv) Three wheelers	12646
b. Motor cycles	54085
c. Scooters	85639
d. Mopeds and scooterettes	29212

The Transport Research Unit of the Ministry of Shipping and Transport supplied the figures of the total number of registered vehicles, on March 1974, as follows:

	Quantity (nos)
(i) Motor cycles	827906
(ii) Auto-rikshaws and scooters	66718

(iii) Jeeps	79457
(iv) Private motor cars	573709
(v) Taxis	82524
(vi) Buses	97738
(vii) Goods vehicles	319856
(viii) Scooters	220225

The prices of tyres and tubes have been obtained from the *Index Numbers of Wholesale Prices in India*. The following were the prices in 1973.

(Price per unit)

	Tyres (Rs.)	Tubes
Dunlop C-49 giant (PV price)	1050.00	95.00
Dunlop fort covers	210.00	30.00
Motor cycles	93.00	16.00
Scooters (two and three wheelers)	68.00	11.00

For the purpose of measurement, we have classified all the vehicles given above into the following categories :

Name of the vehicle	Production	Registration	Price per unit Tyres Rs	Tubes
(a) Buses, trucks, etc.	40580	417594	1050	95
(b) Cars, taxis, jeeps, etc.	46771	7356690	210	30
(c) Motor cycles	54085	827906	93	16
(d) Three wheelers	12646	66718	68	11
(e) Scooter, two wheelers including scooterettes	114851	220225		

For working out the incidence, we have to divide the total number of registered vehicles into new and old. From the total number of registered vehicles we deduct the production data to get the number of old vehicles. The production data are taken to represent the number of new vehicles.

We have assumed that new vehicles absorb tyres and tubes (including the additional ones provided with the new vehicles) at the following

rates: buses and trucks—7, cars, taxis and jeeps—5, motor cycles—3, three wheelers—4, scooters—3.

We take the total consumption of tubes and tyres from two sides (i) production of new vehicles and (ii) demand for replacement for the old vehicles. Looking at the stock and flow figures of vehicles and assuming that tubes and tyres have an average life of not more than two years we deduce that 25 per cent of the tax yield can be attributed to new vehicles and 75 per cent to old vehicles. On the basis of information available about the number of new vehicles for each type, consumption of tubes and tyres per vehicle and the prices of tubes and tyres, it has been possible to work out the value of each type of tube and tyre absorbed during the year by new vehicles. Similarly, we have worked out the value of total consumption of each type of tube and tyre for replacement purposes. We have assumed that all the four wheelers consume twice the number of tyres and tubes as two wheelers and the number of old vehicles are equal to the total stock minus the production of new vehicles. Then for each type of tyre and tube we have worked out the total expenditure in relation to new vehicles as well as that for replacement. The total tax yield has been divided among different categories of tubes and tyres on the basis of their share in total expenditure. The tax revenue shares thus arrived at have been distributed on the basis of expenditures of households on each type of transport services. The share attributable to trucks, however, has been allocated on the basis of expenditure on manufactured goods.

9. *Copper and copper alloys*

On the basis of information contained in *Material and Financial Balances*, 1966, and *Input-Output Table for India*, 1963, the different uses of copper and copper alloys have been classified into the following categories:

	Percentage of total
1. Electrical goods	
(a) Refrigeration	1
(b) Telephone and Telegraphs	6
(c) Electric fans	2
(d) Others*	55
2. Non-electrical goods (including machinery and equipment)	
(a) Automobiles	6

(b) Railway equipment	Neg.
(c) Food processing machines	2
(d) Chemical industry equipment	12
(e) Utensils (domestic)	10
(f) Others**	6
Grand Total	100

*Includes electric motors, transformers, base copper conductors, PVC and VIR cables, paper insulated wires and cables, switch and control gear.

**Includes pumps and compressors, bolts, nuts, washers, diesel engines and metal products.

For the allocation of tax burden in regard to electrical goods, the methodology is as follows. According to proportions given in CSO's *Estimates of Capital Formation in India*, 1969, about 80 per cent of refrigeration products goes to households and the remaining 20 per cent to producer sectors. Thus 80 per cent of the total yield of tax on copper attributed to this item can be allocated to the group with per capita expenditure of Rs. 100 and above and the remaining 20 per cent on the basis of total expenditure on (a) allopathic medicines; (b) ice-cream and (c) jam and jellies. In the case of telephone and telegraphs, the tax yield has been distributed among various expenditure groups on the basis of household expenditure on telephones. The CSO assumes that 50 per cent electric fans are being used domestically and the remaining 50 per cent for commercial purposes. This assumption has been used here. The domestic share can be distributed on the basis of household expenditure on electric fans. The remaining 50 per cent can be allocated on the basis of expenditure on manufactured goods. The share attributed to the item 'others' under electrical goods has been allocated on the basis of expenditure on manufactured goods.

The share of non-electrical goods has been allocated in the following manner: (a) automobiles—household expenditure on road transport; (b) food processing machines—household expenditure on processed food; (c) chemical industry equipment—in the same manner as for all chemicals indicated above; (d) utensils—household expenditure on manufactured goods.

10. Aluminium

We have the estimates of the uses of this item from *Material and Financial Balances*, 1966, and *Input-Output Table for India*, 1963.

	Percentage of total
1. Electrical equipment	64
of which	
(a) Fans	1
(b) Refrigeration	1
(c) Radios, etc.	Neg.
(d) Others*	62
2. Automobiles	11
3. Food processing machinery	8
4. Textile machinery	2
5. Chemicals and pharmaceuticals	1
6. Building construction and furniture fixing	5
7. Domestic Utensils	9
TOTAL	100

*Includes ACSR conductors and accessories, A.A. conductors and accessories, other electrical manufacturing, PVC and VIR cables, paper insulated wires and cables.

Following the methodology of the CSO in regard to the estimation of capital formation, 50 per cent of the share attributable to fans and 80 per cent of the share attributable to refrigeration have been taken to be accounted for by domestic use. These portions can be allocated on the basis of expenditure on electric fans and on "other durable equipment".

The share of automobiles is allocated on the basis of expenditure on road transport. For others we have used the following methodology : food processing—expenditure on processed food by households; textile machinery—on the basis of expenditure on textiles; chemicals—on the same basis as the distribution of tax yield (aggregate) from chemicals; building construction and furniture fixing—on the same basis of allocation as for tax yield from cement for building construction; domestic utensils—expenditure on aluminium utensils.

11. Plywood

The pattern of use of plywood is not available separately. We have, however, information on the consumption pattern of wood. According to *Material and Financial Balances*, 1966, 78 per cent of the wood is used in construction and 22 per cent of it is used for manufacture of furniture and other purposes. Having no other basis, we have used the following proportions in respect of plywood: (i) 75 per cent for construction; and (ii) 25 per cent for furniture. Plywood is assumed to be used for permanent fixing and fitting in the construction of buildings. The share attributable to residential buildings is allocated to the construction of buildings for the group with per capita expenditure of Rs. 100 and above in the urban sector under the head "expenditure on rent on dwellings." The share attributable to non-residential buildings has been allocated on the basis of expenditure on manufactured goods. The share of the remaining 25 per cent has been allocated to different expenditure groups in the urban sector on the basis of expenditure on furniture.

12. Asbestos

The major part of this material is used in the construction of non-residential buildings like factory buildings, sheds, etc. A small part goes to the construction of residential buildings also. We assume that 75 per cent goes for non-residential buildings and 25 per cent for the construction of residential buildings. The share of tax yield attributable to non-residential buildings can be allocated on the basis of expenditure on manufactured goods and the remaining 25 per cent on the basis of expenditure on house rent by the households in the urban sector.

