An Assessment of Poverty Studies in India with Special Reference to Economic Reforms

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1. INTRODUCTION

As it is well-known, the study of poverty is extremely important on moral and philosophical and also, political grounds. Further, evidences are available to show that poverty affects growth adversely. We, therefore, have made an attempt to review some of the important studies on poverty in India.

The concept of poverty relates to socially perceived deprivation with respect to basic minimum needs. In the Indian context, poverty is measured in terms of a specified normative poverty line reflecting the minimum living standard of the people. Defining a poverty line is, therefore, the first step in estimating poverty. According to the Expert Group (1993), a poverty line, dividing the poor from the non-poor, is used by putting a price on the minimum required consumption levels of food, clothing, shelter, fuel and health care, etc. In equal practice however, the poverty lines are normative only in terms of calorie requirements of the diet.

Since the beginning of sixties a number of studies have been conducted to estimate the incidence of poverty and to find out the determinants of poverty. Different methods have been used to estimate the incidence. All these are, however, based on the use of poverty lines and the distribution of expenditure of households. These lines have been updated by using alternative price index numbers, and, expectedly, it has resulted in different estimates. Even the base year poverty lines, used by various authors, are different. Various measures of poverty to know its severity and depth have also been estimated by the researchers. The relationships between the incidence of poverty and its determinants have been estimated by using different variables and models.

This paper is divided into 4 Sections. Section 2 reviews the methodology of estimating the incidence of poverty. Section 3 gives a review of studies on the casual factors affecting poverty including those due to economic reforms. Section 4 concludes the paper.

2. STUDIES RELATING TO ESTIMATION OF POVERTY

Earlier Studies on Head Count Ratio

The first attempt in defining a poverty line in India was made in 1962 by a Working group set up by the Seminar on some Aspects of Planning, to suggest the desirable minimum level of consumption expenditure. The group suggested that the national minimum consumption expenditure should be Rs 20 per capita per month at 1960-61 prices. For urban areas, the group raised the per capita expenditure to Rs 25 because of relatively higher cost of living. The national minimum expenditure did not include the expenditure on health and education, which are expected to be provided by the government. It was also assumed that an element of subsidy in urban housing would have to be included after taking Rs 10 or 10 percent as the rent element payable from the proposed minimum expenditure.

A number of studies were undertaken during early seventies to measure the incidence of poverty at the national level and to compare the incidence between different states. Some of the studies are Ahluwalia (1978); Bardhan (1974); Bhatti (1974); Dandekar and Rath (1971); Minhas (1974) and Rudra (1974). Some of these used the minimum consumption expenditure of the working group and others estimated their own minimum expenditure by making use of the calorie consumption norms, obtained from diverse sources, and data on consumption expenditure estimated by the National Sample Survey Organisation (NSSO). As different index numbers were used for updating the poverty lines, the estimates of poverty obtained by different authors, using even the same data sets, were different.

The study by Dandekar and Rath (1971) was widely referred by research scholars as well as by the Planning Commission. This study assumed a norm of 2250 calories per capita per day, both for rural and urban areas. The NSSO consumption expenditure data was used to get the estimates of poverty. They estimated that the households with per capita annual expenditure of Rs 170 for rural and Rs 271.70 for urban areas, at 1960-61 prices, spent on an average food basket which will provide 2250 calories per day along with some expenditure on non-food items. As the rural minimum obtained by them was considerably lower than that recommended by the 1962-working group, they revised this minimum slightly upwards to Rs 180 or Rs 15 per month. The urban minimum was rounded off to Rs 270 per annum or Rs 22.50 per month.

The data available for these studies were not reliable and the estimates obtained were just tentative in nature. However, these were helpful in developing the methodology for estimation of poverty.

Task Force Methodology

The Planning Commission appointed a Task Force on projections of Minimum needs and Effective Consumption Demands in July 1977. This Task Force, after detailed deliberations, provided the methodology of estimating the poverty line, which is described below.

The poverty line is defined as the per capita expenditure level at which the average per capita per day calorie intake is 2435 for rural and 2095 for urban areas. The average calorie intake, for rural and urban areas, are obtained as a weighted average of the calorie intakes of 16 relatively homogeneous groups, based on the Nutrition Expert Group (1968), into which the whole population is divided for these two areas. The weighting diagram is based on the age -sex-occupational structure of the population as projected for 1982-83.

