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Towards greater food security for India's poor: balancing government intervention and private competition

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Abstract

To achieve its strategic objective of food security, the Government of India (GOI) maintains an elaborate set of food grain policies which include public procurement and price support operations, price stabilisation through buffer stocks, public food grain distribution, and extensive controls on private trade. We use aggregate and household level evidence to show that this system is costly, generates inefficiencies in the food grain marketing system (for both the public and the private sector), and often offers few, if any, benefits to its intended beneficiaries, the poor. On this basis we propose an integrated reform agenda involving improvements in the targeting of the public distribution system, creation of an enabling environment for increased private participation in food grain markets and greater incentives for efficiency by the Food Corporation of India (FCI).

Keywords: Food security; Food grain policies; Rice and wheat marketing; India; Nutrition

1. Background and challenge

With a population reaching one billion including about 300 million poor who are most vulnerable to food insecurity, ensuring food security remains a key issue for the Government of India (GOI). Since independence, to combat threats of famine and pervasive chronic energy deficiency, the GOI's strategy to ensure food security for its population has rested on two main pillars. First, to increase the availability of rice and wheat (the dominant food grains), the government made significant investments in agricultural technologies (high yielding varieties of seeds, irrigation), services (extension, credit, inputs), and rural infrastructure (roads, markets). The impact of these policies has been an unqualified success, allowing India to attain self-sufficiency in food grains by the 1990s, with rice and wheat output alone reaching 157 million tonnes (mt) in 1998/1999, almost triple output levels in the late 1960s. Rapid rice and wheat productivity growth, exceeding the population growth rate, primarily contributed to increasing per capita net availability of food grains from 280 to 385 g per day between 1961 and 1997 and declining food grain prices in real terms (Directorate of Economics and Statistics, 1999). Second, to ensure access to food grains, GOI adopted a public food distribution program, which sells subsidised rice and wheat (hereafter referred to as food grains), together with a buffer stocking program to stabilise domestic prices (Planning Commission, 2000).

While such a system may have been adequate in a situation of frequent famines and overall food deficit, it may no longer produce the desired results (and actually impede progress) in the new environment

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of food grain self-sufficiency. Indeed, influential observers argue that the GOI food grain policy is undermining long-term food security by stifling growth and the modernisation of grain markets, contributing to rising physical losses, wastage and costs. There is overwhelming evidence suggesting that the public distribution system (PDS) is hampered by poor targeting, rampant corruption, and leakage of grains to the open market (Ahluwalia, 1993; Radhakrishna et al., 1997; Dev and Ranade, 1999; Kriesel and Zaidi, 1999). Given the large fiscal costs of the GOI's food grain policies — the central government food subsidy alone reached US$ 2.1 billion (2.1 bUS$) in 1998/1999 (Ministry of Finance, 1999) — examining to what extent the system yields tangible benefits to the poor and to what extent it constitutes an effective instrument would certainly be appropriate.

This paper aims to do so by reviewing the food grain policy environment in India, its impact on household food security and the performance of the food grain system. Based on aggregate as well as household level evidence, we conclude that the system is fraught with considerable inefficiency and the current structure of food grain policy may no longer be the most effective instrument for achieving food security for the poor. We use this to outline a reform agenda that could bring India's food grain system more in line with the needs of this millennium, thus ensuring that food grain policies serve as a lifejacket for the food insecure without becoming a straightjacket for overall development.

2. The food grain policy environment

Two main elements characterise the food grain policy environment in India. First, to guarantee a 'fair' price to farmers and to ensure the availability of food to the poor who might not be served by the private sector, GOI created a public marketing system which parallels that of the private sector. An extensive regulatory framework is required to support this public system (see Table 1). Second, to maintain national food security in times of 'crisis', the GOI, at the state and the central level, has the power to intervene directly in the operation of markets. Not surprisingly, given that different actors tend to have different definitions of what constitutes a 'crisis' and in view of the diametrically opposite incentives of states who are net importers and net exporters of food grains, this creates considerable uncertainty, thus reducing the incentives for private sector involvement in general.

To ensure remunerative returns to farmers, the Food Corporation of India (FCI), the parastatal implementing arm of the GOI's food policies, procures wheat and paddy at a pan-territorial and pan-seasonal minimum support price (MSP). State Levy Control Orders require private rice mills to deliver from 10 to 75% of their output to FCI or its state government representatives, to be paid at a fixed state (below market) levy price, equal to the MSP for paddy plus "average" rice milling costs (Department of Public Distribution, 2000). Only after meeting their levy commitments can rice mills sell the rest of their output in the open market. Wheat, paddy and rice procured by FCI (in addition to occasional imports) are used to meet the public food grain distribution program and buffer stocking requirements. FCI resorts to open market sales of food grain buffer stocks at below market prices to dampen local sudden price increases.

To support the GOI's food grain distribution and price stabilisation program, trade restrictions on the private sector are enforced by GOI and state governments. These include controls on movement, storage, exports and imports, and access to trade credit and risk management instruments (futures contracts). Controls are enforced or lifted depending on the severity of supply shortfalls and price rises, thus reducing private sector incentives for spatial and temporal arbitrage. State governments also legislate Agricultural Produce Market Acts that established a network of quasi-government operated 'regulated' wholesale markets. States such as Punjab, Uttar Pradesh and Haryana make it illegal for farmers to sell their food grains through alternative channels (e.g. directly to mills) (Punjab Mandi Board, 1994; Srivastava and Gupta, 1995).

