Concepts, Issues and Methodology of Estimation

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INTRODUCTION

A subsidy, often viewed as the converse of a tax, is a potent welfare-augmenting instrument of fiscal policy. Derived from the Latin word 'subsidium', meaning 'troops stationed in reserve', a subsidy literally implies coming to assistance from behind. Like an indirect tax, it can alter relative prices and budget constraints and thereby affect decisions concerning production, consumption, and allocation of resources. Subsidies in areas such as education, health and environment merit justification on grounds that their benefits are spread well beyond the immediate recipients, and are shared by the population at large, present and future. For many other subsidies, however, the case is not so clearcut. Arising due to extensive governmental participation in a variety of economic activities, there are many subsidies that shelter inefficiencies or are of doubtful distributional credentials. Subsidies that are ineffective or distortionary need to be weaned out, for an undiscerning, uncontrolled and opaque growth of subsidies can be deleterious for a country's public finances.

In India, as also elsewhere, subsidies now account for a significant part of government expenditures although, like that of an iceberg, only their tip may be visible. It has often been contended that subsidies have spun out of control. The commitment made by the Finance Minister on July 22, 1996 in his budget speech for 1996-97 (Part A, para 29, p. 10) for providing a discussion paper on subsidies which will "list all the subsidies, visible and hidden" for the purpose of having an informed debate on the "overall level of subsidies ... and their appropriate targeting", reflects a keenness to deal squarely with a vital fiscal issue, and shares a similar concern expressed elsewhere in the world in recent years, in individual countries[1] as well as by international institutions.[2] Any programme of fiscal correction would need to recast our extensive subsidy regime with a view to reducing its quantum and increasing its efficacy. Apart from explicit subsidies like those on food,

fertiliser and exports, a substantial portion of subsidies remain hidden in the provision of social and economic services by the Central and the State governments. While, in principle, it may be possible to recover the costs of providing these services from their users, overwhelmingly large portions of these costs remain unrecovered. These implicit subsidies not only cause a considerable draft on the otherwise strained fiscal resources, but may also fail on the anvil of equity and efficiency.

In the context of their economic effects, subsidies have been subjected to an intense debate in India in recent years. Issues like the distortionary effects of agricultural subsidies on the cropping pattern, their impact on inter-regional disparities in development, the sub-optimal use of scarce inputs like water and power induced by subsidies, and whether subsidies lead to systemic inefficiencies have been examined at length. Inadequate targeting of subsidies, particularly the food subsidies, has especially been picked up for discussion. While we make a reference to some of these issues, our major concern in this book is to provide a comprehensive estimate of budget-based subsidies in India. Comparisons of subsidies across countries are often based on national income accounts, where a relatively narrower view of subsidies is taken, and as such subsidies are understated. In the ensuing discussion, a more comprehensive view of subsidies is taken. Attention is focused on bringing out the magnitude of the implicit subsidies, in addition to the explicit ones, so as to form an idea as to how heavy a draft do they constitute on the scarce fiscal resources of the economy. As such, the objective of this study is to provide an estimate of (i) the aggregate volume of governmental subsidies, (ii) its distribution across services and (iii) the extent of subsidisation in different services. Some of the major subsidies in India have been discussed individually, including the distributional pattern of their benefits. The Central and State governments are both covered.

While most subsidies emanate from the budgets, there are others which may be quasi-fiscal, or completely off-budget, arising out of regulations and administered price regimes. In this study, however, the focus is on budget-based subsidies, and our estimates do not include off-budget subsidies, although we do refer to some of these in our subsequent discussions. The outline of this study is as follows. This introductory chapter provides an analytical discussion of subsidies, their meaning, objectives, alternative modes and other related issues including alternative methodologies of estimating subsidies. In Chapter 2, a discussion along with a comprehensive estimate of the Central government subsidies, explicit as well as implicit, is presented. In Chapter 3, a similar discussion and estimation of State government subsidies

are dealt with. A comprehensive estimate of subsidies at the all-India level is put together in Chapter 4. Issues concerning the relative distribution of the benefits of subsidies among different classes of beneficiaries are discussed in Chapter 5. Finally, in Chapter 6 the conclusions are summarised.

