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Understanding the Costs of the Food Corporation of India

Madhura Swaminathan

The debate on food subsidies in India affects millions of consumers and producers, and is of immense importance in a country in which chronic hunger and malnutrition affects a majority of the population. In this paper, I first examine the volume of the food subsidy over the last three decades. Secondly, using data for the 1990s from the accounts of the Food Corporation of India (FCI), I examine the components of the foodgrain subsidy, the relative contribution of different components to total costs, and the growth in different components during the current decade. Thirdly, I attempt to compare the efficiency of the FCI with that of private trade.

The data from FCI performance budgets show clearly that the increase in procurement price was a critical factor in the increase in economic costs of rice and wheat. The procurement price, however, is a variable over which the FCI has no control as the central government sets the procurement price based on the recommendations of the Commission on Agricultural Costs and Prices. Despite the absolute increase in many components of costs, there was an improvement in the operational efficiency of the FCI during the 1990s.

Lastly, no unambiguous finding emerged from a comparison of wholesale market prices and economic costs of the FCI. The FCI compared favourably with private traders in the distribution of rice in a large number of states. In the states of northern and central India, however, private traders had lower prices for grain. The presence of systematic rural-urban price differences indicated the imperfections of grain markets.

I
Introduction

IN 1991, with the introduction of new programmes of structural adjustment and fiscal tightening in India, government officials and their economic advisers began to call for a reduction in subsidies, including food subsidies. They spoke in terms of a 'rationalisation', 'reduction' or 'withdrawal' of the food subsidy.[1] One aspect of the discussion was on ways of targeting the public distribution system (PDS), a system of rationing that provides a set of basic commodities at subsidised prices through fair-price shops. Another aspect of the discussion relates to the costs and efficiency of the Food Corporation of India (FCI), the government-owned organisation in charge of procurement, storage and distribution of foodgrain.

Since the category 'food subsidy' in the annual budget of the government of India is nothing but the operational deficit of the FCI, it has been argued that the food subsidy can be reduced by privatising or reducing the role of the FCI. It is argued that the government should get out of the task of distributing basic commodities, including foodgrain, and allow the market to distribute food. A recent study prepared for the World Bank proposed the following: "Given the weaknesses and constraints of FCI, the pervasive role of well-developed foodgrain markets, and bearing in mind the improved supply situation, it would seem appropriate to phase out government controls as well as current procurement operations" [Radhakrishna and Subbarao, 1997:76]. In other words, it is recommended that the FCI "go out of the operations of procurement and supply to the PDS" (ibid p 77).[2] The underlying assumption here is, of course, that private trade is more efficient than the FCI.[3]

The debate on food subsidies in India affects millions of consumers and producers, and is of immense importance in a country in which chronic hunger and malnutrition affects a majority of the population. I shall begin, first, by examining the volume of the food subsidy and how it has varied over time. Secondly, using data for the 1990s from the accounts of the FCI, I examine the components of the foodgrain subsidy, the relative contribution of different components to total costs, and the growth in different components during the current decade. By doing so, we can identify the specific components that are high or rising and the measures required to contain them. Thirdly, I attempt to compare the efficiency of the FCI with that of private trade on the basis of price comparisons.

The main focus of this paper is on the costs of the FCI, the changes therein, and how these compare with the costs incurred by private traders in grain. The paper does not deal directly with consumers or with an evaluation of the system of public distribution.[4] As mentioned earlier, the term 'the food subsidy' refers to budgetary payments to the FCI to meet is operational deficit.

II
Volume of Food Subsidy, 1966-67 to 1997-98

Graph 1 plots the food subsidy at current prices and constant prices (deflated by the GDP deflator) from 1966-67 to 1997-98. Graph 2 plots the nominal food subsidy as a proportion of GDP and as a proportion of government expenditure over the last 30 years. In nominal terms, the food subsidy has been rising rapidly, particularly after the mid-1980s, and it took a big jump in 1993-94. At constant prices, the increase is more subdued. Graph 1 shows that expenditure on the food subsidy, at constant prices, rose in the mid-1980s and then remained unchanged until about 1989-90. It dipped between 1990-91 and 1992-93 and rose in 1993-94. The food subsidy fell slightly in the following years but was higher than in the 1980s. However, the food subsidy as a share of GDP appears to have remained more or less unchanged over the last 20 years, peaking at about 0.63 per cent in 1985-86 and 0.64 per cent in 1993-94. Interestingly, the food subsidy as a share of government expenditure shows large year-to-year fluctuations, and the share was higher in

1976-77 (3.84 per cent) than in 1993-94 (3.56 per cent).

There are two significant points here. First, the food subsidy as a share of GDP has not changed very much over the last 20 years. In other words, the 'burden' of food subsidy has not risen. Secondly, in proportionate terms, the food subsidy bill in India is not very high when compared with expenditures in other developing countries. In Sri Lanka, after the introduction of means-tested food stamps and a steep reduction in food subsidies, they still accounted for 1.3 per cent of GDP (in 1984), or roughly twice the proportion in India [Jayawardena et al 1988]. In Mexico, in 1984, when general food subsidies had been eliminated, the food subsidy was 0.63 per cent of GDP [Pinstrup-Andersen et al 1991]. In Egypt in 1982, the expenditure on food rations was about 15 per cent of GDP [Subbarao et al 1997]. In Tunisia, food subsidies accounted for about 4 per cent of GDP in 1984; they were reduced, after targeting, to around 2 per cent of GDP in 1993 [Tuck and Lindert 1996]. In India, over the 31-year period 1966-1997, the food subsidy accounted, on average, for 0.31 per cent of GDP and 2.35 per cent of central government expenditure. These numbers are important (as Nora Lustig has said of Mexico) because they show that even eliminating food subsidies totally would not solve the fiscal problems of the government.

Subsidy on Foodgrain

The food subsidy as defined in the government budget includes the entire operational deficit of the state-owned FCI. The four major items of food that are handled by the FCI are rice (and paddy), wheat, imported edible oils and sugar. Now the total central food subsidy (as shown in Graphs 1 and 2) includes the subsidy on sugar, and this is likely to vary in different years. In 1993-94, for example, about 86 per cent of the total food subsidy was on account of the cereal subsidy.[5] The rest of this paper deals only with the foodgrain subsidy, that is, the subsidy for rice and wheat, which as is clear, is lower than the total food subsidy.[6]

The FCI is responsible for buffer stock operations and the total foodgrain subsidy includes the costs associated with maintaining buffer stocks (such as handling costs, costs of storage, interest payments and administration). The total costs of storing and distributing the foodgrain procured by the FCI are apportioned, on the basis of certain principles, to distribution through the PDS and to the costs of maintaining buffer stocks.[7] Data from FCI performance budgets show very clearly that the subsidy incurred on buffer stocking operations rose rapidly in absolute and relative terms in the 1990s. In 1994-95, for example, the share of the subsidy given to the FCI on account of buffer stocking operations was 44 per cent of the total foodgrain subsidy [World Bank 1996]. The management of buffer stocks does benefit consumers via means of price stabilisation. The rest of this paper, however, deals with the direct subsidy involved in the distribution of foodgrain to consumers.

III
FCI: Objectives and Costs

The broad objective of food policy in India has been to make available food to the people at reasonable prices. The more specific objectives include providing remunerative prices to cultivators; supplying food at subsidised prices to the undernourished; controlling inflationary pressures; stabilising prices for consumers and producers; reducing fluctuations in food availability; and achieving self-sufficiency in foodgrain production. The FCI was set up in 1964 to act as a nodal agency for the procurement, storage, inter-state movement or transport and distribution of food commodities. In short, the FCI is responsible for implementing central government policies on procurement, storage, transport and distribution. In certain operations such as the maintenance of national buffer stocks, the FCI has sole responsibility whereas in certain other operations such as procurement, the FCI has to work with state government organisations (such as state marketing federations) and within the purview of state government policies.[8] Despite these constraints, the achievements of the FCI are considerable. Today, it is a major player in the foodgrain trade: procuring foodgrain from surplus regions, storing grain, transporting it over very large distances across states and making it available for distribution in all parts of the country, including very remote areas. Through these operations, it has contributed to several objectives of food policy. This is the context in which the operations and costs of the FCI need to be reviewed.