All of these restrictions and their unpredictable enforcement make the current system extremely costly and contribute to significant physical losses. A rough estimate of the total cost of the GOI's food grain policies in 1996/1997 is about 2.4 bUS$ per year, composed of federal and state food subsidies (2.05 bUS$); an implicit interest rate subsidy to FCI in the amount of 0.121 bUS$; and physical losses in the private marketing sector of about 0.180 bUS$ (World Bank, 1999; Selvarajan and Sulaiman, 1999). The fiscal cost of GOI

Table 1
The food grain sector regulatory environment[a]

Regulation		Food grain system implication	Territorial coverage
Government of India	State		
Rural wholesale markets			
Essential Commodities Act, 1955		FCI procurement and price support operations	All India: adjusted yearly
	Agricultural Produce Market Acts	Restricts farmer sales to mandis, multipoint market fees	Some states
Transport			
Essential Commodities Act, 1955		Restricts interstate movement, sporadically enforced in recent years	All India: lifted/sporadic
Jute Packaging Materials (compulsory use in packing commodities) Act		Restricts transport of rice and wheat intended for retail sales to gunny bags	All India
	State Paddy/Rice (restrictions and movement) Order	Restricts intra- or interstate movement	Orissa, Tamil Nadu, Andhra Pradesh, West Bengal, Jammu and Kashmir
Storage			
Essential Commodities Act, 1955	State Storage Control Orders	Imposes stock quantity limits	All India: lifted/sporadic
RBI Selective Credit Controls		Limits amount and interest rates for working capital loans	All India: lifted/sporadic
Grading			
Agricultural Produce (grading and marking) Act, 1937		Grading standards revised annually, may differ by states	All India
Processing			
Rice Milling Industry (regulation and licensing) Act, 1958		Restricts rice milling to small-scale firms	All India: abolished in 1997
	State Levy Control Orders	Forced rice mill output delivery to FCI, limits open market sales till levy commitment filled, fixes processing margins of levy rice	Most states
	New Rice Mill Incentives	Levy and sales tax exemptions to new mills	Some states
Distribution			
Essential Commodities Act, 1955		Buffer stock operations; FCI open market sales at below market prices; subsidised sale of grains; export and import controls	All India
Forward Contracts (regulation) Act, 1952		Bans on futures trading of common rice and wheat	All India
	State Licensing Acts	Requires licenses for traders, prescribes storage limits	Most states

[a] World Bank (1999).

Table 2
Government of India food grain procurement, buffer stocks as of 1 July, PDS/TPDS food grain offtake, and food subsidy (1971/1972 to 1998/1999)[a]

Year	Food grain procurement (mt)	Food grain stocks as of 1 July (mt)	PDS/TPDS food grain offtake (mt)	Food subsidy[b] (billion/constant 1998/1999 Rs./t)	Share of food subsidy in		
					GDP (%)	Total GOI subsidy (%)	Fiscal deficit (%)
1971/1972	8.3	7.8	6.3				
1972/1973	8.1	8.6	9.4				
1973/1974	7.2	4.3	8.8				
1974/1975	5.8	3.8	7.6				
1975/1976	7.9	5.8	8.9				
1976/1977	12.9	16.8	6.6				
1977/1978	9.6	20.2	8.9				
1978/1979	10.3	18.8	8.7				
1979/1980	14.3	21.4	10.0				
1980/1981	9.7	16.1	13.8	29.4	0.6	23.6	6.5
1981/1982	12.2	13.6	11.8	28.7	0.5	20.2	5.5
1982/1983	15.1	15.3	13.0	27.2	0.5	23.3	7.8
1983/1984	15.3	16.8	14.7	29.4	0.4	23.3	7.0
1984/1985	17.0	22.4	12.2	36.1	0.8	43.7	9.2
1985/1986	20.2	28.5	15.2	50.3	0.6	39.4	8.8
1986/1987	20.4	28.2	18.6	57.3	0.5	40.2	8.8
1987/1988	17.0	23.2	21.3	52.7	0.5	37.6	9.1
1988/1989	13.4	11.7	19.0	53.7	0.6	38.2	8.7
1989/1990	16.7	13.4	14.6	55.8	0.6	40.9	9.9
1990/1991	22.9	20.7	14.5	49.8	0.6	34.1	8.3
1991/1992	20.4	21.9	18.8	50.5	0.6	33.1	7.9
1992/1993	16.6	15.1	17.7	45.7	0.4	23.3	7.0
1993/1994	25.1	25.7	14.7	82.5	0.8	43.7	9.2
1994/1995	25.3	30.8	18.6	69.3	0.6	39.4	8.8
1995/1996	22.3	36.3	14.8	67.3	0.5	40.2	8.8
1996/1997	20.4	26.5	19.7	70.3	0.5	37.6	9.1
1997/1998	23.6	20.5	17.0	82.2	0.6	38.2	8.7
1998/1999	24.4	20.5	18.7	90.0	0.6	40.9	9.9

[a] Food grain procurement, stocks and distribution (Directorate of Economics and Statistics, 2001; Bulletin of Food Statistics, various issues; Ministry of Food and Consumer Affairs, 2000; Ministry of Finance, various issues). Food subsidy — union budget document.
[b] Includes sugar subsidy.

food grain policies has nearly tripled in real terms from 29.4 billion rupees (bRs.) in 1980/1981 to 90 bRs. in 1998/1999 (constant 1998/1999 Rs./t) (Table 2). It also accounts for an increasing share of total GOI subsidies and fiscal deficit.

A recent study estimates post-harvest food grain losses from the farm to distribution levels in India at about 11–15%, amounting to about 12–16 mt per year, including 3–4 mt of wheat and 5–7 mt of rice (Chauhan, 1997). In Australia and Canada, by contrast, post-harvest grain losses are less than 1% (Vercammen et al., 1998). With average per capita consumption of about 15 kg of food grains per month, these losses would be enough to feed about 70–100 million people, about one-third of India's poor for a year. At 1999 world market prices, the value of these food grain losses are significant, from 1.1 to 1.9 bUS$. [1]

3. Empirical evidence on key elements of India's food grain policies and their impact

To provide an empirical basis for the claims made earlier, we discuss the three pillars of India's food

[1] Calculated using a 1999 average rice price (Thai 25% broken) of 183.9 US$/t and a 1999 average wheat price (US SRW) of 96.3 US$/t (World Bank, 2000).

grain policy, namely the PDS, the FCI, and the market regulations. We use household evidence to show that the PDS did not effectively target the poor, an issue that does not appear to have been resolved by recent efforts at more effective targeting. Operational and managerial inefficiencies within the FCI have contributed to a continuing increase in the cost of transferring a given amount of grain to the poor. This cost, which is very high by international standards, penalises all government-sponsored programs and, to the extent that they have to rely on private markets, the poor. Finally, not only does the unpredictable nature of government intervention discourage involvement by the private sector, existing regulations also permeate a fragmented and inefficient marketing system, the performance of which is considerably below international norms.

