An economic analysis of poverty levels in Coimbatore, India

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ABSTRACT

India alone is said to be the home for about 34 per cent of the world's poor to which Tamil Nadu contributes 35.6 per cent. Poverty has been viewed and measured from different angles by different scientist. Even among the scientists, there exists difference of opinion in specifying a level of minimum income and calorie requirement as a cut off point for poverty line. The different approaches in measuring poverty provided wide variations in the estimation of poverty at a point of time. Further, the concept of poverty would vary widely between two environments. A case with poverty measure in an irrigated and dry region would eventually reveal that poverty profile is sensitive to some aspects of measurement. Hence, the very objective of the paper is to asses the levels of poverty among the rural households in varying irrigation environs. With the assumption that the levels of poverty among the rural households may vary between irrigated and dry tract, the respondents in the rural settings being categorized as agriculturists, agricultural labourers and other workers. The study was conducted in Anaimalai block of Pollachi taluk, which is irrigated area and Sulur block of Palladam taluk, which is dry tract. The results of the study revealed that poverty level studied by Head Count ratio is higher in dry tract than that in irrigated tract also poverty gap among the respondents in dry tract is high as compared to their counter parts in irrigated tract. The poverty gap ratio showing the extent of short fall of average in term of the poor from poverty line is higher in irrigated block than in the dry block, because of the higher wage rate in the latter. The poverty gap index (Pi) and the Sen index prove to be higher in dry tract than those in irrigated tract.

Key words : Poverty, Head count ratio, Poverty gap, Sen Index, Food basket and Calorie.

INTRODUCTION

Poverty any where is said to be threat to prosperity everywhere. Poverty is one of the realities of human existence. In common parlance poverty is associated with scarcities, miseries, pains and sufferings. Upliftment of the poor has always fuelled reforms and movements. India alone is said to be the home for about 34 per cent of the world's poor to which Tamil Nadu contributes 35.6 per cent.

Poverty has been viewed and measured from different angles by different scientists. Even among the scientist, there exists difference of opinion in specifying a level of minimum income and calorie requirement as a cut off point for povertyline. The different approaches in measuring poverty provided wide variations in the estimation of poverty at a point of time. Further, the concept of poverty would vary widely between two environments. Through the use of indices and methods of measuring reduces the variation in poverty levels, the environmental disparaties viz., differences in irrigation, among the rural poor persists on account of various factors. The studies conducted so far to estimate the level of poverty mainly concentrated an anyone of the main attributes such as income and its distribution, nutritional status, levels of employment, per capita expenditure etc., further, their estimates were mostly confined to micro dimensions. Due to the variation in irrigation, income generating capacities, food habits and living conditions, macrolevel estimates would be inadequate to reflect the real situation at the micro level. Comparison of poverty, such as where or when poverty is greatest, typically matter more for policy choices than to aggregate measures of poverty, such as how many people are deemed poor. A case with poverty measure in an irrigated and dry region would eventually reveal that poverty profile is sensitive to some aspects of measurement. When the planners have shifted concept from centralized planning to grass root level planning, it becomes all the more necessary to have estimates at two differing irrigation environs at grass root level.

Tendulkar *et al.*, remarked that a sharp increase in the rural poverty was observed in 1991 and 1992, as against moderate fall in urban poverty. This was due to a fall in agricultural output, pronounced increase in prices and inadequate food grains availability in rural areas. Thus, they opined economic reforms were not directly responsible for increase in rural poverty (1995).

Ravillion and Gaurav observed that economic growth factors dominated the distribution factors in diminishing the incidence of rural and urban poverty in India. They further remarked that the growth in the agricultural sector seemed to exert significant diminutive impact on the

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incidence of rural poverty in India (1996).

Anwar studied the relative poverty in Pakistan. Several measures viz., Head court Ratio, poverty gap, FGT index and Sen Index were used to estimate the relative poverty. The extent of relative poverty was generally high in urban areas than in rural areas (1998).

Hence, the very objective of the paper is to asses the levels of poverty among the rural households in varying irrigation.

