

2. *Conceptual and Statistical Problems*

Introduction

This chapter discusses the four major conceptual and statistical problems which are fundamental to an analysis of government expenditure: (i) definition of government expenditure, (ii) elimination of price changes, (iii) choice of national income concept and (iv) meaningfulness of expenditure ratio. These aspects must be clarified before attempting an interpretation of changes in government's budgetary expenditures.

Definition of Government Expenditure

Government may be defined in more than one sense, depending on the view one takes. As the *United Nations Manual for Economic-Functional Classification of Government Transactions* (1958, p. 7) puts it, the word 'government' may be used as a noun or adjective. As a noun, it refers only to the executive or administrative organisation in central charge of a country's affairs. If the term is used as an adjective, it refers to (a) all bodies legislative and judicial, as well as executive, that are established through political processes, including both the Central government bodies with compulsory powers extending over the whole territorial area of a country and bodies at lower levels with similar, though more limited, powers extending over only a part of the area and (b) all agencies directly answerable for their actions, in particular, actions connected with the receipt and expenditure of money to the bodies covered by (a). All organisations covered by the definition are referred to collectively not as the government of a country, but as the government sector of the economy. The definition of government in the sense of a noun is too narrow to allow a study of the impact of government expenditure on the economy. It has to be necessarily broad; and in our case it should include all the activities of the Central government as a political and administrative authority. Hence, we use the term government to mean government sector. However, a serious

question arises. How should we define the expenditure of the government sector? In defining government expenditure, many studies on public expenditure—Peacock and Wiseman (1967), Andic, S. and Veverka, J. (1964), Gupta, S.P. (1967), Emi-Koishi (1963), Pryor, F.L. (1965), Reddy, K.N. (1972), Bird, R.M. (1971), Goffman, I.J. and Mahar, D.J. (1971), Diamond, J. (1977) and Andre, C. and Delorme, R. (1978)—have made a clear distinction between those activities of the government which arise out of a collective demand for goods and services (e.g., health services) and those which are a part of the ordinary productive activities of the community (e.g., rail transport) although carried on, or controlled by, government agencies. Some studies adhered to the exclusion of all trading services while some others did not. For example, while Peacock and Wiseman (1967) included the expenditure on the post office as a matter of historical necessity, Andre and Delorme (1978) excluded it altogether. In their words (1978, p. 42), “The definition of public expenditure which we adopt is concerned with outlays appearing in public administration budgets which are financed through non-market mechanism (taxation only). It excludes expenditures having their direct counterpart in disbursements by the purchase of a service, a typical example of which is the post office whose resources and expenditures appear in the Central budget in France. Obviously, it also excludes the entire nationalised and market public sector.”

We need to decide which definition is more suited to our purpose. Since the purpose is to study the factors underlying the growth of government expenditure and its impact on the economy, our choice would be in favour of a definition which includes those government expenditures which are outside the purview of market forces. To be specific, we have included all expenditures of general government and the expenditure on capital formation by departmental enterprises whose accounts are part of the Central government budget. The Government of India has been compiling data on these lines for the past several years, in its publication *An Economic and Functional Classification of the Central Government Budget*, issued annually.

The above definition clearly excludes the transactions in commodities and services and transfers on Current Account of

Departmental Commercial Undertakings; the reason is that the operations of Departmental Commercial Undertakings are in the nature of entrepreneurial activities of the Government. Current expenditures of these undertakings, like working expenses of productive enterprises, constitute intermediate expenditures that enter into the prices of goods and services as they are sold to other sectors of the economy. Therefore, they are different in character from final outlays by Administrative Departments.

In brief, our definition of government expenditure excludes the current expenditure of Departmental Commercial Undertakings, but includes their expenditure on Capital Account.