13. Mosaic tiles

These are taken to be used exclusively in the construction of residential buildings for the group with per capita expenditure of Rs. 100 and above in the urban sector. Hence the tax yield has been entirely allocated to this group.

14. Cinematograph films and projections

Allocation has been done on the basis of household expenditure on cinemas.

15. Crown corks and pilfer proof caps

Allocation has been done on the basis of household expenditure on beverages (aerated water).

16. Lead unwrought

On the basis of information contained in *Material and Financial Balances*, 1966, we have allocated this material to different uses in the following manner: automobiles 35 per cent; electricity 30 per cent; paints and varnishes 16 per cent; printing metals and alloys 13 per cent; chemical plants and equipment 4 per cent; and construction 2 per cent.

Tax yield has been allocated in the following manner: (a) automobiles—on the basis of expenditure on road transport; (b) electricity—50 per cent on the basis of household expenditure on electricity and the remaining 50 per cent on the basis of expenditure on manufactured goods; (c) paints and varnishes—on the same basis as for paints and varnishes; (d) printing metals and alloys—household expenditure on paper, periodicals and books; (e) chemical plants and equipment—on the basis of the distribution ratios used for all chemicals; (f) construction—as in the case of other construction inputs.

17. Electrical insulators, stamping wires, cables and others

50 per cent of the tax yield from these commodities has been allocated on the basis of expenditure on manufactured goods by households and the remaining 50 per cent on the basis of consumption of electricity by them.

18. Slides, zips and fasteners

The whole amount of tax yield from slides, zips and fasteners has been allocated on the basis of household expenditure on suitcases, attache and kitbag.

19. Rolling bearings, welding electrode and permanent magnet

The total yield from rolling bearings, welding electrodes and permanent magnet has been allocated on the basis of total expenditure on manufactured goods.

20. Safes, strong boxes, etc.

The tax yield from safes, strong boxes,etc., made of hard metals has been allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector.

21. Rubber products (including synthetic rubber) other than tyres and tubes

There are three main uses of rubber products, namely, (i) leather footwear (4 per cent); (ii) jute textiles (5 per cent); (iii) household consumption (91 per cent).

The share of household consumption, i.e., item (iii) has been allocated to different expenditure groups on the basis of total expenditure on items like (a) rubber cushion and (b) footwear other than that of leather. The share attributable to leather footwear has been allocated on the basis of household expenditure on leather footwear which includes leather boots and shoes, leather sandles and chappals, and other leather footwear. In the case of jute textiles, the distribution has been made on the same basis as in regard to jute fabrics.

22. Chinaware and porcelain

These items are purchased by households as well as hotels and restaurants. As we do not have data on household expenditure on hotels and restaurants, we have allocated the entire yield on the basis of NSS household expenditure on crockery and chinaware.

23. Glass and glassware

Based on data contained in *Material and Financial Balances*, 1966, and *Input-Output Table for India*, 1963, we have allocated the yield to different uses in the following proportions: construction 17 per cent; electrical equipment 8 per cent; domestic purpose 42 per cent; and drugs and pharmaceuticals 33 per cent. In the case of construction we have first divided building construction into urban residential and urban non-residential. The share allocated to urban residential has been distributed on the basis of rents (urban dwellings). In the case of the share of non-residential buildings, the allocation has been done on the basis of total expenditure on manufactured goods. The share of electrical equip-

ment has been allocated on the basis of household expenditure on other non-durable electrical goods. The share attributable to domestic uses has been distributed on the basis of household expenditure on crockery and chinaware assuming that those who spend on crockery and chinaware spend on glassware also in more or less the same proportion. The share of drugs and pharmaceuticals has been allocated on the basis of expenditure on all types of medicines.

24. Typewriter ribbons

We have taken 50 per cent as being used by the government sector and the remaining 50 per cent by the private sector. The share of private use has been allocated on the basis of expenditure on manufactured goods.

25. Gases

Fifty per cent of the share has been allocated on the basis of expenditure of households on gases. The other 50 per cent has been allocated on the basis of expenditure on manufactured goods.

26. Synthetic resins and plastic materials

The tax revenue collected from this item has been allocated on the basis of household expenditure on plastic goods.

27. Linoleum

Allocation has been done on the basis of expenditure on manufactured goods.

28. Tin plates

Based on information contained in *Material and Financial Balances*, 1966 and *Input-Output Table for India*, 1963, the tax yields have been distributed in the following manner: construction 44 per cent; electricity 12 per cent; manufactured goods 33 per cent; and domestic utensils 11 per cent.

29. Zinc

The allocation of the yield has been done on the basis of expenditure on (i) manufactured goods 85 per cent; and (ii) domestic utensils 15 per cent.

30. Iron ore

The same methodology as for iron and steel.

C. Capital Goods and Partly Capital Goods

1. Internal combustion engines

Information about the uses of this item could be obtained from the *Input-Output Table for India*, 1963. It is used for (a) motor vehicles 80 per cent; (b) air and gas compressors, etc., 10 per cent; and (c) other industries 10 per cent.

The share of motor vehicles has been allocated in the same manner as done in case of motor vehicles discussed later. The share of air and gas compressors has been allocated on the same basis as for refrigeration because compressors are used mostly in the production of refrigerators. The share of other industries has been allocated on the basis of expenditure on manufactured goods.

2. Electric motors

According to the information contained in *Input-Output Table for India*, 1963, the uses of this item are as follows: (i) agricultural use 89 per cent; (ii) textile machinery 2 per cent; (iii) machine tools 3 per cent; (iv) air-conditioners 2 per cent; (v) photographic and optical goods 2 per cent; (vi) construction and machinery 1 per cent; (vi) ships and vessels 1 per cent.

The share of item (i) is allocated to different expenditure groups on the basis of expenditure on agricultural goods; item (ii) on the same basis as the allocation of tax yield from cotton textiles; item (iii) on the basis of expenditure on manufactured goods; item (iv) on the basis of household expenditure on air-conditioners; item (v) on the basis of expenditure on cinema; and items (vi) and (vii) on the basis of expendi-

ture on manufactured goods.

3. Office machines

The yield is distributed among different expenditure groups on the basis of expenditure on manufactured goods.

4. Power driven pumps

These pumps are used mostly in agriculture for the purpose of irrigation. The yield has been distributed on the basis of household expenditure on agricultural goods.

5. Fork lift trucks and platfrom trucks, coated abrassive and grinding wheels

The aggregate yield from all these items has been allocated to different expenditure groups on the basis of expenditure on manufactured goods.

6. Partly capital and partly household goods

A part of such goods is purchased by households and the remaining by entrepreneurs. The part attributable to entrepreneurial use in each case has been distributed on the basis of expenditure of the households on manufactured goods. For the remaining shares the methodology is indicated for each item separately.

7. Photographic cameras

According to the proportions in CSO's *Estimates of Capital Formation in India*, 1969, 50 percent of this item is taken to be used for domestic purposes and the remaining 50 per cent for entrepreneurial purposes. Thus 50 per cent of the yield has been allocated on the basis of expenditure on manufactured goods and the remaining 50 per cent has been allocated on the basis of expenditure on "other durable goods".

