The earlier studies on the impact of government expenditure, apart from being largely confined to estimating the impact multipliers of the expenditure on commodity purchases, have not analysed the consequences of relaxation of some of the restrictive assumptions behind the impact multipliers. As a result, issues pertaining to the overall impact of government expenditure and its consequences have largely remained unexplored.

The main thrust of this study, therefore, is two-fold. First, to estimate the impact of government expenditure on some important macro aggregates such as income, output, employment, imports, tax feedback, and rural-urban income distribution; and then to bring into sharp focus the implication of relaxing some of the important assumptions behind impact multipliers so as to show the probable range in which impact multipliers may lie. The assumptions considered for this purpose relate to the existence of excess capacities and the mode of finance.

These aspects have been examined keeping in view the following broad analytical objectives: (1) to estimate the impact of government expenditure on various macro
objectives cited above; (ii) to bring into sharp focus the implications of sectoral bottlenecks on the values of income multipliers and also on the relative sectoral cost-price movements; (iii) to examine the effect of taxes (mode of finance) on the values of income multipliers by estimating the balanced budget multipliers for income tax and excise duties. The study pertains to the Union Government expenditure for the year 1971-72.

The main model used for carrying out this exercise is a semi-closed input-output model with Fifth Plan domestic coefficient matrix as its core. The key feature of this model is that, while endogenising consumption, it takes into account the rural-urban differences in the income propagation across sectors and relates the incomes with the consumption behaviour observed in the respective areas. As a result of this, the consumption structure becomes sensitive to area-wise income distribution. In addition, a multi-sectoral model to estimate the balanced budget multipliers has been developed using, mostly, the parameters of the main semi-closed input output model.

The basic data requirement of this study fall in two broad categories, viz., sectoral composition of the government expenditure on commodity purchases, and the sectoral commodity demand induced by the expenditure on
salary disbursals. Of these two, the sectoral composition of the expenditure on commodity purchases can be generated by scrutinising and sifting the data scattered over a large number of sources. But in the case of salary disbursals, there is no way of working out the commodity vector directly. This, however, has been done indirectly by establishing a relationship between the salary distribution of the government employees and the consumer behaviour with the help of 3-parameter lognormal distribution. In the absence of guidance from any earlier study, a large number of experiments had to be made before the final methodology evolved.

The data on direct purchases of the Union Government revealed that construction was the single most important sector claiming over a quarter of the total purchases, followed by Transport equipment (18.3%) and Railway transport (9.1%). These three sectors together claimed over 50 per cent of the total commodity purchases of Rs. 1386 crores (at producers prices). When both direct and indirect (total) requirements were considered, due to high induced demand, Agriculture emerged as the most important sector with around 22 per cent share in the total requirements followed by Other services (15.6%). The implication of this is that, though construction and some other sectors are important in the direct requirements, ultimately it is Agriculture and
Other services (housing being the most important component of personal consumption expenditure on Other services) which become the most important sectors in the total requirements.

In contrast, Agriculture, Food products, Textiles and Other services together claimed around 77 per cent of the total direct demand generated by salary disbursements. With an output multiplier of 1.024 (which was 11\% more than that of commodity purchases) the relative importance of these four sectors remained the same even in the total requirements. On the whole, given the structure, any expansion of government expenditure whether on salary disbursements or on commodity purchase ultimately generates substantial pressure on sectors like Agriculture and Food products which are wage goods producing sectors, and Textiles and Other services. A judicious public expenditure policy while envisaging additional expenditure, therefore, should ensure elastic supply of these commodities to maintain physical balances in the interest of price stability.

Again, it is interesting to study the implications of the two main components of the government expenditure on other important macro variables like national income and its distribution across areas, employment, imports
and tax feedback. Such an analysis helps in comprehending the total consequences of these two types of expenditures.

It was found that every thousand rupees expended on commodity purchases generated Rs. 1782.2 income, of which around 55 per cent was in rural areas. In the case of salary disbursals, income generation per thousand rupees expenditure was Rs. 2343.9 of which 65 per cent originated in the rural areas. Similarly, while an expenditure of rupees one crore on commodity purchases generated 7.5 thousand jobs, the equivalent magnitude of expenditure on salary disbursals provided employment to 11.7 thousands.

An examination of inter-industry import requirements also revealed that commodity purchases had induced 32 per cent more import requirement (9.07 per cent) than the salary disbursals (6.83 per cent). It is important to note that, in both the cases, the induced import requirements were generated basically for four types of goods, viz., Mining, Chemical products, Metals and metal products and Agriculture.

Examining the tax feedback of these two types of expenditures, it was found that commodity purchases had more revenue generating effect (31.4%) than the salary disbursals (25%).
These broad results clearly indicate that the overall impact of salary disbursals was favourable on all except one of the macro variables considered. Even in the case of tax feedback, the relative advantage of commodity purchases was not substantial.