Costs of FCI

Data from the performance budgets of the FCI were made available to me and they provide a break-up of the costs incurred on rice and wheat separately for

Table 2: Growth Rate of Components of Economic Cost, 1990-91 to 1998-99

	Wheat	Rice
Procurement price of grain	11.51	9.80
Total procurement incidentals	8.86	10.92
Statutory charges	11.02	9.10
Labour and transport charges	6.49	10.77
Total charges paid to state govts	5.67	17.86
Total distribution costs	6.84	9.04
Freight	8.52	9.57
Handling expenses	14.05	14.23
Storage charges	9.97	10.76
Interest charges	3.03	7.60
Transit and storage losses	-9.45	3.85
Establishment charges	8.58	8.74

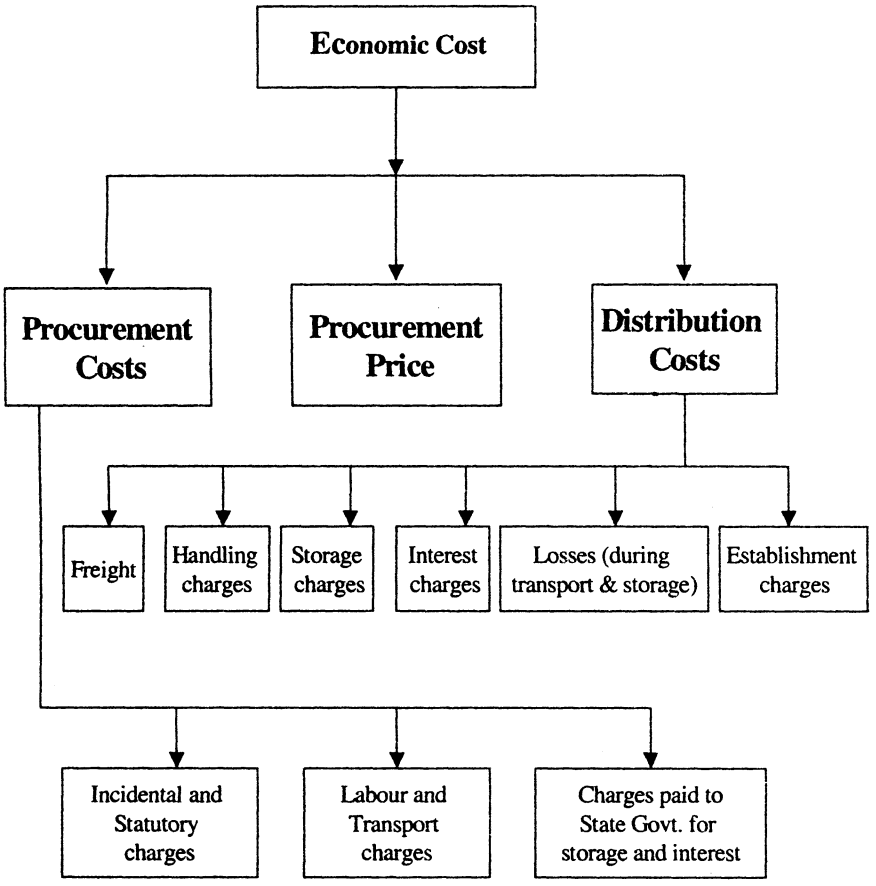
Table 1: Economic Costs and Subsidy on Rice and Wheat, 1990-91 to 1998-99

(Rs/Qtl)

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98(RE)	1998-99(RE)	1990-98 Growth (% pa)
Wheat										
Economic cost	356.5	390.79	504.1	532.03	551.17	583.95	640.16	800.5	807.95	9.99
Sales Realisation	239.95	251.68	279.36	355.88	407.89	411.94	433.2	395.87	388.33	7.18
Subsidy	116.55	139.11	224.74	176.15	143.28	172.01	206.96	404.63	419.62	13.56
Total costs other than procurement costs	151.82	179.59	208.59	206.72	216.37	232.91	258.53	306.08	293.92	7.98
Rice										
Economic cost	457.52	497.04	585.27	665.1	694.71	762.82	847.69	940.4	980.36	9.73
Sales Realisation	330.02	365.58	442.4	500.42	600.76	613.34	610.57	610.8	601.18	7.98
Subsidy	127.5	131.46	142.87	164.68	93.95	149.48	237.12	329.6	379.18	13.39
Total costs other than procurement costs	120.07	125.59	152.35	165.49	159.32	182.73	221.71	254.98	237.67	9.51

Note: RE stands for revised estimates.

FIGURE 1: COMPONENTS OF ECONOMIC COST



the nine years 1990-91 to 1998-99.[9] In this section, the cost data are analysed to identify the relative contribution of different components to total costs and componentwise growth of costs during the 1990s.[10] In the FCI budget, all costs are reported in per quintal terms for rice and wheat separately. The subsidy is defined as the difference between economic costs and the price obtained from sales (or sales realisation), that is,

Subsidy = Economic Cost – Sales Realisation.

The economic cost, in turn, is defined as the sum of procurement price, procurement-related costs and distribution costs, as follows:

Subsidy = (Procurement Price + Procurement Costs + Distribution Costs) –Sales Realisation

A diagrammatic sketch of the components of economic cost is shown in Figure 1. The procurement price is the price paid by the FCI to producers for the purchase of grain. Procurement costs are the initial costs incurred during the procurement of grains at 'mandis' (market yards) or other procurement centres. Procurement costs or incidentals are reported under the following subheadings: statutory charges, labour charges, amount paid to state agencies for establishment, storage and interest for stocks procured, port clearance costs (in the case of imports) and other costs. Distribution costs are the costs involved in storing and transporting grain to the final distribution points. The components of distribution costs are freight, handling expenses, storage charges, interest charges, transit shortages (or losses during transit), storage shortages (losses during storage) and establishment costs. Further analysis in this section is based entirely on current or nominal prices, as we are primarily interested in the relative increase in different components of economic cost.[11] Note also that some of the observations made below are hypotheses based on a preliminary analysis of costs that require further research and substantiation.

The first feature of the basic data on economic costs, sales realisation and subsidy is the growing gap between economic costs and sales realisation, particularly in the last two years (Table 1). First, the economic costs of procuring and distributing both rice and wheat have risen steadily in the 1990s. The economic costs of procuring and distributing wheat rose from Rs 356.50 per quintal in 1990-91 to Rs 807.95 in 1998-99, reflecting an annual growth of 10 per cent (Table 1).[12] The economic costs of procuring and distributing rice grew at 9.7 per cent a year over the same period, from Rs 457.52 to Rs 980.36.

Secondly, the average sales realisation (or the average price obtained by the FCI)

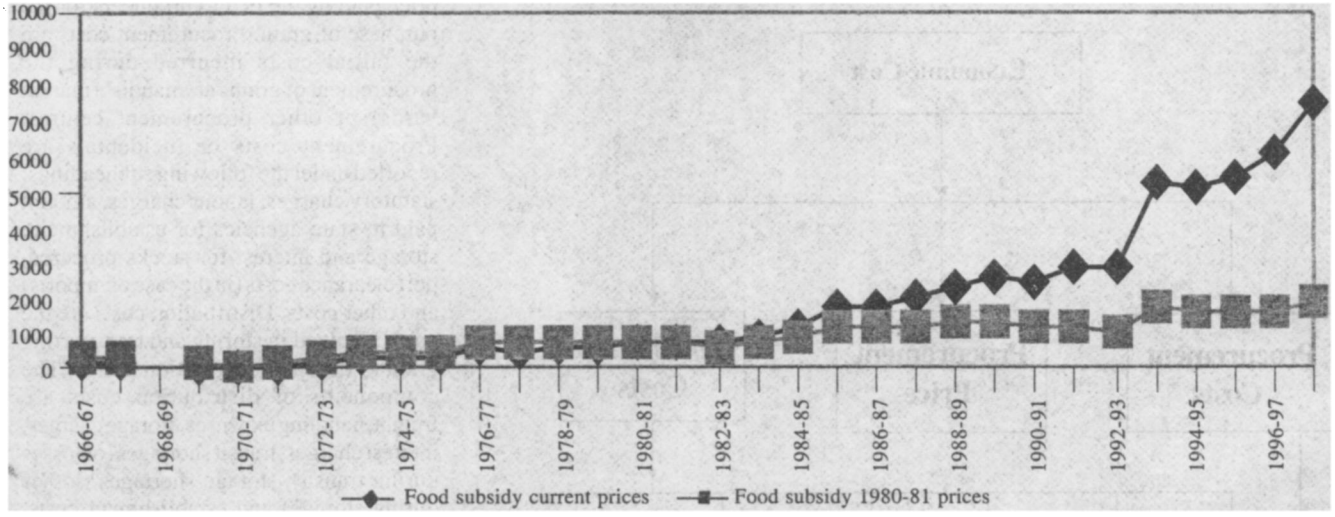
TABLE 3A: SHARE OF VARIOUS INCIDENTAL COSTS IN TOTAL INCIDENTAL COSTS FOR WHEAT

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98 (RE)	1998-99 (RE)	1990-98
Statutory charges	56.81	47.16	49.53	56.91	57.72	58.97	59.03	61.16	58.65	56.22
Labour and transport charges	13.16	13.47	16.37	15.48	12.51	12.43	13.20	11.87	11.92	13.38
Storage and interest charges to state govt	20.84	20.20	25.49	20.95	21.18	20.71	19.85	18.50	22.23	21.11
Additonal charges to state govt	9.19	19.16	7.82	6.41	6.55	7.18	7.56	7.06	5.99	8.55
Total charges on state government	30.04	39.36	33.31	27.35	27.72	27.89	27.41	25.55	28.22	29.65
Total procurement incidentals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

