Efficiency and Equity of Food Market Interventions

This paper reviews the economic rationale of food market interventions in India, the problems that arise in designing these policies and their performance. The evaluation points to certain directions of reform which require that the framework of a centralised public distribution system be set aside in favour of a regionally differentiated safety net of food subsidies sensitive to local consumption patterns, needs and circumstances.

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I
Introduction

This paper examines the efficiency and equity of food market interventions in India. The paper reviews the economic rationale of such interventions, the problems that arise in designing these policies and their performance in the Indian context. The evaluation points to certain directions of reform. It will be argued that these reforms require that the framework of a centralised public distribution system be set aside in favour of a regionally differentiated safety net of food subsidies sensitive to local consumption patterns, needs and circumstances. Dissolving the existing arrangements would, however, face formidable but not insurmountable political economy constraints. The scale of food subsidies and its incidence in particular states would, of course, be subject to political initiative and interest.

I
Ideal Market Interventions

The principal efficiency argument for food market intervention arises from the absence of risk markets. Private storage of foodgrains across years is typically unprofitable. However, such storage might be socially profitable because poor risk-averse food consumers cannot obtain credit or insurance against crop failures. Price stabilisation is therefore a substitute for missing risk markets. The reduction in risk is beneficial to producers as well.

Even with complete markets, the market solution in poor countries produces outcomes that involve unacceptably low food consumption for the poor. The equity objective of food market intervention is to augment the food consumption of such target groups. This is accomplished by offering subsidies on such consumption.

A mechanism for achieving both these goals is the procurement (purchase), storage and distribution (sales) operation. Suppose the subsidy scheme requires an annual distribution of 15 million tonnes of grain. Annual procurement would however vary depending on the size of harvest and the available stocks with the government. It could be greater than 15 million tonnes in times of abundant supplies. In such times, the government builds up stocks. It could be less than 15 million tonnes in times of shortfall. In such times, the public distribution draws down stocks. With luck, such a scheme can smooth out the inter-temporal variability in crop supplies.

Only in exceptional circumstances, such as a sequence of bumper harvests or a sequence of disastrous crop failures, would such schemes fail. Except for the limitation in such rare events, successful price stabilisation should mean that over crop and weather cycles (such as 8-10 years), the average size of government purchases would be equal to the annual distribution of 15 million tonnes. If this condition were not met, price stabilisation would not be sustainable. Stocks would either be continuously augmented or depleted. Sustainability therefore requires that the change in stocks (i e, the difference

between procurement and distribution) should on average be zero. The variance or swings in stock levels would depend on the extent of price stabilisation. Greater is the extent of price stabilisation, larger is the market intervention (in terms of purchases and sales). In an open economy, the government would coordinate its intervention with international trade. Empirical studies usually find that international trade reduces the size of market intervention required to achieve a given degree of price stabilisation.

I
Designing Sustainable and Successful Interventions

There are several problems in operating and designing a sustainable intervention. As the discussion above suggests, the idea is to stabilise prices around their mean. However, the mean price (and average supply) does not remain unchanged. Stabilisation itself changes it. Typically, in a developing economy, average supply tends to increase over time. As a result, interventions that try to stabilise with reference to historical supply levels and do not adjust will tend to carry too much stock.

First, there are the exogenous factors: technological progress and Engel's law. Supply grows faster than demand and the relative price of food declines. Second, there are the endogenous factors. Price stabilisation of food crops favours them over the crops that are not supported. The supply response to price supports must not be underestimated. In markets where producers hold rational expectations of future

prices and supply, price stabilisation decreases price variability and producers increase supply as a response to reduction in risk. These effects are even greater in developing country markets, where without futures markets and information dissemination services, producers have little means of forming rational price expectations. In addition to decreasing price variability, price stabilisation reduces irrational forecasting errors and substantially reduces risk relative to the non-supported crops.

If intervention does not adjust to these long-term supply factors (by letting average prices fall), it will tend to accumulate stocks. In addition, market interventions develop political interests. As price stabilisation is eroded by the goal of supporting producer prices, it further distorts the allocation of resources to the supported crops deepening the problem of sustainability.