MATERIALS AND METHODS

The study was conducted in Pollachi and Palladam taluks of Coimbatore, India located in North Western part of the state. Pollachi Taluk is in the South Western part of Coimbatore District and the block selected from this Taluk was Anamalai. Agriculture in this Taluk is mainly dependent on Parambikulam – Aliyar irrigation project. Palladam taluk is located in the eastern part of Coimbatore district. Agriculture in this taluk is mostly dependent on monsoon and underground acquifers. Sulur block of this taluk was selected for the study.

Sampling procedure :

The hypothetical assumption of the study is that the levels of poverty among the rural households may very between irrigated and dry tract, the respondent in the rural setting being categorized as agriculturists, agricultural labourers and other workers. Based on the above assumption, purposive sampling method was used in the study. Of the twenty-nine districts in Tamil Nadu, Coimbatore district was purposively selected since it has both irrigated and dry tract within the vicinity. In the second stage of selection, Pollachi taluk was selected purposively since it is benefited by the Parambikulam – Aliyar irrigation project. Palladam taluk was selected for dry tract since it

is purely a rainfed tract. Anamalai block of Pollachi taluk and Sulur block of alladam taluk were purposively selected taking into consideration, the variation in irrigation in both blocks.

Two revenue villages from each block were randomly selected. The respondent households were also selected randomly and were post stratified into agriculturists, agricultural labourers and other workers, each in equal proportion. In all, 120 respondent constituted the sample work.

Analytical tool used :

The poverty line calculated for irrigated block using the calorie norm of 2400 cal per day was Rs. 4872.75 per annum per capita, and that for dry block was Rs. 5047.95 per annum per capita. The calculation of poverty line is shown in the Table 1.

a) Head count ratio (H) :

The most commonly used measure of poverty is the Head Count Ratio, which measures the percentage of population that fall below the poverty line. The poverty line can be measured by calculating the minimum requirements of consumption per individual. If the individual is below this minimum requirement, he will be considered as a poor and he will be below the poverty line.

$$H = q/n$$

Where ,
H = Head count ratio
q = Number of people below the poverty line
n = Sample size

b) Poverty gap :

A second measure of poverty is the poverty gap which gives a good indication of the depth of poverty, by

Table 1 : Food Basket to supply 2400 Cal/cu/day – IRRIGATED AND DRY TRACT.

S. No.	Items	Calories	Grams required	Value in Rs.		Per unit price	
				Irrigated	Dry	Irrigated	Dry
1	Cereals	1384	370	5.36	4.81	14.50	13.00
2	Pulses	188	55	1.65	1.65	30.00	30.00
3	Vegetables	283	175	1.05	1.40	6.00	8.00
4	Meat & Meat Products	87	30	2.25	2.40	75.00	80.00
5	Milk	175	100	1.00	1.10	10.00	11.00
6	Fats & Oils	237	40	1.28	1.40	32.00	35.00
7	Sugar & Gur	22	30	0.45	0.465	15.00	15.50
8	Fruits	24	30	0.3	0.60	10.00	20.00
				13.34	13.825		

Poverty Line / Person / Day in irrigated tract = Rs. 13.34
PovertyLine / Person / Day in dry tract = Rs. 13.83

indicating the distance of the poor below the poverty line. Normalising the poverty gap, by the poverty line would lead to the normalized povertygap.

$$PGN = \sum_{i=1}^{n} [(Z-yi)/Z]$$

Where ,
   Yi = Income of the poor
   Z   = poverty line
   q   = Number of people below the poverty line
   PGN = Normalised poverty gap

c) Poverty gap ratio :
   Poverty gap can be expressed as proportion of the highest value which is obviously qZ. This implies that all poor have zero income.

$$PGN = \sum_{i=1}^{n} [(Z-yi)/qZ]$$

Where ,
   Yi = Income of the poor
   Z   = Poverty line
   q   = Number of people below the poverty line
   PGR= Poverty gap ratio

   It can be interpreted as the average income gap of the poor expressed as a percentage of the poverty line Z.