3.1. The public distribution system

PDS has the most far reaching coverage of all the safety nets in India. Until 1997, PDS was a general entitlement scheme which aimed to provide essential commodities like rice and wheat at subsidised prices. PDS stocks are generally purchased by the state government from the FCI for sale at private retail outlets which operate on a commission basis, so-called "fair price shops". There are about 455,000 of these shops throughout the country (Ministry of Food and Consumer Affairs, 2000). The difference between FCI's cost of procuring food grains and the price at which the supplies are sold to the states (central issue price) is subsidised by the central government, accounting for the significant fiscal costs mentioned earlier.

Does this costly system benefit the poor? Our analysis of access to PDS grain supplies at the household level, based on data from the 1993 to 1994 National Sample Quinquennial Survey of Consumer Expenditures, suggests otherwise. The figures, which are for rural households (they are even more striking for urban households), point towards poor targeting; in several states the middle and upper classes (third and upper quintiles) purchased as much or more PDS grain as the poor (Table 3). Also, with the exception of a few states (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu), PDS supply of grains accounted for only a very small share of total household grain consumption of the poor. The PDS, therefore, contributed little to the overall food security of its intended beneficiaries, especially the rural poor who comprise 76% of the poor in India. Despite the government's extensive interventions, poor households remain highly dependent on the open market — and it is precisely these interventions which increase the cost and reduce the efficiency of private markets. While PDS gives on one hand, it creates inefficiencies in the private market that impose a considerable tax on consumers on the other.

The amount of income transferred by PDS per month to rural households varied significantly across states, but in general showed little correlation with the poverty levels in the state (Table 4). In several states — Bihar, Haryana, Karnataka, Maharashtra, Orissa, and Uttar Pradesh — the income transferred to the middle and higher classes through the PDS exceed the income transferred to the poor.

3.2. Targeted public distribution system

In view of the increasing fiscal burden imposed by a completely untargeted system that subsidised food grains across the board, the GOI decided to shift to a more targeted form of intervention, in the form of the targeted public distribution system (TPDS) in 1997. This constituted a milestone in the GOI's food security strategy, as it targeted a larger food grain subsidy to the poor (so-called below poverty line (BPL) households) relative to the non-poor (above poverty line (APL) households). At its introduction, BPL households were eligible for 10 kg of rice, wheat or a combination of both, at a much lower price than APL households (Department of Consumer Affairs and Public Distribution, 1997). Based on estimates of state poverty levels, the Department of Public Distribution of the central government (GOI) commits to supply to state governments their total BPL requirement of rice and wheat. In addition, the GOI also supplies an additional allocation of rice and wheat for the APL households in each state.

In April 2000, the TPDS crossed another important milestone in exclusively targeting the price subsidy to the poor. The size of the food grain ration of BPL households was raised from 10 to 20 kg per month, priced at about 50% of the economic cost (procurement price plus operating costs) of the FCI. The price of APL food grains was raised to the full economic cost, thus completely eliminating any price subsidy (World Bank, 2001).

Table 3
Average quantity of foodgrains purchased by rural households (kg per month) from PDS and share of PDS and purchased grain in total household grain consumption in major states (%), 1993/1994[a]

State	Sources of grain	Average quantity by quintile					State average
		Poorest	Second	Third	Fourth	Fifth	
Andhra Pradesh	PDS grains bought (kg per month)	13.83	12.21	11.14	9.47	6.69	10.66
	PDS/total consumption (%)	3	25	24	19	13	22
	Open market/total consumption (%)	57	56	54	52	53	54
Assam	PDS grains bought (kg per month)	4.02	2.15	1.91	1.58	1.18	2.17
	PDS/total consumption (%)	7	3	3	2	2	3
	Open market/total consumption (%)	60	41	34	29	33	39
Bihar	PDS grains bought (kg per month)	0.18	0.14	0.11	0.36	0.06	0.17
	PDS/total consumption (%)	0	0	0	1	0	0
	Open market/total consumption (%)	71	66	59	52	48	59
Gujarat	PDS grains bought (kg per month)	3.20	3.06	2.87	2.43	1.66	2.64
	PDS/total consumption (%)	22	17	14	11	9	14
	Open market/total consumption (%)	64	62	66	60	59	62
Haryana	PDS grains bought (kg per month)	0.03	0.25	0.22	0.22	0.19	0.18
	PDS/total consumption (%)	0	2	1	1	1	1
	Open market/total consumption (%)	91	69	54	78	68	74
Karnataka	PDS grains bought (kg per month)	4.32	3.91	3.38	3.39	3.50	3.70
	PDS/total consumption (%)	29	16	11	9	10	13
	Open market/total consumption (%)	65	60	54	57	54	57
Kerala	PDS grains bought (kg per month)	24.84	23.43	20.66	18.27	12.03	19.91
	PDS/total consumption (%)	59	51	49	41	29	46
	Open market/total consumption (%)	37	45	44	51	54	46
Madhya Pradesh	PDS grains bought (kg per month)	1.81	1.36	1.27	0.70	0.52	1.13
	PDS/total consumption (%)	5	3	3	2	2	3
	Open market/total consumption (%)	52	49	44	47	55	49
Maharashtra	PDS grains bought (kg per month)	1.17	1.85	2.14	2.15	1.96	1.85
	PDS/total consumption (%)	11	12	11	10	8	10
	Open market/total consumption (%)	60	58	59	56	63	59
Orissa	PDS grains bought (kg per month)	1.69	0.55	0.38	0.69	0.16	0.69
	PDS/total consumption (%)	3	1	0	1	0	1
	Open market/total consumption (%)	64	61	52	50	45	54
Punjab	PDS grains bought (kg per month)	0.03	0.12	0.13	0.04	0.04	0.07
	PDS/total consumption (%)	0	1	2	1	1	1
	Open market/total consumption (%)	88	81	66	50	45	72
Rajasthan	PDS grains bought (kg per month)	0.29	0.14	0.10	0.17	0.10	0.16
	PDS/total consumption (%)	2	1	0	1	1	1
	Open market/total cons (%)	90	90	91	92	84	90
Tamil Nadu	PDS grains bought (kg per month)	9.34	8.99	7.62	6.77	5.93	7.73
	PDS/total consumption (%)	25	21	17	16	14	18
	Open market/total consumption (%)	60	57	57	52	58	57
Uttar Pradesh	PDS grains bought (kg per month)	0.36	0.68	1.09	0.82	0.58	0.71
	PDS/total consumption (%)	1	2	3	2	2	2
	Open market/total consumption (%)	68	57	57	50	50	57
West Bengal	PDS grains bought (kg per month)	0.45	0.71	0.86	0.43	0.31	0.55
	PDS/total consumption (%)	1	1	1	1	1	1
	Open market/total consumption (%)	72	57	54	48	39	54

