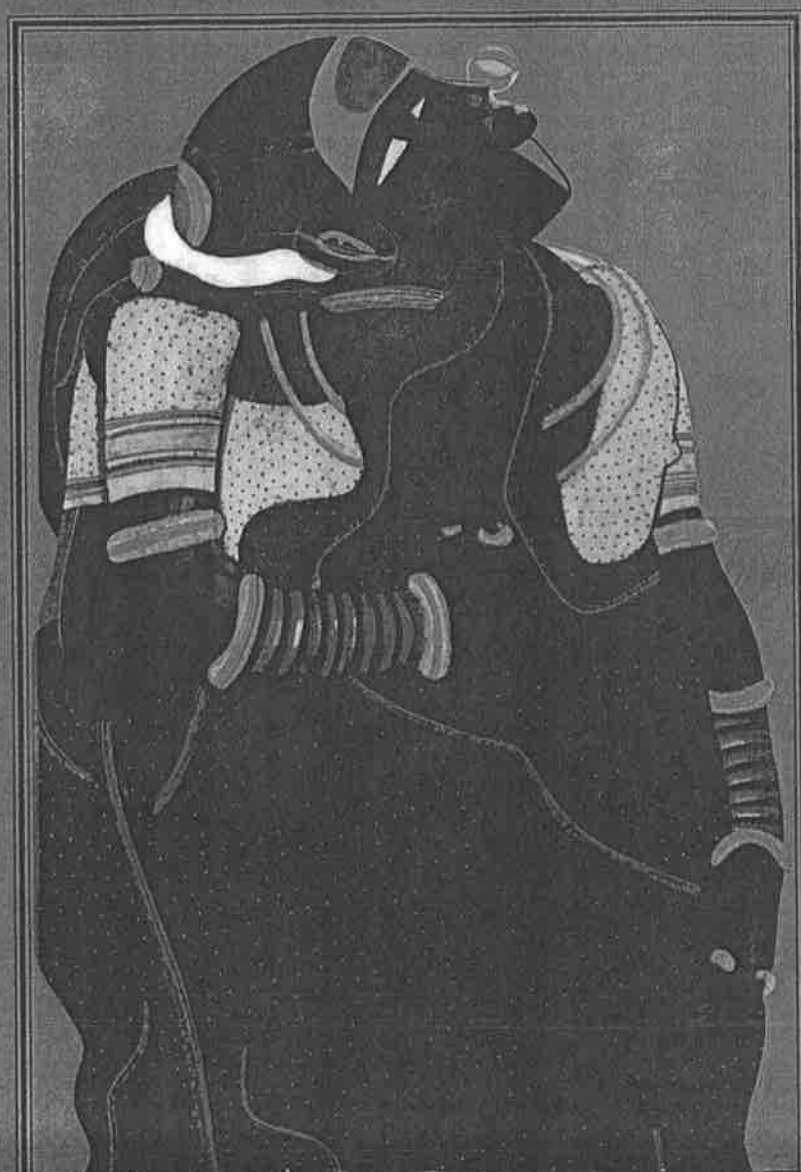


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## ■ Government Subsidies\*

The term 'subsidy' is sometimes used to describe a financial transfer, for example scholarships to students, and sometimes to mean the unrecovered cost of publicly provided goods and services (henceforth collectively referred to as 'services'), that is the difference between the cost of providing a service and revenues realized from the provision of that service that is absorbed by the government budget. For purposes of this entry, we find it useful to make a distinction between transfers and subsidies, which are here interpreted to mean the unrecovered cost of publicly provided services. Such unrecovered costs can be calculated at conventional prices prevailing in the market or they can be calculated at their economic value, that is the outputs foregone on account of the inputs used up in the provision of the relevant service, what economists call 'opportunity cost' or 'shadow price'. Hence a further distinction has to be made between 'financial subsidies' computed at market prices and 'economic subsidies' computed in 'shadow prices'. Here we will be mainly discussing the volume and composition of financial subsidies in India.