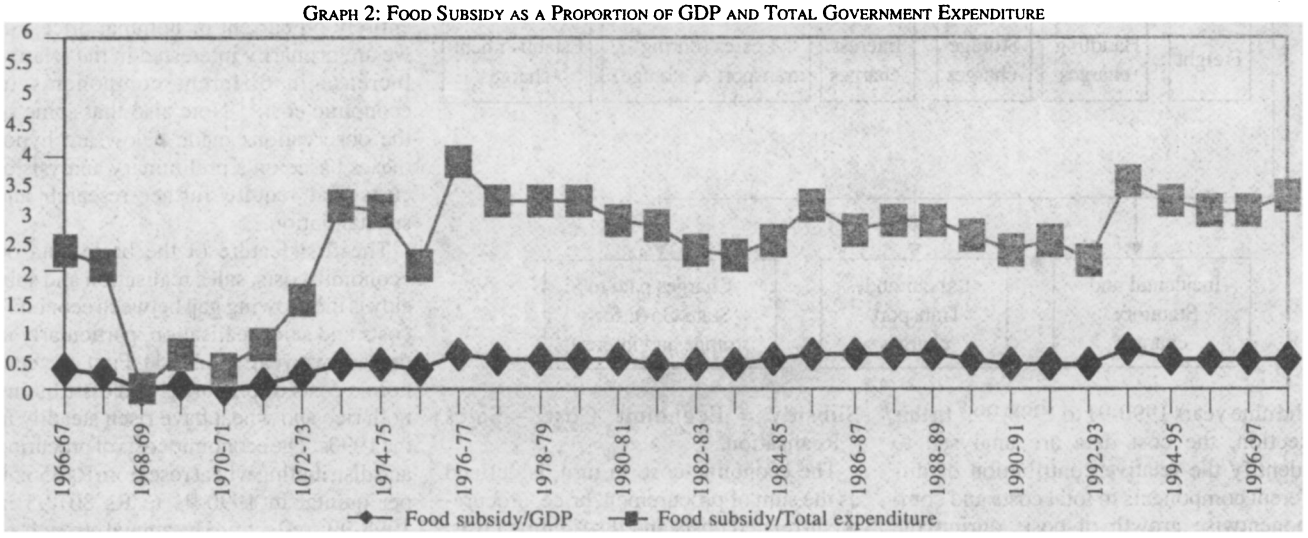
TABLE 3B: SHARE OF VARIOUS INCIDENTAL COSTS IN TOTAL INCIDENTAL COSTS OF RICE

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98 (RE)	1998-99 (RE)	1990-98
Statutory charges	71.96	68.37	67.30	70.53	57.29	67.23	58.59	63.68	62.73	65.30
Labour and transport charges	15.85	16.37	17.79	16.45	14.30	14.64	13.61	16.76	17.94	15.97
Storage and interest charges to state govt	4.38	4.77	7.36	6.41	6.64	8.00	6.71	7.22	7.21	6.52
Additional charges to state govt	7.81	10.49	7.55	6.61	21.78	10.13	21.09	12.35	12.12	12.21
Total charges to state govt	12.19	15.26	14.91	13.02	28.42	18.13	27.80	19.56	19.33	18.74
Total procurement incidentals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

GRAPH 1: EXPENDITURE ON FOOD SUBSIDY, CURRENT AND 1980-81 PRICES, RS CRORE



GRAPH 2: FOOD SUBSIDY AS A PROPORTION OF GDP AND TOTAL GOVERNMENT EXPENDITURE



for rice and wheat did not rise as fast as their respective economic costs. Sales realisation from wheat grew at 7.2 per cent a year and that from rice at 8 per cent a year. Average sales realisation from wheat fell in nominal terms from 1996-97 onwards, and in the most recent year, 1998-99, for rice. After 1996-97, the sales realisation from wheat fell even below the procurement price. In the case of rice too, the average sales realisation was lower than the procurement price after 1995-96. If we exclude the last two years of data, sales realisation is observed to grow much faster, at around 11 per cent annually for both rice and wheat.

In addition to sales to the PDS and other social security programmes, the FCI also engages in open market sales and exports. There may be several explanations for the recent decline in sales realisation. Central issue prices were raised steeply and on several occasions between 1991 and 1994, by a total of 185 per cent for common rice and 172 per cent for wheat. Prices were then held constant till 1997. In 1997, a dual price regime was introduced as part of the Targeted PDS. In this scheme, the population is divided into 'above poverty line' (APL) and 'below poverty line' (BPL) groups and prices differ for the two groups. Prices were raised for the APL group and lowered for the BPL group. As part of the Targeted PDS, ration entitlements were reduced, particularly for purchases at the lower BPL prices. In recent years, there has been a sharp decline in the quantities sold through the PDS and a corresponding rise in stocks.[13] The fall in average sale price is partly due to the fall in quantities sold. Also, from 1997, due to restrictions on open market sales, the FCI has not been able to sell off surplus stocks in the market. Damage to stocks or purchase of poor quality grain could also lower the sale price. All these factors together are likely to have led to the observed decline in the average price obtained on sales by the FCI.

Nevertheless, the sales realisation from rice grew slightly faster than from wheat. As a consequence, the unit subsidy on wheat grew more rapidly than the unit subsidy on rice and exceeded the subsidy on rice in absolute terms in most years. In 1990-91, the subsidy paid to the FCI was Rs 116.55 per quintal of wheat and Rs 127.5 per quintal of rice. In 1998-99, however, the unit subsidy was Rs 419.62 for wheat and Rs 379.18 for rice. From 1991-92 onwards, with the exception of one year, the ratio of the wheat subsidy to the rice subsidy has been greater than one.

In short, a growing divergence between economic costs and sales realisation led to a major rise in unit subsidy during the 1990s. The divergence has been phenomenal in the last two years. If we exclude data for 1997 and 1998, the growth rates of subsidy are lowered significantly (halved

for both rice and wheat from 13 per cent to 6 per cent).

Changes in Components of Economic Costs

In terms of broad categories, one of the fastest growing components of the economic cost of wheat was the procurement price, which grew at 11.51 per cent annually over this decade (Table 2 and Graph 3).[14] Procurement costs grew at 8.9 per cent a year and distribution costs grew at 6.8 per cent a year. As a result, the share of procurement price in total economic cost of wheat increased from 57 per cent in 1990-91 to 64 per cent in 1998-99. The share of distribution costs in total economic costs fell correspondingly from 24.5 per cent to 19.2 per cent. In other words, the rapid rise in procurement prices was the most important factor in the rise of total economic costs of wheat.[15]

In the case of rice too, procurement prices rose over this period, at an annual rate of 9.8 per cent. Graph 4 shows clearly that the procurement price of rice has increased steadily. Procurement incidentals grew slightly faster at 10.9 per cent annually, and distribution costs rose at 9 per cent a year. In the case of rice, procurement prices have always accounted for a substantial share of total economic costs and the share increased further in the 1990s. The share of procurement prices in total economic costs of rice was 73.9 per cent in 1990-91, 77.4 per cent in 1994-95 and 75.9 per cent in 1998-99. While procurement incidentals have increased steadily for both wheat and rice, the pattern of change is quite different from that during the 1980s when procurement-related costs rose faster than procurement prices for both rice and wheat [BICP 1991]. A detailed discussion of each component of procurement incidentals and distribution costs can be found in the Appendix.[16] Some of the salient features are discussed here.

Procurement Costs

Of total economic costs, procurement incidentals were around 15 per cent for wheat and 7 per cent for rice. Procurement costs accounted for a bigger share of total costs for wheat; they have also risen more rapidly for wheat. An important reason for lower procurement costs for rice may be that it is obtained directly from millers. Changes in the components of procurement incidentals are plotted in Graphs 5 and 6 for wheat and rice respectively (see, also, Table 2).

Statutory charges were the most important component of total procurement incidentals for rice and wheat. For wheat, statutory charges accounted for 8.6 per cent of the economic cost in 1990-91, and grew at a rate of 11 per cent a year. Of total procurement incidentals, statutory charges were the most important component (Table 3A). Further, these charges amounted to one-fifth of total costs of the FCI after excluding the procurement price of grain. For rice, statutory charges were lower, accounting for around 4 per cent of economic cost. Statutory charges grew at a rate of 9 per cent annually between 1990-91 and 1998-99. Statutory charges, however, were the largest component of procurement incidentals (e g, as high as 71.9 per cent of procurement incidentals in 1990-91, Table 3B) and accounted for about 17 per cent of costs other than the procurement price of rice in 1998-99. Since statutory charges are defined as a percentage of the procurement price, they have, not surprisingly, grown in proportion to the procurement price.

For wheat, labour and transport costs involved during and after procurement rose in absolute terms but at the relatively

Table 5: Ratio of Economic Cost to Procurement Prices, Rice and Wheat, 1980-81 to 1998-99

Year	Wheat	Rice
1980-81	143.0	137.2
1985-86	154.0	143.2
1988-89	171.0	139.4
1990-91	174.0	135.2
1991-92	185.0	133.4
1992-93	170.5	134.9
1993-94	163.5	132.9
1994-95	164.6	129.1
1995-96	166.3	131.2
1996-97	163.8	134.9
1997-98	161.0	136.9
1998-99	156.2	131.7

Notes: Figures for the 1980s are from Tyagi (1990).

Table 6: Ratio of Unit Subsidy to Procurement Price, Rice and Wheat, 1980-81 to 1998-99

Year	Wheat	Rice
1980-81	34.3	21.6
1985-86	44.3	36.3
1988-89	45.2	34.0
1990-91	56.9	37.6
1991-92	65.8	35.2
1992-93	76.0	32.9
1993-94	54.1	32.9
1994-95	42.7	17.4
1995-96	49.0	25.7
1996-97	52.9	37.7
1997-98	81.4	47.9
1998-99	81.1	50.9

Notes: Figures for the 1980s are from Tyagi (1990).