[a] Percentage shares do not include other sources of grains, such as the noon meals scheme and the integrated child development services program which distribute grains free to households. Computed using national sample survey 50th round quinquennial survey of consumer expenditure 1993/1994.

Table 4
Average income transfer per rural household (Rs. per month) through the public distribution systems by quintile in major states and poverty rates, 1993/1994[a]

State	Rural poverty rate, 1993/1994 (%)[c]	Average income transfer to households by quintile[b]					State average
		Poorest	Second	Third	Fourth	Fifth	
Andhra Pradesh	15.9	37.8	33.3	30.6	25.8	18.2	29.1
Assam	44.9	6.3	3.2	2.7	0.8	1.1	2.8
Bihar	58.0	0.5	0.3	0.4	0.8	0.6	0.5
Gujarat	22.2	15.5	13.5	12.7	11.8	7.0	12.1
Haryana	28.3	0.1	0.7	0.5	0.6	0.5	0.5
Karnataka	30.1	16.5	15.0	12.7	13.2	14.0	29.1
Kerala	25.4	44.8	41.6	37.8	33.9	25.5	29.1
Madhya Pradesh	40.8	4.0	3.3	3.3	2.6	2.7	3.2
Maharashtra	37.9	6.0	9.0	9.4	9.8	8.3	8.5
Orissa	49.8	1.8	0.7	0.5	0.8	0.6	0.9
Punjab	11.7	0.3	0.2	0.4	0.2	0.2	0.3
Rajasthan	26.4	16.2	11.7	10.8	7.9	5.7	10.5
Tamil Nadu	33.0	33.5	34.0	30.3	28.7	27.9	30.9
Uttar Pradesh	42.3	0.9	1.6	2.5	2.0	1.4	1.7
West Bengal	41.2	1.1	1.4	1.5	0.9	0.8	1.1
All India	37.1	9.1	10.3	10.2	10.2	9.3	9.8

[a] Computed using expenditure data from national sample survey 50th round quinquennial survey of consumer expenditure 1993/1994. Poverty data are from Datt (1997).
[b] Income transfer = (open market price − PDS price) × amount purchased from PDS.
[c] Poverty rates measured by headcount index.

What were the outcomes of this strategic shift? Across states, the transition to TPDS in 1997 contributed to some improvement in targeting food grain allocations toward states with higher poverty rates. Three states that significantly benefited from a sharp increase in food grain allocation are Assam, Bihar, and Uttar Pradesh — states with some of the highest poverty rates in the country. Gujarat, Karnataka, and West Bengal had their allocations cut considerably. Most states also posted increases in food grain offtake with the shift to TPDS (Fig. 1). Assam, Bihar, Delhi, Kerala, Madhya Pradesh, Maharashtra, Orissa

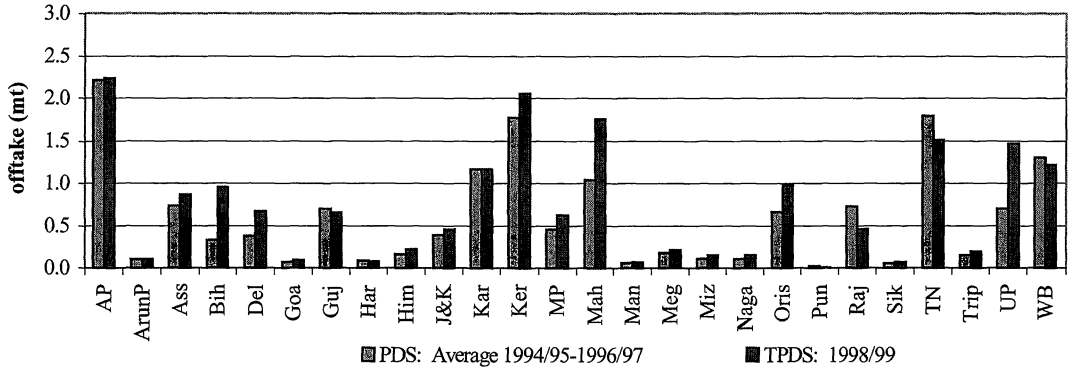

Fig. 1. Volume of PDS (average of 1994/1995 to 1996/1997) and TPDS (1998/1999) food grain offtake in various states (mt). AP, Andhra Pradesh; ArunP, Arunachal Pradesh; Ass, Assam; Bih, Bihar; Del, Delhi; Guj, Gujarat; Har, Haryana; Him, Himachal Pradesh; J&K, Jammu and Kashmir; Kar, Karnataka; Ker, Kerala; MP, Madhya Pradesh; Mah, Maharashtra; Man, Manipur; Meg, Meghalaya; Miz, Mizoram; Naga, Nagaland; Oris, Orissa; Pun, Punjab; Raj, Rajasthan; Sik, Sikkim; TN, Tamil Nadu; UP, Uttar Pradesh; WB, West Bengal. Source: data from the Ministry of Public Distribution and Consumer Affairs.

and Uttar Pradesh displayed the highest increases in food grain offtake in 1998/1999, relative to pre-TPDS levels.