A word about the other productive trading services run by the Central government. It must be noted that apart from the departmentally run Commercial Undertakings such as Railways, Post & Telegraphs, Opium Factories and Alkaloid Works, Overseas Communication Services, Transport Schemes, Power Projects including Power Stations, Forests and Delhi Milk Scheme, there are statutory corporations like the Damodar Valley Corporation, the National Industrial Development Corporation and the National Research Development Corporation and financial institutions like the Reserve Bank of India, the State Bank of India, the Industrial Finance Corporation of India and the Industrial Development Bank of India, which are under the jurisdiction of the Central Government. No part of the expenditures of these organisations are included in the definition of the Central government expenditure. Thus, the definition of the Central government expenditure adopted here corresponds to the definition adopted by the Ministry of Finance in *An Economic and Functional Classification of the Central Government Budget*.

But doubts may arise as to the comprehensiveness of this definition, for the undertakings of the Central government, although run on commercial lines, need not have been established with the sole aim of profitability. For example, profitability could hardly have been the only criterion for managing the railways. Many other considerations must have influenced decisions to lay new railway lines such as defence requirements or social considerations. Similar may be the case with respect to

several training services. Under normal circumstances, whenever non-commercial considerations are predominant, the cost of such services should be included in government expenditure. Our definition of government expenditure, which excludes all current expenditure on trading services, may thus understate the expenditure of the Central government.

Elimination of Price Changes

The growth of government expenditure at current prices does not reflect the increase in real expenditure since changes in the prices at which the governmental inputs are purchased continuously influence the growth of government expenditure. The elimination of price changes gives rise to the problems of choice of the appropriate price index and the index number.

The first step towards elimination of price changes is the choice of a suitable price index. An index of the prices of government inputs is usually not available and that of outputs conceptually impossible. The practice of using an index derived from other series, which can be considered as being subject to the same price movements, is not only quite usual but often the only possible method. Thus most of the studies on government expenditure use either a cost of living index or an index of wholesale prices¹. This is a very crude method and its application may be "terribly misleading"². As Peacock, A.T. and Wiseman, J. (1967, p.8) observed, "there is no reason to suppose that the composition of government purchases will be the same as that of the purchases of the community as a whole. Indeed, the great importance of some kinds of government expenditure (e.g., on public employment of particular types of labour) is enough to suggest that such a coincidence is unlikely." They tackled this difficulty by applying two indices: one price index for capital formation and another, the current goods and services price index, for government current expenditure on goods and services, transfers and subsidies and the very small changes in stocks." Andic and Veverka (1964, p. 177) used (a) the movement of prices of selected commodities and (b) the index implicit in the official estimates of the national product at current and constant prices. Pryor, F.L. (1968, pp. 403-4) applied two sets of price indices—one set for military expenditure and another for non-military expenditure. For

expenditures other than military expenditure, three series—(i) wages data, (ii) non-agricultural wholesale price index and (iii) cost of living index—were used and for military expenditures two series—weighted price index of manufacturing production and composite index of wage and wholesale prices—were used. Bird, R.M. (1970, pp. 235-8) applied “a separate Paasche price index for goods and services” and “an index related to the private expenditures”. More recently, Andre and Delorme (1978, p. 42) employed three indices, namely, retail price index, wholesale price index and implicit GDP price index³.

It is clear that there has been no uniformity in the application of deflators to convert current expenditure series into constant expenditure series. But one thing is obvious, namely, that all the studies have depended on the available price indices rather than construct special indices for their specific purpose.

In our case also the construction of expenditure series at constant prices has been a thorny problem. We also believe that the application of a single price index, say, the wholesale price index or the consumer price index or the implicit national income deflator, to all components of expenditure will give a misleading picture. An appropriate price index should be applied to each part. This seems to be the only alternative since the composition of government expenditure is very much heterogeneous. The lines on which we have deflated the government expenditure series are outlined below.

First, the total Central government expenditure is disaggregated into:

- (i) expenditure on wages and salaries;
- (ii) expenditure on goods and services on current account;
- (iii) gross capital formation;
- (iv) current transfers;
- (v) capital transfers; and
- (vi) net financial investments and loans to the rest of the economy.

Each one of them is then deflated by an appropriate price index.