To work out the per capita expenditure corresponding to these calorie norms, the 28th round (1973-74) NSSO data relating to household consumption both in quantity and value terms are used. The calorie content of food items in each expenditure class is estimated, by making use of calorie contents of different food items based on the data collected by NSSO during the 26th round (NSSO Report No. 258-A).

Applying the inverse linear interpolation method to the data on average per capita monthly expenditure and the associated calorie content of food items in each expenditure class, the monthly per capita expenditure corresponding to 2435 and 2095 per day calorie intake in rural and urban areas respectively work out to be Rs 49.09 and Rs 56.64 at the 1973-74 prices.

The poverty lines for later years were obtained by adjusting the 1973-74 values for price changes. Initially, the wholesale price index was used for this purpose. A Study group on 'The Concept and Estimation of Poverty' (1984) recommended the use of private consumption deflator in place of whole sale price index, the same for rural and urban areas. The method suggested by the Task Force with the amendment suggested by the Study group was, until recently, used by the Planning Commission for updating the poverty lines and estimating the number of poor in rural and urban areas. Further, since the beginning, the NSSO data was prorata adjusted to the level available in the National Accounts Statistics (NAS). To estimate the incidence of poverty at the state level, all India poverty lines and an adjustment factor have been used on the state specific distribution of households by levels of consumption expenditure uniformly across the states.

Head Count Ratio Using Alternative Index Numbers

A number of methodological issues like using the same price deflator for rural and urban areas, same poverty line for different states and for making the pro-rata adjustment in the NSSO distribution of consumption expenditure were raised and an alternative methodology was developed by a team of research workers of the Indian

Statistical Institute (ISI),[1] New Delhi for estimating the poverty lines and the number of poor at national and state level for rural and urban areas. Alternative consumer price index numbers were constructed by using NSSO consumption expenditure as weights. The indices for rural as well as urban areas were constructed for the middle expenditure group as well as for the entire population. According to the authors, the indices for the middle expenditure population were considered relevant for computing the poverty incidence and for the entire population to depict the price movement for the entire population. The methodology followed by them is given below.

Separate state-specific poverty lines were estimated for the base year by using state wise price differentials to the all-India official poverty lines for rural as well as urban areas. State specific poverty lines for other years were estimated by using state wise price indices estimated for the middle population and the corresponding state wise distribution of consumption expenditure. Index numbers were constructed for 17 commodity sub-groups, food, non-food and general for urban and 13 items groups, food, non-food and general for rural areas, for six rounds of NSSO surveys for which the data on distribution of consumption expenditure were available (1970-71 to 1987-88).

Expert Group Methodology

A number of methodological issues were raised in respect of the estimates being released by the Planning Commission. The Commission constituted, in September 1989, an Expert Group (EG) to consider the issues raised and to look into the methodology for estimation of poverty at national and state level and also to go into the question of redefining the poverty line, if necessary. The group submitted the report in July 1993, which suggested the following methodology.

1. The poverty line approach anchored in a calorie norm and associated with a fixed consumption basket may be continued. At the national level, the base year (1973-74) estimates of poverty line recommended by the Task Force may be taken after rounding them to Rs 49 and Rs 57 per capita monthly expenditure for rural and urban areas respectively.

2. For estimating the state wise number of poor, poverty line for each state should be first estimated for the base year using the standardized commodity basket corresponding to the poverty line at the national level and the prices prevailing in each state in the base year. For updating poverty line to the current prices in a given year state-specific consumer price indices are constructed, by having the weighted average of the group-wise Consumer Price Indices for Agricultural Labourers (CPIAL) for rural and a simple average of suitably weighted consumer price indices for industrial workers (CPIIW) and the available aggregate index for non-manual employees[2]

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[1]See, for example Minhas *et al.* (1997, 1988, 1989).

[2]According to EG, the group-wise consumer price indices for non-manual employees (CPINM) were not available. In fact, these were available and were used by Minhas *et al.* (1988).

(CPINM) for urban areas. The weights are based on the NSSO estimated all-India consumption pattern of the people around poverty line in the base year, i.e. 1973-74.

Given the updated state specific poverty lines and the corresponding size distribution of consumption expenditure by NSSO, the proportion of poor are calculated separately for rural and urban areas of different states. The total number of poor is obtained by multiplying these ratios with the respected state-wise populations.

3. The all-India poverty ratio is derived as a ratio of the aggregate number of state-wise poor persons to the total all-India population. The implicit all-India poverty line can be worked out from the all-India poverty ratio and the all India distribution of population by expenditure classes obtained from the NSSO surveys.