Table 4A: Share of Various Costs in Total Distribution Costs of Wheat

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98 (RE)	1998-99 (RE)	1990-98
Frieght	41.24	31.94	26.86	42.76	44.95	39.26	38.30	37.93	39.92	38.13
Handling expenses	9.57	10.40	9.31	9.11	11.03	12.58	15.01	15.66	15.09	11.97
Storage charges	7.84	8.50	10.44	6.91	7.53	9.74	9.94	9.96	10.47	9.04
Interest charges	23.88	31.88	33.29	28.15	23.91	23.87	21.71	23.63	21.81	25.79
Transit shortages	7.04	7.29	6.61	4.28	4.20	4.11	4.91	3.06	2.70	4.91
Storage shortages	1.22	1.94	1.85	-0.54	-0.35	-0.29	-0.31	-0.35	-0.26	0.32
Transit and storage shortages	8.26	9.23	8.46	3.75	3.85	3.82	4.60	2.70	2.43	5.23
Establishment charges	9.20	8.05	11.65	9.32	8.73	10.72	10.44	10.11	10.28	9.83
Total distribution costs	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4B: Share of Various Costs in Total Distribution Costs of Rice

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98 (RE)	1998-99 (RE)	1990-98
Freight	41.24	31.94	26.86	33.60	29.25	33.49	35.26	35.20	36.24	33.68
Handling expenses	9.57	10.40	9.31	8.59	11.78	11.13	11.51	14.51	13.67	11.16
Storage charges	7.84	8.50	10.44	6.48	8.04	8.61	9.13	9.29	9.46	8.64
Interest charges	23.88	31.88	33.29	34.52	34.18	28.18	26.66	26.33	26.08	29.44
Transit shortages	7.04	7.29	6.61	5.42	4.99	5.78	5.81	3.27	3.32	5.50
Storage shortages	1.22	1.94	1.85	2.60	2.45	3.33	3.63	2.01	1.97	2.33
Transit and storage shortages	8.26	9.23	8.46	8.01	7.44	9.11	9.44	5.28	5.29	7.83
Establishment charges	9.20	8.05	11.65	8.79	9.32	9.48	8.00	9.39	9.27	9.24
Total distribution costs	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

low rate of 6.5 per cent a year and the contribution of these costs to total costs fell over time. In the case of rice, however, these costs rose quite rapidly, at 10.8 per cent annually. In some cases, agencies owned by state governments make purchases of grain and then hand them over to the central pool maintained by the FCI. The FCI pays the state agencies for this service. These costs increased very rapidly for rice, at 17.9 per cent annually, during the 1990s; they also showed large year-to-year variations (Graph 6).

It is clear that the patterns of increase in total procurement costs and in statutory charges are similar. Statutory charges are a weighty component of total costs of the FCI, and should be part of the debate on reduction of the costs of procurement. By definition, statutory charges are not under the control of the FCI. Statutory charges differ across states, and some state governments use this as a way of raising resources.[17] So a reduction of these costs involves other policy changes such as the rationalisation of taxes on food across states.[18]

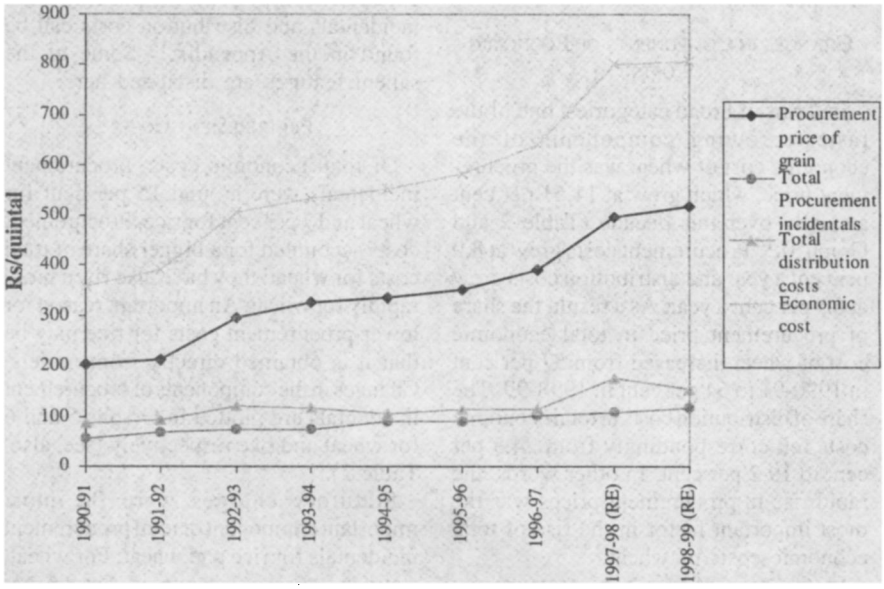
Distribution Costs

In the early 1990s, the FCI reported uniform distribution costs for rice and wheat. The distribution costs for rice and wheat differed only after 1993-94. From then on, in nominal terms, distribution costs have generally been higher for rice. In 1998-99, for example, the distribution cost was Rs 170.8 per quintal of rice and Rs 154.9 per quintal of wheat. This is not surprising, as the quantity of rice distributed in the PDS is much higher than that of wheat. In 1997-98, 10.8 million tonnes of rice and 6.9 million tonnes of wheat were supplied through the PDS. It is thus likely that rice is transported longer distances than wheat.

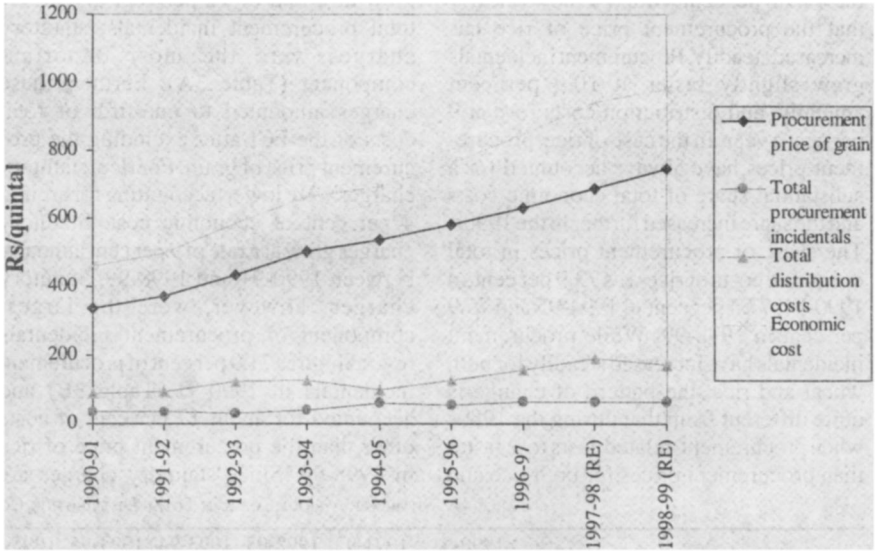
Although distribution costs grew less rapidly than procurement incidentals for both rice and wheat, in absolute terms they are higher than procurement incidentals for both rice and wheat. Distribution costs have jumped in the latter half of the period, from 1995-96 for rice and in 1997-98 for wheat, to very high levels. Secondly, they account for a sizeable proportion of total costs excluding the procurement price for both crops and particularly for rice (52.76 per cent for wheat and 72.15 per cent for rice on average). I now turn to the components of the costs of distribution (Tables 4A, 4B and Graphs 7 and 8).

Freight charges are the single most important component of distribution costs, accounting for 38.13 per cent of distribution costs in the case of wheat and 33.68 per cent for rice (average for 1990-1998).

Graph 3: Components of Economic Cost of Wheat, 1990-91 to 1998-99



Graph 4: Components of Economic Cost of Rice, 1990-91 to 1998-99



Freight charges have grown more rapidly for rice than for wheat (Table 2). For rice, Graph 8 demonstrates vividly the steep rise in the costs of freight from 1994-95. Any strategy of cost reduction will have to examine freight costs carefully. The rise in transport costs in on account of a rise in rail freights as well as a rise in the volume of movement.[19] The evaluation undertaken by the BICP in the late 1980s indicated that better planning of movement of grains could help reduce costs of transport [BICP 1991]. In particular, it was noted that the quantity of grains moved was greater than the quantity procured indicating that old stocks were moved a second or third time as well.[20]

Interest charges comprise the second most important cost item, and refer to the interest paid by the FCI on overdrafts from banks and loans from the government of India. Interest charges, on average, were 25.8 per cent of distribution costs for wheat and 29.4 per cent for rice during this period. Interest charges, however, grew less rapidly than other components of distribution costs such as freight. Handling expenses or the costs of labour for handling grain comprise a small component of total costs but grew very rapidly. Establishment costs or the administrative overhead costs of wheat grew faster than total distribution costs but this was not so in the case of rice. Storage charges accounted for about 9 per cent of distribution costs on average. Storage costs rose quite rapidly in the 1990s. There is probably scope for reducing the costs of storage by, among other things, better planning, utilisation and modernisation of storage capacity.[21]

The final component of distribution costs was losses due to transit and storage. Losses account for a significant proportion of costs. However, the share of losses in total distribution costs has fallen sharply for wheat over this period. For rice, the share of losses in total costs rose in the mid-1990s but it has fallen in the last two years (Graph 8). Nevertheless, the decline in losses over time should not detract from the very existence and size of these losses. While some losses may be due to unforeseen factors like bad weather, a large part is on account of bad management and corruption.

