

Expert Group on Poverty: Confusion Worse Confounded

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A critique of the 2009 report of the expert group on poverty.

In recent years, there have been several studies on the authenticity of the official estimates of poverty, reconciling findings on divergent trends in poverty and undernutrition, relevance of underlying norms and appropriateness of the methods and database. Given this context, the Planning Commission constituted an expert group to examine, inter alia, “alternative conceptualisation of poverty, and the associated technical aspects of procedures of measurement and data base for empirical estimation including procedures for updating over time and across states” (GOI 2009).¹

This note examines the expert group’s recommendations on poverty line and its estimation from the conceptual, methodological and database perspectives, and their implications. The article first summarises the salient features of the report and its recommendations, followed by an evaluation of some of its major features.

Recommendations

The expert group report cites three major problems with the existing official poverty lines (1973-74 as the base year) for all-India rural and urban sectors. They are (i) outdated consumption patterns and hence, weighting diagrams of the base year poverty lines; (ii) crude price adjustments to obtain estimates for the subsequent years and, hence, implausible rural-urban poverty profiles for some major states; and (iii) failure to accommodate (a) changes in the weighting diagram due to increased private expenditures on health and education; and (b) increases in such expenditures in their price specifications. It has apparently looked into all the issues in detail and suggested a new methodology for working out state-wise and all-India estimates of poverty lines for the rural and urban sectors separately.² This is done on the basis of the household

consumer expenditure data collected during the 61st round of the National Sample Survey (NSS) (July 2004-June 2005). The salient features of the expert group report are as follows:

(i) The expert group favours continuation of the existing practice of estimation of poverty based on private household consumer expenditure collected by the National Sample Survey Office (NSSO). However, it recommends a shift from a uniform – 30-days’ reference period based – estimate of consumption to that based on mixed reference period (MRP).³

(ii) Association between estimates of calorie intake derived from the NSS data on household consumption and nutritional outcome indicators from other specialised surveys is weak over time and across space. Hence, poverty line concept may be delinked from the calorie intake norm and based on some broad measure of consumption.

(iii) The concept of poverty is defined with respect to social perception of deprivation on basic human needs. Listing the basic human needs in the material dimension, the focus gets confined to deprivation in private consumption. Thus, absolute (private) consumption poverty line refers to “the inability of an individual or household to afford a socially perceived normative minimal basket of basic human needs that is expected to be reflected in some normative minimal standard of living that should be assured to every individual/household” (GOI 2009: 4). “In the interest of continuity as well as in view of the consistency with broad external validity checks with respect to nutritional, educational and health outcomes, it was decided to recommend MRP-equivalent of urban PLB (Poverty Line Basket) corresponding to 25.7% urban headcount ratio as the new reference PLB to be provided to rural as well as urban population in all the states after adjusting it for within-state urban-relative-to-rural and rural and urban state-relative-to-all-India price differentials” (Summary, pp 1-2).

(iv) The proposed poverty lines are validated with reference to normative expenditures to meet nutritional, educational and health outcomes. For instance,

This is a revised version of the key note address on “Poverty Estimation – Approaches and Methodologies” at the international seminar, *Poverty in the Contemporary World*, Centre for Scientific Socialism, Acharya Nagarjuna University, Nagarjuna Sagar, Andhra Pradesh on 18 August 2011. It is based partly on some of the arguments in Suryanarayana (2009 and 2012).

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urban households in the neighborhood of the poverty line have a calorie intake of 1,776 calories per capita as per the NSS 61st round findings. This tallies with the revised calorie intake norm of 1,770 per capita per day currently recommended for India by the Food and Agriculture Organisation (FAO). As regards rural India, the observed calorie intake of (1,999 calories per capita) rural households in a corresponding situation is higher than the FAO norm.

(v) The revised poverty lines provide for private expenditure on transport and conveyance.

(vi) Price indices for spatial and temporal estimates of poverty line are based on the household-level unit values worked out from the NSS 61st round data on household consumer expenditure on food, fuel and light, clothing and footwear at the most detailed level of disaggregation for as many items as possible.