SUBSIDY: MEANING AND ECONOMIC RATIONALE

a. Meaning of Subsidy

In defining a subsidy, as with many other concepts, economists have not settled upon a commonly acceptable definition [as noted by Prest (1974)]. The House Committee on Agriculture of the U.S. Congress (1972) acknowledged that "the definition of a subsidy, like that of beauty, varies with the beholder" and Houthakker (1972) observed that "the concept of a subsidy is just too elusive to even attempt to define". The term "subsidy" has been used in the literature in a variety of ways, often implying different meanings and connotations. The dictionary meaning (Concise Oxford) of the term itself is quite helpful: "money granted by State, public body, etc., to keep down the prices of commodities, etc.". The Joint Economic Committee of the U.S. Congress (1972) had defined subsidy as government assistance for which no equivalent compensation is received in return, but the assistance is conditioned "on a particular performance by the recipient".

b. Objectives of Subsidies

Subsidies, by means of creating a wedge between consumer prices and producer costs, lead to changes in demand/supply decisions. Subsidies are often aimed at: (i) inducing higher consumption/production; (ii) offsetting market imperfections including internalisation of externalities; and (iii) achievement of social policy objectives including redistribution of income. If markets do not allocate resources to their most efficient use, subsidies may be used to offset market imperfections. Several examples may be cited. As a result of free riding, there may be under-investment in research and development activities. A subsidy for research and development can correct this underinvestment. Similarly, market interest rates may be above the social rate of return due to market imperfections leading to an underinvestment in socially profitable activities. An interest subsidy may provide the necessary corrective. A subsidy may enable a domestic firm to successfully withstand foreign competition by taking advantage of the economies of scale. Social policy objectives such as the provision of essential goods at fixed and at lower

than market prices can be achieved using subsidies. Subsidies may also substitute for trade barriers, which may have to be withdrawn due to international pressures as a sequel to a country's joining of world trade agreements or economic unions.

c. Forms of Subsidies

A cash payment to producers or consumers is an easily recognisable form of a subsidy. But, it also has many invisible forms. Thus, it may be hidden in reduced tax liabilities, low-interest government loans or government equity participation. If the government procures goods, such as foodgrains, at higher than market prices or if it sells goods at lower than market prices, subsidies are implied. An important form of a subsidy, *viz.*, a regulatory subsidy emerges in the context of government regulation or control of prices and/or quantities. These subsidies often operate off the budget, implying a transfer, such as one from the producers to the consumers, without going through the budgetary process. Some important forms of subsidies are indicated below—

Forms of Subsidies

- Cash subsidies (e.g., food, fertiliser, export)
- Interest or credit subsidies (loans given at lower than market rates)
- Tax subsidies (e.g., tax exemption of medical expenses, deducting mortgage interest payment from taxable income, postponing collection of tax arrears)
- In-kind subsidies (provision of free medical services through government dispensaries, provision of goods to target population in physical form)
- Equity subsidies (investment in equity in State enterprises giving low dividends)
- Procurement subsidies (e.g., purchase of foodgrains at assured higher than market prices)
- Regulatory subsidies (fixation of price/quantity in the case of goods produced by public/private sector)

It is useful to distinguish between (i) budget-based subsidies; (ii) off-budget subsidies; and (iii) subsidies that are initially off-budget but which find their way ultimately into the budget. For example, a public enterprise may be asked to sell its output at an artificially low price and the losses that accrue over a period are offset by budgetary support. A subsidy may implicitly arise when exchange risk is borne by the Central Bank or other

financial institutions on loans that are denominated in foreign currency. In such cases, if the exchange-rate depreciates, the consequent losses will have to be borne by the Central Bank or the concerned financial institutions. These implicit subsidies arise outside the budget, and often remain unnoticed.

d. Transfers and Subsidies

Transfers which are straight income supplements need to be distinguished from subsidies. An unconditional transfer to an individual would augment his income and would be distributed over the entire range of his expenditures. A subsidy however refers to a specific good, the relative price of which has been lowered because of the subsidy with a view to changing the consumption/allocation decisions in favour of the subsidised good. In this sense, transfers and subsidies can be considered respective obverses of direct and indirect taxes. Even when subsidy is hundred per cent, i.e., the good is supplied free of cost, it should be distinguished from an income-transfer (of an equivalent amount) which need not be spent exclusively on the subsidised good. Just as direct taxes are generally preferred to indirect taxes, transfers may be preferred to subsidies on the ground that (i) any given expenditure of State funds will increase welfare more if it is given as an income-transfer rather than via subsidising the price of some commodities, and (ii) transfer payments can be better targeted at specific income groups as compared to free or subsidised goods.

