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.