4. The adjustment done in the past in the NSSO data on consumption expenditure to make it compatible with the corresponding NAS estimate has to be discontinued.

Planning Commission (1997) accepted the recommendations of the EG for estimating poverty, four years after the submission of the report, with the modification that in place of the simple average of the weighted commodity indices of CPIIW and CPINM for estimating and updating urban poverty line, only the CPIIW will be used. Statewise estimates of poverty, as per the accepted methodology, have been worked out for the years 1973-74, 1977-78, 1983, 1987-88 and 1993-94.

Draft Ninth Five-Year Plan (1998) has given the poverty gap indices as well as squared gap and also the Lorenz ratio for rural and urban areas and for the total population at all-India level for the same five periods. These estimates, along with the estimates of the incidence of poverty at all-India level, are presented in Table 1. According to these estimates the distribution sensitive indices have declined faster than the head count ratios over the last 20 years.

Dubey and Gangopadhyay Study (DG)

At the instance of the Central Statistical Organisation (CSO), DG (1998) estimated the head count ratios for 1987-88 and 1993-94 for 77[3] rural and 77 urban (NSSO) regions by using the methodology of the expert group as well as their own methodology, which is almost identical to that used by the ISI team. For regions in each state, the same poverty line has been used. The distribution of region-wise per capita expenditure has been obtained from the detailed raw data supplied to them by the NSSO.

The following are certain features of the DG study.

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[3]Jain *et al.* (1990) earlier estimated head count ratios and other measures of poverty for 56 rural regions of the country, based on a poverty line of Rs 15 at 1960-61 prices.

Table 1

1. In addition to the official base year (1973-74) poverty lines, this study assumes, as an alternative per capita monthly expenditure of Rs 15 as the poverty line for rural and Rs 18 for the urban areas at 1960-61 prices. Dandekar and Rath Study (1971) is quoted for this figure, which estimated Rs 15 as the poverty line of rural areas and Rs 22.50 for urban areas. DG study as well as other authors assume the rural poverty line of Rs 15 and inflate it by rural urban price differential of 20 percent to get the urban poverty line. On the other hand if urban poverty line is deflated by the same price differential the rural poverty line will be much higher than Rs. 15. On the basis of a detailed study, the Task Force (1979) estimated the poverty lines for rural and urban areas, which should form the basis of all studies on poverty.

2. Head count ratios given by this study[4] based on their own method (DG method) and the method used by the EG and also those given by the Planning Commission (1997) and Tendulkar (1998) are very different at all India level (Table 2). The EG gave the poverty estimates up to 1987. These were estimated for 1993-94 by this study by using 1987-88 differences between the two sets of estimates.

3. The poverty lines estimated by the Planning Commission for 1973-74 are higher than those of the APL used by the DG by 15 percent for the rural and 13.5 percent for the urban areas. While for 1987-88 the poverty line given by the EG is 5.6 percent higher than that of the DG for rural areas and 16.6 percent for urban areas. That means that the index of prices used by the EG is lower than that used by the DG for rural areas, while for urban areas it is the opposite. For updating poverty lines EG is using 1973-74 weighting diagram based on the consumption expenditure of population around poverty line at a level of desegregation much less than that used by the DG study. The DG study uses 1983 consumption expenditure of the middle population as the weighting diagram.

4. For 1987-88, there is not much difference between the rural and urban head count ratios given by the EG as well as Planning Commission. However, according to APL, OPL, as well as the two alternatives given by Tendulkar, rural head count ratios are substantially higher than the urban ones. For 1993-94, the ratios are higher for rural than urban areas for all the different sources. The ratios given by Tendulkar are less than that of DG (both using the same base year poverty lines) for rural as well as urban areas for both sets of poverty lines.

[4]Different poverty lines used by this study are:
1. OPL – Official Poverty line for 1973-74 updated by using disaggregated price adjustment suggested by Minhas *et al.* (1988).
2. EOPL – Official poverty line updated by using price adjustment suggested by EG (1993).
3. APL – Alternative poverty line updated by using price adjustments suggested by Minhas *et al.* (1988).
4. The same above there alternative all-India poverty lines used for all states and regions.