e. Economic Rationale of a Subsidy

Subsidies are advocated as correctives for market failures. In the presence of externalities or other forms of market failures, the private costs and benefits may not be aligned with the social costs and benefits leading to sub-optimal results. Some examples in which externalities are present may be cited as: 'inoculation' against an infectious disease; a literacy programme, waste disposal, plantation of trees, etc. In these cases, a subsidy is introduced with a view to bringing into alignment the private demand with social demand (for an analytical discussion see Appendix 1).[3]

f. Modes of Administering a Subsidy

A subsidy programme may be administered in a number of ways. Some alternative modes are discussed below.

i. Subsidy to Producers

A subsidy may be given to the producers of a good with the objective of augmenting its consumption. This would result in increasing the supply, thereby enabling a higher consumption of the good. Such subsidies may also be given to offset losses of producers to ensure continued production.

ii. Subsidy to Consumers

A straightforward way of encouraging consumption of a good is by giving the subsidy directly to the consumers, which would result in an increase in demand (at every price level). In general, subsidy to consumers on final goods may be recommended in preference to other modes, as it is easier to monitor the distributional impact of the subsidy in this case.

iii. Subsidy to Producers of Inputs

When a particular good can be produced by using different combinations of inputs, the use of a particular input is encouraged by providing subsidies on such an input being used in the production of the concerned good. This may also lead to lower prices for the consumer, and higher profit margins for the producers. The input subsidy can be provided in the form of cash subsidy to the producers of the input, per unit of output produced, or to the producers of the concerned good per unit of input used.

iv. Production/Sales Through Public Enterprise

Subsidies may be administered through direct intervention in the market by setting up a public enterprise to produce/procure/distribute the goods in question or their inputs at chosen administered prices. The difference in the market price and the actual sale/purchase price leads to the subsidy, while the government has to the sustain the losses incurred by the enterprise.

g. Cross-Subsidies

It is often possible to distinguish between classes of consumers for a good or a range of goods. For example, a distinction can be made between commercial and domestic users of electricity. Similarly, within the broad group of petroleum products a distinction may be made between kerosene and diesel vis-a-vis petrol and turbine fuel. If a certain sector with one or more products is subjected to an administered price regime, it is possible to charge

some consumers (product-wise or use-wise) a price which is more than cost so as to finance a subsidy given to other consumers by charging them a price which is less than cost. Such intra-sectoral financing of a subsidy involves cross-subsidisation. In such cases, if a net subsidy is still left after cross-subsidisation, it will be a charge on the general budget.

h. Subsidy Targeting

When subsidies are recommended because of market failures or other social objectives, they can be distributed among individuals according to a set of selected criteria, e.g., (i) merit, (ii) income-level, (iii) social group, etc. Usually such discrimination itself is administratively costly. Two types of errors arise if proper targeting is not done, i.e., exclusion errors and inclusion errors. In the former case, some of those who deserve to receive a subsidy get excluded, and in the latter case, some of those who do not deserve to receive subsidy get included in the subsidy programme.

i. Effects of Subsidies

Economic effects of subsidies can be broadly grouped into (i) allocative effects, (ii) redistributive effects, (iii) fiscal effects and (iv) trade effects. Allocative effects relate to the sectoral allocation of resources. Subsidies help draw more resources towards the subsidised sector. Redistributive effects, as between producers and consumers, and as between rural and urban population, or between rich and poor population, generally depend upon the elasticities of demand of the relevant groups for the subsidised good as well as the elasticity of supply of the same good, and the mode of administering the subsidy. Subsidies have obvious fiscal effects since a large part of subsidies emanate from the budget. They directly increase fiscal deficits. Subsidies may also indirectly affect the budget adversely by drawing resources away from tax-yielding sectors towards sectors that may have a low tax-revenue potential. Often, a regulated price, which is substantially lower than the market clearing price, may reduce domestic supply and lead to an increase in imports. On the other hand, subsidies to domestic producers may enable them to offer internationally competitive prices, reducing imports or raising exports.