On the distribution side, a successful intervention is one where the target groups receive the entire subsidy. Here the practical issue is that while the poor can be counted, it is not easy to identify them. The targeting criteria cannot be those that can be claimed or mimicked by the non-poor in order to receive subsidies. Associated with any targeting scheme are errors of exclusion (due to exclusion of some members of the target group) and errors of inclusion (due to inclusion of some members of the non-target group). While an ideal targeting scheme keeps both these errors to the minimum (perhaps, even zero), nobody has discovered such a scheme that works everywhere. Usually, there is a trade-off between the two kinds of targeting errors. Liberal or loose targeting schemes, of which universal access is a polar case, minimise exclusion errors but maximise inclusion errors. Conservative or tight targeting schemes minimise inclusion errors but increase the chances of leaving out some of the target group. The trade-off implies that efficient targeting design is the outcome of minimising a weighted sum of exclusion and inclusion errors. For instance, developed countries, concerned as they are about inclusion errors, have especially in recent years, opted for conservative targeting schemes. Subsidies are time-bound and are subject to a work requirement. On the other hand, in India there is a strong case for weighting exclusion errors more than inclusion errors. In rural India, as much as 75 per cent of the population earns an income that lies within twice the poverty line [Gangopadhyay and Wadhwa 2000].

IV
Stabilisation

In this section, I consider the stabilisation outcome of the food market intervention. In particular, I show the contrast between the decade of economic reforms and previous decades.

(a) 1991-92 was the last year that public distribution offtake (of rice and wheat) exceeded procurement (of rice and wheat). Since then procurement in every year has exceeded public distribution offtake.

(b) In the period before 1991-92, procurement and public distribution were more evenly matched. During the 20 years between 1972-73 and 1991-92, procurement exceeded public distribution offtake in 11 years and was smaller than public distribution system (PDS) offtake in the other nine years.

(c) Define ΔS = (Procurement – PDS Offtake). It is a measure of excess stock. This can fluctuate widely from year to year. It does not include imports/exports or open market sales. Nonetheless, it is a useful measure in our context because these are the quantities that are largely determined by the government's choice of administered prices: the procurement and issue price. Net exports and open market sales are discretionary policies that are put in place only when stock levels are not at desired levels.

(d) In an economy, where the government stabilises annual supplies over time, the average value of ΔS over a long enough period ought to be zero. The average value of ΔS over the period 1972-73 – 1991-92 is .43 million tonnes. When the period is extended to 1999-2000, the average value of ΔS rises to 2.3 million tonnes. In the period of eight years from 1992-93 to 1999-2000, the average excess stock was 7 million tonnes.

(e) The real surprise is that at the end of 1999-2000, we had only about 45 million tonnes of grain stocks. The excess stocks during 1992-93 – 1999-2000 sum to 56 million tonnes. Since the stocks at the beginning of 1992-93 were about 11 million tonnes, we should have had 67 million tonnes. The discrepancy is accounted by open market sales (about 20 million tonnes of principally wheat) and exports (about 2 million tonnes of mainly rice) during this period.

(f) The primary reason for the mismatch between procurement and PDS in the 1990s was a jump in procurement rather than a fall in offtake (although that has been pronounced in wheat) (Table 1).

(g) Prices of rice and wheat, measured in constant rupees, increased during the

1990s. This reversed the trend of declining prices observed during the period 1970-90 (Table 2).

The situation is unsustainable and present policies can continue only if the next two crops fail. In the next two sections, the paper considers the responses of producers and consumers to food market intervention that exacerbate the problem of excess stocks.

V
Procurement and Speculation

Once stocks are on the unsustainable path, they can build up very quickly because of speculative expectations.[1] The government announces a procurement price that is fixed at the same level throughout the season. For a grain seller, the opportunity cost of sale to the government is the market price of grain but at a later point in time. Thus price expectations determine the sales to the government. Price expectations are in turn dependent on future government actions. When government stocks are large, it is natural to expect future sales from these stocks. Indeed, open market sales are the principal means by which the government has brought down stocks from unwanted levels. They reduce private storage in two ways. First, because future supplies are expected, smaller quantities of private storage are sufficient (to arbitrage the seasonal price differences). Second, there is no systematic way in which the open market sales occur. It is very difficult to predict the timing, quantity and price of grain offered in open market

Table 1: Change in Real Prices of Rice and Wheat

(Percent)

	1970-71-1989-90	1990-91-1999-2000
Rice	3.23	+23
Wheat	-40	+28

Source: Author's calculations using data from various issues of the *Economic Survey*. The wholesale price indices of rice and wheat are deflated by the wholesale price index of all commodities.

Table 2: Changes in Average Procurement and Offtake

(Million tonnes)

	Rice Procurement	Rice Offtake	Wheat Procurement	Wheat Offtake
1981-82 to 1991-92	9	8.4	8.6	7.8
1992-93 to 1999-2000	12.6	9.8	11	6.6

Source: Author's calculations using data from various issues of the *Economic Survey*.

sales. In such situations, private storage is also very risky.

