Chapter III

A REVIEW OF EARLIER STUDIES AND METHODOLOGY OF THE PRESENT STUDY
A Review of Earlier Studies and Methodology of the Present Study

The chapter is devoted for a review of earlier studies on public distribution in India including studies pertaining to Andhra Pradesh, in order to identify gaps in research, if any, and to formulate methodology of the present study.

Review of Literature

Earlier studies on public distribution may be divided into (i) studies pertaining to procurement of foodgrains and estimation of the effects of procurement on producers, and (ii) studies relating to the estimation of distribution benefits to consumers. Since the present study is confined to the latter, the concerned studies are taken up for review.

P.S. George has attempted to analyse public distribution of foodgrains and their income distribution effects in Kerala. He has tried to estimate the possible impact of rationing on incomes of the consumers using the relationship

\[ R = P \times Q \]

where,

\[ R = \text{Ration Income} \]
\[ P = \text{Gap between open market price and ration price} \]

\[ O = \text{Off-take quantity of rice from the ration shop} \]

Further, he also estimated the total a cost involved in distribution which is given as

\[ C = L + S + SW \]

Where,

\[ L = \text{Government subsidy on rice} \]

\[ SW = \text{Government subsidy on wheat} \]

Economic viability of rationing is determined by comparing the cost with benefits in this study. When the estimated value of benefits (\( R \)) exceeds the estimated value of costs (\( C \)), it implies that the gains to the consumers exceed cost incurred by the Government on producers in maintaining public distribution systems. Hence rationing is an economically viable proposition. The results for Kerala suggest that the system is economically viable. Further, ration rice, according to this study, accounted for a major share of rice consumption of consumers belonging to low income groups.

Similar study has been attempted by Gavan and Chandrasekhara for Sri Lanka. Basing on consumer survey data they have examined utilisation of ration by different economic groups in rural, urban and estate areas and concluded that a high proportion of total cereals consumed was obtained through the public distribution system by all
income groups. Further, in terms of cash equivalent the value of subsidy was 16 per cent of total income for the tenth percentile of the population. Such incremental income, according to this study enables the consumers to increase the consumption of different products. Also, the reduced Gini-coefficient shows substantial reduction in income inequality.

However, the identification of target groups for percolating the benefit of the public distribution system has not been 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 need not be confined to the richer sections of the population.

The criteria of identifying target groups differed across studies. Rajkrishna suggested that the beneficiaries of the distribution system could be arrived at by deducting from the total population - (1) the number of income-tax assesses, and (2) cultivator households multiplied by five which is the average size of the family.

For Raj Purohit the urban dwellers and rural poor should be included under target groups. The Sixth Five Year Plan identified 50.8 per cent of rural population and 38 per cent of urban population as comprising of target groups. However, in practice each State has followed its own criteria. For instance, Gujarat excludes, (1) households whose annual income exceed Rs. 8,000 (2) dealers
registered under Sales Tax Act, and (3) agriculturist households, who are having more than 1/9 of ceiling of land. The remaining population would be considered as target group.

Subba Rao\(^9\) has attempted to estimate food requirement for the State of Andhra Pradesh under certain assumptions. In the rural areas, the public distribution system covers:

i. cultivating households with an operated holding of less than 0.5 hectares in the irrigated Coastal Andhra Region, and less than 1.0 hectares in other regions;

ii. agricultural labour population; and

iii. families of workers engaged in household industries.

For urban areas, the entire urban population excluding the income-tax assessee households\(^10\) will be included in the public distribution system. While working out these estimates he has assumed a supply level of 12 ozs. (340 grams) per consumption unit.\(^11\) He has concluded that Andhra Pradesh is not a surplus State; rural and tribal areas are neglected and even across districts people in the deficit districts were made to depend on open market such that ultimately the benefit of public distribution is zero or negligible.

Gupta\(^12\) basing on certain assumptions has projected foodgrains requirements for public distribution system up to 1980, for all-India. Such projections are assumed to help policy makers in their procurement efforts.
3.2 Methodology of the Present Study

3.2.1. The Theory of Dual Market Mechanism

The system of public distribution is usually managed by the dual market mechanism: (1) Open; and (2) Controlled. The objectives of the two markets are different; while the open market aims at maximization of profits, the controlled market caters to the welfare of the people.