Subsidies may also lead to perverse or unintended economic effects. They would result in inefficient resource allocation if imposed on a competitive market or where market imperfections do not justify a subsidy, by diverting economic resources away from areas where their marginal

productivity would be higher. Generalised subsidies waste resources; further they may have perverse distributional effects endowing greater benefits on the better-off people. For example, a price control may lead to lower production and shortages and thus generate parallel markets resulting in profits to operators in such markets and economic rents to privileged people who have access to the distribution of the good concerned at the controlled price.

Subsidies have a tendency to self-perpetuate. They create vested interests and acquire political hues. Also, it is difficult to control the incidence of a subsidy since their effects are transmitted through the mechanism of the market, which often has imperfections other than those addressed by the subsidy.

j. Subsidies and Tax Expenditures

Often, tax exemptions and concessions are given to selected industries, sectors, regions, and sources of income, etc., so as to reduce the tax burden for these relative to other comparable categories. These concessions amount to first raising the tax from the concerned sectors at the general tax rates, and then spending it back on the chosen sectors. For this reason, these amounts have been referred to as "tax expenditures". It is often said that tax expenditures should also be taken as subsidies. If tax expenditures pertain to income based taxes, they may be taken as transfers, and if they pertain to commodities, they may be taken as subsidies.

Measurement of tax expenditures require a separate methodology. To our knowledge, no attempt has so far been made to estimate the extent of tax expenditures in the Indian context. We have also not attempted this exercise. To the extent that there are commodity based exemptions, there is an implicit subsidisation relative to some 'general' tax rate.

Conceptually, if a 'zero tax, zero subsidy' situation is taken as a point of reference, each marketed commodity can be considered in terms of a 'net tax' that is levied on it. To account for inter-industry linkages, and input taxation/subsidisation, effective tax/subsidy rates can be worked out using an input-output framework. Such an exercise has not been attempted here. Here, subsidy estimates refer not to commodities, but to sectors. Subsidies are estimated in an ex-post sense, as costs that were incurred but could not be recovered. The level of aggregation is generally the major heads in the budgetary classification, unless otherwise indicated. In particular, in the identification of merit/non-merit services, sub-aggregates within a major head

have sometimes been considered.

k. Inefficiency Costs in Governmental Provision of Services

It is arguable that instead of governmental provision, if a similar service was provided by the private sector, the costs of provision of the service would have been less. In other words, the government may be subsidising its own inefficiency to a considerable extent, and to that extent the benefit of the subsidy does not really accrue to the user/consumer. In this study, unrecovered costs include excess costs relating to governmental inefficiency. For one thing, it is very difficult to work out what the service costs would be if the provision came from an efficient source. Secondly, if a society chooses a very large role for the government, including production, procurement and distribution in activities where the private sector could have easily participated, the society would then have to bear the inefficiency costs associated with governmental operations. Governmental participation comes as a composite good and inefficiency is part of that composition. Alternatively, the government can reduce the volume of subsidies and still ensure the same level of provision of a service by subsidising private production/provision rather than directly taking up many of the concerned activities on itself.

SUBSIDY ISSUES IN INDIA

Subsidies have proliferated in India for several reasons. In particular, this proliferation can be traced to (i) the expanse of governmental activities, (ii) relatively weak determination of governments to recover costs from the respective users of the services, even when this may be desirable on economic grounds, and (iii) generally low efficiency levels of governmental activities. Concern has been shown for the impact of burgeoning subsidies on the fiscal deficit of the system, the distributional impact of these subsidies, and their influence on the productive efficiency of the system as a whole. In the context of their economic effects, subsidies have been subjected to an intense debate in India in recent years. Some of the major issues that have emerged in the literature are indicated below:

- whether the magnitude and incidence of subsidies, explicit and implicit, have spun out of control; their burden on government finances being unbearable, and their cost being felt in terms of a decline of real public investment in agriculture and

irrigation [Shetty (1990), Narayan (1987)];

- whether agricultural subsidies distort the cropping pattern and lead to inter-regional disparities in development [Subba Rao (1984), Gulati (1989)];

- whether general subsidies on scarce inputs like water and power have distorted their optimal allocation [Rao and Mundle (1992)];

- whether subsidies basically cover only inefficiencies in the provision of governmental services, i.e., are we only subsidising governmental inefficiency [Sirohi (1984), Gupta (1996)];

- whether subsidies (like food subsidies) have a predominant urban bias [George (1988), Parikh and Suryanarayana (1989), Quizon and Binswanger (1984)];

- whether subsidies are mistargeted [Asha (1986), Jha (1991), Parikh (1993, 1997)];

- whether subsidies have a deleterious effect on general economic growth on sectors not covered by subsidies [Sirohi, *et.al.* (1984)];

- whether agricultural subsidies are biased against small and marginal farmers [Hanumantha Rao (1983), Singh and Chand (1986)];

- how should government services be priced or recovery rates determined [Sisodia (1992)];

- whether inputs subsidies in agriculture have outlived their aim and are no more sustainable [Gulati and Sharma (1995), Bhujanga Rao (1997)]; and

- what is the impact of subsidies on the quality of environment and ecology [Ratna Reddy and Deshpande (1992)].