However, at the household level, available evidence suggests that implementation problems that had been identified in previous studies of PDS remain unresolved under the TPDS. A recent study by Kriesel and Zaidi (1999) based on household survey data from Uttar Pradesh concludes that a number of critical implementation problems continue to impede the effectiveness of TPDS in meeting the food security needs of poor households. These include reports of (i) alleged illegal diversions of food grains to other uses at various levels of the public sector supply chain; (ii) irregular supplies at fair price shops; (iii) prices charged at fair price shops exceeding the official price, on average by as much as 10–14%; (iv) low quality of food grains, some below established standards for human consumption; and (v) weak monitoring, lack of transparency, and inadequate accountability of officials which open opportunities for corruption. Unaccounted-for leakage of grain is estimated to reach up to 40%.

If the problems of targeting and distribution can be overcome, the revision of the TPDS pricing structure can lead to significant improvements on the fiscal side, together with improved access to food grains by the poor. Assuming that FCI's economic cost mirrors the prevailing market price, BPL households would benefit from net savings of about 418 Rs. per year (US$ 9.50) by buying the 20 kg of rice per month during the year from the TPDS, and 180 Rs. per year (US$ 4.09) for wheat (Table 5). The challenge for states is to ensure that adequate amounts of food grains are regularly available at the fair price shops, while permitting households to purchase grain in smaller instalments to accommodate possible cash constraints. On the fiscal side, assuming that the total requirement stays at the 1999/2000 level of 10.3 mt for rice and 7.2 mt for wheat, the change in pricing is estimated to reduce the fiscal subsidy burden to about 1.6 bUS$ per year, compared to 2.1 bUS$ in 1998/99. Therefore, TPDS is certainly a step in the right direction although, as we argue below, international evidence suggests that alternative mechanisms, such as food stamps, could constitute a less costly and more effective mode of transferring grain to the needy. Gradually complementing the direct delivery under TPDS with other mechanisms that would be more compatible with private sector involvement could also offer an opportunity to address the rising costs imposed by the FCI.

Table 5
Estimated household benefits from increasing BPL allocations to 20 kg[a]

Item	Rice	Wheat
BPL TPDS price 1999 (Rs./kg)	3.5	2.5
BPL TPDS price 2000 (Rs./kg)	5.9	4.5
FCI economic cost, 1999/2000 (Rs./kg)	11.78	8.0
Increase in TPDS price 1999/2000 (Rs./kg)	2.4	2.0
Household loss from increased price: 10 kg original allocation (Rs.)	−24.0	−20.0
Household gain from market price savings: 10 kg[b] additional allocation (Rs.)	58.8	35.0
Net savings/household (Rs. per month)	34.8	15.0

[a] Author's calculations.
[b] Assuming FCI economic cost = open market price.

3.3. Food corporation of India

The operation of a large parallel marketing system requires a huge bureaucratic apparatus. The FCI, a parastatal established in 1965 to implement the government's food policy, is the single largest operator in the food grain market, employing about 65,000 employees and over 170,000 direct contract labour (Food Corporation of India, 1999). Its procurement operations almost tripled, from 7 to 8 mt in the early 1970s to 20–25 mt during the late 1990s. But as the volume grew, so have operating costs, despite the fact that procurement prices declined in real terms. FCI's per unit marketing cost (procurement and distribution cost excluding the procurement price) for rice increased in real terms from 83 Rs./t in 1980/1981 to 238 Rs./t in 1998/1999 (contrast 1998/1999 Rs./t) (Fig. 2). Similarly, marketing costs for wheat, which had declined in the late 1970s, increased from 214 to 294 Rs./t during the same period (Fig. 3). Finally, FCI's per unit buffer stocking cost increased from 971 Rs./t in 1987/1988 to 1729 Rs./t in 1998/1999 (Fig. 4). If FCI interest rate subsidies (about 3–4% lower than market rates) and preferential access to rail transport — FCI gets second priority as compared to fourth priority for the private sector — are taken into account, its operating costs would be even higher.

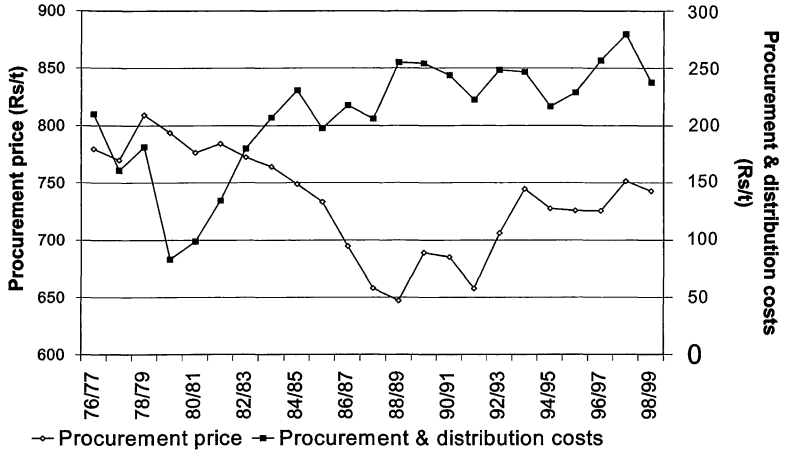

Fig. 2. FCI rice procurement price and procurement and distribution costs, 1976/1977 to 1998/1999 (constant 1998/1999 Rs./t). Note: procurement and distribution costs exclude procurement price. Source: price and cost data from Food Corporation of India (1999) and Swaminathan (1999).