Expenditure on wages and salaries is deflated by the implicit deflator for the compensation of employees of the government administration which was derived by using the data on the

compensation of government employees at current and constant prices given in Central Statistical Organisation's (CSO) *National Account Statistics*.⁴

Expenditure on goods and services is deflated by the index constructed by the Directorate General of Supplies and Disposals (DGS&D) for the purchases it makes for the government. One could have used the wholesale price index, but it would not be proper as the purchases made by the government are governed by prices different from those at which the rest of the economy makes purchases. The purchases of the government are usually done through DGS&D, often at a much lower price than the wholesale price. Moreover, the pattern of weights in the construction of the wholesale price index differs significantly from the pattern of weights used in the construction of DGS&D index⁵. Hence, we attempted to construct a special index and discovered subsequently that it moved with the DGS&D's own index. So we decided to use the latter⁶. However, it must be mentioned that the DGS&D index does not cover all commodities purchased by the government, because it excludes those goods that are purchased directly by the departments⁷.

Gross capital formation by government is deflated by the implicit price deflator for gross capital formation in the public sector, derived from CSO's estimates of public sector capital formation at constant and current prices.

In regard to current transfers, how different types of expenditures are to be deflated remains an insoluble problem. The reason is that no available index would show the real value of transfers. What index should be applied to interest payments? If we take the point of view of the recipients, these payments must be deflated by the consumer price index or an index similar to it. From the point of view of producers, interest payments must be deflated by an index of producers' prices. Moreover, most of the recipients of interest payments are not individuals; they are institutions such as the Life Insurance Corporation, commercial banks, and financial institutions which are owned by the government. What index should be applied to subsidies? Subsidies are of many types—for export promotion, food, fertilizer, interest—and nobody knows who exactly the beneficiaries of these subsidies are. We cannot

choose the consumer price index since not all of them are consumption subsidies. The types of subsidies are such that the choice of any single index would create problems. Similarly, what index should be used for grants? Grants are given to the State governments, Union Territories, local bodies and the private sector. It is not easy to determine an appropriate deflator for each of them. Therefore, we have no alternative to applying the implicit GDP deflator to all current transfers.

Capital transfers are deflated by the index with which capital formation was deflated since the transfers are meant for asset creation. A word about the nature of these transfers is warranted since reference has been made to capital and current transfers. Capital transfers refer to (a) grants given to States and Union Territories as Central Assistance (plan grants as well as such grants in the revenue budget as are intended to assist capital formation), (b) grants given to non-departmental commercial undertakings, (c) grants given to public sector institutions like the Council of Scientific and Industrial Research and Institutes of Technology for purchase of equipment and for construction and (d) grants to foreign countries.

Financial investments and loans to the rest of the economy are deflated by the implicit GDP deflator. The components of this item cannot be treated either as transfers or as expenditure on goods and services. They comprise investments in the shares of government and other concerns, loans for capital formation to States, Union Territories, local authorities, non-departmental commercial undertakings, etc., subscriptions to international financial organisations and net purchase of gold and silver. If this item had comprised loans intended for capital formation, we would have used CSO's implicit capital formation deflator. However, since several other items were mixed up in the total we have used the implicit GDP deflator.

Relation to National Income

A simple tracing of the trend of government expenditure may not tell us much unless it is related to the capacity of the community or output of the community. But to which concept of national income should the Central government expenditure be related? We have used GNP at market prices. One may question

this choice as there may be grounds for preferring some other concept. While some have used GNP at factor cost⁸, others have used GNP at market prices,⁹ and yet others have used GDP at factor cost/market prices.¹⁰ If the purpose is to measure the proportionate creation of economic wealth by the government, then Net National Product (NNP) might be more suitable. But the calculation of depreciation presents such problems that even if broadly comparable series for net product were provided, they would be unlikely to give a more reliable indicator than the gross product measure. The choice of GNP at factor cost is questionable on the ground that it excludes indirect taxes while government purchases include indirect taxes; since government purchases are made at market prices, the national income aggregate selected should be at market prices rather than at factor cost in order to maintain consistency. As has been argued by Gupta, S.P. (1968, p. 29), the subtraction of indirect taxes (minus subsidies) from GNP, in order to compute GNP at factor cost, would involve the highly doubtful assumption about the shiftability of such taxes.¹¹

As between GNP and GDP at market prices, our preference for the former is justified on the grounds that (a) income accruing to nationals is more relevant than income produced domestically and (b) the net inflow of factor incomes to India is negative.