It may be noted that discussions on subsidies in India have centred, by and large, around the explicit subsidies provided by the government. Elsewhere, especially in the context of international comparisons, attention has been focused on subsidy estimates prepared in the context of national income accounts. In both these cases, the perspective provided on subsidies is narrower than warranted. Our major concern in this study is to provide a comprehensive estimate of budget-based subsidies in India.

Approaches to Estimation of Subsidies

Measurement of the magnitude of subsidies is not a straightforward exercise. Different approaches and conventions appear to have evolved in this context. Differences in methodologies arise with respect to (i) source of information (Budgets or National Accounts or other sources), (ii) coverage of transactions (cash subsidies only or subsidies implicit in soft loans, government guarantees; budget-based subsidies only or also extra-budgetary subsidies; gross cost to government or only net costs), (iii) sectoral coverage (agriculture, manufacturing, etc.) and (iv) measurement basis (focus on recipients of subsidies or ultimate beneficiaries). Two major conventions in the estimation of subsidies relate to measurement through (i) the budgets and (ii) the National Accounts.

a. Budget-Based Approach

Budgetary cost of subsidies is usually defined as budget outlays on a service net of cost recovery through user charges, etc. It is commonly recognised that entries in the budget under the head of 'subsidies' would give a very incomplete picture of subsidies. Since observed or explicit subsidies cover only a fraction of total subsidies, methodologies have been developed to also estimate the implicit subsidies in the system as unrecovered cost of public services, at least for those public goods (services) where the principle of non-rivalry and non-excludability is not applicable. In these cases, it should be possible to recover, at least in principle, the cost of providing services according to the extent of their consumption. It is a general practice to exclude pure public goods such as defence, general administration, etc., in the context of subsidies, although subsidies may arise even in the process of producing a pure public good. For example, in the case of defence expenditure, there may be a procurement subsidy in the purchase of defence goods.

Estimation of costs involves estimation of both variable (recurring or current) costs and fixed costs. Provision for revenue expenditure, under the relevant head is usually taken as the variable cost. Thus, subsidy (S) may be defined as the excess of cost, variable or recurring (C1), and annualised capital cost (C2) over the recoveries (R) in the form of user charges, or dividend or interest received, etc. Thus,

$$S = (C1 + C2) - R$$

Correspondingly, the subsidy rate and the recovery rate may be defined as

$$s = S/C \text{ and } r = R/C, \text{ where } C = C1 + C2, \text{ and } (s + r) = 1$$

The estimate of subsidies in this manner would provide a comprehensive budget-based view of subsidies in which both explicit and implicit subsidies would be included. It may be recalled that since many subsidies arise outside the budget (e.g., regulatory subsidies, subsidies administered through public accounts with a locus outside the budget), the budget-based approach also does not fully cover all the subsidies in the system.

b. Subsidies Based on National Income Accounts

In national income accounts, indirect taxes are deducted and subsidies are added in order to arrive at estimates of gross domestic product (GDP) at factor cost from the estimates of GDP at current market prices. Indirect taxes that are part of the sale price of commodities do not create incomes for factors of production. They are, therefore, deducted from GDP at market prices to get at GDP at factor cost. On the other hand, subsidies have the reverse effect. A subsidy received by a firm will be paid out as wages, rents or profits, and would therefore, become an income of the factors of production. However, this component of their income is not generated by the sale of output. Hence, subsidies must be added to expenditure, i.e., GDP at market prices.