8. Motor vehicles

50 per cent of the motor cars produced in the country have been taken to go for entrepreneurial purposes and the remaining 50 per cent for domestic use. This percentage is based on the information obtained directly from car manufacturers. The share of domestic use has been allocated to the households having monthly per capita expenditure of Rs. 100 and above in the urban sector. The remaining 50 per cent has been allocated on the basis of household expenditure on manufactured goods.

9. Steel furniture

50 per cent of the steel furniture produced has been taken by the CSO as going for household use. Thus 50 per cent of the yield has been allocated to different expenditure groups on the basis of expenditure on furniture. The remaining 50 per cent has been allocated on the basis of expenditure on manufactured goods.

10. Wireless receiving sets

10 per cent of the total value of output is taken to represent capital goods and 90 per cent to represent consumer durables. Thus 90 per cent of the tax yield has been distributed among different expenditure groups in the rural and urban sectors on the basis of expenditure on radios; and the remaining 10 per cent on the basis of expenditure on manufactured goods.

11. Refrigerating and air-conditioning appliances

According to the CSO, 20 per cent is used by the entrepreneurs and 80 per cent by the households. But the latest information obtained directly from manufacturers like Kelvinator of India Ltd. and others indicates that about 70 per cent goes to households and 30 per cent to capital formation. We have used the latest information for working out the incidence. The tax yield attributable to households has been allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector. The share going to entrepreneurs has been distributed on the basis of expenditure on manufactured goods.

12. Electric fans

50 per cent of the expenditure on them is taken to be by households. Thus 50 per cent of the yield has been distributed on the basis of expenditure on electric fans and the remaining 50 per cent on the basis of expenditure on manufactured goods.

13. Electric supply meters

It is assumed that 50 per cent of the purchases is by households and the remaining 50 per cent by entrepreneurs. The share attributable to households is distributed on the basis of consumption of electricity, and the remaining share on the basis of expenditure on manufactured goods.

D. Components of Capital and Partly Capital Goods

1. Motor vehicle part and accessories

70 per cent of the tax yield has been allocated to households and has been distributed on the basis of expenditure on cars. The remaining 30 per cent of the tax yield is allocated to different expenditure groups in the rural and urban sectors on the basis of their expenditure on manufactured goods.

2. Electric batteries and parts thereof, tool tips, bolts, nuts, etc.

The total yield has been allocated to different expenditure groups on the basis of expenditure on manufactured goods.

3 Parts of wireless receiving sets

The same methodology as for wireless receiving sets.

II IMPORT DUTIES

Imported items have been classified into the following groups for the purpose of working out the incidence :

A. Mostly in the nature of consumption goods;
B. Mostly in the nature of intermediate goods; and
C. Capital goods.

A. Import of Goods Mostly in the Nature of Consumption Goods

Most of these goods are consumed by the higher income groups. Therefore, the yield of import duties on them has been allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector. A list of such goods alongwith the value of tax yield in each is presented in the following table:

TABLE A. 4

Imported Goods Assumed to be Consumed by the Highest Per Capita Expenditure Group in the Urban Sector

(Rs. lakh)

S. No.	Item	Revenue from the import duty in 1973-74
1.	*Ghee*	2
2.	Other milk products	1
3.	Other meat (animal products)	299
4.	Fish, fresh and dry	5
5.	Other vegetables	2
6.	Other fresh fruits	935
7.	Other drinking beverages	6
8.	Pickles and sauce	2
9.	Other processed food	224
10.	Betel nuts (*supari*)	3
11.	Cigarettes	26
12.	Leaf tobacco	
13.	*Hookah* tobacco	
14.	Cheroot	
15.	Other tobacco products	
16.	Foreign liquor	266
17.	Cloth for shirt, *pyjama*, *kurta*, blouses, etc.	132
18.	Cloth for coat, trousers, suit, overcoat, etc.	29
19.	Readymade garments	11
20.	Hosiery articles, stockings, *banian* and underwears	4
21.	Rugs and blankets	Neg.
22.	Cloth for upholstery, curtain, fabric cloth	7

23.	Cinematograph films	218
24.	Sports goods, toys, etc.	24
25.	Books and journals	1
26.	Tooth paste and tooth powder	Neg.
27.	Electric bulbs and tube lights	48
28.	Other toilet requisites	19
29.	Toilet articles	13
30.	Shaving blades	Neg.
31.	Other non-durable electrical goods	292
32.	Umbrella and rain coats	2
33.	Plastic goods	540
34.	Suitcase, attache and kitbag	3
35.	Foam rubber, cushion, (dunlop pillow type)	104
36.	Other musical instruments	26
37.	Jewels and pearls	320
38.	Enamel utensils	10
39.	Fountain pen	Neg.
40.	Spectacles	3
41.	Clock and watch	106
42.	Salt	1
43.	Homeopathic medicines	20
44.	Floor matting	11

There are some imported goods which cater for mass consumption. The methodology for each of these is given below :

1. Foodgrains and products like flour and starch

Allocation has been done on the basis of expenditure on foodgrains (rice, wheat, barley, jowar, maize, bajra) in the urban sector.

2. Babyfood and milk powder

From the information given in *Monthly Statistics of the Foreign Trade of India*, 1973-74 we find that most of the imports under this head are in the form of milk powder. Out of an import of Rs. 525 lakh worth of these goods, about Rs. 510 lakh were spent on dry milk powder and the remaining on varieties of condensed milk. We have assumed therefore that most of these imports are sold in the urban sector as under government milk schemes. Thus, we have allocated the entire yield on the basis of expenditure on milk by households in the urban sector.

3. Linseed oil, refined oil or essential oil (all sorts), edible oils and oil seeds

We have allocated the tax yield from these items on the basis of expenditure on these items by different expenditure groups in the rural and urban sectors.

4. Pepper, dry chillies and other spices

Allocation has been done on the basis of household expenditure on spices (pepper, dry chillies and other spices).

5. Paper—all sorts

The various types of paper that are imported can be broadly divided into (i) news print and (ii) others. Others include all sorts of high strength and special grade paper which are used mostly for packing and accounting, machines card index systems and computers and include carbon papers, etc. Out of the total value of imports of paper, news print paper accounts for about one third. The remaining two thirds are accounted for by all other kinds of paper. Having no other basis, we have allocated two thirds of the total tax yield among different expenditure groups on the basis of their expenditure on manufactured goods, while one third of the yield is distributed on the basis of expenditure on periodicals and newspapers.

6. Allopathic medicines, other drugs and patents

Allocation has been done on the basis of expenditure on allopathic medicines.