Meaningfulness of Expenditure Ratio

The ratio of government expenditure to community output throws up answers to such questions as: What proportion of output generated in the country is absorbed by government? What likely consequences would follow because of such absorption? What structural changes would come about in the economy, if government expenditure grows? And how much of the output is used for what purpose? But the question may still be raised whether we can really measure the proportion of government expenditure on the lines of the definition adopted above. Government expenditure, the numerator, includes transfers and subsidies whereas GNP, the denominator, excludes them. This technical question has bothered many a study like ours. If we express total government expenditure (including transfers,

etc.) as a proportion of national income, the result gives an exaggerated impression of the share of total community output taken by the government. On the other hand, a similar ratio omitting transfers and subsidies would be without any general significance as a rough indicator of the government's overall influence in the community. The decision to exclude or include transfers from the numerator is crucial. If the intention is to measure the role of government as a consumer of resources, transfers must be excluded. But transfers and subsidies are also the sums spent by the government. They are spent from the same revenue pool as the other categories. Had there been no subsidies and transfers, that much money would have been available to government to be spent on goods and services. Therefore, to exclude transfers and subsidies from the definition of government expenditure would be to understate government expenditure. Government consumption plus capital formation as a percentage of GNP measures only the proportion of resources directly absorbed by the government. The more inclusive definition used here measures the government's control over aggregate demand and provides more meaningful answers to the question: Did government share of aggregate expenditure, before and after price adjustments, change significantly over the period studied? If so, what were the directions and magnitude of changes?¹²

NOTES

1. It is difficult to mention all those studies which have employed a single index number for deflating government expenditure. However, a few examples may be in order: O'Donoghue, M. and Tait, A.A. (1968), Blondal, G. (1969), Goffman, I.J. and Mahar, D.J. (1971) and Peacock, A.T. (1978) employed the cost of living index. Reddy, K.N. (1972) employed the wholesale price index and the implicit national income deflator. There are also studies which have used "appropriate price deflators".

2. For a succinct comment, see Derkson, J.B.D. (1951).

3. A very interesting discussion has been carried out on the choice of deflators in a recent article by Beck Morris (1979, pp. 313-56). He points out that apart from the choice of deflators the more important choice is that of the index number to be constructed—Laspeyre's index or Paasche index. He argues that while there is room for disagreement over the best method of deflating a value series, there cannot be disagreement over the use of appropriate deflators. For a detailed procedure for deflat-

ing the expenditure series, one may look into two recent works: Thompson, J.R. (1968) and Bird, R.M. (1970).

4. For a similar procedure, see Pryor, F.L. (1968).

5. Likewise, the consumer price index is not suitable for deflating government consumption expenditure.

6. Both indices are given in Appendix Table A. 2.

7. Not all the purchases made by the government are routed through the DGS&D. A sizeable portion of the purchases of the government are undertaken by the departments themselves under the delegation of financial powers to the different departments by the Finance Ministry. (Vide *Delegation of Financial Powers Rules 1978*, Annexure V).

8. See for example, Peacock and Wiseman (1967), Andic, S. and Veverka, J. (1964), Musgrave, R.A. (1969), O'Donoghue, M. and Tait, A.A. (1968).

9. See for example, Gupta, S.P. (1967, 1968) Pryor, F.L. (1968) and Pluta, J.E. (1974).

10. See Diamond, J. (1977), OECD (1978), Beck Morris (1976,1979), Heller, P.S. (1980), and Lall, S. (1969).

11. It must be noted that estimates at market prices can be somewhat misleading. For, indirect taxes (less subsidies) generally fall much more heavily on personal consumption than on the goods and services brought by the government. That is why, perhaps, some economists argue forcefully in favour of GNP at factor cost if our interest is in measuring the claim of the government on real resources. For an elaborate argument, see Wilson, T. (1976).

12. For an elaborate argument see Peacock, A.T. and Wiseman, J. (1967) and Wilson, T. (1976).