For both these reasons, large public stocks can lead to even larger stocks in the future. Indeed stocks can be so large that private stocks might not be carried at all. This is what happened with wheat procurement in 2001 when the government procured 19 million tonnes, which is reckoned to be almost the entire harvest that came to the market in Punjab and Haryana. Private trade picked up only 10-15 per cent of supplies procured from other regions where the minimum support price was not operative. As a result, stocks at the end of the 2001 wheat procurement season amounted to a huge hoard of 65 million tonnes, which was the quantity of rice and wheat output in 1971.

VI
Offtake, Quality and Price Transmission

Now consider consumer behaviour that can cause the government to carry excess stocks. According to case studies and anecdotal accounts, consumers perceive the grain from the PDS to be of lower quality than the grain from private retail. It has not been realised that such consumer behaviour has immediate implications for government stocks and food subsidy expenditures. Before we turn to the implications, note that as government and private trade procure grain at similar prices (especially wheat), the lower quality at retail level marks the inefficiency of government operations. Newspaper accounts speak of quality deterioration at different points in the distribution chain. At the point of purchase itself, the government often buys lower quality and damaged grain (often because of political pressure). Quality loss is severe in the commonly used methods of storage (covered and plinth storage). Furthermore, the FCI does not have the systems to implement the first-in, first-out principle of inventory management. As a result, their stocks often tend to be old.

Quality preference means that unless the PDS grain is sufficiently discounted, some consumers would prefer to buy market grain even when it is more expensive. Consumers, however, differ in their valuation of quality and hence in the price discounts that they require to buy PDS grain. Suppose the government increases the issue price in order to keep the food subsidy within manageable limits. This is typically the response (usually lagged) to hikes in the procurement price. The price

discounts on PDS grain falls, which leads some consumers to exit the PDS and switch demands to the open market. An empirical analysis of these demand switches is contained in Balakrishnan and Ramaswami (2001). As shown in Balakrishnan and Ramaswami (1997), these demand switches are commonly observed in the seasonal patterns of PDS wheat offtake.

We therefore observe the following sequence: higher procurement price, higher procurement, higher issue price, lower offtake, and larger stocks. This describes government operations till 1997. The introduction of targeting which created dual prices for above poverty line (APL) households and below poverty line (BPL) households led to two opposing effects. The APL households, which had to pay an issue price equal to the economic cost of the FCI, moved out of the PDS reducing offtake. The BPL households received a substantial discount on the economic cost and had incentives to utilise the PDS. The states with a well-functioning PDS adapted quickly to the targeted scheme and made full use of the BPL allocations. These are predominantly the rice consuming southern states of AP, TN and Kerala and they account for the bulk of the offtake. The principally wheat consuming states of Rajasthan, Maharashtra and UP which have weak public distribution systems were slow to identify BPL beneficiaries. As a result, wheat offtake fell drastically under the targeted PDS while rice offtake has remained at its earlier levels.

The effect of lower quality on government stocks, however, remains. For a given subsidy rate, the government will carry larger stocks than what it would if there were no quality differences. There is a second implication as well. By causing some households to switch demands to the open market, an increase in issue prices also increases market prices [Balakrishnan and Ramaswami 2001]. The complete sequence is therefore: higher procurement price, higher procurement, higher issue price, lower offtake, larger stocks, and higher market price. The sequence becomes a cycle when higher procurement

prices are awarded on the basis of higher market prices (in the past year).

VII
Food Subsidies: Scale and Efficiency

Consider now the equity objective of market intervention schemes. With annual sales between 15 and 20 million tonnes of grain, the public distribution system (PDS) accounts for 15 per cent of the total availability of rice and wheat and for about 40 per cent of the grain that arrives in markets. The central government spends over Rs 9,000 crore on the food subsidy programme. If expenditures by the state governments are taken into account, the total expenditures on food subsidies is in the neighbourhood of Rs 12,000 crore.[2] The debate about the PDS does not question the need for a safety net for the poor but whether it is an adequate and efficient mechanism for augmenting the food consumption of the target groups.

There are two major issues with the PDS. The first issue is whether the target groups receive significant subsidies from the PDS. The second issue is whether these subsidies are provided efficiently. Roughly speaking, the first issue concerns the scale of the PDS while the second issue concerns the efficiency of PDS expenditures. While, for convenience, I will examine these issues separately, they are intimately connected. A higher efficiency of PDS expenditures, scale remaining unchanged is equivalent to a higher scale, efficiency remaining unchanged.

