CHAPTER 2

REVIEW OF LITERATURE

The evaluation of PDS had been a matter of theoretical and empirical research during the last two decades. The main aim of this review is to understand the nature and characteristics of the critical issues in the Public Distribution System in India and place the present study in its proper context. During the process of reviewing the available PDS literature, it has become very clear that the problems and issues of PDS have relationship with the changes in Population, Urbanization, Poverty levels, Income levels, Consumption levels, Nutritional status, Foodgrains Production, Marketing, Storage, Buffer Stocks, Open Market prices, procurement prices, Government subsidies, Food Management Strategies, the efficiency of Government Administration and so on. For the sake of analytical convenience and thematic compactness, the wide variety of problems and issues, analyzed by the PDS studies, are classified under five major themes.

1 Development of the Economic Rationale and the Objectives of the PDS
2 Problems and Issues in the Public Procurement Operation
3 Public Distribution Operations
4 Studies pertaining to Tamil Nadu
5 Grain Models

The review paper mainly covers the time frame from 1960 to 1990
2.1 ECONOMIC RATIONALE OF THE PDS

The Public Distribution System is a measure of Government Intervention in the food marketing system with a view to help the poorer sections of the society. The need for it was first emphasized by Gregory Committee (1943) as a policy remedy for the problem of food scarcity prevailing then in the country. The Famine Inquiry Commission (1945), the Krishnamachary Commission on Agricultural Price (1946), the Thakurdas Committee on Foodgrains Procurement (1950), the Ashok Mehta Committee on Food Enquiry (1957) critically analyzed the supply-demand trends in foodgrains and suggested policy measures of price control and rationing. They emphasized on increasing the food grain production for better food balancing in the country. Subsequently, the Jha Committee (1965) and the Agricultural Price Commission (1965) suggested the food grain's price policy from the point of view of both producers and consumers. The working group for the formulation of the Fourth Five Year Plan (1966) suggested an incentive-cum-subsidy scheme for farmers under the system of public distribution of foodgrains. The Venkatapillah Committee (1966) suggested measures for efficient working of the public distribution system. Reports of various committees and Commissions (1973-1976) had analyzed the different aspects of government interventions in the food economy, thereby, strengthening the economic rationale for PDS.

Individual researchers like Pigou (1952), Johnston (1956), Mellor (1966), Gulati and Krishnan (1975), and Jha (1976) advocated the concept of PDS from equity and economic efficiency criteria. Critics like Cunnings Jr (1967), Uma Lele (1973), and Shenoy (1974) demonstrated that the free market mechanism was superior for distributing the available supplies of foodgrains equitably.

Sen (1976, 1981) described the utility of the "food" availability decline" approach but rejected it completely in favour of the "entitlement" approach to the
accessibility problem of food. Chopra (1981,88) examined the rationale of government's food policy, the PDS and the implications of the changing balance between private traders and the government agencies. He observed “The Indian genius lay in evolving a via-media between two extremes. ” It turned out to be a pragmatic solution

2.2 PROCUREMENT

The distribution system requires a sustainable supply system. For this purpose the Agricultural Price Commission (1965) and Foodgrains Policy Committee (1964), after due examination of the different methods of procurement recommended the system of producer's levy. Brineger and Baker (1966) favoured a system of monopoly procurement by the government on grounds of economic welfare to both producers and consumers of foodgrains. Mishra (1975) pointed out the failure of levy scheme mainly due to the inequities in nature of the levy and frequent changes in the procurement policy of the government.

Gulati and Krishnan (1975)

a. Came out with an alternative PDS proposal. When operationalized, it would achieve a number of positive objectives, to the maximum benefit of the poor. The study was based on secondary data that was statistically analyzed in detail, both at the state-level (for all the major states) and at all - India level.

b. The study recommended graded producer’s levy in both the surplus and deficit states and for all types of cereals with productivity adjustment, treating the family-holding as the unit of measurement.
He had also developed a set of progressive rates to be applied to the equivalent productivity weighted size classes of holdings. The levy rates were so developed as to maintain equity levy burdens among the cultivation of different size-classes.

If the scheme were to be effectively implemented, about 42% of the cultivators would come under the levy net and total procurement would be around 25.8 million tones of cereals a year. The system of levy was observed to have several operational constraints, brought to focus by several micro level studies.

2.2.1 Micro Level Studies

Goswami and Saikia in Assam (1968), Natarajan in Andhra Pradesh (1968), and Janarthanam in Tamil Nadu (1968) revealed that the failure of the levy scheme in their respective states was mainly due to administrative bottlenecks and pursuance of wrong price policies. A study by Sen and Bandyopadhyay (1978) also showed that the producer’s levy in West Bengal did not reach the procurement targets even in years of good crops, for the same reason. Panikulangara (1976) studied the working of producer levy system in Kerala. The analysis of Public procurement data for the period 1965 to 1974 shared a continuous decline, not only in terms of proportion to production but also in absolute terms especially from 1969. The decline was explained in terms of changes in the structure of levy rates, land holdings, distribution and magnitudes of levy evasion. For Karnataka, Rajapurohit (1978) recommended procurement of all cereal crops and production (rather than area) as the basis for levy, exemption of subsistence farms from levy and freedom to sell the entire marketable surplus after payment of levy.
Subbarao (1979) in Andhra Pradesh evaluated the working of producer levy scheme, the extent of levy evasion and examined the question whether compulsory levies entailed any loss to the farmers. The study concluded that the income loss to farmers owing to levy imposition got compensated by the higher sale prices in the open market. Amte (1980) examined the monopoly purchase-cum-procurement scheme from the field data collected from Sangli district, Maharashtra. His results indicated that the high price differentials, greater degree of levy evasion, declining cereal production, the unremunerative procurement prices, and highly irrational attitude of the government officials were the main causes of poor performance of state trading in foodgrains. The study recommended partial trading through co-operatives for realizing the objectives of food policy.