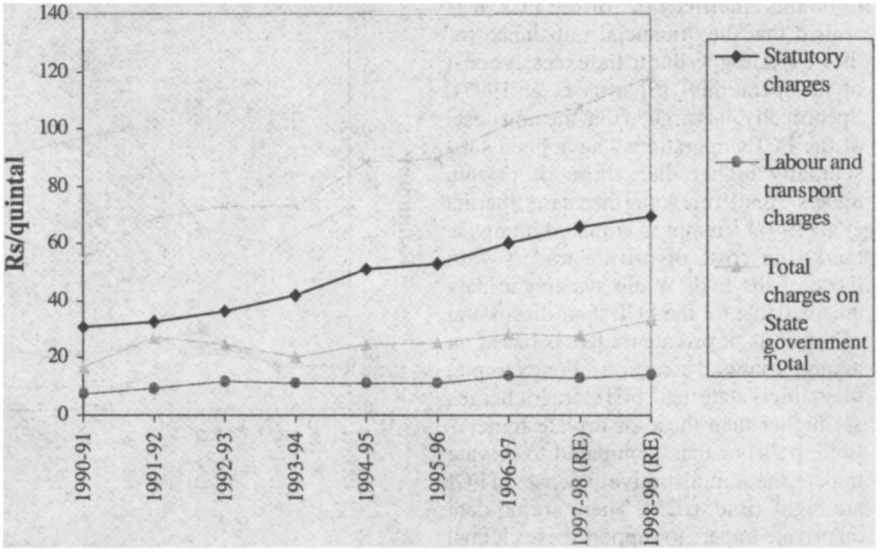
Comparing 1990s to Earlier Periods

The behaviour of different components of costs during the 1990s has been unlike that during the 1980s. Excluding the last two years, 1997-98 and 1998-99, there has been an improvement in the operations of the FCI.[22] Two indicators used to identify operational efficiency of the FCI are the ratio of economic costs to procurement price and the ratio of subsidy to procurement price [Tyagi 1990].

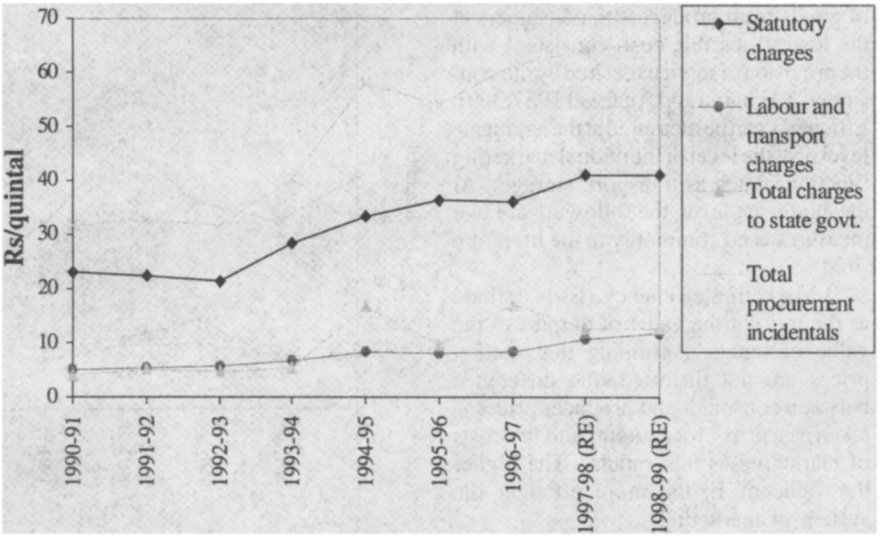
The ratio of economic cost to procurement price increased during the 1970s and 1980s, particularly for wheat (ibid). Data for the 1990s show that after reaching a peak of 185 in the 1991-92, the ratio declined in the case of wheat (Table 5). For rice, the ratio was more or less unchanged during the 1990s but lower than the peak of 143 reached in the mid-1980s. In short, the costs of acquisition and distribution relative to the price of purchase have fallen for wheat in the 1990s and have been relatively constant for rice. By this criterion, the FCI has improved its operational efficiency in the 1990s in the case of wheat. In the case of rice, there is clearly no worsening of operational efficiency by this criterion.

The total subsidy depends on the quantity distributed and the rate of subsidy or per unit subsidy. From the mid-1970s to the late 1980s, the ratio of unit subsidy to procurement price increased for both wheat and rice: the ratio went from 30 to 45 in the case of wheat and jumped from around 1 to 34 in the case of rice [Tyagi 1990]. Turning to the 1990s, we find that the ratio of unit subsidy to procurement price of wheat rose to a peak of 76 in 1992-93 and then fell steadily till 1996-97 (Table 6). It has risen very sharply again in the last two years. For rice, the ratio peaked at 37.6 in 1990-91 and declined till 1994-95. For rice too, the ratio has risen in the last few years. By the second measure, the performance of the FCI improved in the early and mid-1990s but has deteriorated sharply in the last few years.

Graph 5: Components of Procurement Incidentals for Wheat, 1990-91 to 1998-99



Graph 6: Components of Procurement Incidentals for Rice, 1990-91 to 1998-99



Summing up

The data from FCI performance budgets show clearly that the increase in procurement price was a critical factor in the increase in economic costs of rice and wheat. The share of procurement price in total economic costs rose between 1990 and 1998 for both wheat and rice. The procurement price, however, is a variable over which the FCI has no control. Setting the procurement price is a political decision in India's parliamentary system; the central government sets the procurement price based on the recommendations of the Commission on Agricultural Costs and Prices (CACP). Another steadily growing component of costs was statutory charges levied by state governments; these too are outside the control of the FCI. Statutory charges, a significant component of procurement costs, grew at the same rate as procurement prices. Turning to distribution, the major contributors to the cost escalation were freight, storage and handling expenses. It is clearly important to improve the management of transport and storage in order to contain these costs.

Despite the absolute increase in many components of costs, it is important to note that the ratio of economic cost to procurement price declined for wheat and remained constant for rice during the 1990s. This indicates improved operational efficiency of the FCI.

IV
Efficiency of FCI versus Private Trade: Some Price Comparisons

In the debate on food subsidies, it is often stated that the FCI is 'inefficient', and one of the major reasons for the

growing size of the food subsidy is said to be this 'inefficiency' of the FCI. It is argued that the "financial imbalance (of the FCI) is largely due to the excessive cost of its operations" [Sharma et al 1997]. Specifically, it is argued that the unit costs of the FCI's operations "have been substantially higher than those of private traders" (ibid). In arguing their case, Sharma et al (1997) attempt to compare itemwise marketing costs of private traders with those of the FCI. While systematic data are available for the FCI, their discussion of the costs of private traders is based on assumptions and assertions. For example, they simply state that "FCI storage charges are higher than those of private traders" (ibid, p 24) or that "compared to private traders, the administrative expenses of FCI are high" (ibid, p 25). There are no data on private traders to support these claims.

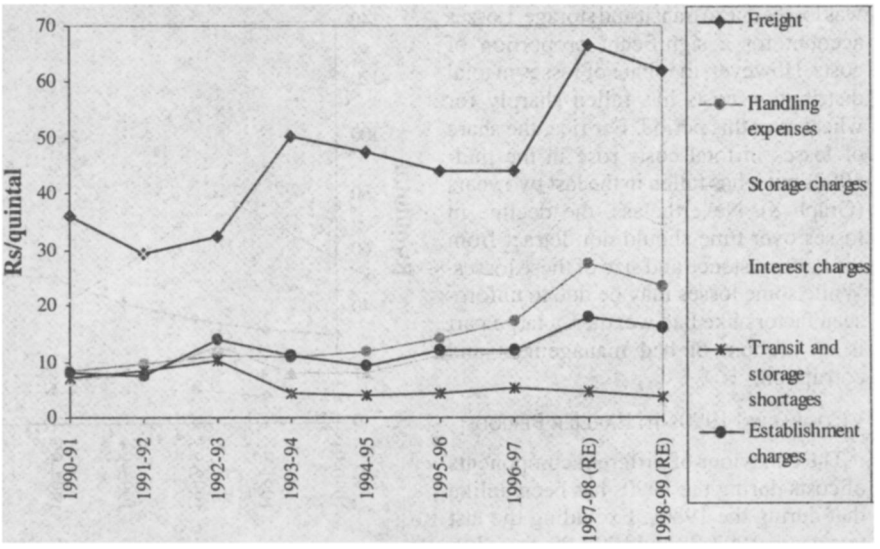
How do we judge the efficiency of marketing? Marketing efficiency in this context has been defined as "the movement of goods from producers to consumers at the lowest possible cost, consistent with the provision of services desired by the consumer" [Acharya and Agarwal 1987:309]. Efficiency can be measured at the aggregate level or at the level of individual marketing functions (such as transport, storage). At the aggregate level, the following are two measures used commonly in the literature (ibid).

(i) Marketing efficiency (E) is defined as the ratio of the value of outputs to the value of inputs. Assuming that market prices are not distorted, the difference between consumer and producer prices is taken as a proxy for 'output' and the costs of marketing as the 'inputs'. The higher the value of E, the more efficient the system of marketing.