Table 2

All India Head Count Ratios for 1987-88 and 1993-94 Based on Different Methodologies

Methodology	1987-88			1993-94		
	Total	Rural	Urban	Total	Rural	Urban
DG method APL	35.12	36.64	29.86	28.75	30.29	24.08
OPL	47.09	49.38	39.20	40.26	42.70	32.87
EOPL	39.72	39.54	40.32	33.47	33.35	33.84
Planning Commission	38.86	39.09	38.20	35.97	37.27	32.36
Tendulkar–						
Alternative 1	–	44.88	32.44	–	39.65	30.94
Alternative 2	–	36.52	27.33	–	27.65	22.63

5. The head count ratios obtained by Tendulkar by using official poverty lines for 1973-74 are higher than those of the Planning Commission for rural areas. For urban areas the ratios estimated by the Planning Commission are higher than those given by Tendulkar. The ratios obtained by Tendulkar by using lower poverty lines for 1960-61 are lowest among all the set of values. The updated poverty lines differ because of using different price indices.

6. Poverty lines corresponding to OPL and APL are worked out by making use of state wise consumer price index numbers corresponding to middle population (both for rural and urban areas) for 1987-88 and 1993-94 and state wise price differentials (SVIR and SVIU) estimated by various studies of Minhas *et al.* for 1983. State wise poverty lines are obtained by making use of 1987-88 and 1993-94 SVIR and SVIU and the all India poverty norms. Consumer price indices are estimated by making use of 1983 detailed weighting diagrams, Planning Commission, on the other hand, estimates the state specific poverty lines for the base year (1973-74) by making use of the state wise price differentials for rural and urban areas. These poverty lines are updated by making use of state wise consumer price index numbers corresponding to middle population of these states. All India poverty lines are only indirectly estimated.

7. This study has attempted FGT indices when $\alpha = 1$ and $\alpha = 2$ for 1987-88 and 1993-94 for the OPL. Both the indices are slightly higher than these reported by Tendulkar for 1987-88 as well as 1993-94 for rural as well as urban areas. These indices along with those of Tendulkar are given in Table 3.

8. This study has given the average household size and per capita monthly expenditure of the poor and non-poor by social groups, by level of education of the head of the household and by occupation groups separately for rural and urban areas but only at the all India level.

Table 3

FGT Indices According to Tendulkar and D.G. Study

	D.G.		Tendulkar	
	$\alpha=1$	$\alpha=2$	$\alpha=1$	$\alpha=2$
Rural				
1987-88	.1298	.0480	.1046	.0354
1993-94	.1030	.0356	.0929	.0314
Urban				
1987-88	.1044	.0393	.1000	.036
1993-94	.0820	.298	.075	.026

Source: D.G. (1998) and Tendulkar (1998).

MIMAP-India Estimates

Based on the Income and Expenditure Survey conducted by the NCAER, under the MIMAP-India Project, estimates of different measures of poverty have been prepared by different occupational categories of households separately for rural and urban areas. The 1994-95 poverty line for rural areas has been obtained by inflating the corresponding implicit rural poverty line given in the report of the Expert Group by using CPIAL. For urban areas, the poverty line is obtained by using an average of CPIIW and CPINM for 1994-95 with respect to 1973-74 and the official poverty line for 1973-74. Different measures of poverty are given in Table 4.

Among different occupational classes, the poverty incidence is highest for agriculture labour households followed by non-agriculture labour households. In the NCAER survey, apart from data on the income and expenditure pattern of the households, data on education, health and welfare were also collected.

3. POVERTY AND ITS DETERMINANTS

This section reviews the studies, which have tried to estimate the determinants of poverty, including those relating to economic reforms.

Ahluwalia (1978) was the first to show that rural poverty reduces in good agricultural years and increases in bad ones. Minhas *et al.* (1987) also supported this point.

Tendulkar and Jain (1994) discussed about the contribution of growth and distributional change in reduction of social deprivation in terms of prevalence, depth and severity of poverty by considering four indices of poverty i.e. head count ratio, poverty gap, FGT and Sen index. The Decomposition scheme has been applied at the all India level separately for rural and urban and for four time periods 1972-73 to 1977-78, 1977-78 to 1983, 1983 to 1987-88 and 1972-73 to 1987-88. A monthly per capita total expenditure of Rs 15 and Rs 18 are considered as the all India poverty lines at 1960-61

Table 4

prices for rural and urban areas respectively. These base year poverty lines are inflated to later years by using appropriate middle range consumer price indices at the all India level.