(vii) The all-India urban PLB would be the reference consumption bundle and state-sector specific poverty lines would be obtained with suitable purchasing power parity adjustments.

(viii) Finally, "...even though the suggested new methodology gives a higher estimate of rural headcount ratio at the all-India level for 2004-05, the extent of poverty reduction in comparable percentage point decline between 1993-94 and 2004-05 is not different from that inferred using the old methodology" (p 3).

Evaluation⁴

The report provides a description of the need for a norm based on social perception of deprivation and aggregated individual preferences for defining a poverty line: "Fundamentally, the concept of poverty is associated with socially perceived deprivation with respect to basic human needs. As a result, social perceptions are taken to play a dominant role in ascertaining deprivation although self-perceptions cannot be ignored altogether and aggregated individual preferences may have to be respected in satisfying any given need in most cases as we argue below in the context of consumption poverty" (p 2). Consistent with this emphasis, it defines absolute (private) consumption poverty line as "the inability of an individual or a household to afford a socially perceived

normative minimal basket of basic human needs that is expected to be reflected in some normative minimal standard of living that should be assured to every individual/household. It should be obvious that social perceptions in respect of normative minimum living standard are not precisely numerically specifiable in quantitative terms. However, for policy purposes, a uniquely specified numerical poverty line separating the poor from non-poor has been in use" (p 4).

There are several issues, which need to be addressed. To begin with, one is not clear how does one define social perception about a PLB at the national level for a country like India which is a federation of states with diverse resource endowments, needs and preference, prices and hence, income-price-responses. The report is confined largely to making price corrections for a chosen urban normative PLB. Simply because official estimates of poverty for the urban sector have been less controversial or less commented upon than the corresponding estimates for the rural sector do not absolve the former of any limitations. In fact, one of the background studies has raised questions about the validity of the specification of the aggregate Engel function used for deriving poverty lines for both rural and urban India in the old methodology (Suryanarayana 2009). This study also raised a question about the authenticity of the estimates because the reference NSS estimates for 1973-74 were not derived from a complete annual survey. In addition, it may be noted that social perceptions get formed with reference to observable realities and quantities.

Identifying a PLB in terms of the consumption profile of (approximately) the first quartile of all-India urban consumption distribution would essentially involve a statistical aggregation of consumption of households across distant and diverse regions in the country. This bundle is not observable. It is not only arbitrary but also a statistical fiction. It is difficult to believe that social perceptions get formed based on such an academic statistical fiction, particularly so for the rural society, which may not have even an inkling of urban life styles. Still the report cites it as a point to validate the choice of the PLB since "it corresponds to the urban All India HCR of

25.7% that is widely accepted as being reasonable" (p 7).

As regards the shift in database from the one on uniform reference period (URP) to the one on the mixed reference period (MRP), the report has adopted the following procedure:

...the PLB was taken to be MRP equivalent of PCTE (per capita total consumer expenditure) corresponding to 25.7% of the urban BPL population variously described as poverty ratio (PR for short) or headcount ratio (HCR for short). As urban living standard is generally regarded as better than and preferable to its rural counterpart, the Expert Group recommends that the purchasing power represented by the MRP-equivalent PCTE underlying the all-India urban HCR of 25.7% be taken as the new reference PLB for measuring poverty and made available to both the rural and the urban population in all the states after correcting for urban-rural price differentials as well as urban and rural state-relative-to-all-India price differentials (pp 6-7).

This procedure is valid only if population ranking remains unaffected by choice of reference period for estimates of consumption. Further, it would not make sense to impose the urban PLB on rural areas since the normative bundles as well as their overhead components would differ between the two regions. Most important, one is not sure if the urban bundle, food in particular, would ever be qualitatively superior to the rural one and how simple price corrections would take care of such differences.

