

ECONOMIC ANALYSIS OF PUBLIC DISTRIBUTION SYSTEM AND NOON MEAL SCHEME AND THEIR IMPACT ON RURAL AND URBAN HOUSEHOLD FOOD CONSUMPTION

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ABSTRACT

A study was conducted in western region of Tamil Nadu to analyse the effect of food subsidy on household food consumption. For the study 120 urban and 120 rural households were selected and post stratified as low income group, middle income group and high income group. The average value of consumption expenditure on food subsidy schemes public distribution system (PDS) and Noon Meal Scheme were analysed. The results show that the urban low income group enjoys a subsidy of Rs.319.18 per month as against Rs.41.12 by urban high income group. The subsidy value of food purchased through NMS in rural and urban low income group was Rs.330.99 and Rs.319.17, respectively. The rural low income group meet 43.33 per cent of their average consumption from NMS and the urban low income group 38.45 per cent.

Studies on food consumption provide enough evidence that about 30 per cent of the Indian population is either undernourished or malnourished, food consumption issues and strategies have assumed great importance in the government policy formulations and is evidenced by several food and nutritional programmes including public distribution of food commodities at subsidised rates, Free Noon Meal programme, food for work programme etc.

In Tamil Nadu the Public Distribution system (PDS) and the Free Noon Meal Scheme (FNMS) are the two major programmes covering the entire population of 55 millions of the State and the latter

covering about 20 per cent of the population, comprising children and old under its fold.

METHODOLOGY

The specific objective of the study was to analyse the effect of food subsidy on household food consumption. The western Tamil Nadu comprising Coimbatore and Periyar districts was selected for the present study. From each district one taluk was selected at random. Avanashi and Sathiyamangalam were the selected taluks in Coimbatore and Periyar districts, respectively. In the next stage from each taluk one urban and one rural centres were selected. Sathiyamangalam and

Table 1. Share of Subsidy in Consumption Expenditure of Households through PDS add NMS (in Rupees/month).

Commodity	RURAL			URBAN		
	LIG	MIG	HIG	LIG	MIG	HIG
Food subsidy thro PDS	73.03 (22.06)	58.18 (40.17)	40.85 (100.00)	80.13 (25.11)	64.06 (40.88)	41.12 (100.00)
Rice	29.86 (9.02)	15.31 (10.57)	0.00 (0.00)	34.91 (10.94)	18.62 (11.88)	0.00 (00.00)
Other cereals (Wheat)	19.37 (5.85)	21.54 (14.87)	22.62 (55.37)	18.47 (5.99)	22.91 (14.62)	20.36 (49.51)
Oil	16.75 (5.06)	12.09 (08.35)	07.73 (18.92)	17.03 (5.34)	12.46 (7.95)	10.26 (25.54)
Sugar	07.05 (2.13)	09.24 (06.38)	10.50 (25.71)	09.72 (3.04)	10.07 (6.43)	10.50 (25.54)
Food Subsidy thro NMS	257.96 (77.94)	86.65 (59.83)	0.00 (0.00)	239.04 (74.89)	92.63 (59.12)	0.00 (00.00)
Total Food Subsidy	330.99 (100.00)	143.83 (100.00)	40.85 (100.00)	319.17 (100.00)	156.69 (100.00)	41.12 (100.00)

Figures in parenthesis indicate percentage to total

LIG = Low Income Group; HIG = High Income Group; MIG = Middle Income Group

Table 2. Share of Food Subsidy to the Total Food Expenditure (in per cent).

Commodity	RURAL			URBAN		
	LIG	MIG	HIG	LIG	MIG	HIG
Food subsidy thro PDS	12.27	6.94	3.84	12.89	7.22	3.68
Rice	13.53	5.66	0.0	15.56	7.09	0.0
Other cereals (Wheat)	53.84	86.23	71.76	94.82	93.78	87.57
Oil	25.10	11.26	5.22	24.62	11.37	7.36
Sugar	23.81	16.89	14.00	22.63	14.42	10.48
Food Subsidy thro NMS	43.33	10.33	0.0	38.45	10.44	0.0
Total Food Subsidy	55.60	17.26	3.84	51.34	17.66	3.68

LIG = Low Income Group; MIG = Middle Income Group; HIG = High Income Group

Annur were the selected urban centres in Sathiya mangalam and Avanashi taluks, respectively. The randomly selected rural centres at Avanashi taluk were Odderpalayam and Kariyampalayam and at Sathiyamangalam, Ariyap panpalayam and Senbagapudur were selected. A sample of 60 households was selected at random in each of the urban centres and a sample of 30 households was selected from each of the four rural centres. The samples from different rural and urban centres were pooled together as rural and urban households, comprising 120 urban and 120 rural households for further analysis.

