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THE FOOD CORPORATION OF INDIA: SUCCESSES AND FAILURES IN INDIAN FOODGRAIN MARKETING

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FOOD CORPORATION OF INDIA:
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by

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Summary

The Food Corporation of India is a parasratal foodgrain marketing agency that represents the government in Indian foodgrain markets. It purchases. stores, transports, and distributes foodgrains throughout India. In particular. it distributes foodgrains at subsidized prices to the poor consumers. It also manages India's buffer stocks of foodgrains. Further, the imports and exports of foodgrains are canalized through the Food Corporation of India.

This paper evaluates the role and performance of the Food Corporation of India in Indian foodgrain marketing. Specifically, the paper explores whether the Food Corporation of India has reached its objectives and evaluates the economic efficiency of its operations as well as provides options for its **reform.**

This paper shows that while the Food Corporation of India has succeeded in improving the overall availability of foodgrains. it has failed to target the distribution of foodgrains to poor consumers and regions, make it operations economically efficient, and maintain the buffer stocks at levels stipulated by the government. In particular, it has failed to cover its costs by its revenues. The gap between the costs and revenues of the Food Corporation of India has been sharply widening over the years, leading to spiralling government subsidies. This financial imbalance is largely due to excessive cost of its operations. The per unit costs of its operations have been substantially higher than those of private traders. The lack of accountability within the Food Corporation of India and the knowledge that the government will cover the costs, if necessary, have made the inefficient operations possible.

"Man cannot be too serious about eating, for food is the force that binds the society together. "

Confucius

1. INTRODUCTION

Given that about two-thirds of India's population earn theirincome from agriculture and that an Indian household spends on average 30 percent of its budget on foodgrains. the structure and efficiency of Indian foodgrain marketing is not inconsequential for the Indian economy.' Foodgrain marketing consists of all the activities which are involved in the movement of foodgrains from producers to consumers.' These activities include the purchase, storage, transportation, distribution and processing of foodgrains. The marketing arrangements structure incentives to produce and trade foodgrains and, thereby, guide the economic activity within the agricultural sector. Hence, their structure and efficiency warrants a detailed analysis.

The government intervenes in foodgrain markets in India not only indirectly through pricing and other regulative policies, but also directly as a buyer and seller of foodgrains. There are dual foodgrain markets in India: a government controlled public market and an open, private market. About half of the marketed surplus of foodgrains is channeled through the government controlled market and the other half through the private one. However, while the share of the private sector is contributed by a large number of traders competing with each other, the share of government agencies is concentrated in one agency, the Food Corporation of India (FCI).

The Food Corporation of India is a parastatal foodgrain marketing agency that represents the government in Indian foodgrain markets. It purchases, stores, transports and distributes foodgrains throughout the country. It procures wheat and rice from farmers at prices stipulated by the government. These foodgrains are sold to consumers at subsidized prices through the public distribution system. In addition to these marketing activities, Indian imports of foodgrains are canalized through the Food Corporation of India. The Food Corporation of India is the largest agricultural parastatal in India in terms of turnover, the vaiue of commodities, and the significance of commodities in the Indian consumption basket. It also has the largest number of employees of all the agricultural parastatals in India.

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[1] Statistical outline of India 1992-93.

[2] Foodgrains refer to rice, wheat, and coarse cereals.

The Food Corporation of India was set up to achieve the following objectives: (i) to provide price support to producers. (ii) to distribute foodgrains at concessionai prices to the poor trough the public distribution system. and (iii) to ensure national food security by carrying buffer stocks. The operation of the Food Corporation of India has been facilitated by various government policies such as concessional credit and transport, budget support. and freedom from movement controls.

The purpose of this paper is to evaluate the role and performance of the Food Corporation of India in Indian foodgrain marketing. Specifically, the paper aims to assess whether the Food Corporation of India has reached its objectives. and to evaluate the economic efficiency of its operations. The operations are considered to be efficient if they ensure high returns to producers at a low unit cost of distribution. Further. a marketing system is considered to be efficient if it stabilizes the producer and consumer prices and producer incomes in addition to encouraging production. Given India's the recent economic reforms and the gradual liberalization of the agricultural sector, this study also attempts to assess how the role of the Food Corporation would change as the controls are lifted.

This paper shows that while the Food Corporation of India has reached some of its objectives, it has failed to target the distribution of foodgrains to the poor people and regions, make it operations economically efficient, and maintain the buffer stocks at levels stipulated by the government. In particular, it is shown that while the Food Corporation of India has succeeded in improving the overall availability of foodgrains, it has failed to cover its costs by its revenues. The gap between the costs and revenues of the Food Corporation of India has been sharply widening over the years, leading to spiralling governmental subsidies. This financial imbalance is largely due to excessive costs of its operations. Specifically, per unit distribution costs of the Food Corporation of India have been excessive compared to those of private traders. The lack of accountability within the Food Corporation of India and the knowledge that the government will cover the costs, if necessary, have made inefficient operations possible.

Following this introduction, the paper proceeds as follows. Chapter 2 discusses the emergence and the role of the Food Corporation of India in Indian foodgrain marketing. Chapter 3 discusses the objectives of the Food Corporation of India and examines whether these objectives have been achieved. The economic appraisal of the Food Corporation of India is carried out in Chapter IV. Finally, Chapter V contains a few concluding remarks and reform options.

2. FOODGRAIN MARKETING, FOOD POLICY AND FOOD CORPORATION OF INDIA

The government started controlling foodgrain marketing in India in 1939 at the outbreak of the Second World War. The controls escalated. however, only after the Bengal Famine in 1943. The committee that was set up to explore the reasons for the famine concluded that the famine was due to the failure of the foodgrain distribution system, not due to the shortage of

foodgrains in India as a whole. Since foodgrain markets across the country were not integrated. foodgrains from surplus areas failed to move to Bengal and prevent the famine. To correct this market failure. the government became heavily involved in foodgrain marketing.

The Department of Food under the Ministry of Agriculture was assigned to manage the Indian food economy. Its main functions were to import and procure foodgrains from farmers for public distribution, maintain central reserves, control and regulate prices of foodgrains, and construct. and hire storage facilities. Rationing and controls on the inter-state movement of foodgrains were also introduced.

The government announced in 1952 a gradual relaxation of movement controls as the foodgrain supply improved. In a couple of years rationing was drastically reduced and the inter-state movement of wheat restored. The procurement was abolished first for wheat. and later for rice. With increased production and lower rationing commitments, the government was left with sizeable stocks of foodgrains which it released to the market. Due to strict monetary controls and enhanced crop prospects. this caused a sharp decline in foodgrain prices between 1953-54. By 1954, rationing was completely abolished. Trade in foodgrains was free again.

By the middle of 1955, however, foodgrain prices started rising once again and government controls on foodgrain trade re-emerged. A gradual rise in the demand for foodgrains was caused by population growth and rising incomes. In **1957,** the government set up a committee to analyze the food situation and suggest new food policies.

The committee recommended state trading of foodgrains. Specifically, the committee advised the government to establish a Foodgrains Stabilization Organization. This organization would not only take over some of the tasks of the Department of Food but would also operate as a trader in the foodgrain market.

The government intervention in foodgrain mark&s as a trader was deemed necessary on two counts: (1) to ensure the efficiency and integration of foodgrain markets--that is, to ensure the availability of foodgrains across markets over time and to ensure the stability of foodgrain prices avoiding large differences between (a) producer and consumer prices and (b) prices across markets--and (2) to counterbalance the speculative activities of private traders.[3] The premise was that Indian foodgrain markets are inefficient and disintegrated. Private traders were considered to be primarily responsible for this inefficiency and price variability. They were viewed as profiteers that hold speculative stocks to earn above-normal profits. It was believed that their speculative activities could be countered only by either holding large stocks or imports, both of which had to be in the public sector to be effective. It was held that, unlike private traders, a public sector agency would act in the social interest. It was also recognized that marker prices of foodgrains are bound to fluctuate since the supply of foodgrains depends heavily on monsoon, and the aggregate demand for foodgrains in India, where about 40% of the population iive below

[3] See, Sharma (1994).

the poverty line, is price inelastic.' Given the price inelasticity of demand. an increase in food prices. ceteris paribus, would erode the real income of population. and particularly that of the poor who spend a major share of their income on food. Also. fluctuations in prices would affect adversely the long term investment and production decisions of producers and lead to a sub-optimal allocation of resources.' Therefore. the government concluded, intervention in foodgrain markets as a trader was warranted.

However, previous studies of Lele (1973), Moore and Johl and Khusro (1973), and Kahlon and George (1985) on Indian foodgrain marketing have found that Indian open private foodgrain markets are efficient and integrated and that private traders are not profiteers. The inter-market price correlations are high and the price differences between markets do not exceeded the transport costs. According to these studies, private traders storage activities are normal and they respond to off-season price rises to make profits, which is a normal trading activity. Further, because the number of traders is so large, it is unlikely that they could collude to earn above-normal profits. If the market prices were found to be less correlated, it was not due to any inherent weakness in the marketing system but due to infrastructural bottlenecks such as the lack of roads. This implies that government intervention in foodgrain marketing cannot be justified on the grounds that Indian private foodgrain markets are inefficient and disintegrated. Other goals. like the protection of food security of low-income consumers, may, however, warrant government intervention.

En 1965, the government set up the Food Corporation of India to act as a state trader and to impiement the food policy designed by the central government. In the same year, the Commission of Agricultural Costs and Prices (CACP) was established to advise the government on the pricing policy of agricultural commodities, including foodgrains.

The Food Corporation of India (hereinafter FCI) was set up under the Food Corporation of India Act (1964) as the sole agency of the central government to purchase, store, transport and distribute foodgrains.[6] Until the late 1970s, FCI used to handle all cereals including coarse cereals. Since 1980 FCI has confined its operations to oniy wheat and rice. It does, though, distribute levy sugar in certain states and imported sugar through the public distribution system. The imports of rice and wheat are also canalized through FCI. Private traders are not allowed to import foodgrains. Under the Essential Commodities Act, private traders and millers are also

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[4] Radhakrishna and Ravi (1990) report price elasticities of cereals, based on cross-section NSS data, to be -0.431 and -0.203 for rural and urban expenditure groups, respectively.

[5] See, Kahlon and Tyagi (1983).

[6] FCI functions under the overall supervision of Departments of Food and Civil Supplies of the Ministry of Agriculture. General management, superintendence and direction of FCI vests in the Board of Directors. For operational convenience, FCI has divided the country into five zones which are further sub-divided into regions, districts, storage centers, and storage godowns.

prohibited from carrying stocks of foodgrains beyond a stipulated limit. The violations of this Act can lead to a conviction ranging from a fine to imprisonment.

Even though the specific duties of FCI have changed over time. its main objectives, which reflect the rational behind the government intervention, have remained the same. They are the following. (1) the provision of price support to farmers by procuring foodgrains at a support price: (2) the distribution of foodgrains at subsidized prices to the poor people throughout the country; and (3) the maintenance of buffer stocks to ensure national food security.

Has FCI achieved its objectives and been commercially viable? The next two chapters attempt to answer these questions.

3. HAS FOOD CORPORATION OF INDIA ACHIEVED ITS OBJECTIVES?: ANALYSIS OF BENEFITS

This chapter explores whether FCI has reached its objectives, that is. provided price support to producers, protected the poor by distributing foodgrains through the public distribution system. and guaranteed the national food security. FCI, like all public agencies. has been saddled by social and political objectives in addition to economic ones. This has complicated its management. It also complicates the assessment of its performance.

It will be shown that FCI's performance has been mixed; it has succeeded in reaching some of its objectives, while failing to reach others. FCI's procurement of foodgrains has not necessarily benefitted producers of foodgrains. The evidence on the impact of public procurement on producer income is mixed. It turns out that free domestic and foreign trade in foodgrains would have benefitted producers more than the procurement policy. Further, since FCI operations concentrate on wheat and rice procurement and neglect coarse'cereals, the benefits from procurement, if any, have fallen primarily on wheat and rice producers. Consumers have benefitted from FCI operations since the overall availability of foodgrains has improved and real foodgrain prices have declined. The per capita availability of foodgrains under the public distribution system, even in remote areas, has increased over time. But the quantities distributed through the public distribution system remain small compared to total consumption and, therefore, its impact on price stability and income transfer has been marginal. Further, the public distribution system has operated as a universal food subsidy scheme and has failed to target the distribution of foodgrains to the poor people and regions. Buffer stocks are maintained by FCI to stabilize the availability and prices of foodgrains, and, thereby, to achieve national food security. It will be shown that these stocks have either been too low *or* too high compared to the stipuiated norms. While too low buffer stocks are jeopardizing national food security, carrying too high stocks is costly and inflationary.