B. Imports Mostly in the Nature of Intermediate Goods

There are a large number of intermediate consumption goods which are imported from abroad but they are produced in the country also and their uses are more or less the same. The allocation of the import duty on all such imported intermediate goods as have supplementary domestic production is the same as for the excises on intermediate goods domestically produced. A list of such goods is given below :

Imports	Domestic production
Chemical products	
1. Manures, all sorts	1. Fertilisers
2. Paints, colours and painters' materials	2. Paints and varnishes
3. Dyes and dye intermediaries (i) Coupling dyes (ii) Dye from coal for fast colours (iii) Dye derived from coal tar (iv) Dyeing and tanning substances	3. Synthetic organic dyestuff
4. Sodium compounds	4. Sodium silicate
5. Caustic soda	5. Caustic soda and caustic potash
6. Soda ash and nitrate of soda	6. Soda ash
7. Calcium carbide	7. Calcium carbide, bleaching powder and sodium hydrosulphate
8. Acids (i) Acetyle salicylic acid (ii) Acid olic (iii) Betaoxy nephthoic acid (iv) Acid phospheric	8. Acids
Petroleum products	
9. Calcined petroleum coke	9. Coal, coke and *patent fuel*
10. Asphalt, crude and refined coal tar	10. Asphalt bitumen and coal tar
11. All sorts of mineral and industrial oils	11. Furnace oil
12. Diesel oil High speed diesel oil	12. Refined diesel oil and disel oil not otherwise specified
13. Lubricating oil	13. Blended or compounded lubricating oils and greases
14. Petroleum crude	14. As in the case of petroleum products
15. Kerosene	15. Kerosene oil
16. Motor spirit	16. Motor spirit

Metals	
17. Zinc white, zinc wrought and zinc sheets	17. Zinc
18. Steel	18. The total tax yield from imported steel has been classified into different shares from the point of view of uses and allocation has been made accordingly.
19. Copper (a) Copper wrought and manufactures of copper (b) Copper scraps (c) Copper unwrought ingots (d) Copper welding wires (e) Extended copper rods (f) Copper pipes and tubes (g) Copper wire	19. Copper and copper alloys
20. Aluminium (a) Aluminium in any crude form (b) Aluminium and conductors, sheets circles, strips and foils	20. Aluminium Aluminium sheets
21. Tin *black*	21. Tin *plates*
22. Lead wrought, sheets, ingots, pigs and bead	22. Lead unwrought
Other goods	
23. Rubber products	23. Rubber products
24. Cork manufacture	24. Crown corks
25. Building and engineering materials	25. Construction inputs
26. Marbles and stones	26. Mosaic tiles
27. Glass and glass wares including sheet and plate glass	27. Glass and glass wares
28. Wood and timber	28. Plywood
29. Artificial and synthetic resins	29. Plastic materials and synthetic resins
30. Electric valves	30. Electric valves and tubes
31. Asbestos manufactures	31. Asbestos

The yields from the following imported items can be apportioned among different expenditure groups in the rural and urban sectors on the

basis of expenditure on the relevant or related items as indicated in each case. Where the treatment is different it is separately dealt with.

Imported goods	NSS matching consumption items
1. China clay	1. China clay crockery—only in the urban sector for the groups with per capita monthly expenditure exceeding Rs. 55.
2. Chalk, lime (special kind)	2. Tooth paste, tooth powder
3. Cement, not otherwise specified	3. House rent in the urban sector only
4. Hides and skins (raw and salted)	4. Leather goods in the urban sector only for the per capita monthly expenditure groups of Rs. 75 and above
5. Coral, cowries and shells	5. Ornaments
6. Ivory manufactured	6. Ornaments
7. Seeds not otherwise classified	7. Agricultural goods
8. Rubber seeds	8. Rubber products
9. Hops (agent for beer and medicines)	9. 50 per cent allopathic medicine and 50 per cent foreign liquor
10. Barks and tanning	10. Leather goods
11. Cutch and gambier material (used by gold heaters)	11. Ornaments
12. Gums, resins and lac	12. Plastic goods
13. Plumbago and graphite	13. Stationery articles
14. Printers ink	14. Books, periodicals and newspapers
15. Essential synthetic oil	15. Refined oil
16. Fur skins	16. For the per capita monthly expenditure group of Rs. 100 and above in the urban sector under the head woollen fabrics

17. Wood pulp	17. As in case of paper
18. Silk worm cocoon	18. Silk cloth
19. Wool raw and wool tops	19. Woollen cloth
20. Raw cotton	20. Cotton fabrics
21. Raw flax, jute, raw hemp	21. Jute fabrics
22. Sisal and *aloe* fibre	22. Superfine cotton fabrics
23. Staple fibre	23. Cotton superfine fabrics
24. Artificial silk yarn	24. Artificial silk
25. Yarn (excluding cotton yarn)	25. Artificial silk
26. Glass bead and false pearls	26. Ornaments in the urban sector
27. Gold and silver sheets and plates	27. Gold and silver ornaments
28. Brass rods brass wires	28. Brass utensils
29. Yellow metal alloys	29. Ornaments
30. Plastic and rubber insulated wires	30. Electricity
31. Electrical accessories made of plastics	31. Electricity
32. Batteries	32. 50 per cent radios and 50 per cent torches
33. Molasses	33. Alcohol
34. Batteries for motor vehicles	34. Motor vehicles
35. Articles made of stone or marble	35. House rent in urban area in the per capita monthly expenditure group of Rs. 100 and above
36. Some other chemicals	36. As in the case of chemicals as a whole for Central excise
37. Saccharine alkaloids of opium and their derivatives and iodine in any crude form	37. On the basis of expenditure on allopathic medicines
38. Paints, solutions and compositions containing petroleum	38. Paints and varnishes
39. Silver wire, gold plates and gold leaf	39. Gold and silver ornaments
40. Stainless steel plates, sheets and strips	40. Steel utensils
41. Brass pipes, tubes and ingots	41. Fifty per cent on the basis

	of expenditure on manufactured goods and fifty per cent on brass utensils
42. Earthenware pipes and sanitaryware	42. 50 per cent on earthenware and 50 per cent on residential rent both in the urban sector for the groups with per capita monthly expenditure of Rs 75 and above.

The yield from the following items has been allocated to different expenditure groups on the basis of their expenditure on manufactured goods.

Titanium dioxide; ball bearings; roller bearings; all articles otherwise not specified; sulphur; jute bailing hoops; gums and stick on seed lac; batteries not otherwise specified; nickel pellets; covered crucibles for glass making; all non-ferrous alloys not otherwise specified; hardware iron mongering; non-ferrous nickel alloys; packing engine; 'lithopone; metallic ores all sorts; twist and yarn of flax and jute; nichrome and other electrical resistance wires; all non-ferrous metals; cobalt, chromium, tungsten, etc., antimony ore in any form; paste board, milk board and card board.

C. Imports of Capital Goods and Parts thereof

We can allocate only 10 per cent of the yield in 1973-74 assuming the average life of the assets to be 10 years. The basis of allocation in each case is indicated below:

Item	Basis of allocation
1. Iron and steel-railway track	1. 50 per cent on the basis of expenditure on manufactured goods, and the remaining 50 per cent on the basis of passengers' railway fares
2. Cutlery all sorts (2)	2. Allocated to the groups in the urban sector with per

	capita expenditure above Rs. 75 on the basis of their expenditure on cooked food
3. Metal furniture	3. 50 per cent on the basis of expenditure on manufactured goods, and the remaining 50 per cent on the basis of expenditure on furniture
4. Hurricane lanterns	4. 15 per cent (CSO estimate) is treated as capital formation and is allocated on the basis of expenditure on manufactured goods. The remaining 85 per cent is allocated to the per capita expenditure group of Rs. 100 and above in the urban sector
5. Zip fasteners	5. As in the case of domestic production but allocated to the per capita expenditure groups of Rs. 75 and above per month
6. Textile machinery	6. As has been done in the case of cotton and woollen fabrics
7. Printing and lithographic presses	7. Expenditure on books, newspapers, journals and periodicals
8. Agricultural implements	8. On the basis of expenditure on agricultural goods
9. Dairy and poultry farming appliances	9. Expenditure on milk products and poultry
10. Knitting machines	10. Expenditure on knitted garments (including cotton millmade, cotton handloom, cotton khadi and wool, art silk and pure silk)

