

5. Income Elasticities of Government Expenditure by Major Categories

Introduction

This chapter will attempt to measure the relationship between the growth of government expenditure and national income. This will be done by working out the income elasticities of certain important categories of expenditure. The elasticities will not only indicate the relationships holding in the past but would also help in estimating the likely increases in government expenditure consequent upon increases in national income in the future, other things remaining the same.

Problems of Estimating Income Elasticity of Expenditure

Income elasticity of government expenditure is defined as the percentage by which government expenditure grows if national income increases by one per cent. It can be estimated for aggregate expenditure as well as for particular categories of expenditure. At the outset, we need to determine how expenditure should be classified for estimating elasticities. In other words, should we choose functional categories or economic categories? Following the examples of other studies, we have decided to estimate elasticities for functional categories of expenditure. However, since the capital component of expenditure (total as well as under different functional heads) cannot be said to bear a close relationship to national income, we have excluded it in estimating the elasticities.

As has been indicated earlier, refined and comparable data by functional categories are not available for the entire period under study. Comparable time series data are available only from 1965-66 onwards from official sources. For the years prior to 1965-66 data are available for 1957-58, from an NCAER study. Since the basic requirement for estimating

income elasticity is the time series data, we attempted to build up a series by utilising the Finance Ministry's publication, *Indian Economic Statistics, Part II, Public Finance*. But such an attempt did not enable us to build a comparable series of expenditures for the entire period because of methodological differences. Hence we have divided the whole period into two: Period I, covering 1950-51 to 1965-66, and Period II, covering 1965-66 to 1977-78. Elasticity estimates for the first period are based on data from *Indian Economic Statistics, Part II, Public Finance* and those for the second period are based on data from *An Economic and Functional Classification of the Central Government Budget*.

In this connection, it may be remembered that income elasticities of expenditure pertain to per capita current expenditure at constant 1970-71 prices¹. For this purpose we have first converted the expenditure series into constant 1970-71 prices by using appropriate deflators. The procedure followed is as follows. For the period 1950-51 to 1965-66, we have deflated the 'revenue expenditure'—by functional categories—by the implicit Central government expenditure deflator. And for the period 1965-66 to 1977-78, the components of current expenditure—consumption expenditure and current transfers—have been deflated by relevant deflators. That is, consumption expenditure has been deflated by the Central government consumption expenditure deflator and Current transfers have been deflated by the GDP deflator (for details of the methodology see Chapter 2).

A little caution in comparing the income-elasticities of the two periods is warranted. The expenditure data used in the first period pertain to revenue expenditure while those of the second period pertain to current expenditure. In fact, as is well known, revenue expenditures and current expenditures are not identical. Revenue expenditures might include some component of capital outlays whereas current expenditures do not. Further, the functional categories of the first period are slightly different from those of the second period. Also, the methods of deflating the series in the two periods are different.

No attempt has been made to estimate the income-elasticity of defence expenditure. The obvious reason is that defence

expenditure depends largely upon various exogenous forces—threat of war from neighbouring countries, international political situation, war psychosis in the country, type of rule within the country, cold war among nations, etc.—and not upon national income. The functions for which elasticities have been estimated are: education, medical and public health, agriculture, industry and civil administration.

Income Elasticities of Per capita Expenditure During 1950-51 to 1965-66

It can be seen from Table 5.1 that income elasticity of expenditure (at 1970-71 prices) on education was 10.49, the highest among all the functions during 1950-51 to 1965-66. It was followed by 9.97 for medical and public health, 7.61 for agriculture, 3.70 for industry, and 3.16 for civil administration. Income elasticity of total current expenditure was 3.53. The coefficients of income elasticities of all categories are statistically significant.