3.1 Price Support to Producers

The first objective of FCI is to provide price support to producers of foodgrains by procuring foodgrains for the public distribution system and buffer stocks at a support price. FCI guarantees to buy ail foodgrains from producers at this price.[7] Producers are obligated to sell a share of their production to FCI. The shares differ according to the stare, region. and the holding size.

The purpose of the support price is to act as an insurance and incentive to producers by stabilizing foodgrain prices and. thereby, producer income. Foodgrain prices tend to fluctuate because of the seasonality of foodgrain production and its dependence on weather. Sharp fluctuations in prices may affect adversely the long term investment and production decisions of producers. The support price aims to encourage foodgrain production by guaranteeing a remunerative price to producers.

The government announces support prices for foodgrains annually. The Commission for Agricultural Costs and Prices (CACP) advises the central government in the setting of support prices.*[8] Its recommendations are based on the following: the cost of production, changes in input prices, trends in domestic open market and international prices. the demand and supply, the estimated effect of changes in the support price on the industriai cost structure and the cost of living, the inter-crop price parity, the input-output price parity, and parity prices paid and received by farmers. However, CACP has not explicitly stated (a) what is the reiakive importance of each of these criteria, (b) how each of these is expressed as a quantitative indicator, and (c) whether some of these criteria have been changing in importance over time.[9]

The support price is normally less than the open market price. The support price sets the floor to the open market price, the ceiling being set by the demand and supply.

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[7] Until 1971-72, the government announced separately minimum support prices and procurement prices. The minimum support price was the price at which the government guaranteed to buy ail the foodgrains offered to it by producers. The procurement price was the price at which the government purchased a share of the marketed surplus to meet the requirements of the public distribution system and buffer stocks. The minimum support price was aimed at a producer, whereas the procurement price served other purposes of food policy, like national food security. Since 1972-73, a uniform price is announced which is both the support and procurement price.

[8] The Commission was appointed in January 1965 "with a view to evolving a balanced and integrated price structure in the perspective of the overall needs of the economy and with due regards to the interests of the producer and the consumer" (India, 1965, p.47).

[9] This leaves scope for subjectivity in CACP's recommendations. For discussion on the setting of procurement prices for rice and wheat, see Guiati (1987) and Sharma (1994).

Comparing support prices with open market prices reveals that in most years the two prices have been close. This implies that in the absence of price support policy open market prices would have fallen below support levels, at least in surplus states. since procurement. by reducing the availability of foodgrains in the open market. raises the open market price.

To keep the difference between the support and open market price small- the government imposes zonai movement restrictions on foodgrains in years the difference between the support and open market price is high. These restrictions limit the movement of foodgrains between states by private traders. A zone can either comprise of a single state or a group of contiguous states.[10] The zonai restrictions enable the government to bottle up supplies in surplus states and procure foodgrains at a lower price than what would prevail if traders were allowed to transfer the grain. This ensures sufficient procurement for the public distribution system and buffer stocks. Though formally withdrawn in 1977, zonal restrictions keep recurring in some form or the other. As will be discussed later, these restrictions have increased the inter-regional variation in foodgrain prices and impinged on farmers' incentives to produce.

Has the procurement of foodgrains at a support price benefitted producers? Has it provided (1) income insurance. and (2) incentives for expanded production? These questions will be answered next. The impact the procurement on producer income is examined first.

Whether producers gain or lose from procurement in terms of income depends on whether the weighted average of the support price and the open market price is higher or lower than the price that would have prevailed in the absence of procurement. If it is higher, then there is a net gain to producers from government intervention. If the weighted price is lower, producers suffer a loss. Even though the support price is generally lower than the market price, the net effect on producers' income is unclear since procurement raises the open market price.

Previous studies on the impact of procurement policies on producers' welfare, as exemplified by Dantwala (1967), Subbarao (1979), Hayami, Subbarao and Otsuka (1982), and Chetty and Srinivasan (1990), show that the weighted average of the support and open market price has been higher than the market price that would have prevailed without government intervention. Hence, according to these studies, producers have benefitted from the procurement system. Dantwala (1967) argues that "whenever there is procurement by the government, open market prices go up steeply and disproportionately to the quantum withdrawn by the government from the open market. As such it would be reasonable to hold that the weighted average price received by the producer for the total sales (to the Government and in the open market} is no less than what he would have received in the absence of procurement." Dantwala states that there is such a large difference in price elasticities of low-income and high-income consumers that a reduction in the open market supply of foodgrains due to the procurement may not lead to a commensurate reduction in the open market demand. Thus, as a result of the procurement, the

[10] Single-state zones have been imposed in 1964-65 to 1966-67, 1968-69 to 1969-70 and 1972-73 to 1974-75.

open market price will rise. Further. Chetty and Srinivasan (1990) study the welfare effects of foodgrain policies and conclude that both producers and consumers of rice and wheat have gained under dual pricing.

These studies, however. can be criticized on several counts. Lieberman and Ahluwahlia (1990), Narayana, Parikh and Srinivasan (1991) and Schiff (1994), for example, have challenged the conjecture that the procurement increases the average producer price. The main criticism includes the following points: first, the calculation of the weighted average price depends on weights which are not independent of prices. Dantwala's argument may hold when the gap between the support and market price is small. If the gap were large, to avoid income loss, producers would sell less to the government and more in the open market than if the gap were small. In this situation, however, the government may impose movement restrictions from surplus to deficit states to prevent further open market sales. This might neutralize the gains the producers would have had in the form of higher open market prices.

Second, like producers. consumers try to circumvent procurement if the difference between the support and open market price is large. High-income consumers may try to get their supplies from the subsidized market, while the low-income consumers may try to sell their share of subsidized supplies in the open market at high prices. This could change the welfare implications worked out by Chetty and Srinivasan (1990).

Third, the opportunity to sell in the open market may not be equally available to all producers whose procurement shares differ according to the state, region and holding size." The net outcome for individual producers could be different because of these factors.

Fourth, the procurement operations are regionally concentrated. This can be seen from Tables 1 and 2. For example, in 1988-90 the states of Punjab, Haryana and Uttar Pradesh contributed almost the entire wheat procurement although they generated only 69 percent of total wheat production. Similarly, these states contributed 63 percent of the rice procurement, while their share of the total rice output was only 23 percent.

Fifth and finally, all these studies use domestic open market prices, not world prices, to work out income gains/losses. This may be appropriate given that the focus is on the effects of procurement and free trade in foodgrains is prohibited. However, since free trade would have been and is an option to the government, the incentives arc calculated next using world prices as a reference. For simplicity, it is assumed that the government does not intervene at all in the foodgrain production and marketing.

The producers of foodgrains would have been better off under free trade than with government procurement in trade autarky. This is shown with the help of nominal protection coefficients (NPCs) estimated for rice and wheat using the support and open market prices, at

[11] See, Lieberman and Ahluwahlia (1990) and Krishna and Chhibber (1983).

official and shadow exchange rates in alternative estimates. World prices have been worked out by adding domestic transport and marketing costs to landed cost.[12] The results obtained are presented in Table 3. The results indicate that foodgrains. rather than being net subsidized, have been net taxed.[13] The degree of taxation (disprorection) is more *on* rice than on wheat. Also, if the shadow exchange rate instead of the official one is used, the degree of taxation goes up. Since the weighted price would fall between the support price and open market price and it has been shown that farmers are taxed even when one considers the open market price. it is evident that though Dantwala's weighted price may or may not be higher than the price in the no-procurement situation in trade autarky, it is surely iess than the free-trade price.

To summarize, the evidence on the impact of procurement on producer income is mixed. Several studies indicate that farmers have gained from procurement in terms of higher income but these studies are plagued by shortcomings. Above all, farmers would have been better off under free trade than with the procurement policy.

Has the procurement of foodgrains at a support price created incentives for expanded production of foodgrains? Another goal of the support price policy is to promote the production of foodgrains.

While the support price policy has substantially augmented the production of rice and wheat, it has failed to provide incentives to the growers of coarse cereals. Tyagi (1990) shows that in many years the open market prices of major coarse cereals have fallen below the support level. FCI finds it uneconomic to procure coarse grains which are grown by small farmers with small marketed surpluses and with a much larger geographical spread than rice or wheat.

Controls through levy on millers in rice markets have led to other kinds of incentive problems. Field visits have revealed that rent-seeking is rampant in the rice mill sector. The under-reporting of paddy stocks, the sale of sub-standard rice to FCI and the evasion of levy are common. Further, FCI officials impose quality cuts arbitrarily and do not follow any scientific method in measuring the moisture content."[14] All these maipractices undermine farmers' incentives.

The zonai movement restrictions have also adversely affected farmers' incentives to produce foodgrains. The studies of Krishna (1965), Subbarao (1978), and Krishna and Chhibber (1983) indicate that zonal restrictions have increased the inter-regional variation in foodgrain

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[12] For estimation of domestic transport and marketing costs for various commodities, see Sharma (1992).

[13] The nominal protection coefficients are estimated here only for rice and wheat, but results are valid for foodgrains as a whole. Sharma (1994a) has shown that coarse cereals (sorghum and maize) received neither high nor low incentives.

[14] See, Garg (1980) and BICP Report on FCI (India. 1990) for further details.

prices and distorted production decisions. In the bad crop years the prices of foodgrains in deficit areas have gone up, whereas prices in surplus areas have declined. Low prices in surplus regions have driven out economic cultivation. while high prices in deficit regions have encouraged uneconomic cultivation. In addition to being inefficient. this has had deleterious effects on long term production prospects. Farmers in surplus areas have switched from the production of cereals to other crops where no zonai restrictions exist. In recent years farmers have been shifting acreage from wheat to mustard in almost all major wheat growing areas due to the declining profitability of wheat compared to mustard. Also, paddy cultivators in Andhra Pradesh have been switching over from paddy to sugarcane production. The zonal restrictions have harmed most the small producers whose capacity to withhold stocks is limited.

To summarize, like on producer income, procurement has had a mixed effect on foodgrain production. While procurement has had a beneficial effect on the production of wheat and rice, the movement restrictions have countered these. Further, procurement has failed to promote the production of coarse cereals.

3.2 Public Distribution System: Consumer Benefits

The second objective of FCI is to distribute foodgrains through the Public Distribution System at reasonable and uniform prices especially to the weaker sections of the society.[15]

The Public Distribution System (hereinafter PDS) was established in 1939 with three objectives: (1) to provide foodgrains to low-income consumers so as to maintain their food availability; (2) to stabilize the consumer prices of foodgrains by supplying foodgrains through PDS at prices which are below those prevailing in the open market and thus act as an anchor to inflation; and (3) to transfer income to low-income consumers to raise their nutritional standards and equalize foodgrain consumption.[16]

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[15] FCI documents do not specifically mention protecting the poor as a goal of the Public Distribution System. However, several official statements found in the Five Year Plan documents since the Fourth Plan, would confirm that protecting weaker sections of the society by supplying foodgrains at concessional prices was an underlying goal of the Public Distribution System. The Seventh Plan wanted the Public Distribution System to be so developed that it remains "a stable and permanent feature of our strategy to cnntroi prices, reduce fluctuations in them and achieve an equitable distribution of essential consumer goods". In particular, it suggested extending the benefits of the Public Distribution System to rural, unserved and inaccessible areas so that it becomes supplementary to poverty alleviation programs. The Eight Plan aimed to target food supplies exclusively to the poor to reduce food subsidies.

[16] For the evolution of the public distribution system in India, see Gupta (1977), Chopra (1981), George (1983), and Bapna (1990).

PDS is a generic name given to various schemes under which FCI distributes foodgrains at concessionai prices. These schemes include (a) Fair Price Shops. (b) employment programs. (c) the Integrated Tribal Development Program (ITDP), and (d) the Revamped PDS (RPDS).

There is a large network of Fair Price Shops through which the central and state governments supply essential commodities at concessional prices to consumers.[17] The central government supplies seven items through these stores: wheat, rice, sugar, kerosene oil. cooking coal, imported edible oil, and controlled cloth. State governments are free to supply any other items as long as they bear the cost. Many state governments run their own PDS schemes which further subsidize foodgrains issued to them by the central government.[18] PDS supplies are supplemental, the aim is not to meet the total requirements of all households. The primary source of supplies remains the open market.