11. Electric motors	11. As in the case of domestic production of electric motors
12. Boot and shoe manufacturing machinery	12. As in case of footwear
13. Cinema projecting apparatus	13. Household expenditure on cinema
14. Oil crushing machinery	14. Expenditure on all types of edible oils
15. Petroleum gas well drilling equipment	15. As in the case of petroleum products
16. Refrigerating machinery	16. As in the case of refrigerators
17. Sound recording appliances	17. Expenditure on cinema
18. Sugar manufacturing machinery	18. Expenditure on sugar
19. Machine for carding, spinning wheel, cotton textile machinery, textile machinery and parts and looms of all kinds	19. On the basis of the proportions obtained in respect of the domestic production of textiles
20. Power distribution transformers	20. As in the case of electricity
21. Electrical instruments, apparatus and appliances	21. As in the case of domestic production of electrical appliances
22. Electric medical apparatus	22. Expenditure on allopathic medicines
23. Wireless transmission apparatus	23. Expenditure on communication
24. Tramcars and components	24. Expenditure on conveyance in the urban sector
25. Railway materials, components and parts	25. As in case of railway track
26. Conveyance not otherwise specified	26. Expenditure on other conveyance
27. Carriage carts and parts thereof	27. Expenditure on road conveyance
28. Sparking plugs	28. Expenditure on cars, motor cycles and scooters
29. Single cylinder fuel injection pumps	29. Expenditure on cars
30. Nozzle holders	30. Expenditure on motor vehicles

31. Aeroplane parts	31. Expenditure on hired conveyance other than road, water-ways and railways
32. Optical instruments	32. Expenditure on spectacles
33. Photographic instruments	33. As in the case of domestic production of such instruments
34. Typewriters	34. As in the case of domestic production
35. Office machines	35. 50 per cent treated as government purchases; the remaining 50 per cent is allocated on the basis of expenditure on manufactured goods

In the case of the following capital goods the allocation of the tax yield has been done on the basis of expenditure on manufactured goods: Grinding wheels; Machinery like prime motors and boilers; Mining machinery; Carbon electric; Ships and other vessels; Components of machinery; Passenger lifts; Machinery and parts; Instruments, apparatus and appliances.

D. Imports of Partly Capital Goods and Parts thereof

1. Other furniture

It is assumed that the whole of imported furniture is meant for private household consumption for the group with per capita expenditure of Rs. 100 and above in the urban sector. Thus the entire yield is allocated to this group.

2. Electric fans

The entire yield is allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector under the head 'electric fan'.

3. Motor cycle, scooter and parts thereof

The entire yield is allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector under expenditure on scooters.

4. Motor cars

Government import is taken to be negligible. The whole of the amount is allocated to the group with per capita expenditure of Rs. 100 and above in the urban sector under the head of expenditure on car.

5. Complete wireless receivers

Allocated to the groups with per capita expenditure of Rs. 100 and above in the urban sector under the head expenditure on radios.

6. Refrigerators and parts thereof

The allocation is the same as in the case of domestic production.

7. Sewing machines

Half of the yield is attributed to domestic use by the group with per capita expenditure of Rs. 100 and above in the urban sector and the remaining half is allocated to different expenditure groups on the basis of expenditure on cotton and woollen fabrics.

8. Bicycles and parts thereof

Allocated to the households in the urban sector on the basis of expenditure on cycles.

9. Accessories of motor vehicles

The treatment is the same as in the case of domestic production of motor vehicles.

10. Rubber products other than tyres and tubes

The allocation has been done in the same way as in the case of domestic production of rubber products other than tyres and tubes.

11. Brushes all sorts

The yield has been allocated to urban households with per capita expeniditure of Rs. 100 and above under the head expenditure on toilet requistes.

12. Parts of shoe manufacturing machinery

Allocation has been done in the same way as in the case of shoes produced domestically.

13. Parts of electric medical appliances

Allocation has been done on the basis of expenditure on allopathic medicines.

14. Components and parts of amplifiers and loud speakers

The allocation has been done on the basis of expenditure on radios.

It may be noted that duties on some of the imported goods which were imported specifically for the government sector were ignored. These are mainly animals all sorts, horses of value exceeding Rs 2000, and globes for hurricane lanterns and chimneys and cadmium sulphide and uranium oxide.

III STATE TAXES

A. Sales Taxes

As indicated in the text, we were able to obtain esitmates of commodity-wise yield of sales tax (including Central sales tax) from 13 major States. On this basis, the commodity-wise yield of sales tax in all India (all States combined) was estimated.

The allocation of the burden of sales tax on commodities also subject to excise duties was done in the same manner as for the latter. The allocation of the burden of sales tax on other commodities did not raise any special problems as there were more or less corresponding entries in the NSS consumption data.

B. Electricity Duty

Statistical Abstract of the Indian Union, published by the CSO gives a detailed break-up of the uses of electricity in quantity for all the States

and Union territories taken together and also for individual States and Union territories. The latest *Abstract* Available is for the year 1974, which contains data for 1972-73. According to this information, the share of each type of use in the total consumption of electricity is as follows:

		Million kWh	Percentage of total
1.	Domestic	4309	8.78
2.	Commercial	2852	5.81
3.	Industrial power at low and medium voltage	4546	9.26
4.	Industrial power at high voltage	27698	56.43
5.	Agricultural	5918	12.06
6.	Traction	1761	3.59
7.	Public lighting	520	1.06
8.	Public water works and sewage pumping	1094	2.23
9.	Miscellaneous	390	0.78
	TOTAL	49088	100.00

In the absence of any other information, the share attributable to public lighting, public water works and sewage pumping and miscellaneous (all taken together) has been distributed among various expenditure groups on the basis of rents paid (actual as well as imputed) by urban households. This allocation is based on the assumption that, in the final analysis, the urban house dwellers bear the burden according to the housing facilities enjoyed by them. The share for agricultural use has been distributed on the basis of household expenditure on agricultural goods. The share of traction has been allocated on the basis of expenditure on railway fares and expenditure on manufactured goods, each getting 50 per cent.

C. Motor Vehicles Tax

The Motor Vehicles Tax collections can broadly be classified under (i) motor cycle; (ii) private cars (including jeeps); (iii) taxis inclusive of autorikshahs; (iv) buses (P.S.V.); (v) goods vehicles; and(vi)miscellaneous.

The tax revenue figures for each of these groups are available from the CSO's annual publication, *Statistical Abstract of the Indian Union*. The latest information related to the year 1970-71. The relative shares of the tax revenue of each of those groups obtaining in 1970-71 have been

assumed for 1973-74 also. In the case of motor cycles, private cars and taxis, the distribution among the various expenditure groups in the rural and urban sectors has been done in accordance with the relative shares of expenditure on these items as given in the NSS. However, care has been taken to deduct 4 per cent of the total tax yield (share of government vehicles) before the allocation. In the case of buses the allocation has been done on the basis of expenditure of households on bus fares. As regards goods and miscellaneous vehicles, 50 per cent of tax yield has been distributed among the various expenditure groups on the basis of expenditure on agricultural goods and the remaining 50 per cent on the basis of expenditure on manufactured goods.