For the purpose of investigation, the samples were post stratified into three income groups based on the monthly income. A monthly income of Rs.800 and below constituted Low Income Group (LIG), Rs.801 - 1600 Middle Income Group (MIG) and Rs.1601 and above High Income Group (HIG). The LIG closely approximated the household lying below the poverty line and hence for all practical purposes, LIG was a relevant base for analysis and interpretation of results for suggesting policy frame work. The subsidy component was valued by subtracting the price paid by the consumer for the products purchased thro' fair price shops from the open market price.

RESULTS AND DISCUSSION

The influence of various factors on consumption of individual goods and services was also assessed. To study the impact of food subsidy on the household food consumption, the model used by Garcia et al., was used in the present study.

$$C_i = b_0 + b_1 \log Y_i + b_2 S_i + b_3 M_i + b_4 E_i + b_5 P_{i1} + b_6 P_{i2} + b_7 P_{i3} + b_8 P_{i4}$$

Where,

C_i = Per capita food expenditure of the i^{th} household

Y_i = Per capita total expenditure or real income of the i^{th} household

S_i = Subsidy term defined as a per cent to total income

M_i = i^{th} household size (number of individuals/family)

E_i = Educational level of the head of the i^{th} household

P_{i1} = Price paid by the i^{th} household for rice

P_{i2} = Price paid by the i^{th} household for other cereals

P_{i3} = Price paid by the i^{th} household for oil, and

P_{i4} = Price paid by the i^{th} household for sugar

b_0, \dots, b_8 are the parameters to be estimated.

Because of the inherent problems in correctly measuring income, particularly in semi-subsistence households, total expenditure was used as income proxy similar to the complete demand model. The market price paid by the households for rice, cooking oil, other cereals and sugar were used as independent variables in the regression to derive the direct price effect on food consumption. The subsidy includes the value of subsidy realised through essential items distributed through PDS and the value of food consumed under NMS. The shifter variables household size and education were also included in the function as explanatory variables.

Table 3. Estimated Coefficients for Household Food Expenditure.

Independent variable	Dependent variable (Per capita Household Food Expenditure Per Year)					
	Rural			Urban		
	LIG	MIG	HIG	LIG	MIG	HIG
Intercept	.456.0820 (4.514)	706.0202 (3.226)	-417.1950 (3.826)	-300.368 (3.799)	-299.458 (3.273)	-416.838 (4.169)
Log income	121.596 (5.393)	197.776 (5.989)	122.618 (7.161)	87.225 (4.029)	95.8445 (6.709)	103.022 (5.659)
Subsidy	0.1463 (4.296)	5.5900 (3.853)	0.5986 (0.174)	0.8842 (3.702)	1.7684 (2.983)	0.0564 (0.018)
Family size	-46.6625 (6.372)	-34.2004 (4.955)	-32.5670 (2.278)	-30.0049 (4.668)	-24.8242 (6.726)	-27.0722 (5.800)
Education	NS -1.1960 (0.116)	NS 4.965 (0.680)	NS 4.763 (2.263)	NS -2.1347 (0.350)	NS 1.5469 (2.881)	NS 0.9877 (2.247)
Price of rice	NS 16.7727 (1.587)	NS 25.9768 (1.412)	NS 21.6098 (1.700)	NS 13.6665 (1.544)	NS 13.3533 (2.537)	NS 10.6989 (1.468)
Price of other cereals	NS 0.9974 (0.184)	NS 3.8031 (0.306)	NS 21.5500 (5.350)	NS -0.9656 (0.213)	NS 6.1186 (0.701)	NS 3.4783 (0.989)
Price of oil	NS 2.3713 (1.032)	NS 5.3831 (1.837)	NS -0.4001 (0.236)	NS 2.4235 (1.782)	NS 0.5376 (0.388)	NS 1.9584 (0.970)
Price of Sugar	NS 9.1306 (1.118)	NS 3.6168 (0.332)	NS -10.1706 (2.071)	NS 0.2363 (0.088)	NS -2.1099 (0.473)	NS 8.3459 (1.689)
R ²	0.691	0.693	0.851	0.776	0.780	0.718

*t = Values are presented in the parenthesis and the values above 1.96 are significant at 5% level.