In the methodology adopted by the Central Statistical Organisation (CSO) for national income accounting in India, subsidies include grants on current account which private industries, public corporations and government enterprises receive from the government. These may take the form of direct payments to producers or differentials between the buying and selling prices of government trading organisations. Thus, subsidies are transfers which add

to the incomes of the producers from current productions. The grants may, for example, be based on the amount of value of commodities produced, exported or consumed, the labour and capital employed in production or the manner in which production is organised and carried on. Under certain circumstances subsidies include the grants made by government to public corporations in the form of compensation for operating losses. This would be the case when the loss is clearly the consequence of the policy of the government to maintain prices at a level at which the proceeds of public industry will not cover the current cost of production.

c. International Practices

For cross-country comparisons, two major data sources are available, *viz.*, Government Finance Statistics (IMF), and the System of National Accounts (UN). The former is referred to as GFS estimates, and the latter, as SNA estimates. In both cases, subsidies have been defined as "unrequited government payments to producers for current operations plus the losses on sales of departmental enterprises". As such, their definition is narrow, referring only to cash or observed subsidies. Their information relates to recipients rather than beneficiaries. Further, their coverage is limited to payments to producers whereas payments to consumers are not covered. In their system, all payments to consumers are clubbed together under transfer to households. A transfer that involves a subsidy (e.g., expenditure on food coupons) is not distinguished from another transfer (e.g., pension payments) that is not a subsidy. There are also clear differences between the two. First, while GFA data are cash-based, SNA data are compiled on an accrual basis. Secondly, GFS data largely relate to the Central governments, while the SNA data relate to the general government. Large differences are, in fact, observed between GFS and SNA estimates of subsidy; the former are the larger figures mostly because they relate to combined subsidy and transfer payments. In an alternative method (e.g., Webb, *et.al.*, 1990), subsidies are estimated as producer and consumer subsidy equivalents (PSEs and CSEs) with reference to specific commodities. These concepts measure the value of transfers from government to producers and consumers. This method captures transfers that come out of government budget and transfers from price distortions. In this method PSE for a good is calculated as (q) $(p_d - p_w)$ + D + I, where q = quantity, p_d = domestic market price, p_w = world market price, D = direct subsidy payments and I = indirect marketing support and other non-cash benefits.

d. Methodology for Estimation of Subsidies in India

A comprehensive estimation of subsidies should include both explicit and implicit subsidies which may be calculated as the unrecovered cost in the provision of a governmental service. The coverage of services would however exclude pure public goods, because they are commonly consumed by all population. These goods are not excludable and cannot be priced according to the extent of consumption. In our analysis, the coverage is limited to social and economic services. However, the estimation would include subsidies implicit in government investment in public enterprises in the form of equity and loans.

The subsidy (S) in a specific service in the present study is obtained by

$$S = RX + (d + i) K_0 + i(Z_0 + L_0) - (RR + I + D)$$

where

RX = revenue expenditure on the service,

L_0 = sum of loans advanced for the service at the beginning of the period,

K_0 = sum of capital expenditure on the service excluding equity investment at the beginning of period,

Z_0 = sum of equity and loans advanced to public enterprises classified within the service category at the beginning of the period,

RR = revenue receipts from the service,

$I+D$ = interest, dividend and other revenue receipts from public enterprises falling within the service category,

d = depreciation rate[4] and

i = interest rate.

In calculating revenue expenditure, net intragovernmental and general purpose intergovernmental transfer have been excluded. Transfer payments to

individuals have also been excluded.[5] Purely administrative expenditures (e.g., secretariat expenses) and expenditures on relief from natural calamities have also been excluded, as they are in the nature of pure public goods.

The interest rate reflects the opportunity cost of government investment, i.e., it reflects the current cost of borrowing for financing capital expenditure. It is estimated as the average rate of interest on internal (including small savings and provident fund) and external debt incurred by the government. The use of the marginal interest-rate would obviously yield somewhat higher estimates of subsidy. Subsidies in different services (social and economic) are aggregated to obtain an estimate of total subsidy. However, certain service categories emerge with surpluses. In these cases, no subsidy is implied. Thus, total subsidy in all services is obtained by aggregating subsidies of the subsidy sectors without setting them off against the surpluses of other sectors. This aggregation procedures relates only to the major heads.