The supply of foodgrains through employment programs has been an important feature of PDS since 'I 978 when the food-for-work program was launched. The food-for-work program was later replaced by the National Rural Employment Program (NREP) and the Rural Labor Employment Guarantee program (RLEGP). These two were eventually merged into one program. entitled Jawahar Rojgar Yojana (JRY).

The Integrated Tribal Development Program (ITDP) was launched in 1985 to supply concessional foodgrains to people in tribal areas at further subsidized prices lower than general PDS rates. It served a population of 57 million. Since June 1992, ITDP has been a part of the Revamped PDS .

The Revamped PDS (RPDS) was estabfished in January 1992. Under this scheme, the issue prices of rice and wheat are kept lower by Rs 50 and the allocation higher at 20 kg per family per month than under the general PDS. Since RPDS serves primarily the tribal population it was merged with the Integrated Tribal Development Program (ITDP) in June 1992.

The rational for public distribution rests on the fact that market prices of foodgrains are bound to fluctuate since the supply of foodgrains depends heavily on monsoon, and these fluctuations hurt consumers. The aggregate demand for foodgrains in India, where about one third of the population lives below the poverty line, is price inelastic. Given the price inelasticity of demand, an increase in food prices would erode the real income of the population and, in particular, that of the poor who spend a major share of their income on food. The public

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[17] There were 358,490 fair price shops in operation in 1990 compared to 102,000 shops in 1965. The number of persons per shop declined from 8,000 to 2,334 over that period. Most of the shops are in rural areas.

[18] For example, in Andhra Pradesh the state government bears annually a subsidy of over Rs. 1,600 crore to maintain its Rs. 2 per kg of rice distribution scheme. Tamil Nadu is another state with a large state-run food subsidy program.

distribution of foodgrains at affordable and stable prices is seen as an efficient way of preventing malnourishment and starvation.

FCI and state *govemmenrs ensure* the smooth functioning of PDS. FCI *procures* foodgrains from farmers for the central pool which is then sold to state governments. The central government determines the inter-state allocation of foodgrains. Its decision, though not clearly defined. appears to be based on the demand of state governments, state's foodgrain production, state's past offtake from PDS and the financial capacity of the state.

FCI sells foodgrains from the central pool to state governments at central issue prices." These prices, which vary depending on the type and quality of foodgrain. are fixed by the central government and are lower than open market prices." They are based on the procurement price and expenses incurred by FCI in the procurement, storage, transportation, and distribution of foodgrains [21]

States' offtake of rice and wheat from the central pool is influenced. among other things, by the difference between the issue and open market price. The higher the issue price relative to the open market price. the lower the offtake and vice versa.

The role of PDS in total purchases of rice and wheat in India is relatively small. In total purchases of wheat and rice the share of PDS was only 13 and 17 percent, respectively, in rural areas and 19 percent, for both items, in urban areas.[22] These percentages imply that both the rich and the poor depend to a great extent on the open market for foodgrains. However, since the poor spend a relatively higher fraction of their income on foodgrains than the rich, their indirect income gain from subsidized PDS supplies is larger than that of the rich.

Whether PDS has achieved its objectives--that is, ensured (i) the availability of foodgrains to low-income people, (ii) the stability of prices, and (iii) the equity in foodgrain distribution--is assessed next.

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[19] The central issue price is different from the state issue price. The state issue price is obtained after the state government has added to the central issue price transport and handling expenses and deducted the state subsidy, if any. Adding the dealers' margin to the state issue price gives the retail issue price at which PDS consumers get their supplies.

[20] For example, separate prices are issued for common, fine and superfine rice.

[21] The issue prices of wheat are more responsive to cost changes than the issue prices of rice. This may be an unwritten policy to provide rice at lower prices than wheat, since the majority of country's poor are rice eaters (Sharma, 1994).

[22] The NSS Report of the 42nd Round on the Utilization of Public Distribution System (1986-87).

(i) Foodgrain Availability to Low-Income People:

Has PDS increased the quantity of foodgrains available to the poor'? It will be seen that PDS has helped to manage droughts and improve the overall availability of foodgrains. though the availability of subsidized foodgrains varies across states.

Since 1965, the net availability of foodgrains--defined as the total domestic production, net imports and depletion in stocks--has considerably improved in India, largely due to increased domestic production, Table 4 presents evidence on the net availability of wheat and rice between 1964-90. It indicates that the net availability of wheat grew at a rate of 4.2 percent per annum and that of rice at 2.6 percent per annum over 1964-90, while the population grew at a rate of 2.04 percent per annum over the same period. Hence, the per capita availability of rice and wheat has improved, Unless income distribution has worsened, it can be asserted that the poor have also benefitted from the improved per capita availability of foodgrains.

The quantity of foodgrains distributed through PDS has also increased since 1965. The combined annual distribution of rice and wheat per capita increased from 17.22 kg in 1973-74 to 2 1.74 kg in 1988-89. Though the distribution of wheat declined from l 1.16 kg to 10.14 kg over the same period, the increase in the distribution of rice from 6.06 kg to 11.6 kg more than compensated the decline. However, these amounts are not sufficient to satisfy the needs of all Indian poor. PDS would have to supply at least 67 kg per capita per annum (that is, 28 kg per household per month) to households living below the poverty line to meet 50 percent of their consumption needs.[23] This would be over three times the present level of PDS distribution.

However, the availability of foodgrains through PDS has varied from state to state. In some states, foodgrains distributed through PDS form a substantial portion of the per capita foodgrain consumption. These states depend heavily on the center for food supplies. To measure the degree of dependence on PDS, the share of the per capita public distribution of wheat and rice in the total per capita consumption of wheat and rice is estimated for different states at two points in time, 1973-74 and 1988-89. The results are shown in Table 5. The results in Table 5 reveal that there are vast inter-state differences in the degree of dependence on PDS supplies. Almost half of wheat and rice consumption in Kerala and Maharashtra in 1973-74 was contributed by PDS. Some states, like Tamil Nadu, show a sharp increase in the degree of dependence on PDS supplies over time, while others, like Maharashtra, show a decline.

Foodgrains are primarily distributed through government run Fair Price Shops and since 1978 through empioyment programs. Table 6 shows the schemewise distribution of foodgrains. The distribution of foodgrains through employment programs depends largely on the availability of government surplus stock. Therefore, the amount distributed varies from year to year. Wheat distribution through employment programs averaged 9.7 percent of total wheat distributed through

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[23] See, Report of the Committee of Ministers nn National Policy on Public Distribution System. Ministry of Civil Supplies, Consumer Affairs and Public Distribution, July 1993.

PDS in 1979-90. The corresponding figure for rice was 3.7 percent. Most of wheat is distributed in states like Uttar Pradesh. Rajasthan. Bihar and Madhya Pradesh."

The major achievement of PDS has been the successful management of foodgrain availability during drought years. Buffer stocks have guaranteed the availability of foodgrains in drought years so that famines have been avoided. Droughts reduce the foodgrain supply and increase the demand for public distribution. The reduced supply raises the open market prices of foodgrains. As a result, the gap between the open market price and issue price widens causing an increased demand pressure on PDS. This leads to a sharp depletion in stocks and/or imports. The role of imports has decreased and the depletion of stocks increased since 1965 as means to satisfy the demand. For example, in the drought year 1987, stock depletion contributed as much as 74 percent of the total PDS supplies of wheat. In previous drought years, the contribution of stocks had been only about 30-40 percent.

(ii) ***Stability** of **Consumer Prices:***

The stability of consumer prices is the second objective of PDS. To the extent that supplies are made available by the government through PDS, the demand pressure on the open market supplies and, thereby, on prices diminishes. It will be seen, however, that the PDS objectives has not been achieved.

The impact of PDS on price stability has been marginal. The role *of* PDS in containing inflation has been limited simply because the quantities distributed through PDS account for no *more* than 15-16 percent of total foodgrain consumption. Parikh (1994) also shows that open market prices have not been Lower in areas where PDS exists than in those where it does not operate.

Between 1966-90 the real prices of cereals declined and the variability in nominal rice and wheat prices also decreased."' The real prices of all cereals declined by 1.8 1 percent per annum; decline being sharper for wheat (2.98 percent) than for rice (1.98 percent). These declines were consistent with increases in the total availability of wheat (4.12 percent) and rice (2.84 percent) over the same period.[26]

However, between 1990-91 and 1994-95 increases in foodgrain prices were on average higher than general inflation. The reduced availability of foodgrains in the open market due to excessive buffer stocking appears to be the reason for price increases. Offtake from PDS has

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[24] These states have high incidence of poverty and receive disproportionately small quantities through general PDS. Thus, the distribution of wheat in these states through employment programs is an extenuating factor.

[25] See, Lieberman and Ahluwahlia (1990).

[26] See, Sharma (1994).

declined due to the narrow gap between the open market and issue prices. FCI, instead of selling the surpius foodgrains at the open market. has decided to store the surpius grain in buffer stocks. This has reduced the supply of foodgrains in the open market and. as a result. increased open market prices.

(iii) Equity in Distribution: Transfer of Income to the Poor

Have PDS supplies been targeted successfully to the poor? That is, have PDS supplies been distributed to those states and rural areas where the bulk of the poor live? The answer to this question turns out to be negative: the targeting of PDS supplies to the poor has failed.

The distribution of foodgrams has not been targeted to states with high poverty levels. This can be seen from Table 7 which documents the statewise distribution of PDS supplies. Bihar, Madhya Pradesh, Rajasthan, Orissa, and Uttar Pradesh combined obtained less than 16 percent of rice and wheat distributed through PDS, though over half of the Indian poor people live in these states. The correlation between the shares in PDS and the shares in population living below the poverty line across states is as low as 0.25.

Further, the quantities of foodgrains purchased per poor person through PDS are higher in urban than in rural areas where most of the poor live. The correlation between the shares in PDS and shares in urban popuiation is high (0.56), implying that there is an urban bias in PDS. Table 8 documents the quantities of foodgrains purchased in urban and rural areas. It indicates that the urban bias holds for both rice and wheat. Kerala stands apart with a significant rural bias. The rural bias is also present in Andhra Pradesh.

Several previous studies also claim that there is an urban bias in PDS in most states. These studies include Krishna (1967), Gupta (1967), National Commission on Agriculture (1975), Gulati and Krishnan (1975), Vyas and Bandyopadhyay, (1975), India (1979), George (1985), Suryanarayana (1985), **Pinstrup-Andersen (1988), Bapna (1990), and Tyagi (1990). A contrary** view can be found in Ahluwalia (1990) and Dev and Suryanarayana (1991) who claim that there is no urban bias in PDS. Their results, however, may be biased since they are based on an survey conducted in a drought year." In a drought year, supplies to rural areas increase which may bias the results.

Ahluwalia **(1990) reports that** the poorest **40 percent of the Indian population consumes** 40-50 percent of foodgrains sold through PDS. The richest 40 percent of the population gets 30-35 percent of the quantities. Bapna (1990) argues that the poor have not been able to take advantage of PDS to that extent due to the lack of income, the location of Fair Price Shops, and the uncertainty of supplies.

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[27] NSS Round on the Utilization of the Public Distribution System (1986-87).

According to Ahluwalia (1990) about one third of rice and wheat supplied through PDS leaks to the open private market before reaching customers. The quantities of rice and wheat supplied to PDS have been considerably higher than the quantities sold. For example, nearly 50 percent of the procurement of rice is of superfine variety. However. such rice is rarely available in Fair Price Shops. Before reaching government shops it has leaked to the open market where the prices are higher.

Parikh (I 994) observes that the value of income subsidy the poor obtain from PDS is less than one or two person days of employment per family per month." According to Roy (1995), the PDS subsidy a family enjoys is no more than Rs 40 per month. Sharma (1994) estimates the income effect of PDS across rural and urban income groups. He finds that even the highest income effect for the bottom 20 percent of rural households was no more than 1.3 5 percent for rice 'and 0.30 percent for wheat." In short, benefits provided by PDS to the poor are very small.