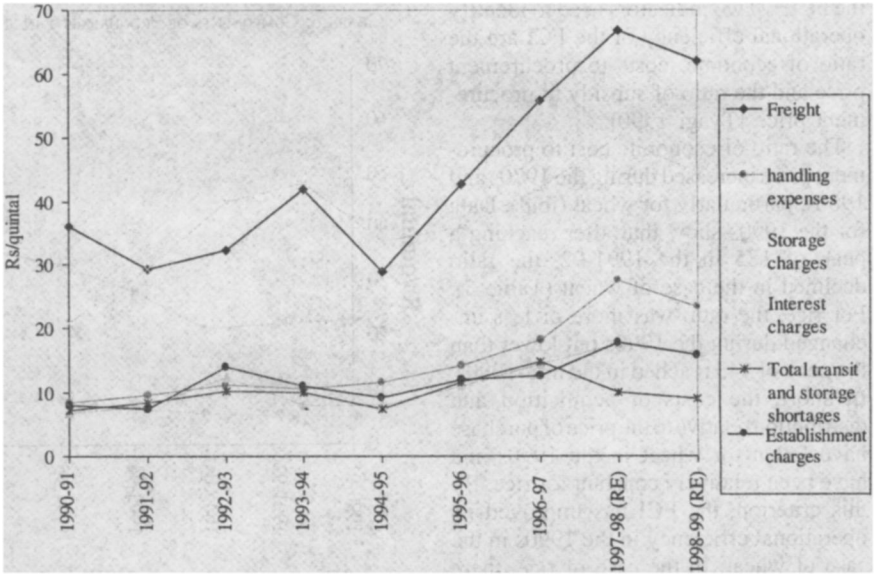
(ii) The net margin (M), that is, the price spread (consumer price –producer price) as a ratio of the final consumer price, is another measure of efficiency. The higher the price spread, or the higher the value of M, the lower the efficiency.

There are several conceptual and empirical problems in computing such measures and using them to compare the efficiency of the private and public sectors. First, as noted in the previous section, the FCI serves many objectives, and being more 'inefficient' than the private sector in terms of these two criteria does not invalidate the efforts of the FCI. Secondly, since no private trader engages in trade on the scale undertaken by the FCI, simple comparisons between private and public trade may be inappropriate. On the one hand, FCI can be expected to reap economies of scale from its huge operations. On the other hand, the FCI incurs extra costs as it distributes grain in all parts of the country and in regions where private trade is limited or even non-existent.[23] Thirdly, there are differences in the quality of products and these are not easily accounted for in aggregate measures. Fourthly, any comparison of average costs misses the actual variability of costs and prices over time and across agents. Fifthly, there is a big problem of data availability with respect to private trade. There is very little public information on the costs of operations of private traders. For all these reasons, researchers have often used measures such as a comparison of final prices (see below) to compare the relative 'efficiency' of private and institutional channels of trade.

Graph 7: Components of Distribution Costs for Wheat, 1990-91 to 1998-99



Graph 8: Components of Distribution Costs for Rice, 1990-91 to 1998-99



Price Comparisons

It is possible to appraise the performance of the FCI in relation to that of private traders by comparing the economic costs of the FCI with wholesale market prices. Private traders, it is assumed, will set the wholesale price at a rate that covers their costs and in this way we can examine if private traders supply grain to consumers at a lower price. A systematic and detailed comparison of market prices and economic costs of the FCI, by state and region, was undertaken by Jharwal (1998).[24] He examined prices for rice and wheat in major states, for rural and urban areas separately, for the years 1981-82 to 1991-92. In urban areas, the comparisons were between the economic costs of the FCI and the local wholesale price. For urban areas, I have extended the comparison of relative prices for the period up to 1996-97.[25] Broadly, the patterns are similar to those observed during the 1980s [Jharwal 1998].

For rice, in a large number of states, wholesale prices were higher than the FCI's economic costs (Table 7).[26] In Andhra

Pradesh, Assam, Gujarat, Kerala, Karnataka, Tamil Nadu and Delhi, the ratio of market price to economic cost of the FCI was generally greater than one. However, the ratio declined during the 1990s indicating that the FCI lost some of its price advantage in recent years. The ratio was less than one in Bihar, Madhya Pradesh, Haryana, Himachal Pradesh, Punjab and Uttar Pradesh. The pattern was mixed in Maharashtra and West Bengal (see summary in Table 11). This exercise shows that in terms of the final price, the market does not always offer consumers a better deal than the FCI in distributing rice in urban areas.

The picture is slightly different for wheat prices in urban areas (Table 8). In northern India, in the wheat-producing belt, market prices were lower than the average economic cost of the FCI. This includes the states of Haryana, Punjab, Uttar Pradesh and Rajasthan.[27] Market prices were also below economic costs in Delhi and Himachal Pradesh. The situation was varied in Bihar, Madhya Pradesh, Maharashtra and West Bengal. In Karnataka, the market price was consistently higher than the economic cost.[28] In Gujarat, the ratio of market price to economic cost increased between 1991 and 1996. These data indicate that the market provides wheat at a lower price than the FCI in a large part of northern India.[29]

There is a common pattern that emerges in the price comparisons for urban areas, and this could be related to transport costs. The economic cost of the FCI is based on an all-India average cost (no statewise estimates are available) and it stands to reason that some states will benefit more from the averaging of costs such as transport costs. Transporting rice from Punjab to Kerala is likely to be expensive but this is not captured in uniform economic costs where transport costs are averaged across all states. In other words, private transport costs will be lower than the FCI's average cost in the surplus states where grain is procured and vice versa in the distant and deficit states. For more accurate comparisons, we would require statewise data on economic costs from the FCI. In this regard, the recent recommendation by the CACP that the economic costs of the FCI should be estimated on a monthwise and statewise basis should be approved [CACP 1998].

Turning to rural areas, the market price of rice appears to be lower than the economic cost in most states, particularly after 1983. This section is based on price comparisons reported by Jharwal (1998) as between rural retail prices and retail PDS prices.[30] The market retail price of rice was higher than the economic cost in Assam, Bihar and West Bengal (Table 9). In most other states, including Karnataka, Madhya Pradesh, Orissa, Tamil Nadu and Uttar Pradesh, market prices were below eco-

TABLE 7: RATIO OF WHOLESALE PRICE TO ECONOMIC COST FOR RICE, URBAN AREAS

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Andhra Pradesh	1.12	1.05	1.01	1.10	1.05	1.00
Assam	1.13	1.02	0.95	1.04	1.04	1.05
Bihar	1.08	0.98	0.89	0.92	0.93	0.87
Gujarat	1.33	1.11	0.97	1.15	1.23	1.15
Haryana	0.93	0.86	0.87	0.96	0.96	0.99
Himachal Pradesh	0.96	0.97	0.89	0.90	na	na
Kerala	1.28	1.19	1.08	1.25	1.19	1.22
Madhya Pradesh	1.01	0.95	0.85	0.88	0.82	0.79
Maharashtra	1.10	0.95	0.85	0.91	0.94	1.10
Karnataka	1.12	1.05	0.94	1.06	1.07	1.10
Orissa	0.95	0.80	0.77	0.85	0.82	0.80
Punjab	0.92	0.87	0.93	0.94	0.90	0.83
Tamil Nadu	1.13	1.14	1.04	1.08	1.11	1.09
Uttar Pradesh	0.97	0.87	0.85	0.91	0.90	0.92
West Bengal	1.13	0.96	0.96	1.08	1.02	0.95
Delhi	1.12	1.04	1.03	1.00	0.99	1.04

Notes: 1 The annual wholesale price is an average of the monthly wholesale price of various varieties of rice in different urban markets of the state.
2 The data for Himachal Pradesh for the year 1994-95 is an average of price in only two successive months in that year.
3 The data for West Bengal for the year 1994-95 is an 8 month average.
Source: *Agricultural Situation in India*, several issues.

TABLE 8: RATIO OF WHOLESALE PRICE TO ECONOMIC COST FOR WHEAT, URBAN AREAS

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Bihar	1.13	0.85	0.85	0.86	0.87	1.04
Gujarat	1.19	0.99	0.98	1.09	1.09	1.28
Haryana	0.84	0.66	0.68	0.69	0.70	0.86
Himachal Pradesh	0.90	0.67	0.71	0.76	0.72	0.83
Karnataka	1.52	1.24	1.23	1.29	1.29	1.60
Madhya Pradesh	1.08	0.90	0.88	0.87	0.79	1.04
Maharashtra	1.20	0.96	0.93	0.96	1.00	1.20
Punjab	0.82	0.65	0.68	0.68	0.68	0.85
Rajasthan	0.97	0.71	0.75	0.75	0.74	0.93
Uttar Pradesh	0.98	0.70	0.74	0.73	0.73	0.94
West Bengal	1.03	0.81	0.83	0.85	0.86	1.01
Delhi	0.97	0.75	0.77	0.77	0.78	0.98

Notes: 1 The annual wholesale price is an average of the monthly wholesale price of various varieties of rice in different urban markets of the state.
2 The wholesale price of wheat in Karnataka is for 'Bansi' variety of wheat.
Source: *Agricultural Situation in India*, several issues.

TABLE 9: RATIO OF RETAIL PRICE TO ECONOMIC COST OF RICE IN RURAL AREAS, 1981-82 TO 1991-92

Year	Kerala	Madhya Pradesh	Orissa	Tamil Nadu	Andhra Pradesh	Bihar	Karnataka	Assam	Uttar Pradesh	West Bengal
1981-82	0.94	0.99	1.17	1.15	1.12	1.25	1.20	1.16	1.02	1.23
1982-83	1.09	1.03	1.23	1.44	1.02	11.36	1.31	1.24	1.20	1.26
1983-84	1.00	0.92	0.92	1.09	0.86	1.08	1.14	1.20	0.95	1.01
1984-85	0.89	0.86	0.86	0.91	0.83	0.90	1.02	1.03	0.79	0.93
1985-86	0.91	0.82	0.83	0.98	0.84	0.93	0.88	1.02	0.82	0.97
1986-87	0.84	0.81	0.83	0.91	0.84	0.98	0.83	1.04	0.94	0.96
1987-88	0.89	0.91	0.95	0.99	0.95	1.12	0.95	1.15	0.99	1.01
1988-89	1.05	0.94	0.87	0.99	0.87	1.05	0.97	1.18	0.88	0.98
1989-90	0.72	0.91	0.81	0.99	0.80	1.02	0.90	1.08	0.83	0.98
1990-91	0.92	0.91	0.94	0.86	0.89	1.08	0.99	1.16	0.99	1.09
1991-92	0.79	0.87	0.82	0.83	1.30	1.07	0.99	1.16	0.97	0.98

Source: Jharwal (1998), Table 5.23.

nomic costs, especially after the mid-1980s. The situation was variable in Kerala and Andhra Pradesh. In the case of wheat, the average market price was lower than the economic cost in states such as Gujarat, Punjab, Rajasthan, Haryana and Uttar Pradesh whereas the FCI price was lower in Maharashtra and Karnataka (Table 10).[31] The picture was mixed in Bihar and Madhya Pradesh.