The report debunks the calorie norm and at the end validates the revised poverty line by citing its adequacy to buy the normative calorie amount. It reports

...a conscious decision was taken by the Expert Group to move away from anchoring the PL in calorie norm as in the past because (a) there is overwhelming evidence of downward shift in calorie Engel curves over time and (b) calorie consumption intake calculated by converting the consumed quantities in the last 30 days as collected by NSS has not been found to be well correlated either over time or across States with the nutritional outcomes observed in other specialised nutrition outcome surveys such as the National Family Health Surveys... (pp 7-8).

In the same breath, the report justifies the PLB on the ground that "the revised minimum calorie norm for India recommended by FAO is currently around 1,800

calories per capita per day which is very close to the average calorie intake of those near the new poverty lines in urban areas (1,776 calories per capita) and higher than the revised FAO norm (1,999 calories per capita) in rural areas in the 61st round of NSS” (p 8). This is nothing but confusion.

It validates its choice further with reference to nutritional, educational and health outcome estimates from specialised surveys:

NFHS-III supplies three outcome indicators of malnutrition for three important segments of the population: (i) proportion of underweight children below five years of age with underweight defined as those whose weight-for-age was below twice the standard deviation; (ii) proportion of men aged 15-49 years with low body mass index – norm of low BMI being lower than 18.5; and (iii) proportion of women (excluding pregnant women and those who gave birth in the last two months) aged 15-49 years with low BMI. In the absence of objective criteria for assigning unequal weights to the three population segments, equal weights were assigned to derive an aggregate index of malnutrition outcome. Consequently, a simple average of the three proportions above is taken to be an aggregate outcome indicator of malnutrition. When estimated (state/rural/urban) population from NSS is ranked according to ascending size of food expenditure per capita, normative food expenditure per capita is defined by that level of food expenditure per capita that corresponds to cumulative share of population from NSS that equals the index of malnutrition derived from NFHS-III for that state (GOI 2009; Footnote # 3; p 8).

The above description may be stated as follows:

Let $\phi(y)$ be the density function for food expenditure (y) distribution. Let θ_i denote the indicator of malnutrition for population segment ‘i’ and $\bar{\theta}$ be the simple average of their estimates for the three segments under review. Then the normative consumer food expenditure (y^*) is proposed to be obtained as

$$y^* = y \mid \Phi(y) = \int_0^y \phi(t) dt = \bar{\theta}$$

This has both conceptual and methodological limitations. Conceptually this exercise would not make much sense since this involves relating short-run estimates of current consumption expenditure with estimates of essentially long-run nutritional outcome measures, which are a function of host of economic and non-economic variables. In other words, the nutritional outcome estimates for time t essentially reflect the cumulative impact of both

economic and non-economic factors over the medium/long-term that cannot be related to estimates of current consumption. Further, as is well known, use of arithmetic mean involves implicit assumption of perfect substitutability across population categories, which is not valid. Methodologically it involves solving a food expenditure distribution function for a normative value with reference to a simple average of proportions (undernutrition indicators) with different denominators, which again does not make sense.

Focus on the Median

The report seems to be based on some fancy for median without any justification. To begin with, it estimates normative level of expenditure on education as “the expenditure required at state-specific median cost (derived from the 61st round employment-unemployment survey) for sending *all* school-going (in 5-15 year age-group) children in the household *at the poverty level of PCTE* to school by state/rural/urban population” (p 9). This is how footnote # 4 defines normative level of education expenditure (p 9). The definition is different elsewhere in the report where it recommends to “compute the median cost of education across households using NSS weights by state and sector” (Section c, Annexure c, p 22). It is not at all clear, if the group has really bothered to study the distribution of education expenditure and if the use of median is really warranted. Even if it had, education expenditure corresponding to the median household in the same sub-set or total population would have made better sense than median cost from economic and statistical perspectives.

Similarly, the group uses median health expenditure to work out a norm for health expenditure.⁵ The report neither reveals its awareness about the distinction between median health cost and health cost of the median household nor explains its preference for the former over the latter. Most important limitation of this exercise is that it is based on NSS data obtained from a survey of just six months (January to June 2004). Morbidity and health expenses in India reveal statistically significant seasonal variations (Agrawal 2010). Hence, estimates from a survey for

six months would not provide a correct estimate for the whole year. One should also note that median is not additive and decomposable. Hence, one does not know what aggregates of median estimates of different components of household expenditure would mean.