D. Goods and Passengers Taxes

The report of the *Taxation Enquiry Committee, Uttar Pradesh*, 1974 gives data on the tax burden of the passengers tax (on 52-seated buses) and goods tax (on trucks with 9 tonnes RLW and 13 tonnes RLW) for 1972-73. The information is available for 8 States, namely, Uttar Pradesh, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Bihar, Gujarat and Madhya Pradesh. Such data are also available for Maharashtra. Information regarding the number of vehicles registered in India with the above break-up is available from *Statistical Abstract of the Indian Union*, 1974. The number of buses (52-seated) has been multiplied by the tax burden to get the total yield from the passengers tax. A similar exercise has been done for trucks (9 tonnes and 13 tonnes RLW) to get the total tax yield from goods tax. The proportions between the two tax yield figures have been applied to the all-India figure of passengers and goods tax yield in 1973-74 to work out the share of each of the items. The share allocated to passengers tax has been distributed among various expenditure groups on the basis of expenditure on bus fares; 50 per cent of the share of goods tax has been distributed on the basis of expenditure on agricultural goods and the remaining 50 per cent on the basis of expenditure on manufactured goods.

E. State Excise Duty

On the basis of the average of the figures, obtained from Uttar Pradesh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and West Bengal, we have broken down the aggregate tax yield into the following groups; (i) country spirit, (ii) country fermented liquor, (iii) opium and (iv) foreign liquor. The distribution has been done on the basis of expenditure on these items. Country spirit has been taken to represent country liquor and country fermented liquor has been taken to represent *toddy*.

F. Entertainment Tax

On the basis of data obtained for four States, namely, Uttar Pradesh, Karnataka, Maharashtra and Punjab, the aggregate tax collection figure is broken down into: (i) cinema theatre and (ii) 'fair'. The share of each group has been distributed among various expenditure groups on the basis of expenditure on the two groups of items.

G. Other taxes

They include mostly cess on sugarcane, tax on raw jute, tobacco duty and betting tax. The cess on sugarcane has been distributed on the basis of household expenditure on sugar and the raw jute tax has been allocated on the basis of expenditure on manufactured goods and agricultural goods as in case of intermediate consumption of jute. Tobacco duty has been allocated on the basis of expenditure on tobacco. Betting tax has been allocated on the basis of household expenditure on fair.

Appendix II

THE METHOD OF ESTIMATING GOVERNMENT SHARE OF INDIRECT TAXES

For the purpose of measuring the incidence of indirect taxation on households as discussed earlier, it has been decided that the share of the tax revenues attributable to general government consumption and capital formation should be excluded from the computation. The taxes paid by the Government on goods purchased for consumption or capital formation represent only accounting transfers and hence they need not be considered to result in a net burden on the private sector. It might be indicated that government consumption is measured by the current expenditure on goods and services and wages of only the government administrative departments including defence. Government capital formation is normally taken to include capital formation by the government administrative departments as well as by the departmental enterprises of the Government. For the purpose of the present study, however, we have excluded capital formation by the departmenal enterprises.

Full details of commodity-wise information on purchases made by the Central government, State governments and the local authorities are not available. The Director General of Supplies and Disposal (DGS & D) publishes, annually, *Directory of Government Purchases*, giving commodity-wise values of purchases made by the Governments. The DGS & D data, however, suffer from three main limitations. Firstly, the coverage of the data is partial because there are no statutory requirements for all the Central and State government agencies to make purchases only through DGS & D. Secondly, government purchases of less than Rs. 20,000 in the case of defence and Rs. 5,000 in case of other ministries are made directly by government departments and other government agencies, a greater part of which is not reflected in the purchases shown in the Directory. Thirdly, separate information on purchases made by the administrative departments of the Central and State governments and those by departmental and non-departmental under-

takings of the Central and State governments is not available. The information contained in the Directory gives only a break-up into (a) purchases made through DGS & D, and (b) orders placed directly by the government departments, government undertakings, etc. On the basis of this break-up, it is not possible to segregate the share of purchases made by government administrative departments.

Information contained in the *Input-Output Table for India*, 1963, could not be used for the reason that the estimates relate to the year 1963 and since then the pattern of government consumption has undergone a great change.

Again, the estimates of fixed capital formation given in the *Input-Output Table for India* relate to the entire economy and separate information for the government administrative departments is not provided. For more or less the same reasons, we could not use also the information contained in the *Material and Financial Balances*, 1966 for drawing estimates of purchases of different categories of commodities by the government sector.

In the absence of any other source of information for the present study, reliance has been placed on the information on public consumption contained in the *Technical Note* of the Planning Commission (See *A Technical Note on the Approaches to the Fifth Plan of India* 1974-79, published in 1973). The Technical Note gives information on the value of purchases made by the Government for consumption(public consumption) in 1973-74 at 1971-72 prices along with the value of total gross output in the economy and the total value of imports for a large number of commodities.

A list of goods purchased for public consumption along with the value of purchase in the year 1973-74 at 1971-72 prices for each item as contained in the Planning Commission's *Technical Note* is given below. It might be pointed out that the gross value of output includes the value of output used for intermediate consumption as well as for final uses. The value of intermediate consumption does not enter into the picture because such goods are purchased by entrepreneurial units of the economy (government and non-government) which are in a position to pass on the incidence to households and government administrative departments through the sale of their output.

TABLE A.5

Value of Public Consumption Goods in 1973-74

(Valued at 1971-72 Prices)

(Rs. crore)

S. No.	Item	Public consumption	Gross output
1	2	3	4
1.	Animal husbandry	2.1	4065.0
2.	Forestry	16.4	686.3
3.	Coal	1.8	296.1
4.	Sugar and *gur*	0.6	762.1
5.	Vegetable oil	0.6	534.0
6.	Tea and coffee	1.2	391.5
7.	Other food products	25.4	2451.7
8.	Cotton textiles	27.4	2350.0
9.	Jute textiles	63.5	413.6
10.	Other textiles	38.9	588.6
11.	Miscellaneous textile products	14.5	688.5
12.	Wood products	45.9	381.2
13.	Paper and paper products	64.6	239.2
14.	Leather products	11.2	191.9
15.	Rubber products	25.7	354.0
16.	Plastics	1.8	152.4
17.	Cosmetics and drugs	2.5	492.5
18.	Other chemicals	4.4	720.8
19.	Petroleum products	27.6	297.9
20.	Other non-metal mineral products	1.3	725.0
21.	Bolts and nuts	0.9	53.4
22.	Metal containers	5.7	67.3
23.	Other metal products	29.9	916.0
24.	Office domestic equipment	4.7	56.7
25.	Electric wires	32.4	232.2
26.	Electronics	19.0	80.5
27.	Batteries	6.1	59.6
28.	Electrical household goods	8.0	98.6
29.	Telephone and Telegraphs equipment	1.4	53.6

30.	Other electricals	57.1	260.7
31.	Motor cycle	0.4	120.6
32	Motor vehicles	51.5	477.0
33.	Ship and boats	7.6	43.7
34.	Aircraft	4.5	40.5
35.	Rail equipment	12.0	352.5
36.	Other transport equipment	24.4	53.4
37.	Miscellaneous scientific instrument	7.8	37.3
38.	Other industries	6.2	433.8
39.	Printing	4.1	176.1
40.	Electricity	22.0	1025.3
41.	Construction	350.4	4856.7
42.	Railways	7.3	1203.0
43.	Other transport	25.0	1476.9
44.	Other services	3753.0	12454.3

Source : *A Technical Note* on the Approaches to the Fifth Plan for India, 1974-79, Planning Commission, April 1973.