Consumers respond to competitive choices offered by both the markets. Open market offers the attractions such as large number of sellers, varieties, choices, credit dealing, bargaining, etc., with the sole aim of earning maximum profit. The controlled market, on the other side, offers benefits such as stability of prices, certainties in supplies, etc., with the basic motive of maximising social benefit. Obviously the maintenance of price and supply level of foodgrains is against the spirit of open market. Similarly, acceptance of abnormal fluctuations in prices and allowing the supply scarcities is against the characteristics of the controlled market. These two divergent motives, thus, may never coincide. If domestic production is below the target level, a seller in the open market can easily increase the price in order to maintain or even enhance the profit-margin. If domestic production is sufficient, a seller can hold the surplus and can easily create artificial scarcities in order to safeguard the existing profit margin. In the controlled market attempt is made to keep supply and demand at the same level so that consumption could be maintained at stable prices. This is a particularly
difficult task in view of uncertain domestic production and consequent uncertainty of procurement levels and buffer stocks. Increasing dependence on imports, in this context, is quite obvious.

The foodgrains market, open as well as controlled, offers various attractions to the consumers, which may be grouped under the main heads of "price front", "supply front" and "service front". All of them provide various benefits to different consumers according to their socio-economic status. For example, while salaried and lower-middle class people whose income is fixed are attracted more towards price stability, credit sales and undisrupted supplies, the upper middle and rich class do not bother about them and pay more attention to the services offered by these markets. On price front, there are two major attractions. One is the price level and the other is its degree of fluctuation. Both are important to the consumers who live on almost fixed income level. An inflationary trend and its abrupt fluctuation both have heavily taxed the household budget of a consumer and therefore this preference never goes in favour of the market where such trends prevail. Usually, the open market prices of foodgrains and their fluctuations throughout the country remain considerably higher than the controlled prices. In this case the consumer naturally prefers to go to the controlled rather than the open market.

The open market offers sales not only on cash but also on credit. The sales on credit may be total or partial, occasional or usual, seasonal or unseasonal, and weekly, monthly or annual. This is so attractive to
the consumers that even after realizing the fact that the seller may charge more than the prevailing market price or he may cheat by maintaining false accounts, and they actually collect more than due, they still insist on going to open market. A consumer knows that at controlled shops prices are given and there is little change of being deceived or cheated. But the strict cash dealing coupled with his tight budget does not always allow him to be ready for cash payments. Thus both the markets offer satisfaction and dissatisfaction to the consumers. If the consumer prefers to go to open market his satisfactions are in bargaining choice among different brands and credit dealings. But he equally experiences disadvantages in the form of high prices, its abrupt fluctuations, disuniformity, dishonesty and cheating. The controlled market, on the other hand assures stability of prices with minimum fluctuation, but at the same time insists on cash payment, no choice with regard to variety or brand and shows in this respect, strict administrative disciplinary responsibilities.

Thus both the markets offer advantages and disadvantages on price from. Consumer realises that the advantages offered by the open market have become the disadvantages of the controlled market and vice versa. He may also experience that the dissatisfaction provided by the controlled market may be balanced by the the satisfaction of open market; wheat would, therefore, be the preference of a consumer? Where would he like to go? Which market would attract him more? Ther is no definite answer. However, income, the size and the
responsibilities of family, consumption pattern, social circle, attitude and behaviour and the socio-economic status of a consumer determine the choice of a particular market.

In the fulfilment of the objective of maximum profit and maximum welfare, supply conditions play an important role in both the markets. Level of domestic production is common in both the markets; but in the controlled market, besides the level of domestic production, supplies are also influenced and controlled by the level of imports, procurement and buffer stocks. If the level of domestic production is below the target level, an open market can easily increase the prices of foodgrains in order to maintain or even enhance the profit margin. He can also smuggle the goods from surplus to deficit areas to earn more profits. The reverse is the case of controlled market. Attempts will be made to keep the supply-demand levels on par so that the consumption could be maintained at stable prices.

Further, regarding the level of prices that prevail in both markets, the market price, determined by supply-demand forces is usually higher while the price in the controlled market is lower; a 'fair price' which the poorer sections of the society can afford to pay.