Management and storage are the two most significant factors underlying this increase in costs. The rapid increase in food grain volumes handled by FCI contributed to a rapidly expanding bureaucracy, which appears to contribute to FCI's rising costs. Personnel expenditures and storage and interest charges increased at a rate of between 2 and 5% per year during the period 1980/1981 and 1994/1995 (Food Corporation of India, 1999). It appears that significant losses in storage and transport (officially reported at 1–2% but likely to be much higher) due to stock deterioration and theft add to these costs. Whatever limited information on the costs of FCI relative to private sector grain marketing is available highlights

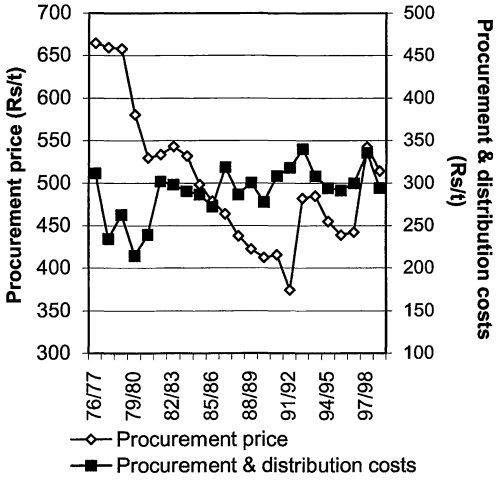

Fig. 3. FCI wheat procurement price and procurement and distribution costs, 1976/1977 to 1998/1999 (constant 1998/1999 Rs./t). Note: costs exclude procurement price. Source: price and cost data from Food Corporation of India (1999) and Swaminathan (1999).

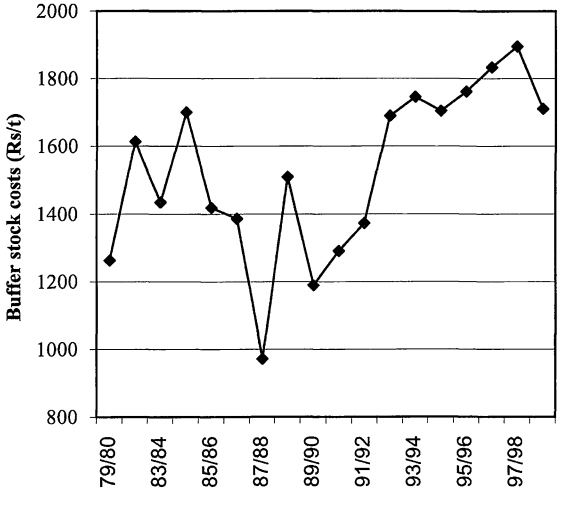

Fig. 4. Buffer stock cost of rice and wheat, 1979/1980 to 1998/1999 (constant 1998/1999 Rs./t). Source: data from Food Corporation of India (1999).

the inefficiency of FCI. Sharma (1991) found the cost of public distribution wheat to be double that of the private sector, while Gulati et al. (1996), in a study of FCI storage costs, found that the cost of storage in FCI owned go downs was 70% higher than in structures that could be hired on the free market.

From a technical point of view, extensive use of covered and plinth (CAP) storage increases losses and difficulties in implementing the first-in, first-out principle of inventory management. CAP storage involves stacking grain in bags in a pyramid on a cement or wooden platform raised about 30 cm above the ground and covered with synthetic sheets held down with ropes. Storage losses from CAP can amount to as much as 20% (Roessler et al., 1998). An FCI official reported in 1997 that about half of the FCI stock is more than 2 years old, with some grain being as old as 16 years (Sinha, 1997). The loss of value due to quality deterioration and ageing in storage, and weaknesses in inventory monitoring and control raise FCI's operating costs. As all its financial losses are subsidised by the GOI, FCI has limited incentive to cut costs and improve efficiency. At the same time, the inefficiencies that inflate FCI's operating costs penalise not only the TPDS, but all other nation-wide government social programs that rely on the distribution of food grains such as Employment Schemes, School Feeding, and Nutrition Supplementation Programs.

Even if a parastatal marketing agency may have been justified in a time characterised by frequent famines and limited availability of price information and infrastructure, these conditions have fundamentally changed during the past half century. A re-evaluation of the need for government intervention and the scope for private sector involvement in view of these changed conditions will be needed. In re-evaluating it will be important to recognise the extent to which the scope for private sector involvement has been limited by over-regulation of food grain marketing.

3.4. Market regulations

Public procurement, the TPDS, FCI open market sales of rice and wheat at below market prices, government marketing controls and the uncertainty regarding the severity and timing of enforcement of these controls; all have increasingly repressed private food grain marketing, undercutting its potential contribution to long-term food security.

Thus, and somewhat ironically, food grain market regulations and interventions, designed to support the TPDS and the GOI's price stabilisation and price support operations, have fostered inefficiencies in the private marketing system, upon which consumers, especially the poor, depend for the bulk of their food grain needs. The same government interventions designed to protect the poor also make them bear a large share of the cost of inefficiencies in the private marketing system, costs that they can least afford.

The government remains a major player directly and indirectly in the food grain marketing system; TPDS food grains and FCI open market sales alone accounted for 15–22% of domestic marketed supply between 1992/1993 and 1997/1998. In addition to being costly, food grain buffer stocks which reached 40 mt in October 2000 – 22 mt in excess of established government standards (The Economic Times, 2000), are an additional and powerful threat to private sector marketing activities. Buffer stock levels between 1992/1993 and 1997/1998 amounted to about 15–36% of the grains that flow through market, together, these interventions undermined private trade and discouraged much-needed modernisation.

Market congestion, large handling and storage losses, high transport costs and low recovery rates in processing wheat and rice all point to a marketing and processing system in great need of improved technology and infrastructure. Investments in such upgrading, however, are depressed because unpredictable imposition of government regulation heightens risks and marketing costs. Improvements in technology are further discouraged by government regulations that prescribe a certain level of technology.