We find three types of goods purchased for government consumption : (i) some goods mostly in the nature of consumption goods; (ii) some in the nature of capital goods; and (iii) the remaining in the nature of services. Items 1 to 25 and 27 are consumption goods; item 26 and 28 to 38 and 41, are capital goods and items 39, 40, 42 and 44, services. In the case of those goods which are mostly in the nature of consumption goods, the procedure of estimating the Government share of indirect taxes is simple. We have the ratios of the value of government consumption to the total value of output plus import in respect of each item. This ratio has been applied to the total value of tax yield for each commodity (including sales tax) separately to work out the share of tax yield allocable to government consumption. In some cases, however, the break-up of government consumption in the necessary detail is not available. In all such cases, many taxable items have been clubbed together to make them comparable to government consumption items.

Expenditure on goods of a capital nature for defence purposes only is treated as expenditure on consumption. The goods of a capital nature indicated in the above table under public consumption represent goods meant for defence purposes. Most of these goods are free from excise duties. Those which are subject to duties have been dealt with in the same fashion as we have done in the case of goods mostly in the nature of consumption goods.

The main difficulty arises in the case of capital formation. The estimates of gross fixed investment given in the *Technical Note include* capital formation in the government administrative departments. Item-wise information on fixed investment by government administration, however, is not available. The methodology followed for estimating item-wise value of capital formation by the administrative departments is as follows.

In the case of construction, following the CSO practice, it is assumed that government construction falls into the category of those works which need material inputs. They are covered by the commodity flow approach of estimation of capital formation in India by the CSO. We could obtain from the CSO value of construction falling into the category of commodity-flow approach broken up into government administration and the rest. The amount of tax yield worked out for construction inputs can be broken up into government administration and the rest on the basis of the ratio of the value of government construction in 1973-74 under the commodity-flow approach to the total value of construction under the commodity-flow approach.

For items of the nature of fixed capital investment in machinery and equipment, we do not have separate item-wise break-up into government administration and the rest. In the case of motor cars and motor cycles, however, the Directorate General of Technical Development was in a position to give the percentage of total cars and motor cycles produced (4 per cent) going to government administrative departments of the Central and State governments. Therefore, 4 per cent of the tax yield from cars and motor cycles has been taken as attributable to government administrative departments. The remaining items of capital formation in government administration is taken to be negligible and hence ignored. Construction in the government sector and purchase of motor cars and motor cycles by the Government cover a very large part of the capital formation by government administration departments. According to the CSO, these two items cover about 95 per cent of gross fixed investment in government administration.

STATISTICAL APPENDIX

TABLE I

Per Capita Per Annum Consumer Expenditure, Indirect Tax Burden and Indirect Tax burden as Per Cent of Consumer Expenditure (1973-74)[1]

Monthly per capita expenditure group (Rs.)	RURAL							
	0—15	15—28	28—43	43—55	55—75	75—100	100 and above	All households
1	2	3	4	5	6	7	8	9
Total consumer expenditure								
Rs. Per capita per annum	164.66	311.20	478.55	653.01	855.11	1146.46	1907.89	713.74
Amount of tax Rs. per capita per annum								
CENTRAL TAXES	2.76	5.80	12.36	24.04	36.37	72.48	196.45	35.38
1. Central excise	2.34	4.66	9.60	19.07	27.93	55.56	150.17	27.46
2. Import duty	0.42	1.14	2.76	4.97	8.44	16.92	46·28	8.12
STATES TAXES	2.03	4.57	8.92	16.30	21.02	42.38	111.99	21.72
1. State excise	0.37	0.83	1.52	4.10	3.18+	10.63	34.80	5.22
2. Sales tax	1.04	2.55	4.66	7.57	10.46	18.99	46.22	10.01
3. Sales tax on motor spirit	0.06	0.10	0.24	0.43	0.73	1.26	3.37	0.64
4. Motor vehicles tax	0.25	0.48	0.94	1.45	2.14	3.51	7.82	1.88
5. Taxes on goods and passengers	0.17	0.31	0.76	1.29	2.03	3.60	8.21	1.78
6. Entertainment tax	0.00	0.00	0.18	0.29	0.73	1.33	3.67	0.61
7. Electricity duty	0.11	0.22	0 44	0·74	1.21	1.98	5.00	1.04
8. Other taxes and duties	0.03	0.08	0.18	0.43	0.54	1.08	2.90	0.54
ALL INDIRECT TAXES	4.79	10.37	21.28	40.34	57.39	114.86	308.44	57.30

TABLE I (*Contd.*)

	R	U	R	A	L			
	2	3	4	5	6	7	8	9
Tax as percentage of consumer expenditure (per cent)								
CENTRAL TAXES	1.68	1.86	2.58	3.68	4.25	6.32	10.30	4.99
1. Central excise	1.42	1.50	2.01	2.92	3.27	4.85	7.87	3.85
2. Import duty	0.26	0.37	0.58	0.76	0.99	1.48	2.43	1.14
STATES TAXES	1.23	1.47	1.86	2.50	2.46	3.70	5.87	3.04
1. State excise (on liquor)	0.22	0.27	0.32	0.63	0.37	0.93	1.82	0.73
2. Sales tax	0.63	0.82	0.97	1.16	1.22	1.66	2.42	1.40
3. Sales tax on motor spirit	0.04	0.03	0.05	0.07	0.09	0.11	0.18	0.09
4. Motor vehicles tax	0.15	0.15	0.20	0.22	0.25	0.31	0.41	0.26
5. Taxes on goods and passengers	0.10	0.10	0.10	0.20	0.24	0.31	0.43	0.25
6. Entertainment tax	0.00	0.00	0.04	0.04	0.09	0.12	0.19	0.09
7. Electricity duty	0.07	0.07	0.09	0.11	0.14	0.17	0.26	0.15
8. Other taxes and duties	0.02	0.03	0.04	0.07	0.06	0.09	0.15	0.08
ALL INDIRECT TAXES	2.91	3.33	4.45	6.18	6.71	10.02	16.17	8.03

TABLE II

Per Capita Per Annum Consumer Expenditure, Indirect Tax Burden and Indirect Tax burden as Per Cent of Consumer Expenditure (1973--74)

Monthly per capita expenditure group (Rs.)	U R B A N							
	0—15	15—28	28—43	43—55	55—75	75—100	100 and above	All households
1	2	3	4	5	6	7	8	9
Total consumer expenditure Rs. per capita per annum	166.73	329.49	497.05	671.74	879.75	1179.35	2164.41	971.86
Amount of tax Rs. per capita per annum								
CENTRAL TAXES	4.04	12.32	22.67	40.11	66.95	110.92	454.33	116.87
1. Central excise	4.04	10.25	18.65	33.18	55.00	91.68	363.12	94.54
2. Import duty	0.00	2.07	4.02	6.93	11.95	19.24	91.21	22.33
STATES TAXES	2.01	8.48	13.92	24.78	37.38	63.67	199.05	57.65
1. State excise	0.00	0.44	0.09+	1.31	1.40	9.32	49.10	9.77
2. Sales Tax	0.50	5.14	8.85	14.88	21.60	32.55	89.02	28.86
3. Sales tax on motorspirit	0.00	0.23	0.41	0.88	2.05	2.99	8.73	2.56
4. Motor vehicles tax	0.00	0.82	1.25	1.84	2.86	3.75	17.95	4.72
5. Taxes on goods and passengers	0.00	0.55	0.87	1.40	2.55	3.46	8.60	2.94
6. Entetainment tax	1.51	0.55*	1.18	2.46	3.77	6.84	16.85	5.29
7. Electricity duty	0.00	0.49	0.86	1.44	2.16	3.14	7.43	2.62
8. Other taxes and duties	0.00	0.26	0.41	0.57	0.99	1.62	1.37	0.89
ALL INDIRECT TAXES	6.05	20.80	36.59	64.89	104.33	174.59	653.38	174.52