In recent years, evidence has steadily mounted that the poor receive meagre

Table 4: Cost of Providing One Rupee of Subsidy

(Rs)

State\Target Group	Entire Popu- lation	Bottom 40 Per Cent	Bottom 30 Per Cent	Bottom 20 Per Cent
Andhra Pradesh	1.71	3.14	4.05	5.81
Maharashtra	1.82	4.02	5.72	9.05

Source: Dutta and Ramaswami (2001a).

Table 3: Decomposition of the Cost of Food Subsidies

	Total Expenditures	Transfer to Non-Target Group	Excessive Costs	Leakages/ Fraud	Transfer to Target Group
Andhra Pradesh	7778	2059 (26.5)	2058 (26.5)	1161 (15)	2477 (32)
Maharashtra	1883	568 (31)	295 (16)	529 (28)	468 (25)

Notes: Figures in brackets are percentage.
Source: Dutta and Ramaswami (2001a). The target group is defined as the bottom 40 per cent of the population ranked by expenditure.

benefits from the PDS [Dev and Suryanarayana 1991; Parikh 1994; World Bank 2001]. In the southern states, especially Andhra Pradesh, Kerala and Tamil Nadu, the poor seem to make reasonable use of food subsidies.[3] This is not so in the rest of the country. Indeed, the majority of the poorest 20 per cent of households in the northern and eastern Indian states does not purchase any foodgrains from the PDS [Parikh 1994].

The poor might be excluded or might not participate for a number of reasons. First, the geographical coverage of the PDS is limited especially in the northern Indian states. For instance, in Maharashtra, 30 per cent of the poor do not use the PDS because of lack of access [Dutta and Ramaswami 2001a]. Second, to obtain access, households must show proof of residence. This is difficult for migrants. Third, ration entitlements can be accessed only once every fortnight. Often, poor households do not have incomes that permit savings for this duration.[4] Fourth, given the costs of utilising the PDS, because of factors such as queues, uncertain supplies, inferior quality, and inconvenient location, the slender subsidy (because of limited quotas and subsidy rate) offered in most states might not justify the participation of poor households. In 1993-94, the average per capita subsidy received from purchases of rice, wheat, sugar and kerosene was Rs 3.5 in rural areas and about Rs 6 in urban areas. The median value of the ratio of total subsidy to household expenditure was less than 1 per cent in both urban and rural areas [Tarozzi 2000].

Another way to judge the importance of subsidy to households would be to look at the subsidy in relation to the maximum income that can be transferred to target groups by a food subsidy system. For example, suppose we take 4 kgs of grain per capita per month as the desired level of supply from the PDS. If the market price of grain is p, food subsidies can increase per capita incomes by at most Rs $4p$, which happens when supplies are free. Computed this way, Dutta and Ramaswami (2001a) find that the bottom 40 per cent in Andhra Pradesh receive, through the PDS, about a quarter of the maximum income transfer while in Maharashtra, food subsidies transfer to the bottom 40 per cent only about 5 per cent of the maximum possible levels.

Even where publicly subsidised grain reaches the poor, the market is just as important a supplier. Most households depend on a mix of the two. In the typical pattern, the market is the dominant sup-

plier [Dev and Suryanarayana 1991; Parikh 1994 and World Bank 2001] presumably because ration quotas are limited and not available for purchase continuously. This means that consumer benefits from the PDS depend not just on the scale of subsidies (which are meager for poor households in most parts of the country) but also on how the subsidies impact the market price of grain. If, as the evidence suggests, the PDS increases the market price of food, then these effects may well dwarf the direct benefits of food subsidies.

It can therefore be concluded that, with the exceptions of a few states, the effect of PDS on the well-being of the poor has been negligible, if not perverse. To register larger benefits, the scale of the programme would have to expand to be a major supplier of grain to the poor. Swaminathan (2000) argues that fiscal problems should not constrain expansion as food subsidies are less than 1 per cent of GDP – a ratio lower than that of many other countries. As a proportion of central government expenditure, the central food subsidy has fluctuated between 2.5 per cent and 3.5 per cent [Swaminathan 2000]. These ratios would have to increase significantly, perhaps even doubled, for the PDS to make a major difference to the livelihoods of the poor. Such a recommendation runs counter to the prevailing concerns about fiscal control. But surely the issue is one of productivity of government expenditure rather than of its scale. In the macro-perspective, the scale constraint to food subsidies stems from the unwillingness and inability of the government to undertake reforms of itself so that resources could be released for safety net expenditures.