About 30% of paddy is still milled using less efficient technologies, such as hullers and shellers with recovery rates of 50–68% (compared with 70–72% in modern rice mills). Existing modern rice mills with an average capacity at 10 t/h are small by international standards, primarily driven by regulation that until 1997 restricted rice milling to small-scale enterprises. Wheat milling is mostly done by less efficient, small-scale operations — about 26,000 *chakkis* — that turn 85% of India's wheat into coarse brown

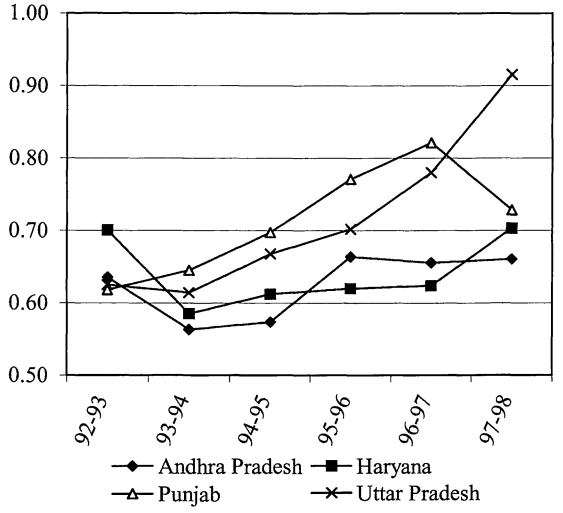

Fig. 5. Ratio of state rice levy price to the average month-end wholesale market rice price (common rice in selected states, 1992/1993 to 1997/1998). Source: state levy prices from Commission for Agricultural Costs and Prices (1998) and rice wholesale prices from Directorate of Agricultural Economics and Statistics.

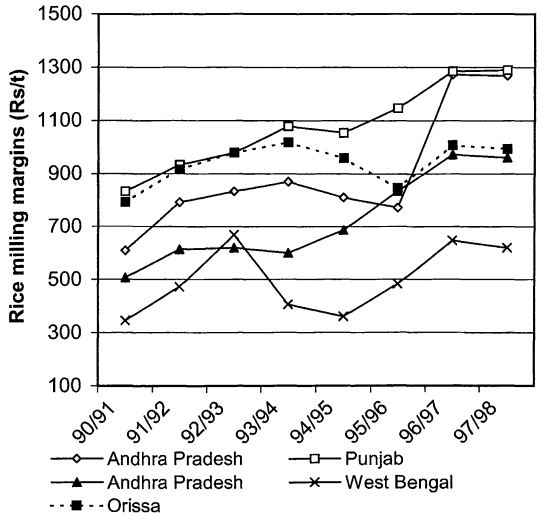

Fig. 6. Rice milling margins permitted by the rice levy in selected states, 1990/1991 to 1997/1998 (constant 1998/1999 Rs./t). Note: rice milling margin = state levy price − minimum support price. Source: state levy and minimum support prices from Commission for Agricultural Costs and Prices (1998).

flour or *atta*. The remaining wheat is processed in 812 roller flour mills, with average capacity of 70 t per day, whose extraction rates (60–65%) are significantly below international norms (72–75%) (Roller Flour Millers' Federation of India, 1997; Roessler et al., 1998).

The rice levy also seriously undermines rice milling profitability. In the four states of Andhra Pradesh, Haryana, Punjab and Uttar Pradesh where FCI obtains the bulk of its rice requirement, state levy prices for rice on average amounted to only 60–70% of market prices during the period 1992/1993 to 1997/1998 (Fig. 5).[2] Milling margins (levy price less the rice-equivalent minimum support price) permitted under the rice levy system have declined in real terms in some states, and appear to show bias in favour of some states (e.g. Punjab) (Fig. 6). Frequent peak period bottlenecks in FCI receiving centres further prevent timely lifting of the levy rice, often requiring 'speed money' to expedite acceptance of levy deliveries. As mills can only sell their output in the open market after delivering the levy requirement, FCI delays can also delay these sales by the mill (World Bank, 1999).

Most storage facilities in India are small-scale, low-quality structures such as covered and plinth (CAP) storage or covered go downs (Roessler et al., 1998). These are used extensively by both grain dealers and millers in rural areas. Extensive and unpredictable government price stabilisation activities as well as storage, credit and movement controls discourage modernising investments.

Most of India's roughly 6800 wholesale state operated markets or *mandis* are severely congested and rapidly deteriorating due to inadequate maintenance. The predominantly manual system and ageing infrastructure result in considerable wastage (especially spillage), quality deterioration and increased cost of marketing (World Bank, 1999). In Punjab, a major food grain producer, officials estimate losses in mandis to amount to as much as 3.4% (Chahal and Singh, 1997). However, market committees operating the regulated markets are prevented from using marketing fee collections to upgrade market infrastructure

[2] These states also have some of highest levy percentages in the country: Andhra Pradesh 50%, Haryana 75%, Punjab 75%, and Uttar Pradesh 60% in western UP and 40% in eastern UP (Department of Public Distribution, 2000). In 1998/1999, these states accounted for 85% to total rice procurement by FCI (Ministry of Food and Consumer Affairs, 2000).

Table 6
Findings of recent market integration studies of rice and wheat markets in India

Study	Market coverage	Period	Findings
Palaskas and Harriss-White (1993)	Rice, three markets, West Bengal	1988/1990	Not integrated in short-run, more integrated in long run
Puri (1996)	Rice, 14 wholesale markets and wheat, 15 wholesale markets all over India	1985/1995	Not integrated in short run, most markets integrated in long run
Palaskas et al. (1997)	Rice, nine markets, Tamil Nadu	1972/1992	Not integrated in short run, long-run integration in some markets
Baulch and Jairath (1997)	Wheat, seven markets, Rajasthan	1992/1996	Not integrated in short run

and improve services offered as the funds are at times 'borrowed' by the state government and diverted to other purposes (Srivastava and Gupta, 1995).