TABLE II (*Contd.*)

	U	R	B	A	N			
	2	3	4	5	6	7	8	9
Tax as percentage of consumer expenditure (per cent)								
CENTRAL TAXES	2.42	3.74	4.66	5.97	7.61	9.41	20.99	12.03
1. Central excise	2.42	3.11	3.75	4.94	6.25	7.77	16.78	9.73
2. Import duty	0.00	0.63	0.81	1.03	1.36	1.63	4.21	2.30
STATES TAXES	1.21	2.57	2.80	3.69	4.25	5.40	9.20	5.93
1. State excise (on liquor)	0.00	0.13	0.02	0.20	0.16	0.79	2.27	1.01
2. Sales tax	0.30	1.56	1.78	2.22	2.46	2.76	4.11	2.97
3. Sales tax on motor spirit	0.00	0.07	0.08	0.13	0.23	0.25	0.40	0.26
4. Motor vehicles tax	0.00	0.25	0.25	0.27	0.33	0.32	0.83	0.49
5. Taxes on goods and passengers	0.00	0.17	0.18	0.21	0.29	0.29	0.40	0.30
6. Entertainment tax	0.91	0.17	0.24	0.37	0.43	0.58	0.78	0.54
7. Electricity duty	0.00	0.15	0.17	0.21	0.25	0.27	0.34	0.27
8. Other taxes and duties	0.00	0.08	0.08	0.08	0.11	0.14	0.06	0.09
ALL INDIRECT TAXES	3.63	6.31	7.36	9.66	11.86	14.80	30.19	17.96

TABLE III

Per Capita Per Annum Consumer Expenditure, Indirect Tax Burden and Indirect Tax Burden as Per Cent of Consumer Expenditure (1973-74)

Monthly per capita lexpenditure group (Rs.)	RURAL AND URBAN COMBINED							
	0—15	15—28	28—43	43—55	55—75	75—100	100 and above	All house-holds
1	2	3	4	5	6	7	8	9
Total consumer expenditure Rs. per capita per annum	164.75	312.91	481.29	656.57	860.75	1155.78	2006.09	765.13
Amount of tax Rs. per capita per annum								
CENTRAL TAXES	2.83	6.41	13.88	27.10	43.37	83.38	295.14	51.77
1. Central excise	2.43	5.18	10.94	21.76	34.13	65.80	231.67	40.82
2. Import duty	0.40	1.23	2.94	5.34	9.24	17.58	63.47	10.95
STATES TAXES	2.04	4.94	9.67	17.90	24.76	48.43	145.30	28.88
1. State excise	0.35	0.79	1.30	3.57	2.77+	10.26	40.27	6.12
2. Sales tax	1.02	2.79	5.28	8.96	13.01	22.84	62.60	13.76
3. Sales tax on motor spirit	0.05	0.11	0.27	0.51	1.03	1.75	5.42	1.03
4. Motor vehicles tax	0.24	0.52	0.99	1.53	2.31	3.58	11.70	2.45
5. Taxes on goods and passengers	0.16	0.34	0.78	1.31	2.15	3.56	8.36	2.01
6. Entertainment tax	0.08	0.05	0.33	0.70	1.43	2.89	8.71	1.54
7. Electricity duty	0.11	0.24	0.50	0.87	1.42	2.31	5.93	1.36
8. Other taxes and duties	0.03	0.10	0.22	0.45	0.64	1.24	2.31	0.61
ALL INDIRECT TAXES	4.87	11.35	23.55	45.00	68.13	131.81	440.44	80.65

TABLE III (*Contd.*)

	RURAL AND URBAN COMBINE							
	2	3	4	5	6	7	8	9
Tax as percentage of consumer expenditure (per cent)								
CENTRAL TAXES	1.72	2.05	2.88	4.13	5.04	7.21	14.71	6.77
1. Central excise	1.47	1.66	2.27	3.31	3.97	5.69	11.55	5.34
2. Import duty	0.24	0.39	0.61	0.81	1.07	1.52	3.16	1.43
STATES TAXES	1.24	1.58	2.01	2.73	2.88	4.19	7.24	3.77
1. State excise on (liquor)	0.21	0.25	0.27	0.54	0·33	0.89	2.01	0.80
2. Sales tax	0.62	0.89	1.10	1.36	1.51	1.98	3.12	1.80
3. Sales tax on motor spirit	0.03	0.04	0.06	0.08	0.12	0.15	0.27	0.13
4. Motor vehicles tax	0.15	0.17	0.21	0.23	0.27	0.31	0.58	0.32
5. Taxes on goods and passengers	0.10	0.11	0.16	0.20	0.25	0.31	0.42	0.26
6. Entertainment tax	0.05	0.02	0.07	0.11	0.17	0.25	0.43	0·20
7. Electricity duty	0.07	0.08	0.10	0.13	0.16	0.20	0.30	0.18
8. Other taxes and duties	0.02	0.03	0.05	0.07	0.07	0.11	0.12	0.08
ALL INDIRECT TAXES	2.96	3.63	4.89	6.85	7.92	11.40	21.96	10.54

[1]The aggregated value of consumer expenditure for the household sector calculated on the basis of NSS data is lower than the corresponding CSO estimate. The NSS estimates have therefore been blown up to match the CSO estimates.

\+ The estimates of the consumption of liquor as per NSS data is less for the expenditure group Rs. 55-75 than for the group Rs. 43-55.

× NSS consumer expenditure on country liquor for the expenditure group Rs. 28-43 is less than for the expenditure group Rs× 15-28. NSS consumer expenditure on cinema theatre etc., is less for the expenditure group Rs. 15-28 than for the groups Rs. 0-15 and Rs. 28-43.

TABLE IV

Total Annual Cash Purchase Expenditure As Percentage of Total Annual Expenditure

Monthly per capita expenditure group (Rs.)	Rural	Urban	All India
	Total annual cash purchase expenditure as per cent of total annual expenditure	Total annual cash purchase expenditure as per cent of total annual expenditure	Total annual cash purchase expenditure as per cent of total annual expenditure
0—15	64	81	65
15—28	63	93	66
28—43	61	93	66
43—55	60	94	66
55—75	59	93	67
75—100	61	93	70
100 and above	72	96	82
All households	62	94	70

SOURCE: 28th NSS round, 1973-74.

Incidence of Indirect Taxation in India 1973-74

This book attempts to measure the incidence of indirect taxes levied by the Centre and the States in India for the year 1973-74. As these taxes account for about 80 per cent of the taxes levied by the Centre and States, their incidence is of crucial importance and is a subject matter of wide-spread interest.

While this study employs the same basic approach as the earlier studies by the Taxation Enquiry Commission (1953-54) and the Ministry of Finance, it incorporates several methodological improvements. The treatment of indirect taxes falling on general government consumption, for example, represents an important innovation. Similarly, the allocation of taxes falling on inputs has been done on a far more scientific basis than in the earlier studies. The availability of more disaggregated consumption as well as tax data and the use of input-output information have enabled a much more accurate allocation of tax burden than was attempted or possible earlier. And for the first time, the detailed methodology has been presented for information and evaluation. In terms of conceptual refinement and methodological rigour, the present study can be said to make a great advance over earlier studies.

The book will be of interest not only to policy makers and professional research workers in applied economics, but also to teachers and students of economics at the post-graduate level in all developing countries.

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