This brings us to the issue of efficiency of PDS expenditures. If there are potential efficiency gains, reforms within the PDS could expand the scale of food subsidies. There are three principal reasons why the PDS does not deliver food subsidies efficiently. These have to do with targeting errors, i e, income transfers to non-target groups, excessive costs of procurement, storage and distribution (relative to the private sector) and leakages or fraud, i e, illegal diversions of subsidised grain to the open market.

To get an idea of their quantitative magnitude, we draw upon examples from Andhra Pradesh and Maharashtra [Dutta and Ramaswami 2001a]. Suppose the objective of food subsidies is to subsidise the food consumption of the bottom 40 per cent ranked by income. Table 3 shows how much of the expenditures on food subsidies go to the target group (the fourth column) after accounting for targeting errors (the first column), excessive costs (the second column) and leakages or illegal diversions to the open market (the third column). These computations are based on food subsidy costs and estimates of income transfers (from NSS consumption expenditure data) in 1993-94. These figures imply (dividing the income transfer by the subsidy cost) that it costs Rs 3.14 and Rs 4 to transfer a rupee to the target group (of bottom 40 per cent) in AP and Maharashtra respectively. Table 4 presents the same kind of data where we consider different choices of the target group – the entire population, the bottom 40 per cent, the bottom 30 per cent and the bottom 20 per cent.

These examples illustrate that it costs much more than one rupee to transfer a rupee of subsidy to a reasonably defined target group. It is sometimes thought that targeting errors are responsible for these departures from efficiency. However, Table 3 makes it clear that the costs of delivering food subsidies to the target group are high because of targeting errors as well as lapses in implementation. To see the relative contribution of these factors, consider the cost-effectiveness of transferring a rupee of subsidy to the target group of bottom 40 per cent. Suppose targeting were perfect in the sense of zero subsidies to the non-target groups and nothing else changes. The change in cost-effectiveness depends on whether the savings are transferred to the target group or to the general budget. In the first scenario (call it case A), costs remain the same but effectiveness increases while in the latter scenario, costs fall but the target group receives the same amount of subsidies (case B). The first row of Table 5 reports the cost-effectiveness of perfect targeting. Notice that subsidy transfer still costs more than one rupee because of excessive costs and

Table 5: Cost of Providing One Rupee of Subsidy to the Bottom 40 Per Cent under Perfect Targeting or Organisational Reform

(Rs)

	Andhra Pradesh: Case A	Andhra Pradesh: Case B	Maharashtra: Case A	Maharashtra: Case B
Perfect targeting	1.71	2.3	1.82	2.81
Perfect organisational reform	1.37	1.84	1.46	2.2

Source: Author's calculations using Table 3. Case A and case B are defined in the text.

illegal grain diversions, which together can be called implementation failure.[5]

The contribution of the costs of implementation failure can be considered by a corresponding hypothetical experiment. Suppose these costs were reduced to zero, everything else remaining unchanged. The second row of Table 5 reports the cost-effectiveness of organisational reform under case A and case B. Although neither case is completely realistic, it can be seen that implementation efficiency offers at least as much if not greater gain as improvements in targeting.

VIII
Targeting

For public spending in general, the literature makes a distinction between broadly targeted and narrowly targeted programmes [van de Walle 1998]. The idea of broad targeting is to subsidise basic consumption goods and services for all households because such goods and services matter more to the poor. As the poor spend more on food, in proportionate terms, than the non-poor, a universal food subsidy such as the erstwhile PDS is an instance of broad targeting. But, as we have seen, such programmes also benefit the non-poor and are therefore expensive. Narrow targeting is of two types. The first is indicator targeting which identifies an easily observable characteristic of households that is highly correlated with low income. The indicator is then used as a proxy for income to identify and target poor households. The second approach is self-targeting. Here the design of subsidy is such that it is much more costly for the non-target groups than for the target group to participate in the subsidy scheme.

Clearly, the success of indicator targeting depends on the correlation of the indicator with poverty. In India, indicator targeting at the central level began with the revamped PDS in 1992 where certain backward regions received higher subsidies.[6] While there is no published evaluation of this programme, Jha and Srinivasan (2001) demonstrate the potential of geographical targeting especially when it is done at the district level where disparities are marked. There is therefore a strong case for treating regions differently. However, geographical targeting was given up in 1997, when it was replaced countrywide by the targeted PDS (TPDS). In the new programme, the PDS makes a distinction between below poverty line households (BPL) and above poverty line (APL) households. While APL households are pro-

vided grain at FCI's economic cost, BPL households receive grain priced at 50 per cent of FCI's economic cost (which covers the cost of procurement, taxes, transport and distribution).[7] Thus, the subsidies are restricted to the BPL population.[8]