To summarize. it has been shown so far that while the availability of foodgrains in general and through PDS has increased and the real prices of cereals declined, PDS has failed to target the supplies to the poor. However, it cannot be said that the increased availability or decline in real prices of foodgrains are caused by PDS. The share of foodgrains supplied through PDS in total consumption is so small that its impact on income transfer to the poor is marginal. For the same reason, the efficacy of PDS in containing inflation has been somewhat limited. Inter-state differences in the distribution of foodgrains are glaring and do not conform to poverty levels in these states. Rather, the share of urban population is a major determinant of offtake. This indicates that there is an urban bias in PDS. The pro-rich bias is not strong but present.

3.3 National Food Security through Buffer Stocks

The third and final objective of FCI is to ensure national food security through the maintenance of buffer stocks. There are three kinds of public stocks in India: operational stocks to feed PDS, buffer stocks to provide food security against droughts, and base line stocks.[30] Buffer stocks have been maintained in India since the mid 1970s. It will be shown that these

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[28] If Mizoram is excluded as a special case, the highest subsidy (Rs 8.78 per capita per month) is enjoyed by those PDS consumers in rural Kerala who make all their purchases from PDS. For the bottom 20 per cent of households, the subsidy is no more than Rs 2.08 per capita per month.

[29] Applying these percentages to the per capita national income of Rs 2,362 at current prices in 1986-87 (when the NSS Round on Utilization of PDS was conducted) would yield per capita annual benefits of Rs 40 in case of rice and Rs 9 for wheat.

[30] These are only conceptual differences and not physically distinct categories.

buffer stocks have either been too low--in which case food security has been jeopardized--or too high--which has been costly and inflationary--compared to the norms.

Storage is a normal trading activity. However, the motives for the private and public storage differ. Private traders store in order to make profit from off-season price rises. They make their storage decisions by matching the expected changes in prices with storage costs. Public storage, on the other hand, aims at reducing off-season price rises.

The basic idea behind maintaining a buffer stock is to smoothen fluctuations in price and availability by accumulating stocks during bountiful years and depleting them in the years of shortages. This activity is supposed to help both the producer and the consumer. It helps the producer in surplus years, because if buffer stocks were not kept, the producer would suffer losses due to falling prices. It helps the consumer, because in the absence of buffer stocks, the availability of foodgrains in deficit years would decline and raise consumer prices.

Buffer stocks are also kept for political reasons. If there are shortages, buffer stocks help avoiding external pressure and prevent sudden flight of foreign exchange to finance imports. India's large size and large grain requirements have also been considerations in building buffer stocks.

Keeping buffer stocks is not the only, or necessarily the best, method to stabilize foodgrain prices and availability. This can be achieved also by trade, that is, by exporting foodgrains in the years of surplus production and importing them in the years of short crops. The decision whether to store or trade should be based on the comparison of the cost of storage with the gains from exporting now and importing at a Iater date.

The government has stipulated the minimum level of buffer stocks to be held at different points in time during a year in India.[31] These norms are listed in Table 9. Several committees have examined the optimal size of buffer stocks. The appropriate level of public storage depends on what objectives the government wants to achieve. In general, the greater the desired price stability, the greater the quantities that public agencies would need to hold in storage. One committee in 1975 recommended a stock of 12 million tonnes over and above operational stocks. Another one in 1981 recommended a buffer stock of 10 million tonnes (5 million tonnes of rice and wheat each). Along with operational stocks, the committee concluded, total stocks should range bctwccn 16.5 million tonnes and 21.4 million tonnes at different points in time.

In eleven out of the past 15 years the size of the actual public stocks in India has deviated from the stipulated norm by over 20 percent. These deviations are listed in Table 9 and graphed in Figure 1. In most years, the actual stocks have been much below the norm indicating that FCI

[31] Criticizing the targets set by various expert committees, Krishna and Chhibber (1983:17) observed that these targets have been "usually inoperative as ex ante goals" and "sometimes the committees simply rationalized actual stocks as desirable".

did not provide the desired food security to the nation. Further. there were years when FCI was holding much higher level of stocks than was desirable. indicating FCI's insensitivity to high costs of holding surplus stocks.

In short, FCI has been only partially successful in achieving its objectives. While it has reached some of its objectives.' it has failed to reach the others.

At what cost have these objectives been achieved or been attempted to achieve? Next it is examined whether the operations of FCI have been commercially viable.

4. ECONOMIC EFFICIENCY OF FOOD CORPORATION OF INDIA

This chapter explores the economic efficiency of FCI operations. Economic efficiency means here that the revenues of FCI cover its costs and that the costs of FCI are comparable to those of private traders.

FCI was established on the premise that it operates as a commercial company competing with private traders. It was expected to gain a sizeable share of the market simpiy because of its large size and financial strength. The assumption was that the sheer volume of FCI operations would allow it to exploit the economies of scale and keep its operational costs down. This was expected to keep it commercially viable and competitive in an environment where its purchase and selling prices are beyond its control.

It will be shown in this chapter that FCT has been operating inefficiently. FCI would not have been able to operate without subsidy from the government: the cost of FCI operations has far exceeded its revenues. The operational costs of FCI are much higher than those incurred by private traders which function in a much more restrictive environment than FCI. Unlike private traders, FCI enjoys concessional freight and credit rates and is free from selective credit controls, movement restrictions and restrictions imposed by the Essential Commodities Act.

4.1 Economic **Cost and Consumer Subsidy**

To assess the economic efficiency of FCI operations, it is first examined whether FCI has been able to cover the economic cost of its operations with its revenues. The per unit (that is, per quintal) economic cost of FCI operations consists of the support price and procurement and distribution costs per unit. FCI's revenues are measured by the average sales realization. The average sales realization is the weighted average of issue prices at which FCI has sold foodgrains to stare governments. Since issues prices are fixed by the central government. FCI has no control over the average sales realization. If the average sales realization fails short of the economic cost, the central government reimburses the difference to FCI as a consumer subsidy. FCI also incurs costs by carrying buffer stocks. These costs are, however. totally reimbursed by the central

government. Hence, the total subsidy. if any, to FCI comprises of the consumer subsidy and the cost of carrying buffer stocks.

It turns out that the average sales realization of FCI has not covered the economic cost of its operation in 1968-93. The ratios of the average sales realization to the economic cost for wheat and rice are depicted in Figure 2 and reported *in* Table 10. Figure 2 shows that these ratios have been sharply declining over the years. In 1992-93, the average sales realization covered barely 55 percent of the economic cost of wheat, and 76 percent that of rice.

The fact that the average sales realization of FCI has fallen short of its economic costs means that FCI has not been able to operate without a government subsidy. Since the economic cost per unit has increased at a higher rate than the average sales realization, the *gap between* costs and revenues has been widening over time, and the. subsidy has been increasing correspondingly. The consumer subsidy for rice, as a percent of the unit price of rice, increased from 19.84 percent in 1980-S 1 to 3 1.25 percent in 1992-93. For wheat, the rise was from 34.36 percent to 8 1.72 percent over the same period. The cost of carrying buffer stocks also increased from Rs. 4 1.78 per quintal in 198 1-82 to Rs. 103.65 in 1992-93. The total food subsidy thus increased from Rs. 66 1.54 crore in 1980-81 to Rs. 3,674.46 crore in 1992-93. The budgeted subsidy in 1994-95 was as much as Rs. 6,000 crore.[32] Why this discrepancy between costs and revenues has happened and persisted? Has the government price setting or the FCI cost control failed?

In the case of rice the price setting has been a problem: since 1980 FCI has sold rice at a lower price than it was procured. The average sales realization of rice covered the support price at which FCI procured rice from farmers until 1978-79, but not beyond. By contrast, the average sales realization of wheat has been covering the support price all the time.

In addition, the economic cost of FCI operations has risen sharply. Table 10 shows how the economic costs of wheat and rice have evolved over the years. In the case of wheat, the economic cost has risen at an average annual real rate of 6.78 percent. For rice, the cost of procurement and distribution has gone up at the rate of 7.43 percent per annum.

The economic costs of wheat and rice have risen at a higher rate than the corresponding support prices, implying that the per unit procurement and distribution costs have galloped. Figure 3 displays the ratios of the economic costs of rice and wheat to their respective support prices. The economic cost of wheat has been about SO-90 percent higher than the support price of wheat. The per quintal procurement and distribution costs were thus almost as high as the support price of wheat. For example, in 1992-93, the support price of wheat was Rs. 275 per

[32] The subsidy figures as given in budget documents often differ from those reported by FCI. The main difference occurs because FCI's operating losses are not reimbursed by the government in the year these are incurred. A committee first examines the reasons for losses. It has to certify that these losses were unavoidable before the government reimburses FCI.

quintal and the economic cost Rs. 504.10 per quintal. The economic cost of rice has been lower than the cost of wheat because rice is purchased directly from millers. For rice. FCI needed Rs. 128.19 per quintal to procure and distribute, when the support price was Rs. 457.08.

Have the per unit procurement and distribution costs of FCI been excessive compared to those of private traders? It is possible that FCI has failed to cover its costs with revenues, not because its costs have been excessive? but simply because it has been obligated to sell its foodgrains at less than a market price. To find out whether its costs are comparable to those of private traders, the economic cost of FCI operations is compared to revenues at wholesale prices that FCI would have obtained had it sold its foodgrains in the open market. The wholesale price, like the economic cost, is formed after all expenses are incurred and the traders have earned their profit margins.

It turns out that FCI's wheat procurement and distribution costs have been excessive. Even if FCI had sold its foodgrains at wholesale prices, FCI would have needed a subsidy to continue its operations. At all India level, the costs FCI incurred in procuring and distributing wheat have been substantially higher than its revenues would have been at wholesale prices. This can be seen from Table 10. Figure 4 presents the ratios of the economic costs of rice and wheat to respective wholesale prices. Since aggregation subsumes inter-state differences, statewise comparison of economic costs and wholesale prices is also attempted. At the state level, the economic cost of wheat has also been higher than the wholesale price, notably in surplus states. The economic cost of rice, however, exceeds the wholesale price only in surplus states.

Instead of economies of scale, FCI has faced diseconomies of scale. The principle of economies of scale suggests that as the size of operations increases, the unit cost of operations declines and reaches an optimal point. However, in the case of FCI, the relationship between the size of operations and the cost of operations has been the opposite. As Figures 5 and 6 show, FCI's procurement and distribution costs per unit, at real prices, have increased, not decreased, with the rising scale of operations.

Which costs have been excessive: procurement or distribution costs or both? These costs and how they have evolved over time are examined next at a disaggregated level.

4.2 Procurement Costs

Procurement costs of FCI have been higher than the costs of private traders. Procurement costs can be divided into two groups: obligatory and non-obligatory costs. Obligatory costs arc incurred by both FCI and private traders. They form about 70 percent of total procurement costs. Non-obligatory costs are controlled by FCI.[33]

[33] Non-obligatory costs include storage and interest charges, mandi labor, forwarding charges, internal movement and establishment charges. Of these, FCI reimburses storage, interest

The obligatory costs of FCI have been higher than those of private traders. Obligatory costs include (i) mandi charges. (ii) sales/purchase tax. and (iii) the cost of gunny bags. Mandi charges account for about 6 percent of the support price.[34] Sale/purchase tax rates vary from state to state. In Punjab, Haryana and Uttar Pradesh this tas is levied at the rate of 4 percent of the support price on rice. paddy. and wheat. High mandi charges and sales taxes have induced private traders to by-pass the mandi system and buy foodgrains directly from farmers.[35] The cost of gunny bags accounts for the major share of obligatory expenses. It forms about 25 percent of the total procurement cost of wheat, 63 percent that of rice, and 4.5 percent that of paddy. For private traders this cost is generally smaller than for FCI because (a) private traders recycle the bag three or four times, whereas FCI disposes the bag after one use, and (b) FCI moves foodgrains by rail, which involves multiple handling, many times by a hook, and hence requires a sturdy bagging. Private traders move foodgrains mostly by road in which case even an inferior bagging is adequate, These practices have kept the obligatory costs of private traders low

4.3 Distribution *Costs*

The distribution costs of FCI have been excessive compared to the costs of private traders. Distribution costs form a major share of economic costs of FCI. These costs have drawn much attention and criticism because some of these costs are controllable.

Distribution costs include interest, freight and storage charges, handling expenses, storage and transit shortages, and administrative expenses. These costs compare to those of private traders as follows:

(1) Interest Charges:

FCI's interest charges per unit are lower than those of private traders since FCI is getting concessional credit through a consortium of Indian commercial banks to finance its operations.[36]

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and establishment charges to state agencies.

[34] Mandi charges include the market fee, the commission of a kutcha arhatia, the market cess and the auction fee.