Prabha (1982) in a study of Tamil Nadu showed that the imposition of levy and the consequent increase in the open market price benefited the small farmers more than the large farmers and the redistribution.

Mishra (1985) strongly recommended the adoption of the graded producer levy scheme in the state of Orissa as the prevailing procurement methods were unsatisfactory, arbitrary and in most cases inequities in their effects. The study found that the procurement prices were not beneficial to the producers, and suggested that the criteria of price parity, cost of production and forward price instead of cost of production alone, for fixing procurement prices.

Most of the studies examined the relationship between quantity of public procurement, production and the differential price between public procurement and the open market. The frequent and erratic fluctuation in procurement directly affects the supply side of PDS. However, in all these studies the policy lapses and administrative failures were not adequately examined. The particular administrative measure that required special mention was the zonal system.
2.2.2 Zonal System

The country was divided into six zones and inter zone movement of foodgrains was banned. This was intended to help procurement by government in the producing zones and its equitable distribution among the zones. The early controversy among scholars was whether to have the zonal system at all. In this context Krishna (1965), Khusro (1968), Mellor (1968), Cummings Jr (1970) and Shenoy (1972) pointed out the adverse effects of zonal system on agricultural development in general and food grain production in particular and questioned the validity of it. Bhatia (1967), Laxminarayan (1970), Gulati and Krishnan (1975) favoured a system of effective procurement of the marketable surplus of cereals for purpose of running the public distribution system, but not necessarily a zonal system.

2.2.3 Buffer Stock

Zonal system and procurement are instruments for supply management across the zones. But, a more serious problem is the wide inter-year fluctuation in production, causing scarcity in years of poor crops. A remedy for this can be found in the buffer stock operation.

Buffer Stocks of foodgrains are maintained to moderate both the seasonal price variability and the annual price variability. In 1984, a technical group constituted by Government recommended an annual grain stock in the range of 6.5 million tonnes as on April 1 and 11.4 millions tonnes as on 1 July for PDS and a holding of 10 millions tonnes as an insurance against fluctuations in grain production. Hence, a buffer stock in the range of 16.5 - 21.4 million tonnes has been assessed to be the requirement for the two operations put together.
Shah, Saran, Krishna and Jha, Puri and Srinivasan, Dantwala, Cummings Jr and few others expressed their views on different aspects of the system such as the nature of the stock, the magnitude, its location, mode and timings of acquisition and disposal, and suitable pricing from the points of view of producers and consumers, in a seminar (1968).

Khusro (1973) convincingly argued how buffer stock could be employed as an instrument of stabilization of prices, farm income and the consumer’s income. Shenoy (1974) and Jha (1976) pointed out how buffer stock was a potential source of inflation and suggested ways to minimize that effect. Gulati and Krishnan (1975) analyzed the output fluctuations of all cereals from 1951 to 1972 and strongly recommended a policy of building up adequate buffer stock either through internal procurement or imports. But no one disputed the need for a buffer stock as an instrument for stabilizing prices of foodgrains.

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Krishnaji (1988) had shown conclusively that the stock policy had been effective in reducing the variability in per capita availability of foodgrains. Using the stabilization model he demonstrated that the variability in per capita availability can be simultaneously reduced by a fine tuning of buffer stock operations without relying on imports.

2.2.4 Food Subsidy and Food Corporation of India (FCI)

The Government makes use of subsidies for resolving the trade-off that arise while pursuing the three basic goals of price policy: (i) provision of remunerative
prices to producers, (ii) making the staple food available to consumers through the PDS at affordable prices; and (iii) use of buffer stocks to prevent excessive rise in prices during periods of scarcity. The operation of the buffer stock was entrusted to FCI. FCI meets the difference between the costs of procurement, storage and distribution on one side and the proceeds from the foodgrain sale on the other by means of a subsidy given by the Central Government.

The operation of the buffer stock was entrusted to FCI. Venkatapiah Committee (1966), Bhatia (1970), Jha (1971) and Chopra (1975) justified the need for operating the buffer stock through FCI. Majumdar (1965) and Shenoy (1974) not only questioned the necessity but doubted the administrative ability of FCI in future, since it had failed to bring the seasonal and regional price variations to the minimum which could have been realized under conditions of market integration.