But the above findings are tenable inter alia under two important restrictive conditions. They are: (i) there are no bottlenecks anywhere in the economy so that the supplies are elastic at the given price level; and (ii) the effect of mode of finance is neutral on the values of impact multipliers. As a result of these two conditions, the estimates generally depict the maximum range of values impact multipliers can take. Since the objective of this study is to demonstrate the range in which impact multipliers are likely to lie, the above two restrictions have been relaxed, turn by turn, to examine their implications on the values of income multipliers.

An explicit introduction of bottlenecks in the wage goods producing sector like Agriculture and in two important infrastructural sectors like Electricity and Railway transport, had yielded varying effects on the values of income multipliers, assuming that the government adopted a policy of compensating variation in the interest of price stability. It was found that, of the three sectors
considered, inelasticity in the supply of agricultural commodities had an adverse impact on the income multipliers of both the components of government expenditure; more so, on those of salary disbursals. In fact, while the original income multiplier of salary disbursals was 32 per cent more than that of commodity purchases, income multipliers of the former in absolute terms were less than those of the latter in all situations with agriculture as a bottleneck sector. To be more precise, the income multipliers of salary disbursals were less than unity whenever the agricultural output was fixed. The bottleneck situations involving Railway transport and Electricity had considerably less adverse impact on income generation. However, their effects on commodity purchases were relatively more pronounced.

These results further corroborate the contention that the Keynesian multipliers are limited by the availability of wage goods. This apart, a fall of 75 to 80 per cent in the values of income multipliers of salary disbursals resulting from inelastic supply of agricultural output, shows the extent to which income multipliers can fall in a situation of sectoral bottlenecks.

An examination of the effects of bottlenecks on the relative cost price movements in an Allocation system showed that salary disbursals had a higher overall
inflationary potential than commodity purchases. The range of variation in the sectoral price movements was also higher for commodity purchases as compared to salary disbursals. While the former induced price changes mainly in the non-wage goods sectors, the latter generated more price pressure in infrastructural and wage goods sectors.

Relaxing the other assumption about the neutrality of mode of finances, the income multipliers under tax financing have been estimated. These multipliers, which are also known as balanced budget multipliers (BBMs) are expected to provide the lower boundary for the values of income multipliers. For the purpose of estimating BBMs, only two important taxes, viz., income tax and excise duty have been considered.

The general BBMs of income tax financed expenditure (general ITBBMs), it was found, were greater than unity but less than the corresponding original income multipliers. Their relative position by type of expenditure remained the same as that of the original income multipliers. However, the general ITBBMs of salary disbursals were more than the original income multiplier of commodity purchases. It was also found that an imposition of agricultural income tax might not result in any perceptible effects different from those of the income tax levied on non-agricultural incomes.
But an examination of the values of sectoral ITBIMs revealed that the general ITBIMs could range anywhere between $-0.0278$ and $2.492$ depending on the composition of the government expenditure.

The effects of excise duty financing were found to be much more complex than those of income tax. This was clear from the wide variation in the values of general EDBIMs financed by excise duty on different sectors (general EDBIMs). While the values of general EDBIMs of commodity purchases and salary disbursals financed by increasing the tax rate on Agriculture or Railway transport were greater than the respective original income multipliers, similar multipliers for as many as 15 sectors were less than unity. Of the 15 sectors, which were mostly manufacturing sectors, the general EDBIMs were negative for eight sectors. However, the structure of sectoral EDBIMs showed that the general EDBIMs could range anywhere between $-2.409$ and $4.555$ depending on the composition of government expenditure and the sector in which the tax rate was changed.

But given the rigidity in the sectoral composition of salary induced demand and the difficulties involved in changing the composition of commodity purchases, excise duty financed expenditures are likely to have adverse impact on the economy.

On the whole, these results clearly show that the value of BBM depends as much on the pattern of government expenditure.
expenditure, as on the type of tax used and the sector on which it is imposed to finance the expenditure.

Between the two types of expenditures considered for this analysis, the impact of salary disbursals seems to be relatively favourable on almost all counts. Therefore, it follows that, given some alternative expenditure programmes to achieve a particular objective(s), it may be prudent to choose a programme having more salary component than commodities, provided the supply of wage goods is elastic.

Considering the values of ITBM$s of salary disbursals and its favourable implications on the economy, one can infer that income tax financed expenditure on certain employment intensive programmes like education, public health etc. may have an overall favourable effect on the economy.

Finally, the study clearly shows that the income multipliers of government expenditure can take any value between -2.409 and 4.555 depending on the pattern of expenditure, the structure of bottlenecks considered, the type of tax used and the sector on which it is imposed. The range may further widen if a host of other factors which are not considered in the study are taken into account. If follows therefore, that it is rather simplistic to consider for policy purposes the conventional
Impact multipliers, which are tenable only under some idealised situations. Since the economic conditions which have a bearing on the values of income multipliers change from time to time, recognition of such factors as also explicit introduction of mode of finance are pre-requisites to understand the consequences of government expenditure.