Impact of Subsidy on Household Food Expenditure : The average value of consumption expenditure on food subsidy schemes, PDS and NMS were analysed and discussed income group wise in Table.1. It could be seen that the value of food subsidy is Rs.73.03 for rural low income group and the value declines as income level increases. For example it is only Rs.40.85 in rural high income group and Rs.41.12 in urban high income group through PDS. For the food subsidy realised from NMS by rural high income group, similar trend is observed. The total food subsidy declines from Rs.330.99 to Rs.40.85 across households in rural region. The urban low income enjoys a subsidy of Rs.319.18 per month as against Rs.41.12 by urban high income group. Among the subsidy items, expenditure on rice and oil is high in the poor groups, where as the expenditure on sugar and other cereals (wheat) is high in the high income group.

The subsidy value of food purchased through NMS is high in the poor income group (Rs.330.99 in rural and 319.17 in urban), indeed a desirable feature and it is declining from low income group to high income group. The subsidy expenditure on rice and consumption thro NMS is nil for the high income groups in both the sectors.

The Table - 2 explains the budget share of total subsidy of foods, PDS and NMS to the total food expenditure. The percentage of total food subsidy to total food expenditure is declining from 55.60 in rural low income group to 3.84 in rural high income group and the respective figures for urban low and high income group vary from 51.34 to 3.68. The rural low income group meet 43.33 per cent of their average consumption from NMS and the urban low income group 38.45 per cent. The low income group consume 14.50 per cent of the total consumption of rice from the subsidy rice. It

reveals the fact that any change in the price policy on subsidy would adversely affect the weaker sections more than anything else. But the price rise in the wheat will adversely affect the high income group.

The perusal of Table - 3 indicates that the household size coefficient is negative and significant for all the income groups in both rural and urban centres. The presence of more family members reduces the per capita food consumption. The absolute values of co-efficients indicate that the reduction of per capita food consumption rises with a decrease in income. The education co-efficients for rural high and middle and high income groups of urban are positive and significant. It indicates the purchasing of more expensive foods such as processed foods, because of the opportunity cost of time spent on food preparation increases with educational level. Moreover higher education leads to better understanding of the importance of adequate nutrition. But the educational level of the rural low and middle income group does not affect food expenditure significantly, since education is offered at free of cost at primary and secondary levels in Tamil Nadu.

The co-efficient of food subsidy is positive for all the income groups in the society. But it is significant for low and middle income groups of both rural and urban sectors. It indicates that for this section of people the share of food subsidy significantly increases their total food consumption. Moreover, positive and significant subsidy co-efficients for low and middle income group in both the sectors indicate that the income transfers embodied in the subsidy programme have a higher marginal propensity to consume than other household income group.

The results further shows that the price of rice co-efficients is positive for all income groups but it is significant for urban middle class only. It indicates that a rise in price of rice will increase the per capita food expenditure for urban middle class people. The price of other cereals is positive and

significant for rural high income group alone. The oil price is not significant for all income groups. The price of sugar is negative and significant for rural high income group alone. In general sign of price co-efficients for cereals, oil and sugar are mixed between the income groups of both the sectors.

The regression of food expenditure on family size gives negative and significant results which explains that the presence of more family members reduces the per capita food consumption. The PDS and NMS help enhance the food consumption and play a substantial role in improving the nutritional status of the weaker sections of the society.

Conclusion : Low income group households and middle income groups to certain extent got benefitted by PDS. The percentage expenditure share of total income towards certain essential items are very much reduced by the above categories, since the advent of subsidy thro PDS. The total percentage share of food subsidy through PDS and NMS ranges between 3.68 for urban high income group to 55.60 for rural low income group. A policy of strengthening the supply of essential commodities through fair price shops to the low income group households is more pronounced, atleast to have a minimum standard of living.

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