As far as estimating the amount of subsidy in an individual service is concerned, this methodology is the same as suggested in Mundle and Rao (1991) and subsequently used in Tiwari (1996). As noted above, there is however a difference in the aggregation procedure. In particular, we have aggregated subsidy and surplus sectors separately, because setting-off surpluses in some services against subsidies in other sectors, would understate the volume of subsidy and overstate the relevant recovery rate in the concerned sectors. The same is true for aggregation across States. For a given major head, if there is surplus for some States, and subsidy in others, they are not aggregated such that the subsidies are netted against the surpluses. All subsidies and surpluses are aggregated separately. Further, we have considered it appropriate to make a distinction between services where externalities are *prima facie* quite large (called merit goods) and others whether externalities do not constitute the main justification for providing the subsidy, as discussed below.

Services provided by the government are grouped under the broad categories of general, social and economic services. General services consist of (i) organs of State, (ii) fiscal services, (iii) administrative services, (iv) defence services and (v) miscellaneous services. These services can be taken as public goods because they satisfy, in general, the criteria of non-rival consumption and non-excludability. The entitlement to these services is common to all citizens. Since they are to be treated as public goods, they are assumed to be financed through taxes. In terms of the listing of major heads in the Finance Accounts, these general services range from code numbers

2011 to 2079. General services have, therefore, been kept out of the calculation of subsidies.

Important service categories in social services are (i) education consisting of general education (elementary, secondary, university and higher education, etc.), technical education, sports and youth services, and art and culture, (ii) health and family welfare, (iii) water supply, sanitation, housing and urban development, (iv) information and broadcasting, (v) labour and employment and (vi) social welfare and nutrition. Under the heading of economics services, the following are included: (i) agriculture and allied activities, (ii) rural development, (iii) special area programmes, (iv) irrigation and flood control, (v) energy, (vi) industry and minerals, (vii) transport, (viii) communications, (ix) science, technology and environment and (x) general economic services.

In the case of social and economic services, in general, the principle of exclusion can be applied. In the estimation of subsidies, we have conceptually divided these governmental services into three groups:

Group 1: All general services, secretariat expenses in social and economics services, and expenditure on natural calamities are included in this group. Services included in this group are treated as public goods. As such their provision is to be financed out of taxation. These, therefore, cannot be included in the estimation of subsidies.

Group 2: This consists of a list of services, at the level of major or minor budgetary head, which can be considered as merit goods associated with strong externalities. In the case of services included in this group, it is arguable that even though exclusion may be possible, these ought to be treated as merit goods or "near-public goods". In the case of these services, the provision of subsidies is most justified. Near zero recovery rates in these cases only indicate the societal judgement that these may be financed out of tax-revenues. A list of services identified as merit goods is given below.

Merit Social Services: Elementary education, public health, sewerage and sanitation, information and publicity, welfare of SC, ST and OBCs, labour, social welfare and nutrition.

Merit Economic Services: Soil and water conservation, environmental forestry and wildlife, agricultural research and education, flood control and drainage, roads and bridges, space research, oceanographic research, other scientific research, ecology and environment, and meteorology.

Group 3: All the remaining social and economic services are included in Group 3. In these cases, consumption is 'rival' and exclusion is possible. In principle, therefore, cost-recovery is possible through user charges. Even if full cost-recovery may be considered undesirable in some cases, the extent of subsidisation needs to be monitored. These services are included in the estimation of subsidies and have been referred to as "non-merit" services.

It may be noted that the premises on which a distinction between merit and non-merit services is being made rests on the perceived strong externalities associated with the merit services. This does not imply that subsidisation in their case needs to be hundred per cent. The appropriate degree of subsidisation needs to be linked to the extent of externalities in each case. In addition, even if only small recoveries are advocated for these services, the issues relating to the costs of their provision, leakages to non-target beneficiaries, and their effectiveness in attaining the objectives for which they are being provided, need to be examined. At the same time, categorisation of a service into the non-merit category does not imply that there are no externalities associated with them, nor that subsidies should be eliminated completely in each case. But we do need to examine afresh whether these services are oversubsidised.

The distinction between merit and non-merit goods has been made with a view to focusing attention on two different types of issues. In the case of merit services, there is a *prima facie* justification for providing a subsidy. The main issue here is about the quality of subsidy, i.e., about its targeting and efficacy. In the case of non-merit subsidies, the issue of extent of subsidisation is important apart from that of its quality and delivery. There may be cases where subsidisation may be justified on grounds other than those of externalities. Food and non-elementary education may be considered high priority subsidies, whereas subsidies in industries may be considered less desirable. In each case, the appropriate extent of justifiable subsidies would need to be examined. A subsidy reform programme can target low priority non-merit subsidies in the first instance.