A clarification is required here regarding the kind of publicly provided services for which unrecovered costs can be considered to be subsidies. At one end of the spectrum there are pure 'public services' that cannot be supplied by the market because they are characterized by 'non-rivalry' and 'non-excludability' in consumption. Non-rivalry implies that the service in question is jointly available to all consumers, and its consumption by one consumer does not reduce the supply available for other consumers. A good example is defence services that provide the same security to all citizens of a country simultaneously. The enjoyment of such security by one citizen does not reduce the security available for other citizens. Citizens are not rivals competing for the enjoyment of such security. It is also evident that once such security is provided to the nation, it is not possible to exclude any citizen from this benefit. This non-excludability makes it impossible to 'sell' such a service to individual citizens at a price, since citizens know that once such security is provided to the nation they cannot be excluded from enjoying it even if they don't pay for it, that is they can free ride.

Such pure public services can only be provided by the government, and they have to be financed out of its general revenues. The question of recovering the cost of these services through user charges does not arise. Hence the concept of 'subsidies' as defined here will also not apply.

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Defence, maintenance of law and order, and general administrative services are typical examples of such pure public services. At the other end of the spectrum are pure private services, characterized by 'rivalry' and 'excludability' in consumption, that are generally provided by the market, though it may happen that these are also sometimes provided by the government. In between these two polar categories is also a range of quasi-public services that combine some characteristics of public services with some characteristics of private services. They are characterized by rivalry and excludability in consumption, and could therefore be supplied by the market. However, the market-determined supply may not be optimal for a variety of reasons that economists call 'externalities'. This is later discussed in greater detail. The concept of 'subsidy' applies only to the unrecovered cost of quasi-public and private services.

Unless such subsidies can be explicitly justified, they should be phased out or reduced as they lead to several undesired consequences. A large volume of subsidies generates macroeconomic pressures via its impact on the budget. Subsidies affect relative prices, thereby altering market signals and the allocation of resources via the market. Subsidies also alter the distribution of income since they enhance the effective income of beneficiaries relative to others in the economy, and this could be iniquitous. However, under some conditions subsidies are justifiable and desirable. First, there are services with positive externalities, where the social benefit of a service exceeds the private benefit accruing to the immediate beneficiary. In such cases, the cost of these services may have to be subsidized to increase the level of private demand for these services to the socially optimal level. Second, there may be services where unit costs decline as supply increases because of economies of scale in production or distribution. Costs would be minimized in such cases if a single 'natural monopolist' supplies the entire market. However, the 'natural monopolist' would be interested in maximizing profits not minimizing costs, and may have to be regulated as well as subsidized to minimize costs. Technological developments that enable unbundling of many such services and multiple-part pricing options have reduced the challenge of natural monopolies. Nevertheless, scale economies remain a valid justification for subsidies in some cases. Third, there may be 'missing markets' for some products that need to be nurtured and grown or a missing technology, for example cost-effective solar power, where subsidies may be justified.

Since subsidies affect income distribution, sometimes subsidies are provided for distributional reasons. However,

as noted earlier, transfer payments are an alternative policy instrument for meeting this goal. If there is a social/political choice to support the income of a particular target group, for example the unemployed, this may be better accomplished by income transfers through the budget. Compared to subsidies they are more transparent, with less leakages to non-target groups, they do not distort relative prices, and do not encourage excess consumption of any particular service as a subsidy would.<sup>1</sup> A qualification arises in the case of some very basic needs of the poor such as foodgrains, potable water, basic education, or primary health care. Society may wish to ensure provision of a minimal quantity of these specific 'merit' items to everyone regardless of their income or personal preference. In such cases a subsidy would be preferred to a transfer payment. Finally, even when transfers are preferable to subsidies, policymaking has to be based on ground realities, including a history of widespread use of subsidies for distributional reasons. Hence, often the practical policy option is to gradually phase out inefficient subsidies and replace them by transfers wherever feasible.