3.2.2 Measurement of benefits due to public distribution

The exact magnitudes of benefits will be known by taking into account the difference between open market price and fair price and by multiplying the difference with the quantum distributed through fair
price shops. This may be given as

\[ B = P \cdot q \]

where \( B \) = Income benefits due to rationing

\( P + \) Difference between open market and fair price

\( q \) = Quantity of off-take under public distribution system

The present study has estimated the income benefits by making use of the above formula.

\( \gamma.2.3. \) Consumption elasticities

Consumption elasticities are calculated to examine the effect of income changes on consumption of the selected commodities. The elasticities are calculated area-wise for urban, rural and tribal; and commodity-wise for rice, wheat, sugar, and edible oil. The elasticities are based on Engel curve analysis, whose functional form may be written as

\[ D = f(I) \]

where \( D \) = Demand

\( I \) = Household income
3.2.4. Statistical Techniques

Growth rates of linear, exponential and compound types are calculated for rice, wheat and sugar in regard to their distribution. Further simple percentages are used to analyse trends.

Correlation is used to establish the degree of relationship between production and procurement, production and public distribution, procurement and public distribution for rice over 21 districts\textsuperscript{15} during 1963-64 to 1976-77.

3.2.5. Sampling Procedures

The sampling procedure followed for the selection of households and for the collection of data from the urban, rural and tribal areas is as follows.

Urban Sample

The urban area is Visakhapatnam district comprises of Anakapalle, Yelamanchili, Narasipatnam, Chodavaram, Vizianagaram, Bhimili and Visakhapatnam towns. For selecting the households from each of these places two stage stratified random sampling design has been used in the study. At the first stage 24 fair price shops were selected, at random from the urban area and at the second stage 10 households have been selected under each fair price ship for analysis.\textsuperscript{16}

A sample of five per cent of the fair price ships is selected keeping in view that at least one fair price ship from each locality in a
town is included and that the households selected are located within the radius of 1/2 kilometre from that particular fair price shop.

Information from these selected households has been collected by canvassing a questionnaire designed for this purpose.17

**Rural Sample**

Basing on population, the villages in Visakhapatnam district were classified into four blocks. Block I consists of all villages with a population of less than 499, Block II comprising of villages with a population between 500-999, Block III villages with a population between 1000-1999 and Block IV consists of all villages with population of 2000 and more. For selecting the households from each of these four blocks, two stage stratified random sampling method is used. At the first stage stratified random sampling method is used. At the first stage five, five, six and four villages were selected from first, second, third and fourth block respectively and at the second stage ten households have been selected for every fair price shop in a village.

A total of 18818 households have been selected from four blocks representing 1.5 per cent of the villages in each block. Information from the selected households was collected by canvassing a predesigned questionnaire (schedule).

**Tribal Sample**

Tribal area has been classified into three blocks basing on population, Block I consists of all villages with a population less than
Block II comprises of villages with a population between 500-999, and Block III comprises of villages with a population 1000 and more. For selecting the households from each of these three blocks a two stage stratified random sampling design was employed. In the first stage, five, one, and one villages were selected from first, second and third block respectively. In the second stage, ten households were selected from every fair price shop in a village. A total of 6219 households were selected from the tribal area constituting 0.2 per cent of the villages in tribal area. A predesigned questionnaire was canvassed to collect the required data.
Reference

1. One study pertaining to Sri Lanka is also reviewed because of its methodological importance.


6. To be included only when drought or famine occurs.

7. Sixth Five Year Plan, Government of India.


10. It has not been possible to extend the exclusion principle beyond the income-tax assessee households, as suggested by Y.K. Alagh, owing to the problem of "double exclusion". For example most of the sales tax assessees have been found to be also income-tax assessees in Andhra Pradesh.

11. This corresponds with the level assumed by the National Commission on Agriculture, but slightly higher than that assumed by Gulati and Krishnan.


13. The consumption elasticities could not be estimated for the remaining commodities due to inadequacy of data.

14. Methodology is discussed in detail in Chapter IV.

15. The State now consists of 23 districts. Ranga Reddy and Vizianagaram districts are excluded from the analysis as they were formed recently and hence data are not available in the required form.

16. The total number of urban households selected for analyses is 242.

17. The questionnaire (schedule) was canvassed during December 1981 and January 1982.

18. Twelve households were excluded from the 200 households due to inadequate information.

19. Even in this case, eight households were excluded from the total of 70 households due to inadequate information.