[35] See, Neelakantan (1 989) and Randhawa (1993).

[36] The cash credit limits are fixed periodically by RBI after it has assessed the credit need of FCI. The funds are arranged by a consortium of commercial banks and channeiized through the State Bank of India against hypothecation of stocks. In a good year, the demand for food credit goes up and vice versa. Food credit is pre-emptive in a sense that it get precedence over non-food credit. Thereby, it reduces funds available for other lending. Since food credit is supplied at a concessional rate, it is being cross-subsidized by non-food credit.. In April, 1993

By contrast, borrowing against foodgrains is difficult for private traders. Until 1982-83 the interest rate applicable to FCI was about seven (7) percentage points lower than the rate applicable to private traders. Xfter that the difference has narrowed down. Since October 1994, the interest rate applicable to FCI has been about 5-6 percentage points lower than the market rate.

FCI is also exempt from all provisions of selective credit controls and the Essential Commodities Act that apply to private traders. For example, the credit margin condition does not apply to FCI as the government stands as a guarantee in lieu of a margin.

Interest charges account currently for about one third of distribution costs.

(2) Freight Charges

The freight charges of FCI are lower than. those of private traders since FCI moves its grains by rail at subsidized freight rates.[37] Foodgrains in India are transported either by trucks or railways. FCI transports more than 90 percent of its wheat and rice by railways between regions. About 40 percent of FCI's intra-regional transportation is also done by rail. The per unit transport cost of rice has been higher than that of wheat. For example, in 1989-90 average transport cost per quintal was Rs 33.38 for rice and Rs 28.59 for wheat. This difference was due to the fact that rice was transported longer distances than wheat.[38]

Private traders prefer to move foodgrains by road, even though it is almost twice as expensive as rail on long routes This is due to several factors: trucks provide door to door service and save the cost of local caxtage. Trucks also take less time than railways and hence the cost in terms of loss of interest during the transit is less. Physical losses and pilferage from trucks is less than from railways. Further, trucks are more easily available than railway wagons, especially during a busy season Finally, since trucks provide door to door service, a number of handling is less than by railways. As a result, even inferior packaging is adequate. For raiiways the packaging has to be good, which means increased cost. Therefore, even though railway freights appear to be lower than those of trucks, if the quality of service--including door to door service, flexible freight structure, delays, the cost of local cartage, transit Losses and pilferage--is taken into account, the freight differential goes down.

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food credit outstanding was Rs 6,588 crore.

[37] In 1988439 ,Indian railways incurred a loss of Rs. 130.62 crore for carrying foodgrains for FCI.

[38] Interestingly, thc total quantity of foodgrains moved by rail as a percentage of the quantity purchased by FCI has always exceeded 100. In 1989-90, this percentage was 109 for the purchases and 141 for the sales of foodgrains. This implies that some stocks are moved multiple times between storage godowns.

Freight charges account for about one fourth of FCI distribution costs.

(3) Storage Charges

FCI storage charges are higher than those of private traders.[39] Storage charges are incurred while moving the grains for the distribution through PDS and for buffer stocks. FCI constructs and hires godowns to store foodgrains. In August 1993, FCI had a total storage capacity of 21.96 million tonnes of which 19.61 million tonnes (89.3 percent) was covered and the rest of cover-and-plinth (CAP) type. Of the covered storage, 13.19 million tonnes (62.2 percent) was owned by FCI. The rest was hired from the Central Warehouse Corporation (CWC), the State Warehousing Corporation (SWC) and state governments.

The storage charges of FCI have risen over the years due to poor capacity utilization and rising establishment costs. The average cost of storage is higher on FCI owned godowns than on the hired ones. For example, in 1992-93 the rate per quintal per month was Rs 1.90 for FCI owned godowns, whereas the rent for a godown was between Rs. 1.07 and Rs. 1.14.[40] These rates are for the average capacity utilized. In 1992-93 the average capacity utilization rate of FCI owned and hired godowns was only 53 percent. This suggests that FCI should rent, not construct, godowns. The Committee on Public Undertakings (1978-79) also recommended FCI leaving storing to the warehousing corporations.

(4) Handling Charges

Handling charges are about the same for FCI and private traders. They refer to costs incurred in the handling of grains at mandis, at ports, and at rail depots. They are mainly labor charges. In 1992-93, handling expenses formed about 10 percent of distribution expenses. The handling costs incurred during procurement operations are included in procurement costs. The remaining handling costs are treated as distribution costs.

(5) Storage and Transit Shortages

The transit and storage shortages of FCI are higher than those of private traders. Shortages in foodgrain quantities procured occur during transit and storage. Transit shortages occur due to missing wagons, natural calamities, theft and pilferage. Storage losses occur due to the loss of weight, infestation arid deterioration of stocks, and theft. About 3-4 percent of foodgrains procured by FCI is lost, the loss being largest for rice/paddy. In absolute terms, the

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[39] Storage charges incurred by FCI on godowns it owns comprises of establishment costs, stores and spares consumed, depreciation charges, repair and maintenance charges, insurance and taxes, In the case of hired godowns, the storage cost equals the rent paid.

[40] See, Gang (1980).

loss of grain was as much as 7 lakh tonnes in 1987-88. This was equivalent to about 15 days' suppiies to PDS.

Transit shortages are higher than storage shortages. They occur mostly during rail transportation, The fact that railways accept foodgrains on "said-to-contain" basis facilitates leakages. Further, railways do not issue clear railway receipts for foodgrains received as they are reluctant to bear transit losses. The despatching and receiving centers also receive the foodgrain stocks on an estimated basis which makes theft easy. Since foodgrains are not weighed at any stage during transportation, storage losses can easily be classified as -transit losses.

Interestingly, the major share of losses takes place in the eastern states such as Bihar, Orissa. West Bengal, and Assam. The high storage losses of rice in the northern states are also intriguing. In 1987-88, the storage losses of rice in Punjab, Haryana and Uttar Pradesh formed about 67 percent of the total storage losses *of* rice in India. A report by the Bureau *of Industrial* Costs and Prices (BICP) suggest that in these states FCI officials collude with rice millers and do not obtain full levy quota of rice from the mill." The resulting shortage is reported as a storage loss.

(6) Administrative Expenses

Compared to private traders, the administrative expenses of FCI are high. Administrative expenses of FCI have shown a sharp increase over the past few years. These expenses account for over 11 percent of distribution costs.

The FCI staff has increased at a higher rate than the volume of its operations.[42] In 1990, FCI had a staff of 69.398 employees. If casual workers are also included, the number may well be close to 100,000.

4.4 Cost of Carrying Buffer Stocks

FCI carries buffer stocks on behalf of the government. Since this is not considered to be a normal trading activity for FCI, the government reimburses FCI for all expenses it incurs on this account.

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[41] India (1990b).

[42] Gang (1980).

4.5 What Explains the High Cost Structure of FCI?

Why FCI costs have gone up over the years? Why the high cost structure of FCI operations has persisted and what has made the leakages possible? To examine these questions, one has to distinguish between policies beyond the control of FCI and FCI's own inefficient practices.

First, the government has not provided incentives for FCI to operate as a commercial enterprise. FCI has no control over the pricing of foodgrains it procures and distributes. The government fixes FCI's purchase and sales prices over time and space. Since, in addition, FCI's losses are automatically covered by the government (and profits taken), FCI has no incentive to control its costs. As a result. time, which is crucial in the private trade, loses importance for FCI. Whether foodgrains reach their destination or not, in time or not. in correct quantity or not, have hardly any significance to FCI. By contrast, delays are costly to private traders. The delayed arrival of grains at the terminai market means higher costs and loss to the trader in terms of interest payments.

Second. certain management practices within FCI have contributed to the high and rising cost structure and made leakages possible. There is lack of accountability in FCI: officials are not held responsible for poor management decisions which cause. losses to FCI. They are not made accountable for reaching specific guvemment-defined goals. As noted earlier, grain shortages in storage, which are largely due to poor management and pilferage, are conveniently categorized as transit losses because grains transported by railways are not weighed. The size of actual stocks with FCI are unknown as no physical inventory of stocks has been done. Stocks are recorded in the books of FCI on the basis of sample stock taking. As a result, the quantity and value of actual stocks and foodgrain losses are difficult to estimate.

Third, the sheer size of FCI in terms of geographical spread and the number of activities has made the cost control difficult. The supervision of various activities has become increasingly difficult as FCI has expanded and the number of employees increased. Many FCI's activities could be contracted out to private agencies at a low cost. For example, FCI was made responsible for carrying and managing buffer stocks and constructing the needed storage capacity. Whether this task is suitable to FCT has never been questioned or reviewed. As a consequence, FCI has substantially expanded its storage capacity at a high cost, while warehousing corporations, which have specialized in storage, could have stored grains at a lower cost than FCI.

Finally, the fact that FCI has not only economic, but also social and political objectives has further complicated its management.

5. CONCLUSIONS AND REFORM OPTIONS

This paper examined the role and performance of the Food Corporation of India in Indian foodgrain marketing. In particular, it explored whether FCI has reached its objectives. that is. provided price support to farmers. distributed foodgrains to the poor through PDS, and ensured national food security. The performance of FCI was evaluated also by assessing the costs of FCI operations. The analysis resulted several interesting insights into the performance of FCI.

The main result of the paper is that while there have been some benefits from FCI operations to both producers and consumers. there have also been significant failures which would warrant a reform of FCI. FCI has been successful in improving the overall availability of foodgrains in India. It has, however, failed on the following: first FCI has been unable to cover its costs by its revenues. The gap between its revenues and costs has been increasing over the years. As a result, the subsidy to FCI has been mounting as an alarming rate. The fiscal imbalance of FCI reflects partly a pricing problem: since 1980 the average issue price of rice has been lower than the support price. The main reason for the fiscal imbalance. however, is that the cost of FCI operations--in particular, FCI's distributions costs--have been excessive compared to those of private traders. Second, FCI has been ineffective in distributing foodgrains through PDS to poor consumers and regions, The distribution of foodgrains across states reveals a bias in favor of states with high urban population and against states with high incidence of poverty. Also, large amounts of foodgrains leak from PDS to the non-poor. Leakages are bound to occur when there are dual markets and prices. The situation creates. incentives for individuals to try to circumvent procurement and controls, and siphon off commodities from the controlled market to the uncontrolled open market where prices are higher. Third, the buffer stocks FCI has managed have either been substantially lower or higher than the prescribed norms. Too low stocks have jeopardized national food security, whereas too high stocks have been costly and inflationary.

The soiution to these problems requires reconsideration of the role of FCI in the Indian foodgrain marketing system. Should its tasks remain unchanged--that is, the procurement of foodgrains. the distribution of foodgrains to the poor through PDS, the maintenance of buffer stocks, and the canalization of imports and exports of foodgrains--or should it concentrate on just one or two of these activities, if any? How to target the support to the poor? These questions should be considered in the context of other reforms in the agricultural sector in India.

5.1 Reform Options

The recent liberalization of the Indian economy is slowly extending to Indian agriculture. The liberalization of the foodgrain sector has already started. The central government has announced the wirhdrawai of all central government controls on the free movement of foodgrains

within the country.[43] The exports of wheat and rice also have been recently decanalized. As a result. Indian agriculture is poised for a big jump. The logical extension of these reforms would be the elimination of any ievies and controls on domestic and foreign trade.

Free domestic and foreign trade in foodgrains would change the role of FCI in India's foodgrain marketing in several ways. The changes in FCI's role and the further reforms these changes would warrant would include the foilowing:

First, the canalizing role of FCI would disappear. If there are no restrictions on imports and exports. there is no need for a government agency to act as a middleman.

Second, FCI would not be able to impose zonal movement restrictions for foodgrains to achieve its procurement targets. It would have to procure foodgrains in competition with other traders. This would force a major change in the procurement pricing policy since FCI would not be able to procure foodgrains at below the market prices.

Third. FCI's role in stocking foodgrains should diminish significantly. Private traders should be allowed to store foodgrains without limit and trade in the futures market both domestically and internationally. This means that foodgrains should be taken out of the Essential Commodities Act. FCI could enter into contracts with private traders for the delivery of stocks of foodgrains at given quantities and prices to given locations. This futures trading would reduce the need to keep huge buffer stocks.