In principle, TPDS ought to make food subsidies cost-effective. However, it would be naïve to expect targeting errors to vanish. Indeed, exclusion errors are built into the implementation process. Identification of the poor is the responsibility of the state government, which in turn is expected to use local bodies and village panchayats for this purpose. Even though the poverty line is an expenditure-based norm, it is not feasible to elicit expenditures for identification. Identification would then depend on household characteristics such as occupation, dwelling type and size and so on. Even when done honestly, there is no reason to expect that the total of such beneficiaries will match the BPL population in the state because (a) targeting indicators are imperfectly correlated with poverty and (b) poverty is itself measured with error. If there is an excess of beneficiaries, there is a problem because their BPL subsidy will not be funded by the central government. At least some of the state governments might be expected to trim the number of beneficiaries by whatever means to match the BPL population. So exclusion errors can be expected even when the process is faithful to its intentions.[9] More realistically, we can expect errors also because of lack of interest and capture by non-target groups.[10] In addition, the difference between APL and BPL prices provides strong incentives for illegal diversions to the market. For these reasons, it is not clear that BPL targeting is the best route for target groups to access subsidies.

The difficulties of indicator targeting make *self-targeted* programmes, in which the relatively rich *voluntarily* opt out of the programme, particularly valuable. Self-targeting in food subsidies can work by subsidising commodities consumed primarily by the poor. Rice and wheat are the main commodities that are subsidised under the PDS. On the other hand, coarse cereals comprising sorghum, pearl millet and maize are known to receive higher shares in the household budgets of the poor in several regions of the country. But these commodities are unsubsidised. Would it be welfare improving to transfer one rupee of subsidy from rice and wheat to the coarse cereals? Since the importance of coarse cereals varies by state and residence, the answers to this question must be state-specific as well.

Using NSS household consumption survey data, Dutta and Ramaswami (2001b) evaluate this policy for Andhra Pradesh and Maharashtra. The results support the case for subsidising coarse cereals in Maharashtra but do not endorse it for Andhra Pradesh. The results are divergent even though (a) the food subsidy systems are comparable between the two states in their coverage of the non-poor and (b) coarse cereals are an inferior commodity group in both states. This happens because the welfare gains also depend on the shares of the subsidised commodities and of coarse cereals in the budgets of the poor. In Maharashtra, poor households consume significant amount of coarse cereals and correspondingly smaller quantities of superior qualities of foodgrains. Hence, they benefit from the relative price change in favour of coarse cereals. In contrast, poor households in Andhra Pradesh lose from such 'local' changes because of their considerable consumption of subsidised rice.

The general point is that self-targeting schemes cannot work on an all-India basis because it uses food preference patterns that are necessarily state-specific. Coarse cereals are in particular not suited to a centralised procurement, storage and distribution because of their limited shelf life. However, subsidising coarse cereals could work as a component of a regional food subsidy programme.

IX
Food Stamps

A feature of India's food subsidy programme is the deep involvement of the government and its agencies in physically handling the grain. The government buys the grain, stores it in its warehouses, transports it to different depots in the country and distributes it to authorised retail outlets. Agencies of the central and state governments carry out this operation. An alternative to such an arrangement is the system of food stamps. In this scheme, the purchase, storage, movement and distribution of grain is performed by the private sector. Could this be superior to the existing PDS? As there is no published work that has examined this question, consider the factors that will matter in the cost-benefit calculus.

A food stamp is a cash voucher, which can be exchanged by the recipient for only food. It is usual to restrict the list of foods by excluding alcoholic beverages, snack foods and other processed food. Here consider food stamps that can be only used to purchase foodgrains. In order to

preserve comparability with the PDS, assume a food stamp programme that offers recipient the same level of subsidy as the PDS.

We noted earlier how targeting errors, excess costs and illegal diversions erode the cost-effectiveness of the PDS. How could food stamps be better or worse? Like the PDS, a food stamp programme also requires the identification and registration of beneficiaries. Food stamps are therefore on the same footing as the PDS with respect to targeting errors.[11] Excess costs, which constitute a significant part of government subsidies, cannot arise in a food stamp programme since the grain is transacted through private markets. This is the major gain from a switch to food stamps from PDS. A leakage in terms of the diversion of grain is clearly not an issue with food stamps. However, other kinds of fraud might still occur. In particular, food stamps meant for identified beneficiaries might be hijacked by intermediaries and sold to non-target groups (or to target groups themselves resulting in loss of subsidy). As food stamps are like currency, diversion of food stamps might be easier in terms of transactions costs than the diversion of grain. With respect to fraud, it is not clear, a priori, whether food stamps are more advantageous than PDS. However, as food stamps can be numerically tagged, it might be cheaper to inspect and investigate food stamp fraud than illegal grain diversions. Finally, all of this discussion assumes the existence of a private retail grain-marketing network. Food stamps might not work in remote regions with poor transport links although it must be acknowledged that these factors work against the PDS as well.