According to them, poverty situation in India both in rural and urban areas is usually influenced by agricultural performance. The survey periods 1972-73 and 1987-88 are marked as draught periods due to severe crop loss, whereas that of 1977-78 and 1983 are termed as local peak for the good output of food grains. According to all indicators of poverty, the highest decline in rural India occurred when comparing a local peak of 1983 to a draught period of 1987-88, whereas for urban, it is in between two local peaks of 1977-78 to 1983. In 1987-88, due to the draught, a number of poverty alleviation programmes were generated by the state and central governments, which reduced the poverty in rural India. On the other hand, due to the absence of the poverty alleviation programmes and the un-targeted nature of PDS in urban areas, there was no significant decline in urban poverty. The same exercise was later done, by the same authors, for the 17 states of India (1996).

Tendulkar *et al.* (1993) seek to analyse the structure of poverty in India in the nineteen eighties, examine its inter-temporal movements between 1970-71 to 1988-89 and make an attempt to understand the causal forces governing the various facets of poverty.

In this study the same four indices are computed for 1983 and 1987-88, at the all-India level, separately for rural and urban areas and for different livelihood and social groups. For 1987-88, the head count ratios were separately worked out for female headed households. The analysis showed that female headed households recorded a higher than average level of poverty in both rural and urban areas. There are no detectable changes between two time points.

For rural areas, the structure of poverty has also been analysed for seventeen states and across social groups for the same four poverty indicators, based on the NSSO data on consumption expenditure for the calendar year 1983.

This study also gives the same four poverty indicators at all-India level for 8 time periods from 1970-71 to 1988-89 separately for rural and urban areas by using two alternative poverty lines.[5] Based on the poverty line of Planning Commission, this study computes and analyses the same four poverty indicators for the five time points 1970-71, 1972-73, 1977-78, 1983 and 1987-88 for the rural areas of 17 major states (given as appendices in their report). They have analysed the effects of raising agricultural output by public investment and by providing incentives by the government on the one hand and the operations of buffer stocking and public distribution system on the other.

Finally they have carried out a regression analysis of inter-state variations in the four indicators of poverty, separately for rural and urban areas for 1983 and 1987-88 as also, where appropriate, by pooling the observations for both the years. The imputed

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[5]The two alternative poverty lines are: (i) Planning Commission poverty lines and (ii) Rs 15 and Rs 18 per capita per month for rural and urban areas respectively, at 1960-61 prices.

per capita monthly wage income taken together with the prices of cereals in the rural case and the male person-day rate of unemployment in the urban case, help in explaining substantially the inter-state variations in poverty for all poverty indicators.

The same authors (1996) have undertaken an econometric exercise of identifying the macro-level determinants of the rural and urban head count ratios on the basis of inter-temporal trends in poverty at the all-India level. This analysis was done in two parts. In the first, the factors governing the inter-temporal variations in head count ratio were explored. In the second, an attempt was made to analyse how some of the determinants of the head count ratio were influenced by certain macro-economic policy variables. This analysis was carried out with the help of annual time series data over the continuous period from 1965-66 to 1994-95. This all-India analysis was followed by a state-level analysis of head count ratios based on pooled data for 15 major states for five quinquennial rounds of NSS surveys conducted between 1972-73 and 1993-94. A few of the findings of this study are given below.

1. Time series analysis of the rural head count ratio shows that it responds more than proportionately to short-run variations in agricultural income per head of the rural population at constant prices. This has been interpreted to mean that poverty in the rural context is related to real income via employment and the price of food-grains. Urban head count ratios respond less than proportionately to changes in real non-agricultural income per head of urban population. This affects the urban poor only via its effect on employment and the consequent income-generating route.

2. As for the impact of relative food prices, the urban head count ratio is seen to be twice as sensitive to this variable as the rural head count ratio. In other words, the short-run fluctuations in relative food prices impact on the urban head count ratio much more than they do on the rural head count ratio.

3. The food prices for both rural and urban areas are positively related to the gross fiscal deficit and negatively related to government stocks of food-grains. The impact of gross fiscal deficit is somewhat higher and that of public stocks somewhat lower in absolute terms for the urban food prices than their rural counterparts.

In their estimated equations regarding policy variables affecting poverty, the authors found that the lower gross fiscal deficits would have a favourable influence on the rural and urban poverty through its moderating effects on food prices. However, the effect of this low deficit is bound to have its effect on the general economic activity, employment and anti poverty programmes. The authors conclude by saying that agricultural sector must occupy the major focus of the next and the more difficult round of economic reforms. The impact of these reforms on rural poverty in general and that in the high rural poverty states in particular would need to be anticipated and appropriate policy measures should be taken to minimise their adverse effects.