These comparisons reveal the presence of a rural-urban divide. In several states, rural retail prices of rice, for example, were lower than urban wholesale prices. This could be due to several factors but it is also indicative of imperfect markets. Also, as Ghosh (1998) observed, "even in deficit regions, rural food prices remain 10-20 per cent below urban food prices". In other words, private markets are not undertaking arbitrage satisfactorily between rural and urban markets of even the same state.

Summing Up

The FCI, as noted earlier, is the organisation that implements the government's policies on food and food security. The FCI purchases grain from cultivators at government-announced minimum prices. In years of bad harvest, it provides some insurance by purchasing grain at less than normally stipulated quality. The FCI has a huge distribution network that supplies grain to consumers in all parts of the country, including in isolated and remote locations. It also caters primarily to the lower end of the market. Given the multiple roles it performs, the material reviewed above shows that the FCI is not arguably worse than the private sector in terms of marketing costs. Price comparisons indicated that private traders offered lower prices for wheat, particularly in the surplus states (Table 11). Whereas the FCI could provide rice more cheaply than the private sector in many areas, particularly in the urban areas of deficit states (such as some of the southern states). The persistence of large differences in market prices within states, across rural and urban regions, signals the imperfections of private grain markets and the lack of market integration.

V
Concluding Remarks

To conclude, the debate on the food subsidy needs to shift from a narrow focus on the size of the budgetary allocation to all issues pertaining to food security. To provide a better understanding of the food subsidy, this paper provided details of the costs of the Food Corporation of India.

This paper found that the economic costs of the FCI – for both rice and wheat – increased at around 10 per cent a year between 1990 and 1998. As the rate of inflation in the index of wholesale prices was 8.5 per cent over the same period, there has been a small rise in real costs too. For both rice and wheat, increase in the procurement price was the single most important factor in the rise in costs. Any substantial reduction in economic costs requires control over the procurement price, a parameter determined by the central government and not the FCI. There is need to examine this tendency of continuous and high rise in procurement prices. An expansion of the geographical coverage of procurement and promotion of decentralised procurement may help contain the rise in procurement prices.[32]

Next, among procurement costs of wheat, incidental statutory charges rose steadily. For rice, a rapidly growing component of procurement costs was payments to state governments. Control over both these components of procurement cost requires action by state governments and better collaboration between the FCI and state government-owned corporations in procurement operations. The costs of transport, storage and handling have also grown rapidly. Nevertheless, the operational efficiency of the FCI seems to have improved in the 1990s, particularly for wheat.

In a major evaluation of the FCI, the BICP committee made several useful suggestions for streamlining operations and containing costs of distribution and these should be given serious consideration. These suggestions include major policy changes such as deferred procurement and decentralised storage and they need to be part of the debate on improving food security. Implementing some of these suggestions may require not only greater autonomy for the FCI but major organisational changes as well. There are many reports of corruption in the FCI (and some of this is reflected in the 'losses' item of costs), and this must be checked by bringing in greater transparency and accountability in the workings of the FCI.

Lastly, the paper attempted to compare the 'efficiency' of private traders and the FCI. Given limited data on marketing costs and prices of grain distributed in the two channels, we attempted a comparison of wholesale market prices and economic costs of the FCI. The price comparisons indicated that the FCI compares favourably with private traders in the distribution of rice in a large number of states. In the

Table 10: Ratio of Retail price to Economic Cost of Wheat in Rural Areas, 1981-82 to 1991-92

Year	MP	Maharashtra	Karnataka	Punjab	Rajasthan	Gujarat	Haryana	Bihar	UP
1981-82	0.99	1.07	1.21	0.76	0.95	0.92	0.74	0.98	0.75
1982-83	0.92	1.17	1.23	0.76	0.95	0.95	0.80	1.06	0.91
1983-84	0.96	1.21	1.33	0.74	0.85	0.99	0.73	1.05	0.77
1984-85	0.79	0.90	1.04	0.71	0.70	0.74	0.68	0.82	0.73
1985-86	0.97	1.09	1.26	0.74	0.77	0.99	0.70	0.93	0.78
1986-87	0.92	0.96	1.20	0.67	0.71	0.80	0.65	0.90	0.71
1987-88	0.97	1.01	1.28	0.59	0.70	0.92	0.71	1.02	0.79
1988-89	1.02	1.05	1.38	0.80	0.80	1.02	0.76	1.00	0.88
1989-90	0.96	0.92	1.29	0.70	0.69	0.88	0.68	0.89	0.74
1990-91	1.03	1.00	1.28	0.77	0.78	0.88	0.75	1.02	0.81
1991-92	0.96	1.02	1.33	0.78	0.75	0.95	0.76	1.12	0.93

Note: MP stands for Madhya Pradesh and UP for Uttar Pradesh.
Source: Jharwal (1992), Table 5.22.

Table 11: Summary of Price Comparisons

Area/Grain	FCI Price Lower	Market Price Lower	Mixed
Urban Areas			
Rice	Andhra Pradesh, Assam, Gujarat, Kerala, Karnataka, Tamil Nadu, Delhi	Bihar, Madhya Pradesh, Haryana, Punjab, Uttar Pradesh, Orissa, Himachal Pradesh	Maharashtra, West Bengal
Wheat	Karnataka, Gujarat	Punjab, Haryana, Uttar Pradesh, Rajasthan, Delhi, Himachal Pradesh	Bihar, Madhya Pradesh,Maharashtra, West Bengal
Rural Areas			
Rice	West Bengal, Assam, Bihar	Tamil Nadu, Uttar Pradesh, Orissa, Madhya Pradesh, Maharashtra, Karnataka (after 1983)	Kerala, Andhra Pradesh
Wheat	Maharashtra, Karnataka	Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh	Bihar, Madhya Pradesh

Note: The classification of states for urban areas is based on price data for the 1990s whereas the classification for rural areas is based on data for the 1980s.

states of northern and central India, however, private traders had lower prices for grain. The presence of systematic rural-urban price differences indicated the imperfections of grain markets.

To end, given its special role in the implementation of food policy, and the operational constraints that follow, the FCI is not unambiguously worse – as has been suggested in the literature – than private trade in terms of costs of distribution. This is not to deny the scope for improvement in the functioning of the FCI. I wish to argue that it is worth building on the strengths of the FCI (such as its impressive distribution network) and improving its performance rather than dismantling the FCI and leaving distribution of grain to private traders.

Appendix

COMPONENTS OF PROCUREMENT COSTS AND DISTRIBUTION COSTS, 1990-91 TO 1998-99

Procurement incidentals

The changing shares of the different components of procurement incidentals are shown in Tables 3A and 3B for wheat and rice, respectively.[33]

(i) The first component is reported under the heading of statutory charges. These are obligatory payments and include mandi fees, mandi cess, auction fees, commission paid to 'Kutcha Arhatiya's' (licensed farmer's agents) and purchase or sales tax. The commission agent's fee is fixed by a state government, as are the other statutory costs. Statutory charges grew at 11 per cent a year for wheat and 9.1 per cent a year for rice.

(ii) Labour and transport charges refer to the costs of mandi labour and the costs of internal movement such as from the mandi to the storage centre. These services are obtained by the FCI on contract from open tenders. The movement cost depends on the location of mandis and distance from the nearest rail head or storage depot.[34] Labour and transport costs of wheat rose in absolute terms but at the relatively low rate of 6.5 per cent a year and the contribution of these costs to total costs fell over time. They accounted for 13.16 per cent of procurement incidentals in 1990 and 11.9 per cent in 1998-99 (Table 3A). In the case of rice, however, these costs rose quite rapidly, at 10.77 per cent annually. They accounted for 15.85 per cent of total procurement costs in 1990-91 and 17.9 per cent in 1998-99 (Table 3B).

(iii) Amount paid to state agencies for establishment, storage and interest for stocks procured. In some cases, agencies owned by state governments make purchases of grain and then hand them over to the central pool maintained by the FCI. The FCI pays the state agencies for this service. For wheat, these charges accounted for about 4.5 per cent of total economic costs, on average, and grew at 5.7 per cent annually. These costs increased very rapidly for rice, at 17.9 per cent annually, but did not account for as large a share of total procurement incidentals as for wheat (Tables 3A and 3B). In the case of rice, note the large year-to-year variations in the charges paid to state governments. The share of payments to state governments in total procurement costs of rice increased from 12.2 per cent in 1990-91 to 19.3 per cent in 1998-99.

Distribution Costs

The shares of specific components of the costs of distribution for the years 1990-91 to 1998-99 are shown in Tables 4A and 4B.