Perhaps the most striking feature of government subsidies in India is their very large scale. The total volume of government financial subsidies was estimated for the first time for financial year 1987 by Mundle and Rao (1991) at the National Institute of Public Finance and Policy (NIPFP).<sup>2</sup> They calculated the unrecovered costs (including annualized capital costs) of eighty-six out of 123 major categories of public services provided by the federal and state governments. This calculation excluded thirty-seven major services treated as pure public services, that is general administrative services in the functional classification of government expenditure, relief on account of natural calamities, general secretariat expenses of departments providing social and economic services, and compensation and assignment to Local Bodies and Panchayati Raj institutions. The authors also netted out

pure transfer payments, and then arrived at an estimate of Rs 423 billion or 14.4 per cent of GDP as the total volume of government financial subsidies, reflecting an underlying cost recovery rate of only 32 per cent for social and economic services. Of this Rs 161 billion or 5.5 per cent of GDP was provided by the federal government and Rs 262 billion or 8.9 per cent of GDP was provided by all the state governments taken together.

These estimates have turned out to be quite robust. In an updated NIPFP estimate for financial year 1994, Srivastava and Sen (1997) arrived at the same subsidy/GDP ratio of 14.4 per cent despite some changes in method and coverage. Unfortunately, combined estimates for the federal and state governments are not available for any other year. However, NIPFP estimates of federal government subsidies based on a broadly similar method are available for six additional years up to financial year 2003 and indicate that federal government subsidies have generally varied within a narrow range of 4–5 per cent of GDP since financial year 1987. Since there have been no marked changes in the cost recovery policy of most state governments during this period, it is possible that the total volume of subsidies has remained in the ball park of 14–15 per cent of GDP. However, with no actual estimates available after financial year 1994, this is a hypothesis that has to be tested. It would be very useful if the periodic updates of estimates of federal-level subsidies undertaken by the NIPFP at the behest of the Finance Ministry could be complemented by similar updated estimates of state government subsidies.

In their study Mundle and Rao (1991) noted that subsidies in social services, with an underlying cost recovery rate of less than 4 per cent, accounted for 40 per cent of total subsidies while economic services, with an underlying recovery rate of around 44 per cent, accounted for 60 per cent total subsidies services. They pointed out that less than 30 per cent of this large volume of subsidies was provided as visible subsidies and the rest was non-transparent, making it extremely difficult to identify the beneficiaries or assess whether these subsidies are justifiable in terms of the rationale outlined earlier. Based on a detailed analysis of the allocation of subsidies across social groups, sectors, and states they concluded that the distribution of subsidies was quite regressive, and that 'with greater transparency and better targeting it should be possible to increase the flow of services as well as subsidies to disadvantaged groups without any increase, perhaps even with a reduction, in the total bill of subsidies.'

Subsequent exercises have confirmed these broad conclusions. In their study Srivastava and Sen (1997) aggregated surplus-generating and deficit sectors

<sup>1</sup>Atkinson and Stiglitz (1976) also argued that under a set of strong assumptions direct transfers are superior to subsidies.

<sup>2</sup>Subsidy in a specific service (j) can be obtained by,

$$S_j = R_j + i(K_j + L_j + Z_j) + dK_j - y_j - r_j - t_j$$

$S_j$  is the subsidy;

$R_j$  is the variable cost or revenue expenditure on the services;

$K_j$  is the capital stock in the sector;

$L_j$  is the stock of loans advanced for the service;

$Z_j$  is the stock of equity and loans advanced to public enterprises classified within the service category;

$i$  is an imputed interest rate representing the opportunity cost of money for government;

$d$  is the depreciation rate;

$y_j$  is revenue receipt by the sector;

$r_j$  is income by way of interest or dividend on loans and equity; and

$t_j$  is a transfer payment from the sector to individual agents.

separately to get a full measure of subsidy flowing in subsidized sectors without surplus offsets. They also introduced the concept of 'merit subsidies', which subsidies might be justified, and attempted to get at least a rough measure of the volume of 'unjustified' subsidies. They concluded that even non-merit services had an average recovery rate of less than 9 per cent and that 'non-merit' subsidies amounted to nearly 11 per cent of GDP, the implication being that elimination of these unjustifiable subsidies could wipe out India's entire fiscal deficit. They also concluded that the overall allocation of subsidies was distributionally quite regressive. Brent (1995) used the Mundle-Rao state-level estimates to compare cost recoveries with his measure of socially desirable user charges in a cost-benefit analysis framework, and concluded 'the application of the cost-benefit framework to India's state user price experience does therefore on the whole, support the Mundle-Rao conjecture that it is hard to justify the limited use of user pricing for government services in India'.