Credit controls are another instrument for preventing private traders from driving prices up by accumulating and hoarding grain. The Reserve Bank of India (RBI) issues directives to Scheduled Commercial Banks (banks fulfilling RBI conditions for amount of paid up capital and conduct of business) from time to time to regulate credit issued against security of agricultural commodities. The three instruments used are controls on the margins, credit ceilings and interest rates. [3] For rice traders, RBI revised minimum margins (ranging from 30 to 75%) and credit ceilings (ranging from 70 to 100%) three times between 1990 and 1997; they were changed twice in 1993 alone. For wheat traders, RBI revised minimum margins (ranging from 30 to 75%) and credit ceilings (ranging from 70 to 100%) eight times over the same period; three times during 1993. RBI revised interest rates for trade credit for rice and wheat traders six times during the same period (three times during 1993) and rates ranged from 15 to 20% (Reserve Bank of India, 2001). While intended to inhibit speculative commodity trading, these credit controls and their unpredictable implementation increase operational risks and discourage investments in efficient, modern storage facilities. Moreover, FCI food grain operations also crowded out the private sector in the formal financial system. During the early to mid-1990s, private trade credit amounted to only 6–25% of the trade credit extended to the FCI (Reserve Bank of India, 2001).

Cost-effective private food grain transport is restricted by regulations which give private transporters only fourth priority for railway freight and force them to rely on more expensive hired trucks (Railway Board, 1994). Road transport, moreover, requires passage through a large number of checkpoints which increase cost and reduce profitability because of inordinate delays and the payment of 'speed money' (World Bank, 1999). Inadequate port infrastructure further adds to the cost of imports and exports. For example, in Kandla port, which handles 70% of the country's rice exports, the average turnaround for ships is 15 days. For ships carrying imported wheat, it is 33 days, compared to about 5 days in developed countries (Kundu, 1997). In addition to the lack of bulk handling facilities, a large number of government reporting requirements, supporting enforcement of the various government marketing regulations, further add to private traders' transaction costs. In addition to having to report to a plethora of agencies which are entrusted with the enforcement of food grain regulations (e.g. 12 in West Bengal, 17 in Uttar Pradesh, and 18 in Andhra Pradesh), private traders also have to contend with numerous inspections, often with unofficial fees demanded by some inspectors (UP Rice Millers Association, 1997; Andhra Pradesh Roller Flour Mills Association, 1997; West Bengal Rice Millers Association, 1997).

All of these contribute to the poor short-term integration of food grain markets, which can be critical in times of shortfalls (Table 6). Illegitimate trade,

[3] Margins and credit ceilings operate at the level of the individual borrower. Margins refer to the proportion of advances permitted to the value of stocks. Ceilings relate to the peak level of advances attained in any of the three preceding years by the borrower (Rao, 1996).

moreover, flourishes on leakage from the TPDS. GOI food grain marketing policies, whatever their original intent, have brought into being small-scale and fragmented industries characterised by outdated technologies and associated inefficiencies.

4. An agenda for reform

Given the interdependence of the public distribution system, food grain price stabilisation operations, and food grain markets, it is critical that reforms follow an integrated approach centered on achieving food security goals. This requires (i) improving further on the targeting and delivery of TPDS; (ii) creating an enabling environment for increased private sector efficiency and investments; and (iii) improving the efficiency and effectiveness of FCI.

Instead of distributing BPL allocations through inefficient public channels, India could begin pilot-testing alternative distribution mechanisms such as food coupons or food stamps in selected larger cities and municipalities where private grain-trading operations are better established. Such monetised income transfer would permit unfettered private sector participation in food grain markets and pare down the fiscal costs of FCI's operations. The APL allocations could be phased out as planned, replaced by appropriately timed open market sales guided by refined 'price band' rules (see below) that would help reduce the price risks for the non-poor.

Promoting greater private sector efficiency and investments would require several measures including FCI open market sales at market prices; formulation and adoption of 'price band' rules that allow efficient private sector participation supported by a strengthened market information system (Fig. 7); phasing out the rice levy over the medium term; fostering the development of negotiable warehouse receipt systems to ease access to credit by farmers and traders; removing the ban on the use of futures contracts; formulating and implementing a competition policy to ensure fair trading practices by private traders; and upgrading market infrastructure and support services, such as the regulated market facilities, telecommunications, farm to market roads, grading and market information systems. Concurrently, FCI could modernise its operations by shifting roles from provision of services to financing and co-ordination. It could modernise its systems by subcontracting its marketing operations to the private sector, using measures such as management concessions and build-own-operate arrangements. It would also need to improve organisational incentives to operate more efficiently by operating under hard budget constraints.

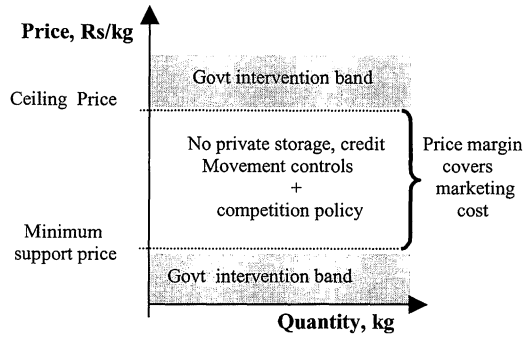

Fig. 7. Price band operation. Source: own depiction.

Basic reforms, such as the ones discussed above, could bring substantial savings. A mere 10% reduction in food subsidies could generate fiscal savings of as much as 210 mUS$ per year. Improved private efficiency that reduces food grain losses in marketing by a third could generate savings of as much as 60 mUS$ per year and make available an additional 0.5 mt of food grain per year, enough to feed about 2.8 million poor people. In a changed international and domestic environment, it seems that the implementation of such reforms is the only way for India's food grain system to achieve its original goals.

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