The government has to reassess how much buffer stock is to be kept with public agencies to ensure nationai food *security.* It appears that placing greater reliance on imports and exports would be more efficient than keeping huge physical quantities of foodgrains with FCI.[44] The managers of the Indian food policy, however, have been reluctant to rely on foreign trade. They have argued that India gets a low price as an exporter but has to import at a high price when it enters the market. This happens typically when a parastatal goes to the world market with its bulk demand (or supply), and the entire world knows about it. This problem could be taken care of by decanalizing exports and imports of foodgrains.

Fourth, the size of FCI would depend on its role in feeding PDS. This in turn depends on what happens to PDS. Given the targeting problems of PDS, Bhagwati and Srinivasan (1993) have suggested that it be replaced either by (i) food stamps, or (ii) the calling of bids. Either of these suggestions, if implemented, would change significantly the role of FCI.

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[43] Some movement controls imposed by state governments still exist.

[44] Krishna and Chhibber (1983) show using a simulation model that the cost of wheat operations could be cut down by 30-35 per cent by allowing exports and cutting the stocks down to one fourth of the level in 1979. That level of inventory of wheat would be large enough to meet the foodgrains requirements of bad and normal years.

If PDS was revised to operate on the calling of bids basis. foodgrain procurement by FCI would not be necessary. In the bids system. the private sector would supply foodgrains. The government would invite bids from private traders to supply foodgrains at a specified time to a specified location. The contract would be granted for the lowest price bidder. To minimize rent-seeking opportunities inherent in this kind of a system. the process of call, receipt, opening and acceptance of bids would have to be made as transparent and open as possible.

If PDS was replaced by a food stamps system. there would be no need for FCI to procure and distribute foodgrains. In the food stamps system, the holders of food stamps would buy commodities from the open market. Food stamps with a fixed money value would be distributed to people below a certain income level.

A precondition to the success of the food stamps system is the availability of foodgrains in the market, especially in the remote and otherwise difficult areas. The misuse of stamps could be reduced by having only the coarse varieties of grains covered in the scheme. The erosion in the reai value of stamps could be corrected by indexing their money value to food prices.

The government, however. seems to be leaning towards targeting PDS on area-specific basis. As mentioned eariier, it launched in 1992 the Revamped Public Distribution System (RPDS) in 1,775 backward blocks of the country. In the central government budget of 1995-96, the Finance Minister announced that RPDS will be increased to 2,275 blocks. This would amount to a rising food subsidy bill unless the government withdrew the general PDS from other blocks or rose issue prices significantly elsewhere.

To contain the food subsidy bill, the government may want to consider imposing an upper limit for the subsidy for each state. The subsidy limit would be based on poverty levels. The subsidy over and above this limit should be met out of state government's budget. Increasing states' own fiscal responsibility in food management would ensure that *states* do *not* launch populist schemes and make the central government bear the fiscal burden. An alternative, which could be tried out in the short run, would be to impose a ceiling on the quantity of grains sold at below *cost*. FCI could sell the rest of the grain procured in the open market. States could purchase the rest of their requirements from either FCI at economic cost or from the open market.[45]

In case the government wants to retain FCI, it should consider re-organizing its management to reinforce commercial operation. One option would be to introduce performance agreements to managers and employees of FCI. These agreements would increase the accountability of managers and employees and improve the focus of operations by clarifying performance expectations and the roles, responsibilities, and rewards of all those involved. Performance agreements have yield excellent results in East Asia. Building incentives for managers and workers into the contracts, has improved the performance of East Asian public

[45] See, Economic Survey, Ministry of Finance, 1993-94.

nterprises. Alternatively. the government could contract to private providers the responsibility or managing the operation of FCI. This would increase the autonomy of the management and educe the risks of political interference in FCI's operations.

The analysis reveals that India does not require a public agency of the size and type that CI is today. If FCI is to survive. it should start reorienting and reforming itself without delay

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Table 1: Rice Procurement: Spatial and Temporal Dimensions (thousand tonnes)

States	Average Of								
	1965-66 to 1967-68	1968-69 to 1970-71	1971-72 to 1973-74	1974-75 to 1976-77	1977-78 to 1979-80	1980-81 to 1982-83	1983-84 to 1985-86	1986-87 to 1988-89	1989-90 to 1991-92
NORTH									
Punjab	201.66 6.62 /57.67/	530.33 12.11 68.04/	322.66 25.42 .30.54/	1235.00 25.47 /84.84/	2405.00 47.98 83.64/	2354.00 44.45 /79.67/	3827.00 42.89 78.36/	3517.00 44.34 x4.351	3285.20 35.89 /49.32/
Haryana	85.66 2.90 /36.00/	217.66 6.75 69.58/	336.66 10.40 35.64/	166.33 9.66 85.51/	726.66 14.50 69.53/	155.33 11.37 .60.37/	531.60 9.63 81.14/	3.00 7.04 41.30/	323.96 10.09 .51.62
Uttar Pradesh	95.33 3.23 /3.75/	224.00 3.95 6.61/	317.33 3.81 3.721	578.66 t1.93 /41.31/	132.00 9.62 -10.751.	324.33 9.40 /11.10/	339.00 10.91 13.47/	946.00 11.93 /12.15/	1225.91 13.39 /12.77/
Jammu & Kashmrr	22.00 0.74 /9.47/	34.00 1.06 /7.46/	35.00 1.08 /8.95/	33.00 0.66 /8.05/	52.33 1.04 /10.12/	50.00 0.75 /8.97/	15.67 0.50 /7.83/	12.00 0.15 /2.26/	-
WEST									
Maharasntra	151.33 5.12 111.101	X6.00 6.39 / 13.641	136.33 4.21 /1 1.011	56.66 1.21 /2.71/	11.33 0.23 /0.53/	30.33 0.46 /0.81/	Neg.	Neg.	20.05 0.22
CENTRAL									
Madhya Pradesh	125.66 4.25 16.671	412.00 12.79 /12.48/	233.00 3.05 /8.42/	206.00 4.25 17.471	192.00 3.83 /5.86/	297.00 4.47 113.211	414.00 4.52 /8.89/	341.00 4.30 /7.77/	443.38 4.84 16.37
SOUTH									
Andhra Pradesh	640.66 21.66 /14.25/	337.33 10.47 /7.02/	230.66 13.31 8.86/	317.00 18.91 /16.00/	707.66 14.12 10.971	1140.00 17.16 /15.14/	1615.00 17.64 /20.79/	1 489.00 18.77 /18.44/	2655.00 29.00 /27.21/
Kamataka	69.66 2.36 /4.55/	51.33 1.59 /2.46/	63.66 1.97 /3.19/	151.00 3.11 /8.25/	X.66 1.51 /3.32/	117.33 1.77 /8.93/	1 09.30 1.19 /4.96/	103.00 1.30 /4.66/	138.66 1.51 /5.41/
Kerala	56.33 1.91 /5.27/	82.66 2.57 /6.33/	54.00 1.67 /4.06/	31.33 0.65 /2.25/	4.66 0.09 0.361			-	
Tamil Nadu	832.00 28.16 /20.97/	420.00 13.03 /9.14/	199.00 5.81 /3.42/	500.00 10.31 /10.73/	39.33 1.98 /1.74/	392.33 5.90 /9.13/	329.30 9.06 /16.37/	735.00 9.27 /13.34/	53.33 0.58 /9.02/

Table 1 concluded

States	Average Of								
	1965-66 to 1967-68	1968-69 to 1970-71	1371-72 to 1373-74	1974-75 to 1976-77	1977-78 to 197480	1980-81 to 1982-83	1983-84 to 1385-86	1986-87 to 1988-89	1989-90 to 1391-92
EAST									
Assam	57.00 2.27 0.601	102.00 3.79 5.811	86.00 2.97 4.681	130.33 3.72 /8.44/	121.00 3.42 0.99/	34.66 3.52 /1.41/	19.67 3.21 /0.76/	3.00 0.10 a.321	5.58 0.06 /0.19/
Bihar	38.00 1.29 /1/44/	43.33 1.34 a.971	47.33 1.46 /1.02/	54.33 1.12 /1.15/	3.33 3.15 S0.111	39.33 0.59 /0.92/	30.00 0.33 /0.55/	5.00 0.06 /0.09/	
Orissa	191.33 8.47 /5.34/	231.33 0.73 /6.31/	197.33 6.10 /4.93/	135.66 2.60 13.721	55.66 1.11 /1.43/	104.66 1.58 /2.83/	122.67 1.34 /2.53/	108.00 1.38 /2.40/	236.64 2.59 /3.89/
West Bengal	324.33 10.08 /6.51/	270.33 11.49 /5.92/	196.33 6.07 /3.26/	23233 4.79 /3.43/	153.00 3.05 /2.28/	67.33 1.01 /2.10/	81.67 0.89 /1.02/	70.00 0.98 /0.74/	94.47 1.03 /0.85/
Others	54.05 1.83	30.03 0.93	22.04 0.68	68.03 1.40	9.38 3.19	38.37 0.58	82.12 0.90	39.00 0.49	19.59 0.21
ALL-INDIA	2955.00 100.00 /8.98/	3222.33 130.00 8.001	3236.33 100.00 /7.68/	4849.66 100.00 ill.091	5512.00 100.00 /10.10/	6645.00 130.00 /13.03/	3 157.00 100.00 /15.07/	7931.00 100.00 /12.68/	9153.95 100.00 i12.381

Notes: (1) Figures in second row reflect tne relabve snare of that State in AN-India procurement

(2) Figures within slashes indicate rice procurement as a ratio of rice production in respectwe states.

Source: Data from Bulletin on food Statistics (vanous issues).

Table 2: Wheat Procurement: Spatial and Temporal Dimensions (thousana tonnes)

States	Average Of								
	1965-66 to 1967-68	1f58-69 to 1370-71	1371-72 to 1973-74	1 974-75 to 1976-77	1977-78 to 1979-80	1980-81 to 1982-83	1983-84 to 1985-86	1986-87 to 1988-89	1989-90 to 1991-92
Punjab	366 70.66 /11.16/	'867 '1.34 44.20/	2947 30.20 54.20/	2729 50.67 /39.26/	3547 57.08 /52.32/	4290 33.82 53.301	5447 58.48 /53.43/	5217 62.73 /48.76/	5962.33 64.28 /50.48/
Uttar Pradesh	62 11.97 /1.54/	346 '3.22 5.69/	935 19.16 12.33/	940 22.37 13.05/	1300 20.92 12.88/	1132 16.84 9.50/	1924 20.66 /11.94	1090 13.11 /6.24/	1097.33 Il.83 /5.91/
Haryana		322 12.30 /18.91/	704 14.43 30.28/	530 12.61 25.67/	1077 17.33 /35.99/	1128 '6.78 32.04/	1711 18.37 /36.31/	1949 23.43 136.281	2131.67 22.98 /34.38/
Madhya Pradesh	82 15.83 /5.66/	43 1.64 2.11/	102 2.09 /3.79/	179 4.26 /7.03/	43 0.69 /1.44/	77 1.15 /2.72/	52 0.56 /1.25/	Neg.	Neg.
Rajasthan	8 1.54 /0.86/	25 0.95 /1.99/	115 2.36 /6.17/	262 6.24 /13.32/	167 2.69 /6.44/	54 0.80 /2.01/	144 1.55 /4.34/	55 0.88 11.611	83 0.89 /2.13/
Bihar		3 0.11 /0.11/	22 0.45 /0.45/	51 1.21 /1.21/	43 0.89 /0.69/	12 0.18 /0.18/	23 0.25 I0.251	•	•
m e n		11 0.42	60 1.23	111 2.64	37 5.60	29 0.43	13 0.14	6 0.07	1 0.01
ALL-INDIA	518 100 /4.56/	2617 100 /14.20/	4879 100 /19.52/	4202 100 /16.87/	6214 100 /19.36/	6722 100 /19.07/	9314 100 /20.45/	8317 100 /17.33/	9275.33 100 /17.56/
Punjab, Uttar Pradesh and Haryana	428 82.63	2535 96.87	4580 93.87	3599 85.65	5924 35.33	6551 97.42	9081 97.51	8256 99.27	9191.33 99.09

Notes: (1) Figures in second raw reflect the relative share of that state in all-India procurement.
(2) Figures within slashes indicate wheat procurement as a ratio of wheat production in the respective states.

Source: Data from Bulletin on food Statistics (various issues).