Garg (1980) examined the functions and management of the FCI for the period 1965 to 1980 and concluded that the cost of all the FCI activities was found to be in far excess of the private traders. The study mainly enquired whether the objectives of the FCI could be realized up to the satisfactory extent, especially without incurring any undue and high costs of operations. The study also analyzed the trends and implications of the governments’ huge food subsidies and the concessional credit facilities enjoyed by the FCI through the consortium of nationalized banks, and found the functioning of the FCI uneconomical and unjustifiable. The conclusions were derived from the point of view of pure economic criteria. Since the FCI has been the chief source of supplies of the PDS, the negative conclusions of Garg appear to be biased against the maximization of social welfare. In other words, the differences between the objectives of private and the objectives of public intervention were not paid the required attention that they deserve.
Bhagabat Mishra (1985) examined the PDS in Orissa and this study assumes significance because of its special focus on the buffer stock policy role of the FCI and the impact of working of the price policy on both consumers and the producers. While using the distinction of Shah (1969) between price-neutral buffer stock and quantity-neutral buffer stock, Mishra emphasized the importance of the latter for the poor. The magnitude of bufferstock, purchases, sales, timings, the appropriateness of the procurement agency and the problems of storage locations were analyzed and FCI was found to be an ideal agency of procurement in Orissa. In many respects, the study of Mishra concluded that the failures and shortcomings of the PDS in Orissa outweighed the generated gains and benefits for the consumers.

2.3 DISTRIBUTION

Krishna (1967) analyzed the effectiveness of government operations in foodgrain for the period 1951 to 1966 based on secondary data, in the light of government policies on production, imports, distribution and buffer-stock operations. Through trend analysis of the time series and by using important ratios of the inter-related variables, the study derived a number of quantitative indicators, which showed the failure of government operations in foodgrains.

Gupta (1979) examined the formulation and implementation of the PDS policies at the national level for the period 1942 to 1977. The study focused on the objective of protection of weaker sections of the society by PDS. The relevant factors, like the movement in real income, consumption changes in foodgrains, the price indices and the quantity of PDS supplies were analyzed. This study brought to the limelight the gaps observable between the expected role of PDS at the conceptual level and its actual performance.
Tyagi (1990) examined the various complex problems of food economy with special reference to the working of PDS. The study concluded that the distribution of foodgrains had not gone in favour of the poor and the PDS had made its consumers worse-off as they had to pay a higher average price in the absence of the dual market system. He also pointed out that the per capita distribution of foodgrains in different states had not been consistent with the percentage of population below the poverty line in those states. The study recommended "the target-group approach" instead of the general "PDS-for-all approach".

Dholakia and Khurana (1979) pointed out the main weaknesses of the FPS and the co-operatives and strongly recommended the development of a comprehensive and coherent national distribution policy. They observed that this could necessitate broadening of the objectives of PDS, instruments of control, defining vulnerable segments and the commodity coverage. They developed an analytical approach through systematic model and flow chart techniques for distribution policy, the objective being maximizing social welfare for all the sections of the population.

Gulati and Krishnan (1975) evaluated the PDS and concentrated primarily on (i) the estimation of quantity of cereals needed for protecting the economically vulnerable sections against price rise (ii) the development of an appropriate and suitable internal procurement system for meeting the estimated requirements. The study identified the problem of inequity in the distribution of levy burden among the farmers and recommended that the principle of equi marginal sacrifice should become the basis for the fixation of levy rates between different classes of farmers within a state and across states and came out with an alternative PDS proposal.

Subbarao (1980) assessed the PDS performance in Andhra Pradesh. The study covered the period from 1973-74 to 1975-76. The district-wise requirements of the PDS were estimated on the basis of two minimum norms (i) the extent of population
coverage: and (ii) the quantum to be distributed per consumer unit covered. The study found that nearly two-thirds of the population were denied access to PDS rice, and also underlined the immediate need for bringing down the high cost of public distribution. Subbarao used the framework of perfect competition and the efficient market which is a clear deviation from the basic model and framework of analysis, hence one cannot be sure about the extent to which these conclusions could be generalisable even up to the level of the state.

Kumar (1979) studied the impact of PDS on the levels of consumption and nutrition of the economically vulnerable sections in Kerala. The study conclusively proved the beneficial and positive contribution of the ration system at all levels.

In a status report on PDS in India (1987), Dutta, Nayar Kabra and Chandy, Ittyera and Harriss had discussed the problems faced by PDS and offered alternative strategies to be adopted for achieving the maximum effectiveness of PDS. Wendy Olson (1989) made a critical assessment of two-rupee-a-kilo rice scheme then functioning in Andhra Pradesh. While admitting its popularity he analyzed the social, political and economic implications of the scheme. He concluded that the new scheme though directly supported the poor, could not eradicate poverty substantially as it had left out the basic economic structure of the state undisturbed and unchanged.

Mishra (1985) evaluated the PDS in Orissa. The study assumed significance because of its special focus on the buffer stock policy role of the FCI and the impact of the price policy. The detailed analysis of field data revealed that the PDS in Orissa was an urban phenomena which failed to meet the entire rice requirements of the covered urban households. In the rural areas, it operated only for a few months in a year and meet only fringe of the rice requirements there. This study concluded that the failures and shortcomings of PDS in Orissa outweighed the generated gains and benefits to the consumers.
Ghanshyam (1987) examined the organization and management of PDS in the Konda district of Andhra Pradesh. The study revealed a number of shortcomings like irregular release of quota, wide gap between demand and supply, absence of business culture, pilferage, interference from influentials, economic non-viability of FPS and the strained relations between the dealers and the consumers. The study underscored the widening gap between promise and performance in the implementation of this crucial public policy.