Ravallion and Datt (1996) have estimated a time series of the head count, the poverty gap and the squared poverty gap indices for rural and urban areas between 1951 and 1991. This time series is based on the consumption distribution from thirty-three household surveys conducted by the NSSO (from 3rd round to 47th round) and the poverty lines as given by the Task Force (1979). The poverty lines of 1973-74 are updated by using mainly the CPIIW for urban and CPIAL for rural areas. This study estimates different measures of poverty for a long period of 40 years.[6] All the three measures of poverty show a more or less a similar pattern of change over time for the rural and urban sectors. In this study, the effects of the sectoral pattern of economic growth on poverty in India have been analysed. According to this study, the growth in both the primary and tertiary sectors was poverty reducing for both rural and urban areas. By contrast, secondary sector had no discernible positive effect on poor in either rural or urban areas. The importance of rural economic growth to national poverty reduction was reinforced by this study. According to the study, the rural growth has benefited both rural and urban poor while urban growth has no effect on rural poverty but has adverse distributional effects within urban areas which worked against the gains to the urban poor.

The authors in a separate study (1995) have analysed the determinants of poverty through a regression model. This model is discussed at great length by Sen (1997).

Sen (1997) gives the estimates of the state wise head count ratios for the rural poor for the available NSSO rounds covering the period 1973-74 to 1993-94 period. The estimates for 1973-74, 1977-78, 1983 and 1987-88 are directly taken from the Expert Group (1993). For the remaining years, these are calculated from the NSSO data on consumption expenditure by using the methodology of the Expert Group. These estimates indicate that poverty fell almost continuously till 1989-90 but increased sharply in 1991 and 1992 in almost every state. However, there are indications of poverty in 1993-94, on the one hand, having fallen from the levels in 1992 and on the other, having increased significantly from the levels in the years 1989-90 or 1990-91.

The study contends that the generally advocated agricultural output-inflation story is not enough to explain rural poverty. Factors such as non-agricultural employment, government expenditure, etc. are important in determining poverty in rural India.

Sen reviews the Ravallion-Datt (RD) model (1995) using periods 1960-61– 1989-90 and 1960-61–1992 with all-India data. According to Sen, the RD model is a two equation model whereby showing the incidence of poverty as being dependent on the lagged and current agricultural output per net sown acre and on the agricultural real wage. In addition, the model includes the lagged dependent variable and a time trend among explanatory variables. In turn, the level of the real agricultural wage is explained

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[6]The estimates are not available in the paper. These along with statewise series are given upto 1993-94 in Datt (1998).

in another equation by the inflation rate and the earlier agricultural output variable, in addition to the lagged wage term. In this model, therefore, higher agricultural output reduces the incidence of poverty both directly and through its positive effect on the wage rate, while, inflation affects poverty indirectly through its effect on money wages and reducing real wage rate, but only temporarily. The model results up to 1989-90 are directly taken from the original paper of R and D, while, Sen gets the model extended up to 1992. The model fitted well for the pre-reform period. However, the same model fitted to the post-reform period breaks down almost completely, since the most important variable, agricultural output per acre, turns insignificant. The model fitted with the pre-reform period estimates, when used for prediction, is able to explain only a small part of the large actual increase in 1992. The model also predicts an increase in poverty in 1993-94 when actually it declined in 1993-94.

Sen adds the relative prices of cereals, the proportion of non-agricultural workers in the rural population and a commercialisation variable (per capita GDP from trade and transport) as additional variables. The inclusion of these variables renders the time trend and the lagged dependent variable of the RD model insignificant, suggesting that adjustment of poverty to real factors is much faster than what is shown by the RD model. This model not only fits poverty data much better, but also accurately predicts values for 1992 and 1993-94. Moreover, the inclusion of alternative variables such as, the real government expenditure per capita renders the agricultural output variable insignificant. In fact, the significance of the government expenditure variable confirms the possible importance of this variable for non-agricultural employment, rural real wages and hence poverty.

According to Sen, however, the inclusion of a relative price variable would have improved the results. He observes that relative price of food and the level of government expenditure are more important variables as determinants of the incidence of poverty than even the agricultural output and inflation.

Tendulkar (1998) tries to assess and explore the relationship between the Indian economic reforms and poverty on the basis of four rounds of NSS data on household consumer expenditure from July 1991 to June 1994. Only two of these rounds i.e. for (Jan. to Dec.) 1992 and (July to June) 1993 were of full year, the other two being of short periods i.e. for July to December 1991 and January to June 1993. Three measures of poverty, been presented for 14 time points from 1970-71 to 1993-94 both for rural and urban areas, by using the poverty lines of the Planning Commission as well as an alternative (lower) poverty line.