Table 3: Nominal Protection Coefficients of Wheat and Rice (Importable Hypothesis)

Year	Wheat		Wheat		Rice		Rice	
	PP,OER	PP,SER	WP,OER	WP,SER	PP,OER	PP,SER	WP,OER	WP,SER
1980-81	0 70	0.59	075	0.63	0.40	0.34	0.50	0.41
1981-82	0.72	0.59	0.81	0.67	0.59	0.49	0.74	0 61
1982-83	0.84	0.69	087	0.72	0.74	0.62	1.07	0 89
1983-84	0.84	0.69	088	0.72	0.73	0.61	0.99	0 82
1984-85	0.76	0.63	077	0.64	0.76	0.64	0.91	0 76
1985-86	0.79	0.65 0	81	0.67	0.85	0.70	1.03	0 86
1986-87	0.96	0.00 1	01	0.84	0.64	0.70 1	.05	0 87
1987-88	1.04	0.65	1.16	0.04	0.63	0.52	0.90	0 75
1988-89	0.76	0.62	0.86	0.71	0.51	0.42 0	73	0.61
1989-90	0.56	0.46	0.67	0.55	0.59	0.48	0.69	0 58
1990.91	0.71	0.58	0.73	0.60	0.53	0.44	0.58	0 49
Average	0.79	065	0.85	0.69	0.65	0.54	0.84	0.70

Note: PP=Procurement Price; WP=Wholesale Price: OER=Official Exchange Rate and SER=Shadow Exchange Rate (taken as 20 per cent higher than OER)

Table 4: Net Availability of Wheat and Rice (thousand tonnes)

Year	WHEAT						RICE					
	Net Prodn	Procure-ment	Imports (Net)	Change in stocks	Public Distribu-tion	Net Avail-ability	Net Prodn	Procure-ment	Imports (Net)	Change in Stocks	Public Distribu-tion	Net Avail-ability
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1964	3657	30	3821	-1297	6785	15575	34200	1299	642	47	1859	34795
1965	10770	375	6572	a56	5939	16484	35335	2951	780	89	3566	37026
1966	3136	219	7327	-214	8134	17177	a264	3100	776	-107	4132	29147
1967	10014	779	6400	-243	7366	16657	23125	,794	448	236	3010	28337
1968	14539	2373	4766	1237	5755	18068	34753	3373	443	541	3267	34655
1969	16394	2417	3090	149	5195	19335	35739	3581	471	584	3405	35846
1970	17662	3183	3406	937	5347	20131	37357	3043	179	130	3050	37406
1971	20948	5088	1911	1914	4455	20845	39016	3462	224	498	3688	36744
1972	23214	5024	-492	-3270	7413	25992	39795	2550	14	-1037	3206	40846
1973	21742	4531	2413	-726	7130	24881	35262	3462	-18	44		36200
1974	19143	1885	4460	la8	5669	23437	40703	2482	6	-268	3753	40977
1975	21187	4098	7182	3670	7545	24699	36571	5042	139	i 691	3211	35019
1976	25356	5618	6	7419	5015	17943	45036	5999	206	2988	3843	42274
1977	25500	5171	5	-880	6396	26385	38731	4656	20	-118	4589	38869
1978	21907	5470	-678	-2515	6855	23744	48668	5552	-139	2306	3229	46223
1979	31212	8000	0	-700	7493	31912	49686	5725	-329	1060	4049	48297
1980	27980	5888	0	-3381	8819	31341	39113	5210	-478	-2419	6057	41054
1981	31919	6590	777	172	6427	32524	49555	6199	-254	-416	6402	49717
1 982	32920	7725	1988	2016	7168	32892	49201	'477	408	-778	7500	49571
1983	37616	5272	3782	2520	3121	37878	43535	7207	207	-748	7853	44570
1984	39973	9311	1819	4007	6505	33185	55530	9310	5.50	5058	6730	53022
1985	38737	10355	-351	408	8477	37978	53902	9577	0	2131	7231	51771
1986	41359	10530	-58	-985	8504	42276	59974	3142	10	-428	6460	53412
1987	38960	7861	-369	-6566	8784	45157	55955	7733	0	-2965	9825	58920
1988	40583	6560	1888	-2805	8719	45076	52541	7336	584	-1764	9895	54969
1989	47563	8990	298	1152	8253	46709	55132	9863	529	1410	8566	54251
1990	43644	11094	0	4579	6568	39065	68425	12817	45	1478	8659	66992
						p	-	-	c	-	-	-

Notes: Net production is 87.9% of gross production of wheat and 92.4% of rice in agricultural year (July-June). Imports are net of exports and are for calendar year. Figures on change in stocks represent net increase (+) or decrease (-) at the end of calendar year. Stock figures relate to stocks with central and state governments. Stocks held by private traders and0 producers are not known. Procurement and public distribution pertain to calendar years.

Table 5: Statewise Dependence on PDS for Consumption of Rice and Wheat

States	WHEAT						RICE					
	1973-74			1988-89			1973-74			1988-89		
	PDS	NSS	%	PDS	NSS	%	PDS	NSS	%	PDS	NSS	%
Anthra Pradesh	2.73	8.88	30.74	2.36	9.00	26.22	5 10	134.30	3.80	14 10	123 40	11 43
Assam	9.19	1546	59.37	9.91	17.28	57.35	6 no	132 20	5.14	20 70	130 80	15 81
Bihar	7.10	57.24	12.40	9.05	7152	12 65	0 45	91.40	0 49	0 70	85 90	0 83
Gujarat	15.38	G8.76	22.37	19.27	66.00	29.20	2 70	19.30	13.99	0.70	26 80	2 46
Haryana	12.40	130.70	9.49	7.16	116.50	6.15	1 00	8.90	11.24	1 60	14 90	10 74
H limachal Pradesh	10.28	84.48	12.17	16.43	97.80	16.80	1 90	33.60	5 65	12 90	54 00	23 89
Karnataka	5.35	10.20	52.45	5.37	18.80	28.56	3.80	69.70	5.45	13.60	70 70	19 24
Kerala	10.9%	8.40	130.48	6.66	il.64	50.93	34 80	56.80	40.09	52.50	103.60	50 68
Madhya Pradesh	3.15	94.10	3.35	5.76	96.20	5.99	2 94	40.30	7.30	3 80	40 80	9 31
Maharashtra	24.53	41.40	59.25	15.41	55.10	27.97	5.50	18.80	29.26	9.20	34.80	26 44
Orissa	4.04	24.00	20.17	7.76	29.90	25.95	6 71	135.50	4.95	825	134.60	6 13
Punjab	15.49	117.50	13.18	4.06	103.30	3.93	063	7.92	7.95	0.21	12 36	1 70
Rajasthan	8.53	98.76	8.64	21.75	137.00	15.88	0 00	5.04	0.00	0 33	5 40	6 11
Tamil Nadu	3.43	2.40	142.92	4.05	8.90	45 51	545	126 70	4.30	31 23	110 90	28 16
Uttar Pradesh	4.77	107.00	4.46	4.45	110.80	4 02	2 52	32 52	7 75	2 72	28 30	9 61
West Bengal	25.81	51.12	50.49	14.95	37.80	39.55	13 71	78 00	17.58	11.24	102 60	10.96
ALL INDIA	11.16	51.84	21.53	10.14	59.76	1697	6 06	64.56	9.39	1160	64 20	15 07

Notes: **Figures** under "PDS" are the pet **capita** quantities (kgs per annum) distributed under the PDS (including roller flour mills) while under "NSS" represent per capita consumption based on NSS rounds conducted in the relevant years. The % indicates share of PDS in consumption.

Source: Sharma, 1994.

Table 6: Scheme wise Public Distribution of Rice and Wheat
(Centre and States) (Thousand tonnes)

Year	Rice			Wheat			
	PDS $	EMP #	TOTAL	PDS $	EMP #	KFM @	TOTAL
1979	2854	481	3335	4116	1201	3069	8386
1980	4162	1032	5194	3960	1052	3643	8655
1981	5199	244	5443	3219	29	3144	6392
1982	5980	71	6051	3698	17	3282	6997
1983	6694	76	6772	4718	167	2986	7873
1984	5764	79	5863	3041	224	3681	6946
1965	5988	106	6096	3177	245	4996	8418
1966	7392	227	7619	4274	1618	2437	8329
1967	8160	600	8760	5700	*2946*	0	8646
1988	8578	*265*	8843	7374	1053	*0*	8427
1989	7230	134	7372	7095	313	0	7406
1990	7810	a7	7897	6449	146	0	6597
1991	9632	79	9911	8908	13	0	8919
1992	9401	80	9481	8204	*202*	*0*	8406

$ includes distribution under ITDP since Oec 1985. Since June 1992, also includes RPDS of which ITDP is a part.

reoresents various employment programs e.g. NREP/RLEGP in the past now merged in JRY.

@ scheme discontinued since Sept 1966. RFMs get tneir supplies through open market sales.

Figures for 1991 and 1992 are provisional.

ITDP: Integrated Tribal Development Program; RPDS: Revamped PDS; NREP: National Rural Employment Program: RLEGP: Rural Labour Employment *Guarantee Program: JRY:Jawahar Rojgar Yojana;* and *RFMs:Roller* Flour Milk.

(Source: Data from Bulletin of Food Statistics. vanous issues).

Table 7: Statewise Public Distribution and Shares in Poverty and Urban Population

State	PDS (th ts) 1990	Share of state in all-India		
		PDS 1990	Poverty 1987-88	UrbanPop 1990
Andhra Pradesn	1342	8.81	a.23	8.24
Assam	615	4.04	2.23	1.15
Bihar	445	2.92	14.16	5.31
Gujarat	918	6.03	3.08	6.59
Haryana	31	0.20	0.76	1.87
Himachal Pradesh	98	0.64	0.19	0.27
Kamataka	870	5.71	5.74	6.47
Kerala	1764	11.58	2.06	3.51
Madhya Pradesh	440	2.89	9.47	7.09
Maharashtra	1637	10.75	9.01	14.15
Orissa	399	2.62	5.69	1.97
Punjab	11	0.07	0.58	2.80
Rajasthan	604	3.97	4.19	4.65
Tamil Nadu	1710	11.23	7.44	8.96
Uttar Pradesh	489	3.21	1 a.86	12.83
West Bengal	1537	10.09	7.30	8.70
Others	2317	15.22	1.01	5.5
TOTAL	15227	100.00	100.00	100.00

Source: For PDS, Bulletin on Food Statistics (various issues), for poverty estimates, Planning Commission and for urban population, Census 1991.

Table 8: Rural-Urban Distribution of PDS Purchases (Per Month), 1986-87

Stale	PDS Purchases (Rice; th. kgs)		PDS Purchases (Wheat; th. kgs)		Poor Popln (million)		Rice per cap. (kgs)		Wheat per cap (kgs)	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Andhra Pradesh	113800	**26709**	**490**	**3153**	**15.31**	4.26	7.43	6.27	0.03	0 74
Assam	9992	**2329**	**524**	**14**	**5.04**	0.25	1.96	9 32	0 10	0 06
Bihar	**7235**	**169**	**2756**	**2654**	**30.03**	3.61	a.04	0 05	0 09	0 79
Gujarat	**11662**	**2958**	**14007**	6047	**5.62**	1.71	2.06	1.73	2 51	3 54
Haryana	**172**	**219**	0	0	**1.35**	0.47	a.13	0 47	**0 00**	0 00
Himachal Pradesh	**4011**	214	**1243**	**26**	**0.84**	0.01	**4.76**	**21.42**	**1.48**	2 56
Karnataka	20592	**16342**	**6134**	**5196**	**10.28**	**3.37**	**2.00**	**4.85**	**0.60**	1 54
Kerala	61467	**16953**	**7616**	**2276**	**3.74**	**1.16**	21.713	14.61	2.04	1 96
Madhya Pradesh	5994	**3481**	**7460**	**3354**	**19.4**	3.09	0.31	1.13	0.38	1 09
Maharashtra	**16641**	**14521**	**28341**	**17529**	**16.69**	4.72	1.00	3.08	1.70	3 71
Orissa	**737**	**123**	**688**	**946**	**12.42**	1.09	0.06	0.11	0.06	0 87
Punjab	0	190	**148**	**9**	**0.96**	0.43	a.00	0.46	0 15	0 02
Rajasthan	501	**688**	**26699**	1963	**8.06**	1.9	0.06	0.36	3 31	1 03
Tamil Nadu	39440	**17557**	**3514**	4571	13.84	3.85	2.85	4.56	0 25	1 19
Uttar Pradesh	**7606**	**3456**	**7744**	**4283**	37.31	7.52	0.20	0.46	0 21	0 57
West Bengal	**21670**	**21657**	**19529**	**24668**	13.72	3.63	1.58	5.97	1.42	6 80
ALL INDIA	358090	**146161**	**129932**	101314	195.97	41.7	1.83	3.51	0.66	2 43

Notes: Figures on quantity purchased are from the Report of the NSS 42nd Round on Utilisation of Public Distribution System (1986-87). Information on the number of rural and urban poor is from Planning Commission.