Radhakrishna and Indrakant (1987) formulated a dual model for analyzing the price formation in the rice market of Andhra Pradesh. The model was structured to handle effects on the welfare of the consumers and the gross revenue accruing to rice producers and millers.

A study by George (1979), (1980, 1989, 1985) examined the impact of PDS from a number of angles and perspectives for the food-deficit state of Kerala. The PDS in Kerala had a population coverage of 97 percent, more evenly spread both in urban and rural areas. The study was mainly based on secondary data from different published sources and the analysis carried out in the study covered the period from 1952-53 to 1975-76. Through random sample, 100 households were selected to collect primary data for the purpose. The study concluded that the PDS contributed positively to minimize the food problem and to protect the lower income group from the vagaries of the prices. The study also found that the high level of public awareness, public services and the flexibility of the administrative arrangements in Kerala exerted great influence on the overall efficiency of the PDS.

Suryanarayana (1985) analyzed the PDS operations in the Vishakapatnam district of Andhra Pradesh. The study concluded that all the consumer households had gained in varying proportions and benefited by the existence of PDS.
The identification of target groups for PDS was not at all attempted in the above studies. Such identification becomes imperative in order to protect the poorer sections from low consumption standards and inflation. Further, the benefits are not to be extended to the rich people. This implies that the PDS should benefit the rural families more than the urban families because majority of the poor lives in rural areas but PDS seems to have a strong urban bias.

2.3.1 Urban Bias

The studies undertaken in this area were focused on impact of PDS and equity aspects of distribution. The data base for most of these studies was the National Sample Survey Organization (NSSO) data on public distribution for the year 1986-87 and the reports and records of food and civil supplies. The equity aspects of PDS were examined in terms of the percentage of PDS quantity consumed, the percentage of the poor covered under PDS, the share of the poor, and the share of rural areas in the total and so on.

Dantwala (1976) mentioned that “there is a legitimate criticism that public distribution of foodgrains through rationing and fair price shops is predominantly in urban area and there is a clear case for extending it to rural areas.” Dreza and Sen (1990) claimed that “Kerala is the only Indian state in which the public distribution of goods goes well beyond the limit of urban areas and provides significant support to rural population.”

Using the 42nd round of NSS data Dev and Suryanarayana (1991) found that the PDS was not urban biased but pro-rural. They had listed seven criteria:

1. Visit any village and verify
Accessibility as measured by (a) number of ration shops per thousand of persons in rural areas and (b) number of ration shops per unit area

Relative proportion of total PDS supplies accruing to rural and urban sectors

Relative dependence on PDS defined as the PDS share in total quantities of an item purchased

Per capita quantity purchased.

Per capita subsidy determined by the gap between the open market price and ration price

PDS quantity per market dependent, which takes into account the population that depends on the market for a particular commodity. After a critical analysis of all the available data they concluded "the nature of the bias varies depending upon the commodity in question and the criterion used". Using the preferred criterion, "PDS quantity per market" they found that "PDS is rural biased at all India level for rice, coarse cereals, sugar and cloth. These items constitute 60 per cent of total PDS purchase. Hence, it appears that PDS is not urban biased but pro-rural". The study also reported that at the all India level, the dependence of the poor on the PDS in rural areas for rice, wheat, edible oils, coal, standard cloth was less than 16 per cent. The figure for coarse cereal consumption by the poor was very low (less than 5 per cent). This would mean that the dependence of rural poor on the open market was much higher than on the PDS for most of the commodities distributed under the PDS. Similarly, the urban poor also depended, to a great extent, on the open market for their consumption requirements.

The consistency between the share of the PDS and the level of poverty among the states was examined by Tyagi (1990). After a careful analysis, he concluded that there was no positive correlation between the poverty level of a state and its share in PDS supplies. His results show that in 1983-88, states with high incidence of poverty such as Bihar, Madhya Pradesh, Orissa and Uttar Pradesh received a low share in the
distribution of foodgrains through the PDS and in per capita terms these states received less than 10 kg per annum.

On the other hand, states with moderate incidence of poverty such as Kerala, Andhra Pradesh and Gujarat, received a high share of distribution from the PDS with the annual per capita PDS quantity distributed from the Central pool being about 62 kg in Kerala and 22 kg in Andhra Pradesh and 23 kg in Gujarat.