The effects of reform on changes in poverty situation have been analysed. Also an analysis has been done by relating the poverty situation with other normal factors like production of food-grains, agricultural harvest, public action, public stocks, increase in procurement and other prices. According to the author, the normal factors are directly responsible for the changes in poverty indicators. The author concludes by saying that economic policy reforms can at best be only indirectly responsible for the observed movements in the poverty indicators in the post-reform period.

Pant and Patra (1998), using 1993-94 rural income data[7] analysed the impact of economic reforms on rural poverty. Six measures of poverty are estimated for 16 major Indian states as well as all-India. State specific poverty lines for consumption data corresponding to the year 1987-88 are used as base to estimate poverty lines for the year 1993-94 using state-wise CPIAL. Apart from estimating six measures of poverty, profile of rural India (source of income, employment profile), profile of rural poor (spread of poor across six occupation groups and relative intensity of poverty), factors affecting rural poverty during reforms and inter-state variations in measures of rural poverty are studied in this paper. Here, the poverty based on the consumption expenditure is used on income distribution.

It is found that during the initial phase of reform process, rise in procurement and issue prices of rice and wheat, increased fertiliser prices, stagnant investment in agriculture led to decline in real wage rate of rural agricultural labourers and carpenters (a proxy for non-agricultural wages in rural areas in the absence of any other wage data on rural non-agricultural wage). As a result, rural poverty increased in 1992 in most of the states. Real per capita expenditure (deflated by state specific NSDP deflator) on rural development programme showed a declining trend during first 2 years of reforms (1991-92 and 1992-93) in most of the states. Intensity of poverty is estimated to be highest among agricultural labourer class followed by non-agricultural labour class. However, in Andhra Pradesh, Bihar, Haryana, Kerala, Madhya Pradesh and Punjab, intensity of poverty among non-agriculture occupation classes (self employed in non-agriculture, non-agriculture labourers, salaried and others) is estimated to be higher than agriculture occupation classes (self employed in agriculture and agriculture labourers).

While explaining rural inter state variation in measures of rural poverty, authors found that rural poverty is inversely related to real per capita income, real per capita expenditure on rural development programmes, percentage of population depending on non-agriculture as their principle source of income and positively related to casualisation (percentage of population depending on agricultural wages and non-agriculture wages as their principle source of income) of labour force. Government expenditure on rural development programme has poverty alleviation effect but not very significant, confirming to the doubt raised on effectiveness of these programmes.

Pradhan *et al.* (1999) present a detailed poverty profile based on MIMAP survey by different occupational classes, both for rural and urban areas. The profile includes information on the living conditions of poor households covering income, expenditure, asset ownership and basic needs fulfillment. This is perhaps the only survey in recent times giving vast amount of data for analysing the profile of the poor.

The poverty profiling presented in this paper also provides a comprehensive evaluation of the impact of some of the social policies on the poverty groups. The

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[7]Data used in this paper is taken from NCAER survey of Human Development Profile of India, covering a rural sample of 33,230 households spread over 15 major states and North-Eastern Region consisting of Assam, Tripura, and Nagaland.

decline in government expenditure in providing public health services like government hospitals and non-hospitals is less likely to affect the poor households since a larger percentage of poor households seek treatment for various illnesses with the private providers of these facilities. The survey results also show that a large percentage of poor households go to government educational facilities, so reduction of government expenditure or increase in user charges at primary and secondary level, are likely to have profound effect on their educational levels. It was further pointed out that a cut in public expenditure on education will affect the rural poor more than it affects the urban poor in the absence of public provision of educational facility.

Finally, the poverty profiles highlight achievements on the basic needs front. The welfare programmes meant to transfer incomes to poor households by providing subsidised health and educational facility have not achieved the pre-supposed objectives. This is due to inefficient mechanism of providing welfare programmes which invariably covers the non-poor as well.

Pradhan and Sahoo (1999) have analysed the impact of sectoral growth on poverty under four alternative market regimes, using a Social Accounting Matrix having 10 production sectors, 2 factors of production and 7 household categories. Here, sectors have been ranked according to their relative impact on poverty. Irrespective of policy regimes, it is observed that agriculture sector and social sectors like education and health dominate the poverty alleviation effects. However, in the process of liberalisation, the manufacturing sector also assumes importance in reducing poverty. Despite its shortcoming as a demand driven linear model, this work is useful in ranking the effectiveness of various production sectors in poverty alleviation.