Source: Sharma, 1994.

Table 9: **Central** Pool Stocks: Actual and Normative

Stock as on 1st Jan	Actual Stocks (Mn tonnes) Wheat	Rice	Total	Per cent Deviation Wheat	Rice	Total
Buffer norm on 1st Jan	7.70	7.70	15.40			
1980	8.58	8.15	16.73	11.43	5.84	a.64
1981	6.21	4.91	lf.12	-19.35	-36.23	-27.79
1982	5.34	5.01	10.35	-30.65	-34.94	-32.79
1983	4.77	6.99	11.76	-38.05	-9.22	-23.64
1984	4.34	10.45	14.79	-43.64	35.71	-3.96
1985	6.74	14.54	2t.28	-12.47	88.83	38.18
1986	9.08	14.93	24.01	17.92	93.90	55.91
1987	8.50	13.93	22.43	10.39	80.91	45.65
1988	5.91	7.35	13.26	-23.25	4.55	-13.90
1989	4.09	4.44	8.53	-46.88	-42.34	-44.61
1990	5.65	5.61	l-3.26	-26.62	-27.14	-26.88
1991	8.65	9.27	17.92	12.34	20.39	16.36
1992	8.63	5.28	13.91	12.08	-31.43	-9.68
1993	8.46	3.29	11.75	9.87	-57.27	-23.70
1994	11.17	10.82	21.99	45.06	40.52	42.79
1995	12.88	17.42	30.30	67.27	126.23	96.75

Source: Data from **Economic Survey**, 1994-95.

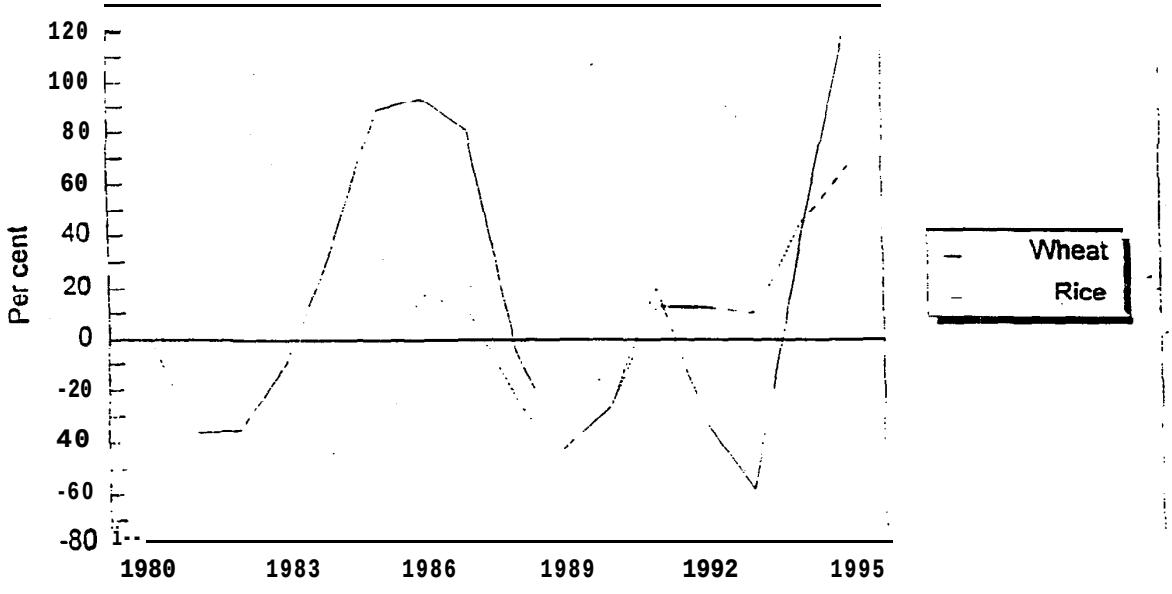
Table IO: Indicators of Economic Efficiency : Wheat and Rico

Year	Proc. pride Wheat (Rs/Qt)	Econ cost Wheat (Rs/Qt)	Average sales realisn Wheat (Rs/Qt)	Whole safe Price Wheat (Rs/Qt)	Average Sales Realisn/ Econ, Cost*100	Econ Cost/ Proc Price	Eco Cost/ Whole sale Pr	Procure- ment Price Rice (Rs/Qt)	Econ Cost Of Rice (Rs/Qt)	Average sales realisn Rice (Rs/Qt)	Whole sale Price Rice (Rs/Qt)	Average Sales Realisn/ Econ, Cost'100	Econ Cost/ Proc Price	Eco Cost/ W/sale Price
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1968-69	76.00	85.61	75.28	73.37	07.73	112.91	116.96	81.65	101.47	99.22	112.53	97.78	123.97	90 17
1969-70	76.00	60.58	77.99	75.57	96.79	106.03	106.63	63.64	114.39	108.89	115.71	95.19	13676	98 86
1970-71	76.00	60.62	78.95	71.66	97.93	106.06	112.50	64.59	110.84	111.96	112.67	101.01	131.03	98 38
1971-72	76.00	91.20	78.80	67.07	66.40	120.00	134.37	05.10	112.43	114.20	121.50	101.57	13212	92 53
1972-73	7600	98.13	79.98	75.17	81.50	129.12	130.54	90.87	111 10	1 12.65	139.52	101 40	122 26	79 63
1973-74	76.00	111.66	61.94	65.95	73.36	146.92	129.91	114.30	128.19	126.52	165.30	98.70	11215	69 18
1974.75	105.00	169.50	130.32	139.81	75.85	161.50	121.29	120.00	153.52	159.11	218.23	103.37	128 27	70 53
197576	105.00	161.57	130.45	110.56	8D.74	153.68	146.14	122.33	154.55	156.17	173.69	101.05	126 34	98 95
1976-77	105.00	154.20	126.07	102.49	61.76	146.66	150.45	123.09	156.26	155.02	17846	99 21	126 95	1 / 98
1977-78	110.00	149.10	124.53	109.52	83.52	135.55	136.14	'126.30	155.10	152.94	169.14	98.61	120 89	91 79
1976-79	112.50	157.37	126.55	110.19	80.42	139.88	142.82	138.33	169.33	151.19	172.56	89.29	122 41	98 13
1979-80	115.00	157.44	129.23	112.63	62.08	136.90	139.79	157.19	173.65	155.67	204.65	69.65	11047	84 85
1980-81	117.00	169.92	129.71	127.46	76.34	145.23	133.31	171.50	193.32	159.29	220.17	82.40	112.72	07 80
1981-82	130.00	293.48	149.75	144.42	73.59	156.52	140.89	190.97	223.72	130.76	244.57	80.81	117.15	9147
1982-83	142.00	219.94	164.54	155.03	71.81	154.69	141.67	202.06	249.11	195.76	287.97	76.58	123.29	86 51
1983-84	151.00	233.46	184.41	157.56	78.98	154.62	148.18	216.67	275.63	208.95	297.69	75.81	127.09	92 59
1984-85	152.00	239.44	175.98	150.17	73.50	157.53	159.45	228.47	298.81	223.94	264.73	74.94	130.79	104 95
1985-86	157.00	246.31	176.74	165.15	71.76	156.89	149.14	240.52	305.26	227.92	301.06	74 66	126 92	101 40
1988-67	162.06	273.20	186.27	173.14	68.91	168.64	157.79	242.64	310.68	23021	327.00	7475	131 34	97 19
1987-88	166.00	274.74	191.94	192.84	69.86	165.51	142.47	249.55	327.58	246.63	367.65	7529	131 27	89 05
1988-89	173.00	295.98	203.00	212.76	68.59	171.09	139.11	265.17	369.60	262.39	385.12	70.98	139.41	95 99
1989-90	183.00	306.33	199.43	213.64	65.10	167.39	143.39	305.79	418.55	294.32	414.30	70.32	136.87	101 03
1990-91	215.00	350.50	239.05	248.67	67.31	165.81	143.36	342.11	457.52	330.02	463.52	7213	133 73	98 71
1991-92	225.00	390.79	251.66	295.26	64.40	173.68	132.35	390.93	497.04	36556	476.70	73.55	12714	104 27
1992-93	275.00	504.16	279.36	320.00	55.42	183.31	157.53	457.08	565.27	44240	511.00	7559	12005	114 53
Growth Rates:														
1971-93	5.22	6.78	5.26	6.08	-1.52	I.56	0.07	7.08	7.43	5.45	6.31	-1 98	0 35	1.11
1981-93	5.72	7.10	5.12	7.01	-2.06	1.45	0.17	7.11	8.14	7.23	6.64	-0.91	1.03	1.50

Note Information on procurement incidentals from 1968-69 to 1975-75 Is derived as cost of purchase minus procurement price.

Source: Data from Food Corporation of India and BICP Report.

Fig 1: Deviation of Stocks from Norms
As on 1st January



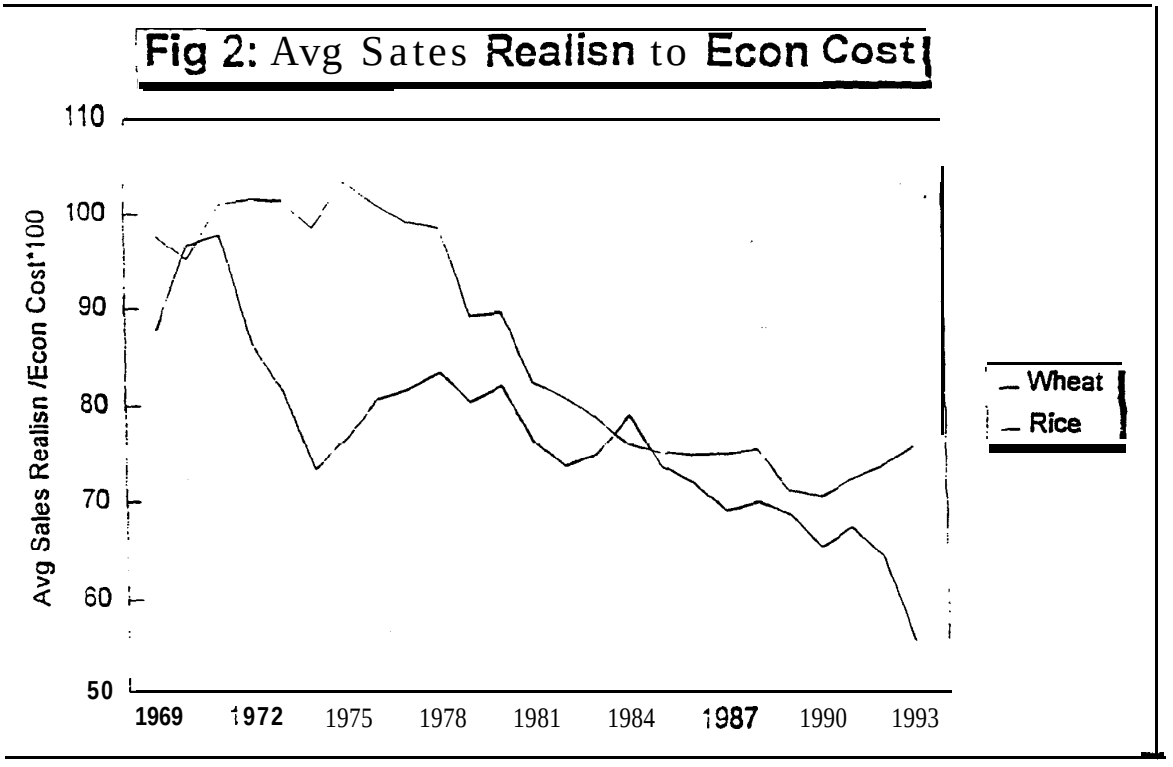


Fig 2: Avg Sates Realisn to Econ Cost
Avg Sales Realisn /Econ Cost*100
110
100
90
80
70
60
50
1969
1972
1975
1978
1981
1984
1987
1990
1993
Wheat
Rice

Fig 3 : Econ Cost to Proc Price