Howas and Jha (1992) used three criteria—grains consumed, the implicit subsidies and accessibility of ration shops to examine inter-state variations in the level of urban bias. Supply data from 1978 showed a massive urban bias across all the States and Union Territories. Consumption data from 1986-87 showed a mixed picture of urban bias on an average. Calculation of the subsidies confirmed the presence of an overall urban bias with an urban-rural per capita subsidy ratio as high as 1.36. The accessibility of ration shop suggested that rural dwellers were disadvantaged relative to their urban counterparts to the extent of shops being, on an average far away. Overall, urban bias was present in Assam, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Uttar Pradesh and West Bengal. Three states—Andhra Pradesh, Gujarat and Rajasthan showed rural bias. The three states of Himachal Pradesh, Kerala and Tripura showed a rural bias with respect to quantities consumed and no bias with respect to subsidies. Tamil Nadu had a rural bias in quantities and an urban bias for subsidies. Haryana and Karnataka had an urban bias with respect to quantities but a rural bias with respect to subsidies.

2.3.2 Coverage

While working on alternative assumptions regarding the coverage of PDS at all India level a few important studies estimated the quantum of foodgrains required for the scheme. National Commission on Agriculture (1975) recommended 12 million tonnes.
1975 (five m.t of rice, five m.t of wheat and two m.t of coarse cereals. Vyas and Bandyopadhyay (1974) suggested between 4.5 m.t to 33.3 m.t for 1974-75; Krishna (1967) estimated 19.87 million tonnes for 1967-68, and Gulati and Krishnan (1975) estimated the PDS requirement at 25 m.t for 1973. These studies were reviewed by Bardhan and Gupta (1978). Gupta (1977) carried out a comprehensive exercise and offered various estimates of PDS requirements depending on the various criteria of per capita food allocation and population covered for the period 1976-1980. Requirements varied from 6.60 m.t to 35.29 m.t.

Rao (1989) estimated that to ensure coverage for the very poor (about 58 million households in 1988), annual foodgrain requirement should have been 11.6 m.t whereas 16 million tonnes were distributed in 1988.

Geetha and Suryanarayana (1993) examined the PDS allocation across states and worked out the PDS allocation for the revamped PDS. The analysis was carried out for seventeen major states, making use of the available poverty estimates. The total availability for a given state was taken as given at the observed level.

These studies indicated a definite role for PDS as an instrument to help the poor and served the purpose of equalization of supply with demand, especially in years of scarcity.

2.3.3 Demand - Supply

Vakil et al (1943), Gadgil and Sovani (1944), and Chatterji (1948) analysed the supply and demand position in foodgrains and advanced theoretical justification for price control and rationing in the country.
Narayanan (1986) studied the relationship between the demand and supply levels and the bridging role of the PDS. This study estimated the gaps between demand and supply for the period from 1974-75 to 1978-79 for all the major states based on the published data. Taking into account the relevant constraints, a model was built with the objective function of equalizing, over the years, the per capita demand with supply among all the states. The study concluded that if the model specifications and suggestions were followed, the central pool allocations would have been a significant tool in the hands of policy makers for attaining the objectives of increasing the per capita consumption and price stability through PDS operations.

Knight (1954) examined the relationship between population and food supply and growth trends from 1872 to 1941, and on that basis surplus and deficit provinces were identified in the country. The patterns of food intake and their implications on the demand for food were also analyzed.

Ray (1971) estimated the growth rates in demand and supply of foodgrains and on that basis projected the likely regional imbalances for the period 1967-70 to 1983-84. While indicating the regional imbalances, the study emphasized the crucial role of buffer and reserve stocks of foodgrains in India. In addition to the detailed price analyses, the study also emphasized the urgent need for keeping in balance the utility matrix of both the producers and the consumers and the significance of treating the rural areas on par with the urban areas as far as the distribution of foodgrains is concerned.

2.4 PRICE POLICY

The government announces the minimum support price at sowing time and agrees to buy all the grain offered for sale at these prices. Support prices become the floor prices in periods of good harvest and hence they indirectly influence farmer's decisions regarding allocation of land and other resources among crops. For rice and
wheat. prior to 1973 - 74, the government differentiated between support and procurement price, which practice was discontinued thereafter. In the late 1960's the distinction between these two types of administered prices had begun to get blurred. For instance, in 1967-68, when the market price of wheat tended to fall because of a good harvest, the government took the decision to support the market at the level of procurement rather than at the minimum support price (Balakrishnan, 1991).

The Government announced price is expected to serve a dual purpose (1) It will act as a minimum support price whenever the market price is lower (in periods of good harvest) and (ii) as a procurement price (involving an element of tax), whenever market price is higher.

Gadgil (1964), Mellor (1966), JaiKrishna (1968) and Johl (1974) advocated fixation of price at a level beneficial both to the producers and consumers. Dandekar (1964) and Dantwala (1967) did emphasize the incentive price for the benefit of producers alone.

Rath (1966) and Krishnaji (1975) considered production cost as the main basis, for food grain pricing. Scholars like Dandekar, Dantwala (1965) opined the support price for food grains should be isolated from the cost basis. However, Saran (1971) argued that the support price, not only should include the cost but also a profit margin for the growers. Shah and Tarasukla (1966), Mellor (1967, 1969) and Sharma (1973) criticised the policy of price support itself on grounds of distorting the farm output and income.

According to Mitra (1978), fixation of procurement prices by the government provided early warning signals for others “If the government raises administered prices, it stimulates prices over the entire range of market operations, if it marks down administered prices, its decision acts as a depressant which again casts its spell over
the rest of the market. As long as the belief is promoted that the Government is the price-setter, whatever the objective reality in the initial stages, the administered price becomes, after an interval of time, the actual price-setter for all effective purposes.”