d) Poverty gap index (Pi)
   Though the poverty gap captured the depth of poverty, it does not capture the number of people below the poverty line. However, multiplying the Head Count Ratio by the Poverty Gap Ratio, would result in Poverty Gap Index or quotient Pi, which wouldovercome the above shortcoming.

$$Pi = (1/n) \sum_{i=1}^{n} [(Z-yi)/Z]$$

(or)

$$Pi = H* PGR$$

Where,
   Yi = Income of the poor
   Z = Poverty line
   q = Number of people below the poverty line
   n = Sample size
   H = Head Count Ratio

   Pi can be interpreted as mean proportionate poverty gap across the whole population. The poverty gap will be unaffected by the transfer from a poor person to someone who is less poor. It gives equal weights to the poverty deficit of poor and therefore, is not sensitive to the distribution of living standards among the poor.

e) Sen index :
   Sen has proposed better measures of the severity of poverty. The Sen index is defined as :
   $$S = H [PGR + (1-PGR)]G$$

Where
   H   = Head count ratio
   PGR = Poverty gap ratio
   G   = Gini coefficient among the poor

   Sen index of poverty is in increasing function of Head Count Ratio and an increasing function of income shortfall. Since the value of G_p ranged from zero to one, the index is also an increasing function of the Gini coefficient.

RESULTS AND DISCUSSION
   The results of the study furnished in table 2 revealed that the percentage of people below poverty line estimate in irrigated block was close to the estimate reported by Hanumantha Rao in his study based on the calorie norm. Percentage of people below poverty line is higher in dry block with also the higher percentage reported in case of the three categories of respondents.
   The depth of poverty indicating the distance of poor

Table 2 : Relative poverty incidence, intensity and severity among the sample respondents.

S. No.	Particulars	Agriculturists		Agricultural labourers		Other workers		Over all	
		Irrigated	Dry	Irrigated	Dry	Irrigated	Dry	Irrigated	Dry
1	Head Count ratio (in percentage)	-	10.00	60.00	80.00	45.00	50.00	35.00	46.67
2	Poverty gap (PGN)	-	0.37	5.20	5.38	3.20	4.04	8.41	9.79
3	Poverty gap ratio (PGR)	-	0.27	1.06	0.85	0.82	0.80	1.09	0.85
4	PovertyGapIndex (Pi)	-	2.60	63.83	68.11	39.99	40.09	38.28	40.14
5	Sen Index	-	3.00	63.32	70.14	38.08	42.23	37.74	40.74

below poverty line shown by poverty gap (PGN) in higher among the sample respondent of the dry block showing 9.79 as against 8.41 of the irrigated block. Between the blocks there is also pronounced difference in PGN among the three categories of sample respondents.

The extent of shortfall of average income of the poor from poverty line and the intensity of poverty shown by poverty gap ratio is round to be higher in irrigated block than that in dry block, the reason being the higher wage rate in dry block as compared to irrigated block.

The number of people of proportion below poverty line given by the poverty gap index (Pi) is higher in dry block among all the three categories of respondents as against their counterparts in irrigated block. The shortcoming of Pi that did not convincingly capture the difference in severity of poverty was overcome by Sen Index. The results showed that the severity of poverty was also high among the respondents in dry block when compared to those in irrigated block. Sen Index in dry block was estimated as 40.74 and that in irrigated block as 37.74.

Concluding remarks with policy options :

The relative poverty incidence, intensity and severity in the study area was measured by various indices. The results revealed that the incidence, intensity of severity of poverty was higher among the sample respondent of dry block as compared to their counterparts in irrigated block, with the exception of poverty gap ratio showing higher value in irrigated block, influenced by the lower wage rte than that in dry block. Since the levels of poverty varied with the variation in irrigation environment, policy measures should be oriented in the direction. With regard to fund allocation in case of welfare schemes and employment opportunities the regions with less irrigation potential should be given preference than to go for blanket approach which does'nt bring about difference between the high potential and less potential regions in terms of irrigation.

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