Pant and Pradhan (1998) have analysed the impact of economic growth on income distribution and poverty by using a six sector macro-econometric model which is linked to an income distribution block, comprising of 6 rural and 6 urban household groups, estimated from the MIMAP-India survey. This study gives the baseline scenario of income distribution and poverty during 1994-95 to 2000-01. In this framework income distribution and poverty under different macro situations could be attempted.

The study shows that all the agricultural dependent household groups (self-employed in agriculture and agricultural labourers) experience worsening of poverty situation in 1995-96 as compared to 1994-95 due to slow down of agriculture growth. Urban poverty declines at a faster pace as compared to rural poverty. Other two indicators related to poverty, i.e., poverty gap ratio and FGT index of poverty also depict similar trend as observed in the case of head count ratio.

In this study, mostly, the relative composition of growth of agriculture and non-agriculture sectors, affect the income distribution and poverty. Even though the study fails to provide a linkage between non-agriculture income separately for various sectors and households, due to non-availability of data, and the reverse

linkage from income distribution/poverty to macro model, the study gives useful insights in tracing the dynamic path of poverty.

4. CONCLUDING REMARKS

A number of studies on estimation of the incidence of poverty at all-India and state-level were conducted during early seventies. The incidence of poverty was estimated by using a poverty line and distribution of consumption expenditure. Until the acceptance of the Expert Group report, the Planning Commission was estimating the incidence of poverty on the basis of the methodology given by the Task Force.

The Expert Group has, recommended the continuance of the 1973-74 fixed baskets as well as calorie norms at all-India level, given by the Task Force. The valuation of these fixed baskets has been done for different states by using state-wise price differentials. For other years, the poverty lines have been updated by using relevant state-wise consumer price index numbers relating to the population around the poverty line.

According to the EG, the fixed basket has been kept for the sake of comparability over time and space. In this respect two points may be kept in mind. The per capita energy requirements of different states may be different on the basis of agro-climatic conditions, age, sex and occupational structure of population. Over time, the fixed basket may require change, because there have been significant changes in the consumption pattern of all sections of population. Expenditure on food as proportion of total expenditure has declined over time for rural as well as for urban areas. Also there has been shift in the occupational structure of the population. Keeping these points in view and the distance from the base year (about 25 years), the fixed basket need to be revised to some recent year.

If possible calories should be evaluated at state prices, otherwise the price differentials could be calculated afresh as the state-wise price differentials used by the Expert Group relate to early sixties. Here it may be mentioned that state-wise poverty lines corresponding to fixed calorie norm i.e. 2400 and 2100 for rural and urban areas respectively, and state-wise calorie distribution of the same year were estimated by the Expert Group for the years 1977-78 and 1983 (p. 60-61). The poverty ratios based on these distributions rose to very high levels i.e. 66.58 in 1983 at all India level corresponding to 44.76 obtained by using the method adopted by the Expert Group.[8] Although getting poverty ratios by using this method do not give comparable estimates, yet reasons for difference of such a magnitude have to be looked into. There are large differences among various estimates of poverty and they are mainly because of using different price indices and weighting diagrams. Some authors are also continuing with Rs 15 as the poverty line for rural areas. The estimates provided by the Planning Commission are based on improved methodology as well as database. Therefore, to

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[8]The corresponding percentages for 1977-78 were 54.39 and 51.81 respectively.

make all the studies comparable, researchers should work with the poverty lines estimated by the Planning Commission.

In addition to head count ratios, other measures like inequality, depth and severity of poverty have been estimated by different authors. These measures have been compared among themselves and are generally found to be highly correlated. Some authors have tried to analyse the factors responsible for the incidence of poverty. Regression models have been used by almost all the authors, the explanatory variables used by them, however, differ. Some important influential papers have used a very long time series data on incidence of poverty and relating the incidence with different factors like the agricultural output, agricultural real wages, inflation, relative food prices, etc. Some of the variables are highly correlated among themselves and may not give the true effects of the expenditure variables. Agricultural output and the public expenditure are still the dominant factors affecting the incidence of poverty.

A few studies have analysed the effects of economic reforms on the incidence of poverty. Economic reforms were introduced in July 1991 and the latest available NSS data on the distribution of consumption expenditure, on which these studies are based, relates to 1993-94. However, some analysis were done using MIMAP-Survey 1994-95. In such a short period of time, it is quite difficult to analyse the impact of economic reforms.

Analysis has also been done measure effect of to the sectoral growth on the incidence of poverty. According to these studies agricultural growth is still the most dominant sector for the poverty reduction.

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