Patnaik (1991) identified the inflationary consequences of procurement prices and his argument rests on the possibility of excessively large speculative stock buildings.

Khusro (1968) examined the basis of pricing policy followed by the government of India. He suggested: announcement of support price by the government in advance, support price not to be the ceiling price, procurement at market price, subsidized foodgrains for consumers, special subsidies for farmers who agreed to deliver a given proportion of their produce to the government and elimination of zonal restrictions.

Tyagi (1990) complained that the inability of the government to ensure reasonable prices to the producers of coarse cereals such as jowar, bajra and maize has brought to attention that the open market prices of coarse grains often ruled below the minimum support prices during 1983-84, 85-86 and 88-89. The study also observed that the prices of foodgrains were high during some years, despite large stock-holding by the government.

Krishna (1967), Shah and Johl (1974) advocated the dual pricing system but later studies by Sinha (1974) revealed that the main constraint was in administering the dual pricing and suggested that the policy should be selectively used.

Dantwala (1967) argued that the weighted average of procurement and open market prices would be higher than the price which would have been received by the producers in the absence of procurement. A study conducted by the Indian Statistical Institute (1985) which confirmed that whenever there was procurement, the open
market price went up to enable the farmer receive the weighed price for his total sales which was not less than what he would have received in the absence of procurement price.

Radhakrishna and Indrakanta (1987) examined the welfare effects of market intervention policies in India through the case study of rice market in Andhra Pradesh. The study found that “the open market price of rice in the dual market system was about 20 percent higher than that in the absence of dual market system.” The authors handled the complex interactions of a rice market containing “a four market, four price system” instead of the usual treatment of “the two-market and two-price system.” The model was structured to handle policy effects on the welfare of the consumers and the gross revenue accruing to rice producers and millers.

Bhattacharya (1991) found that the cereal prices were relatively more important in influencing the extent of poverty than food grain output. The estimated parameters of the model seeking to explain rural poverty had shown that a ten per cent increase in the relative prices of cereals would increase poverty by more than ten per cent in the following year, while a similar increase in cereal output would reduce poverty by only five per cent.

Sharma (1977) argued that although foodgrain price stabilization was necessary for the benefit of producers and consumers under the PDS, the element of subsidy either in the consumer’s price or in producer’s price should be ruled out because it would be costly both in terms of its availability and administration. This raised the basic question of price fixation.
2.5 ECONOMIC REFORMS AND FOOD SECURITY

Providing food security to the poor is one of the unfinished tasks that may persist throughout the nineties. There exists now a consensus that food policy should be oriented towards the market, taking into consideration the ongoing changes in the domestic and international marketing scene which place a much greater reliance on the market.

The policy reform faces two major challenges to maintain budgeting expenditure at the minimum and to improve food security of the poor. These challenges have to be faced in the current situation dominated by three constraints, namely, non-availability of cost-reducing new technology, limited prospects for public investment in irrigation infrastructure and declining private investment in agriculture.

Purssel and Gulati (1993) suggested an agenda for market reforms for eliminating controls on agriculture in the domestic market and external trade and a limited role for the Government for providing a safety net to the poor affected in the transition. They argued that with such reforms, the system would become more transparent and promote allocative and technical efficiency in the use of scarce resources. They visualized that the reforms would result in 15 to 20 per cent increase in the overall level of agricultural prices, a higher increase in cereal price and a substantial drop in oilseed price. They have also considered the possibility of the adverse consequences of unstable world prices and difficult adjustment problems for the vulnerable groups and have suggested measures to deal with them.

Another proponent of domestic market reforms did not envisage substantial gains from external trade liberalization (Parikh, 1992), based on the results of an exercise which collaborated the effects of agricultural trade liberalization using a computable general equilibrium. He concluded that there would be no improvement in
agriculture GDP in India in the long run and that the number of hungry persons would increase. He argued that "the gains from agricultural liberalization may not be as large or as unambiguous as some partial equilibrium analyses suggest. It is, therefore, not obvious that India should liberalize its agricultural trade."

Subramanian (1993) using a social accounting matrix, brought out the following results of the effects of external trade liberalization. The effect of liberalizing India's agricultural trade on agriculture would be small and comparatively more on non-agriculture. If the liberalization is extended to non-agriculture, the impact on agriculture would be significant, since industry is highly protected and even if agriculture were to improve in the long run due to liberalization, the rural and urban poor may adversely be affected in the short run because of higher foodgrain prices. He argued further that if global agricultural prices rise, and if India liberalizes its agriculture, this price rise would be transmitted to Indian agriculture and result in a decrease in real incomes for the rural poor and all urban classes, but the real incomes of the middle class and larger farmers would increase. It is essential to recognize the limitations of the exercise identifying the effects of external trade liberalization. The formal models are often based on very restrictive and simplistic assumptions about casual relations, incomplete information on the nature of the world market and subjective judgement of the responses of other nations to India's trade liberalization. However, the results of the exercises on domestic reforms are by far convergent. It is recognized that even on consideration of food security, intervention has to be selective, subsidies should be targeted to the poor and India should play a strategic role in the world grain markets.