Income Elasticities of Expenditure During 1965-66 to 1977-78

During the second period, 1965-66 to 1977-78, coefficients of income elasticities were small in comparison to those of the first period. One may suspect that the difference might be due to the use of 'revenue expenditures' instead of current expenditures, during the first period. But we have found that the income elasticity of total current expenditure (derived from the economic classification) for the earlier period was comparably high². Hence the differences in the elasticities between the two periods seem to be genuine. During this period, the income elasticity of expenditure (at 1970-71 prices) on education was 0.83 while that of medical and public health was 4.16 (Table 5.2). With regard to economic services, the income elasticity of expenditure on industry was 3.12 while the income elasticities of expenditure on agriculture and transport and communications was 1.82 and 1.87 respectively. The income elasticity of current civilian expenditure was 2.45 while that of total current expenditure (including defence) was 1.83.

Sometimes one may question the justifiability of the elasticity coefficients of expenditures mentioned above. It may be argued that while there is a justification for working out the income

TABLE 5.1

**Income Elasticities of Central Government Expenditure on Major
Categories at Current and 1970-71 Prices
(1950-51 to 1965-66)**

Sl. No.	Functional head	Elasticity coefficient	
		At current prices	At 1970-71 prices
		(1)	(2)
1.	Education	4.81 (6.562)*	10.49 (7.999)*
2.	Medical & public health	4.42 (5.495)*	9.97 (7.246)*
3.	Agriculture	3.53 (6.278)*	7.61 (8.626)*
4.	Industry	1.67 (2.308)*	3.70 (2.466)*
5.	Civil administration	1.92 (10.203)*	3.16 (9.809)*
6.	Others (Miscellaneous)	2.50 (12.533)*	4.16 (7.577)*
7.	Total (non-defence)	2.52 (11.599)*	4.42 (9.817)*
8.	Total revenue expenditure	2.22 (18.342)*	3.53 (9.557)*

Note: Figures in parentheses are 't' values.

*Significant at one per cent level

TABLE 5.2

**Income Elasticities of Central Government Expenditure on Major
Categories at Current and 1970-71 Prices
(1965-66 to 1977-78)**

Sl. No.	Functional head	Elasticity coefficient	
		At current prices	At 1970-71 prices
1.	Education	1.01 (5.660)*	0.83 (1.029)*
2.	Medical & public health	1.51 (5.949)*	4.16 (4.296)*
3.	Agriculture	1.23 (2.842)*	1.82 (0.919)*
4.	Industry	1.44 (6.723)*	3.12 (3.316)*
5.	Transport & communication	1.10 (8.726)*	1.87 (3.191)*
6.	Civil administration	1.07 (11.921)*	1.46 (2.875)*
7.	Others (Unallocables)	1.40 (12.118)*	2.61 (4.346)*
8.	Total non-defence	1.32 (15.172)*	2.45 (5.949)*
9.	Total current expenditure	1.17 (16.294)*	1.83 (5.801)*

Note: Figures in parentheses are 't' values.

*Significant at 1 per cent level

elasticity of aggregate government expenditure, there is little justification to relate components of the aggregate expenditure in terms of functional categories to income. The reason is that the distribution of aggregate expenditure into functional categories depends on various social, economic, political and other compulsions including income of the government and not on the income of the people only. The alternative suggestion is that it would be better if we decompose the aggregate elasticity into corresponding functional components. The fact is that it is not possible to calculate the elasticities as mentioned. Further, there is nothing conceptually wrong to estimate the elasticity of expenditure under functional categories with reference to income because it is reasonable to postulate that the demand for various types of services is elastic in different degrees with reference to income. It may be added that in several major studies of public expenditure, elasticities of categories of expenditure with reference to income have been estimated, for example, Bird, R.M. (1970), Mahar, D.J. and Rezende, F.R. (1975), Pluta, J.E. (1979) and Beck Morris (1981).

NOTES

1. With respect to per capita GNP at constant prices.
2. Income elasticities of per capita current Central government expenditure at current prices and 1970-71 prices were 2.176 and 3.522, respectively.