This review suggests that the cost-effectiveness of food stamps depends on its administrative costs (relative to the PDS) and the efficiency of the private sector. This is an empirical issue and can be established without too much difficulty. It is likely that food stamps are more cost-effective in some regions (perhaps urban areas) than in others. Yet the government (and many researchers) has resisted such institutional mechanisms. While an aversion to markets might be one reason, a superficial evaluation of food stamp experiences in developing countries might be another. Most of the developing countries instituted food stamp programmes in response to a fiscal crisis. Typically, these countries (e g, Jamaica, Sri Lanka, Mexico) underwent major macroeconomic reform that led to a reduction of general food price subsidies. In order to protect the poor, a food stamp programme was introduced. The objective was therefore to use food

stamps to reduce food subsidy expenditures and to target them to the poor. The reduction in subsidy levels (often accomplished by not indexing stamp value) and initiation of targeting meant that the food stamp programme was not comparable to earlier subsidy programmes. The small literature that discusses the (adverse) consequences of food stamps in developing countries does not distinguish the impacts of changes in subsidy levels (and the new targeting schemes) from the efficiency gains in transferring food distribution to the private sector. This work therefore does not illuminate the efficiency gains from food stamp programmes when subsidy level and the targeting scheme are held constant.

X
Policy Response

India's food market intervention is in crisis. Unable to resist procurement lobbies, public money in the last decade has been used to build grain stocks, subtract supplies and increase foodgrain prices. Neither is there much compensation in terms of an effective distribution system. With the exception of the southern states, too few of the poor use the PDS and the bulk of the subsidy is wastefully spent on transfers to non-target groups, illegal diversions and inefficiencies in distribution.

While the PDS is the joint responsibility of the central government and the state governments, their roles are unequal. The central government procures, stocks, transports and supplies grain to the state governments and absorbs the costs of these operations. Once the grain is allocated to the states, it is the job of the state governments to 'lift' the grain and distribute it to retail PDS outlets within the state. Decisions about the major policy parameters (procurement price, issue price, ration quotas) are vested with the central government. Some state governments, most notably Andhra Pradesh, have participated in policy-making (with, of course, influence restricted to their domain) by offering subsidies in excess of the central government subsidy. But, by and large, the role of state governments is to support the FCI in procurement and distribution with little participation in policy-making, except by way of lobbying for special interests.

It is unlikely, however, that this will remain unchanged. A more federal structure seems to be in the offing. The first step in the evolution was the targeted PDS. The principal innovation, i e, the implementation of targeting does not involve the

central government at all. For the central government, the major consequence of TPDS is that it ties the central government subsidy to the BPL population within a state thereby providing a formula for the transfer of food subsidy funds to the states. The second step that the central government is pushing for is decentralised procurement. If this happens, the implementation of the PDS will be the sole responsibility of state governments and the central government will restrict itself to the financing. The advantage of these arrangements for the central government is that (a) as funding under TPDS is tied to poverty estimates, it is bounded and will decline with falling poverty and (b) decentralised procurement will undermine the power of procurement lobbies, and will thereby reduce procurement price, stocks, the economic cost of FCI and hence reduce foodgrain subsidies as well.

Decentralised procurement has not found favour with the states. While opposition from the grain surplus states is expected, other states too have not welcomed it either because they do not wish to confront a procurement lobby in their backyard or because they are unsure about their capabilities in undertaking this operation. It is also not clear how decentralised procurement will mesh with minimum support prices. If these are obligatory for state governments as well, predominantly grain-deficit states might not save much by undertaking procurement themselves. With these uncertainties, it is reasonable for the states to resist decentralised procurement.