2.6 STUDIES PERTAINING TO TAMIL NADU

The Agro Economic Research Centre (1957), located in the University of Madras examined the impact of Government's food control measures on the agrarian economy of the Madras Presidency from 1938 to 1953. The study focused on two
major aspects: (a) the relationship between the variation in acreage and yield of food crops and economic conditions of the producers and (b) the effects of distribution of foodgrains by the state or quasi-Government agencies in the rationed areas. Among the findings of the study the following are noteworthy (i) the fall in cereals acreage during 1945-51, the adverse seasonal conditions affected the food and non-food crops equally. (ii) the adverse monsoon conditions resulted in lower food grain production and lower controlled price because of which the economic conditions of food grain producers became worse-off (iv) the food control measures and the war conditions directly contributed to the faster development of consumer co-operatives and (v) The field investigation revealed that people perceived the food control measures as necessary and the rationing of food as a positive service, especially when food availability remained very low and food prices ruled very high.

Agricultural Economic Research Center (1965) examined the actual working of the Fair Price Shops in the Southern Region covering Tamil Nadu, Kerala and Andhra Pradesh. Field work for the study was conducted during Nov-Dec 1964. The study investigated whether the poorer sections really benefited from the PDS and whether it really checked the prices of foodgrains. The study also analyzed the problems of malpractice by the employees, the overall economic viability, profitability and serviceability of the FPS, and concluded that the open market prices could not be brought down by the FPS since supplies of foodgrains were limited.

Janarthanan (1968) examined the rice levy scheme in Tamil Nadu and worked out the producers and methods of procuring paddy and rice up to the level of rationing commitment by the State Government. He emphasized that the levy scheme should be progressive, rational and should also satisfy all the four canons of taxation (equity, ability, certainty and convenience). The study found that over 60 per cent of marketed surplus came from upper peasantry. He justified the steeply progressive levy structure for the middle and upper peasantry, purely on grounds of equity and fairness.
justified the progressive levy structure for the middle and upper peasantry purely on grounds of equity and fairness

Prabha (1982,83,84) evaluated the inequalities in food consumption and incidence and magnitude of poverty in Tamil Nadu using the National Sample Survey data for the year 1961-62. By following the minimum calorie norm of 2250 per capita per day the study found that nearly 48 per cent of the rural population and 85 per cent of the urban population had not obtained even the minimum level of per capita calorie through food consumption.

Levy data from 108 farmers in Thanjavur district were collected and statistically analyzed. It was found that the weighted average price received by the sample farmers was higher than the estimated open market price that would have prevailed in the absence of compulsory levy.

The relationship between the procurement quantity, output and prices were analyzed through regression equation. Results showed that the procurement quantity of rice was positively correlated to output level, the producer levy method and the inter district movement restrictions. But at the same time, the volume of procurement was inversely related to the price differential between the open market price and procurement price.

The study also examined the extent of benefits accruing to the consumer households based on the survey conducted during May - June 1982. On the basis of estimated annual income, the sample households were divided into six categories and their sources of rice consumption were also analyzed. Results showed that the rice purchased from FPS had never exceeded five per cent of the total consumption even in the case of lower income groups. It was observed that the high income households seldom purchased the rice from EPS.
The evaluation of government operations in rice in Tamil Nadu was also carried out by Prabha (1983) for the period 1965-66 to 1978-79. This study strongly recommended the target group approach. It was estimated that only 202 lakh persons deserved price relief through PDS out of a population of 412 lakhs in 1971. The target group worked out to be 49 per cent of the total population.

Barbara Harriss (1977) examined the ways in which the state levy on paddy and rice and the associated factor of movement restrictions controlled and distorted the price behaviour of "free market" and influenced the very choice of milling technology in Tamil Nadu. Data on levy prices and open market prices for the period 1972 to 1974, collected from North Arcot district, were analyzed.

The study concluded that despite the dual market and dual price, the conditions of the weaker sections of the society continued to be deplorable and desperate. She also examined (1984) the impact of government intervention in Tamil Nadu. The stated objectives of State intervention and planning, "were to capture the commanding heights of the economy from which position its lower slopes and less commandable summits could be strategically regulated." But the study found the merchants in commanding heights of the economy. In the words of Barbara Harriss, "Merchants profoundly infiltrate all interventions which have the purpose of curbing their activity. Merchants occupy commanding heights in the sphere of exchange, not the State. The weakness of State intervention of the degree to which it serves mercantile interests in the form in which it is implemented."

Poduval (1984) examined the functioning of PDS in Tamil Nadu. This study focused on (i) the changing emphasis on the rate of the PDS over the decades, (ii) the characteristics of the food economy, (iii) objectives of policy intervention and (iv) the extent of benefits occurred to the PDS consumers.
In his overall assessment, he concluded that in respect of accessibility to food or entitlement to foodgrains, the PDS supplies in Tamil Nadu were highly inadequate to make any impact on the consumption levels of PDS consumers.