(i) Freight charges refer to the costs of transporting grain to the final distribution centres. As grain is usually transported by rail, the costs depend primarily on rail freights. These costs include payment to the railways for demurrage, diversion and detention. They also include lorry charges and steamer freight charges for the grain transported by road and steamer. Freight charges are the single most important component of distribution costs, accounting for 38.13 per cent of distribution costs in the case of wheat and 33.68 per cent for rice (average for 1990-1998). Freight charges have grown more rapidly (9.6 per cent annually) for rice than for wheat (8.5 per cent annually).

(ii) Interest charges, the second most important cost item, refer to the interest paid by the FCI on overdrafts from banks and loans from the government of India. Interest charges were 25.8 per cent of distribution costs for wheat and 29.4 per cent for rice.[35] Interest charges, however, grew less rapidly than other components of distribution costs such as freight. Interest charges rose in the early 1990s, fell and then rose again and peaked in 1997-98. As part of a rising trend, interest charges have fluctuated from year to year.

The interest costs depend primarily on the interest charged by commercial banks for food credit. Up to 1994-95, the Reserve Bank of India set a ceiling on the interest that commercial banks could charge on food credit or credit for food procurement. This interest rate was high in the early 1990s (a rise in interest rates was part of the process of stabilisation and monetary tightening).[36] After 1994-95, the Reserve Bank, as part of the strategy of financial liberalisation, stopped fixing a ceiling interest rate. The interest on food credit is now set by a consortium of commercial banks led by the State Bank of India.[37]

Interest charges also depend on the level of stocks and the requirements of working capital. While the discussion of optimal stock levels is beyond the scope of this paper, it is worth pointing out that actual levels of both operational stocks and grain required for buffer stocks have risen in recent years. Actual stocks held in the central pool, for example, have been higher than minimum desirable stocks from 1994 onwards.[38] In the case of rice, actual stocks were significantly greater than desired norms (e g, the ratio of actual to required stocks was 235 per cent in 1995). To understand interest costs, we would also need to examine how costs are attributed to distribution as against maintenance of buffer stocks.

(iii) Handling expenses are the costs of labour for handling grain, and include contract labour and own or departmental labour. Handling costs accounted, on average, for around 11 per cent of total distribution costs for rice and wheat. Handling expenses increased at about 14 per cent annually for rice and wheat.

(iv) Next in importance is establishment costs or the administrative overhead costs that include all salary and staff related costs. Establishment costs accounted for 9.2 per cent of distribution costs of wheat in 1990-91 and 10.2 per cent in 1998-99. Overhead costs of wheat grew faster than total distribution costs but this was not so in the case of rice, where establishment costs accounted for 9.2 per cent of distribution costs in 1990 and in 1998.

(v) Storage charges accounted for about 9 per cent of distribution costs on average. There refer to the costs of storing grain by the FCI either in its own storage godowns or in hired godowns. The costs depend on the type of storage used. Storage costs rose quite rapidly in the 1990s. In the case of rice, for example, costs of storage grew at 10.8 per cent a year between 1990-91 and 1998-99, and the share of storage costs in total distribution costs rose from 7.8 per cent in 1990-91 to 9.46 per cent in 1998-99. In the case of wheat too, the contribution of storage costs to total distribution costs increased during the 1990s (Table 4A).

(vi) Losses due to transit and storage are the final component of distribution costs. Grain losses occur at several stages and places. They include losses due to lost railway wagons and shortages in despatch. Losses are suffered on account of damage during storage. From time to time, quality specifications are waived or eased and result in purchase of damaged crops that are left unsold and eventually turned into losses.[39] Shortages also occur in deliveries from millers or transporters. In the accounts

provided, FCI has classified losses into storage losses and transit losses but I have grouped them together here.[40] The share of losses in total distribution costs has fallen sharply for wheat over this period, from 8.2 per cent in 1990-91 to 2.4 per cent in 1998-99. For rice, the share of losses in total costs rose from 8.26 per cent in 1990-91 to 9.4 per cent in 1996-97 and then fell. In the last two years, there has been a notable fall in losses on the rice account.

Notes

[I wish to thank the officials of the Food Corporation of India for making available data from their performance budgets. I am grateful to V K Ramachandran for his suggestions on the arguments presented here, and to Jesim Pais for assistance in preparing the tables and graphs].

1 See, for example, Bhagwati and Srinivasan (1993), GoI (1997) and different issues of the *Economic Survey* after 1991.
2 It is suggested that the FCI can operate as an autonomous body engaged in open market purchases and sales, and compete with private traders. See Sharma et al (1997) and Jha and Srinivasan (1998).
4 For a discussion of the impact of the PDS on consumers, see Swaminathan (1996).
5 The incidence of benefits from the sugar subsidy is likely to be very different from the incidence of benefits of the cereal subsidy as the pattern of expenditure on these commodities is going to differ across income classes.
6 I therefore do not discuss the activities of the FCI in respect of other commodities such as sugar and oilseeds.
7 On the method of apportioning costs and the anomalies therein, see BICP (1991).
8 There can even be situations of conflict in certain operations, as for example, when state governments determine the 'mandis' in which the FCI can operate.
9 The figures for 1997-98 and 1998-99 are revised estimates; all other figures are actual.
10 The major detailed study of costs by component is that undertaken by the BICP (1991). The BICP study, however, pertains to the 1980s.
11 If the price indices for different components of costs have grown differently, then, of course, changes in nominal values of different components are not comparable. However, as such disaggregated price indices are not available, this remains a hypothetical question.
12 Growth estimates are based on a log-linear regression of all observations.
13 The ratio of foodgrain distributed or 'lifted' to quantity allocated, for example, fell from 86 per cent in 1991-92 to 74 per cent in 1997-98.
14 The fastest component was handling costs (part of the costs of distribution) but it is a small component of total costs (see Appendix).
15 The procurement cost reported by the FCI is not identical to the Minimum Support Price announced by the government. The price announced by the government is for fair average quality grain. The FCI may be procuring certain grains of higher/lower quality at different prices, and the reported price is the average price of all grain procured.
16 For definitions of various cost items, I have relied on BICP (1991).
17 In the states of Haryana, Punjab and Uttar Pradesh, the major states for wheat procurement, there are several taxes on wheat procurement. See BICP (1991) on statewise tax rates.
18 This issue is unfortunately not being discussed in the debate on tax reform.
19 For example, rail freights increased quite sharply in 1997-98 (*Railway Yearbook*).
20 Ultimately, an optimal food system would seek to disperse production.
21 See BICP (1991).
22 For both rice and wheat sales realisation fell sharply in the last two years. An important caveat is that these are estimates and not actual values but even then the sharp fall requires some explanation. Lowering of issue prices as part of the targeted PDS and restrictions on open market sales are possible explanatory factors.
23 As in the tribal areas of north-eastern India (Julius Sen, pers comm).
24 An all-India level comparison of wholesale prices of rice and wheat with economic costs of the FCI is reported by Sharma et al (1997). Wholesale prices vary across states and across rural and urban areas and over months, and an all-India average for wholesale prices has little meaning.
25 The figure for wholesale prices was obtained by averaging over different centres in each state in each month of the selected year as reported in different volumes of *Agricultural Situation in India*. All the selected centres were urban centres.
26 One limitation of this approach is that quality differences are not taken into account. However, the FCI sells three types of rice (common, fine and superfine) and the market data also refer to different types of rice (excluding the very superior basmati rice). So, the market price is unlikely to be higher only on account of better quality.
27 As mentioned above, averaging of transport costs by the FCI implies that states like Punjab and Haryana are subsidising more distant states.
28 This may be because the wholesale price data reported was for only one superior variety of wheat.
29 Different outcomes are reported by Jayati Ghosh (1998). She compared the economic costs of the FCI with the implicit consumer prices emerging from the round of the National Sample Survey on consumer expenditure for 1993-94, and found that the economic cost of FCI grain remains below the market price in almost every urban area [Ghosh 1998].
30 The retail PDS price differs across states, as state issue prices are not uniform.
31 As mentioned the data on market prices of wheat in Karnataka are for a superior variety and that may explain the high ratio in Karnataka.
32 In this context, see Gulati and Krishnan (1975).
33 A category that is not discussed here is that of port clearance costs. This comprises stevedoring charges, bagging and stitching levies, harbour dues, transit charges etc that are incurred in the case of imports. As imports have declined, these costs are not relevant for the 1990s.
34 Note that the FCI cannot choose mandis where it makes purchases; mandis are allocated to the FCI by the state governments. It has been argued that uneconomic small mandis are often allocated to the FCI while the larger mandis are allocated to state government-owned corporations [BICP 1991].
35 Note that the interest charges paid to state governments for their procurement operations were included in procurement incidentals. Together, total costs due to interest payments are thus higher than reported here.
36 The interest ceiling on food credit was 16 per cent in 1990-91 and 1991-92, and 15 per cent in 1994-95 (see Statement 63 of the *Report on Currency and Finance 1996-97*).
37 Interest rate on food credit peaked at 16.5 per cent in 1996, and then fell to 14.9 in 1997 and 14.0 in 1998.
38 See *Economic Survey*, different years.
39 Most recently, after damage to the standing crop during the monsoon of 1998, the government announced a lowering of the quality specification for purchase by the FCI [Swami 1998].
40 Transit shortages are defined as losses that occur during internal transport and handling, and storage losses are those that occur in storage. The method of dividing total losses into these two heads, however, can be questioned [BICP 1991].

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