Although the evolution to a federal relationship seems, ironically, to suit the centre more than the states, there are opportunities especially for the states that are committed to the PDS to gain control on food subsidies and to restructure them efficiently. It is well known that PDS performance differs across states which suggests that local factors matter and should therefore be taken into account in food subsidy policy [Ahluwalia 1993; Dev and Suryanarayana 1991; Dutta and Ramaswami 2001a; Mooij 2001 and Parikh 1994]. Indeed, while there is enormous scope for improving efficiency by reforms such as geographic targeting, self-targeting and food stamps, their design and effectiveness are specific to local preferences, knowledge, infrastructure and circumstances. For instance, a state could subsidise coarse cereals, use food stamps in urban areas, allow universal access in backward areas, and temporarily increase the subsidy rate in regions that are

adversely affected by floods, drought and other natural disasters. In a decentralised framework, the central government would primarily be a funding agency and its role in operations would be limited to the storage of emergency reserves. Through the Planning Commission, the central government could monitor the targeting performance of individual states and reward the states that do well with greater subsidy allocation irrespective of their poverty status for it can be wasteful to allocate subsidies to poor states without regard to targeting performance [Mooij 1999]. States with little interest in food subsidies will languish with ineffective distribution. But this is an outcome that has to do more with state politics than with central policies.

Such a move towards a federal relationship in food subsidies is essential if the food subsidy system is to be flexible and contingent on local circumstances and needs. It need not result in the central government abandoning its responsibilities, as some critics fear, provided the state governments negotiate with the central government to ensure the scale of financing is commensurate with the needs of a secure safety net. Indeed, this ought to be the major agenda of the states.

The major hurdle to a federal structure is the tricky issue of procurement. The practical difficulties in decentralising procurement are much exaggerated. After all, private trade does move grain from the surplus to the deficit states. It is immediately feasible for the states to constitute a clearing house (which invites bids for purchase and sale from FCI as well as private trade) that matches the demand with supply. The more durable difficulties are political. There is a proposal of income supports to replace procurement. But this would only exchange the present troubles for future problems of an even greater magnitude. The case for using price supports to subsidise foodgrain producers is no longer as compelling as it once was. Stabilisation is defensible provided the operation is limited. Fortunately, there is a sustainable way of holding up foodgrain prices above what they would otherwise be. After all, food subsidies have favourable effects on food demand. In the US, one $ of food subsidy is estimated to increase food demand by 20-35 cents [Senauer 1993]. Jha and Srinivasan (2001) find similar sorts of effects from a simulation model of Indian foodgrains markets. If the farm lobby can perceive its self-interest in an efficient and targeted safety net, as it does for instance in the US, then it opens possibilities for meaningful reforms. **EPW**

Notes

1 Speculative expectations are not taken into account in reduced form regressions that relate procurement quantity to procurement price and output. For studies of speculative expectations, see Balakrishnan and Ramaswami (1995) and Ramaswami (2000).

2 State expenditures in 1998-99 amounted to Rs 2,840 crore [World Bank 2001].

3 These were the only states where the average purchase of PDS grains by a household in the bottom 20 per cent exceeded 9 kgs per month in 1993-94 (Table A3.1a, World Bank (2001)). By contrast, these figures were negligible for Bihar, Haryana, Punjab, Rajasthan, Uttar Pradesh and West Bengal. In Assam, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Orissa, the figures were between 1 to 4 kgs.

4 Conditional on purchase, top deciles purchase more grain per capita from the PDS than the bottom deciles. See Dutta and Ramaswami (2001a) as to why the usual income effect alone is not responsible for the regressive nature of PDS purchases. Rather the finding seems more consistent with the view that poor households are more liquidity-constrained than rich households. Of course, the liquidity effect depends on the income level.

5 Targeting errors can also be due to lax administration. However, targeting errors arise fundamentally because of imperfect knowledge about household characteristics. It is therefore useful to keep the costs of targeting failures distinct from the costs of organisation failure.

6 Indicator targeting at the state level precedes central policy. Andhra Pradesh used (and continues to use) land ownership to target rice subsidies in rural areas.

7 To reduce stocks, the government temporarily cut APL prices by 30 per cent in 2001.

8 If FCI's economic cost is below the market price, the APL users would also receive subsidies. Usually, however, the market price is below the FCI's economic cost.

9 States such as Andhra Pradesh and Karnataka had some form of indicator targeting even before the advent of TPDS. The target groups so identified are numerically much greater than the estimates of BPL population. However, the states have chosen not to bring their estimates of target groups in line with the BPL population perhaps because of the political difficulties of such an exercise or because of concern over the exclusion errors that would arise or a combination of both. In Karnataka, the numbers of BPL beneficiaries are six million households while BPL households are estimated as 3.9 million [Mooij 1999]. In Andhra Pradesh, the corresponding figures are 11 million and 3.8 million [Government of Andhra Pradesh 2001]. The subsidy for the excess beneficiaries is borne by the state governments.

10 Mooij (2001) describes the way beneficiaries

11 If anything, food stamps might lead more of the poor to use food subsidies because they no longer have to save up to buy the twice monthly rations from the PDS.

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