The study of Ramamurthy (1974) examined the levels of poverty and destitution in Tamil Nadu for the period of 1961-1971. He identified the proportion of people living below the poverty-line and their absolute numbers for the years 1960-61, 1961-62, 1963-64, 1964-65, and 1969-70. The study emphasised the superiority and advantages of the PDS mechanism over other anti-poverty measures initiated by the Government.

Bragadha (1986) examined the impact of procurement of paddy and rice on various aspects of the food economy in Tamil Nadu. The study concluded that the procurement operations had significantly influenced the pattern of business, availability, prices, and the distribution of rice in the state. The procurement operations should be used with due caution and care by the Government agencies as they are powerful and influential weapons affecting both the producers and consumers of foodgrains.

Annadurai (1988) made an assessment of the PDS in Tamil Nadu for the period 1950 to 1986 and hypothesised that the PDS in Tamil Nadu had generated beneficial effects on the consumers and underlined the significance of empirical verification of the secondary data in any beneficiary-oriented public intervention programme. Thus, the policy of PDS was found to be beneficial to both producers and consumers, and yet its impact on poverty and consumption levels was far from the expectation of the policy makers. In their effort to identify effective policy instruments to make PDS successful, several models had been put to use.
2.7 GRAIN MODELS

In the corpus of econometric research on Indian agriculture during the last two decades, a large number of single-equation relationships had been estimated for individual crops or groups of crops. Few multi-equation grain models had also been estimated. Scandizzo and Knudsen (1982), and Hayami and Subbarao (1982) derived theoretical expressions for net social gain from a regime with two different demand curves.

Mann (1967) developed a model comprising of five equations related to supply, demand, income generation, commercial imports and withdrawals from government stock for the period 1952-63. The model did not consider the procurement or issue of foodgrains through PDS.

Barnum (1971) constructed a model for the period 1948-64 similar in structure to that of Mann. It included price, income generation, import, area and yield equations, but had failed to recognize the dualistic structure of Indian food grain market. It ignored procurement and issues. Similarly, Rogers et al. (1972) had developed a model without incorporating equations for either procurement or issue.

The models by Mann, Barnum and Rogers were reviewed and improved by Blandford and Von Ploeki (1977). All the models referred above had the common objective of empirically measuring the effects of PI 480 imports on domestic production. Gupta (1977) was not concerned with the effects of PI 480 imports but developed a simultaneous equation model for dual market that encompassed a marked improvement over the existing models. The model consisted of four equations that included net production, procurement, open market demand and price. The government issue price was used in the procurement equation as a proxy for the government purchase price, though purchase price series was available. An important
determinant of procurement, namely output need to be included in the procurement equation

Krishna and Chaudhri (1980) developed a model incorporating procurement equation and brought in the role of Agricultural Price Commission by explaining the behaviour of procurement price. But the model did not estimate any function either for issue of wheat or rice from PDS or for their imports. The equations relating to procurement and output of two crops, constituted at best incomplete and partial models for wheat and rice sectors.

Krishna and Chhibber (1983) developed a complete model for the wheat sector. It consisted of five equations, one each on output, absorption, concessional sales procurement and imports of wheat. The price variable used in the Krishna Chhibber model was the Economic Adviser's wholesale price index of wheat. This price did not adequately reflect either the relative contribution of different states to all-India wheat production or its pattern of market arrivals and hence casts its shadow on the entire model. The model considered the procurement price as exogenous but the market-price was treated as endogenous, being determined by inserting the absorption. This was in contrast with an earlier hypothesis put forward by Krishna and Chaudhuri (1980) where they had developed an equation for procurement price, which was explained by lagged market price of wheat, implying, thereby, that the procurement price did not have autonomous character in the wheat market.

The model was simulated to determine the optimum stock of wheat required by Government to feed PDS under alternative assumptions. An important conclusion arrived at was that the cost of keeping buffer stock of wheat can be reduced by 30 to 35% if the Government pursued a rational import policy which would enable a reduction in average inventory to about one fourth of its present size, though never below one fourth of PDS issues.
2.8 SIGNIFICANCE OF THE PRESENT STUDY

As revealed by the foregoing discussion, the entire area of research on PDS can be broadly classified into two sets of studies, namely the evaluation of PDS from the perspective of pure economic principles and the other from the consumers' angle (i.e., the benefits accrued to them due to PDS. Further, the aggregate results and conclusions suffer from a number of analytical problems, especially in a vast country like India. They do not reveal the wide variety of experiences of the constituent states in the Indian Union. The PDS operations are the sole responsibility of the state Governments (the Centre being the overall policy maker), and each state operates the PDS in its own way. The operational details differ due to the government approach, coverage of commodities, administrative effectiveness and the level of food deficit. The present study, after a careful analysis of the past and present performance of PDS in Tamil Nadu, ventures to bridge the gap between the ideals of PDS and its achievements. This study involves both the approaches mentioned above. The evaluation of PDS in Tamil Nadu by defining the various PDS parameters, analyzing each one of them for its validity and inter linkage with other parameters, the working of the PDS could be improved substantially. By measuring the level of satisfaction achieved by the consumers against their expectation, finally decides the usefulness or otherwise of PDS. It was felt, after pursuing the available literature on PDS, both at all India level and state level, the nature of present investigation is both timely and topical.