Available studies of government subsidies in India thus confirm that the total volume of such subsidies is very large, approaching around 15 per cent of GDP, that most of it is difficult to justify as 'merit goods' or in a social cost-benefit analysis framework, and that the incidence of subsidies is regressive and difficult to justify even on distributional considerations. This calls for a significant reform of subsidy policy in India. At the same time, in identifying a road map for subsidy policy reform that is feasible, it is important to recognize political economic ground realities. It is important to first freeze, and then reduce in a phased manner, subsidies that cannot be justified as 'merit subsidies' to both reduce the fiscal burden of unwarranted subsidies and also the distorting effects on resource allocation. Second, wherever feasible subsidies should be substituted by other policy instruments that are less distorting for resource allocation, for example two-part or multiple-part pricing. Third, subsidies given for distributional reasons should be substituted by pure transfer payments that are more visible, and therefore can be better targeted, and that also do not distort price signals that impact on resource allocation. Finally, the shift to alternative policy instruments should be introduced alongside the phased reduction of subsidies so as to make these policy packages politically feasible.

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### References

- Atkinson, A.B. and J.E. Stiglitz. 1976. 'The Design of Tax Structure: Direct Versus Indirect Taxation', *Journal of Public Economics*, 6: 55-75.
- Brent, R. J. 1995. 'Cost-Benefit Analysis, User Prices, and State Expenditures in India', *Public Finance*; 50(3): 327-41.
- Srivastava, D.K. and Tapas Sen. 1997. *Government Subsidies in India*; New Delhi, National Institute of Public Finance and Policy.
- Mundle, S. and M.G. Rao. 1991. 'The Volume and Composition of Government Subsidies in India', *Economic and Political Weekly*, 4 May.

### ■ Green Revolution

The term 'green revolution' in India suggests two images. In the popular mind it is associated with a period in which India crossed the hump in terms of shortages of, and external dependence for, its grain and food requirements. The second more technical perception of the green revolution is one of a productivity breakthrough emerging from the high-yielding variety of seeds in foodgrains, particularly wheat and then rice. These seeds initially imported from Mexico for wheat were adapted, replicated, and developed by Indian scientists. On account of their photo-insensitivity properties, they were shorter-duration crops as compared to the earlier varieties, and this property by itself led to more intensive use of land, in addition to water and nutrients. Technology and productivity improvement became the driving force in the green revolution areas.

The green revolution in India is seen as spanning four epochs (Alagh 2004). The first phase of the introduction of the high-yielding technology is attributed to the initiative of the political leader C. Subrahmaniam and civil servant B. Sivaraman, in the second half of the mid-1960s, a 'ship to mouth' phase of grain shortage and large grain imports as PL 480 aid from the USA. They took the risk of importing the dwarf varieties of wheat from the International Wheat Research Institute (IWRI) in Mexico and were assisted by Indian scientist M.S. Swaminathan and Indian Council of Agricultural Research (ICAR) teams in replicating the seeds.

The second was a phase in which the technology was internalized in what is called the favoured region, favoured crop period in the decade of the 1970s. However, in the early 1970s there was still considerable pessimism on the growth potential of Indian agriculture. Paddock and Paddock, in *Famine 1975*, argued

Today, India absorbs like a blotter 25 per cent of the entire American wheat crop. No matter how one may adjust present statistics and allow for future increase in the American wheat crop...it will be beyond the US to keep famine out of India