The report estimates prices in terms of unit values. Unit values would not provide any correct estimate of prices since the NSS procedure values items of consumption differently depending upon source. For instance, items from homegrown stock are valued at ex farm (farm harvest) prices while items from the market at retail prices. Unit values, which are weighted average of different prices, would vary across households/villages conditional on the extent of monetisation of the consumption basket. In a strict sense, they would not measure prices. Further, one does not really understand the rationale behind using weighted average of median prices when median is not additive at all.

The statistical exercises involved in verifying outliers do not have any rationale. Price outliers are identified as those maximum prices exceeding minimum prices by 100 times while high (30-day reference period) consumption outliers are identified as those in excess of 10 times mean consumption or 75, whichever is higher (p 19).

Finally, the report points out that “...even though the level of 2004-05 all-India headcount ratios using the new poverty line basket appears higher at 41.8% (rural) and 37.2% (combined rural-urban) than the existing official poverty estimates of 28.3 and 27.5%, the comparable extent of poverty reduction between 1993-94 and 2004-05 is not very different from that inferred from using the old methodology” (p 14). It does not make any sense to justify the proposed-revised-methodology by

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comparing estimated poverty reductions with those by the current official methodology, for the following reasons. As per the current practice, (i) the norm does not provide for educational and health expenses; and (ii) price indices do not account for the catastrophic increases in educational and health expenses since the 1990s. Hence, an agreement in the findings from the two different methods would not validate either of them; nor a disagreement can be taken as evidence to invalidate either of them.

Quality of 2004-05 Database

Most fundamental is the issue pertaining to the database. In fact, a background study had pointed out that the NSS 61st round data for the year 2004-05, contrary to the general perception, was not robust (Suryanarayana 2009). The NSS tables show that the first four monthly per capita consumer expenditure (MPCE) classes account for the poorest 30% of the population and hence, would exhaust the set of the poor. However, these expenditure classes account for only a minor subset of the set of households with Antyodaya or below poverty line (BPL) cardholders. More than half of the households in these MPCE classes do not have the Antyodaya or BPL ration cards. Majority of the households with Antyodaya or BPL ration cards are above the poverty line. The NSSO explains this feature as follows: "It should be mentioned here that the MPCE of a household is based on its consumption expenditure during the last 30 days. A poor household that bought a durable good during the 30 days prior to the date of survey might conceivably be placed in a higher MPCE class than the class in which its usual MPCE lies" (GOI 2007, p 16; Footnote # 3). Since the majority of the "usually" poor households fall in the APL classes, this explanation would mean that the NSS estimates of consumption distribution do not represent the "usual MPCE".

Much worse is to find in the NSS database that the bottom 75% of the population in all categories does not spend anything on durables and hence, there is no basis for the NSS explanation (Suryanarayana 2011). In sum, the expert group report seems to have confounded the confusion on concepts and estimates

of poverty and the policy imperatives for reducing deprivation in India.

Conclusions

Making a case for conceptualisation of poverty with reference to public perception on deprivation in basic needs, the group has identified a poverty line consumption basket in terms of a statistical aggregation of urban consumption profiles across the country. Such profiles are not observable. Nor do the public, the rural in particular, have access to or knowledge of such statistical profiles to form perceptions. One does not understand how the urban consumption bundles, food in particular, would ever be qualitatively superior to the rural one and simple price corrections would account for such differences.

The report is at its best when it comes to validation of its norm. It debunks the calorie norm approach but validates the revised poverty line by citing its adequacy to buy the normative calorie amount. It repeats this performance by debunking what it calls the old methodology on poverty estimation and validating its own new approach with reference to their similar findings on the extent of poverty reduction between 1993-94 and 2004-05. In pursuit of validation, it (i) relates short-run estimates of consumption with medium/long-term outcome indicators of health status for a given point of time; and (ii) obtains costs of different items like health expenditure by adding up median estimates, which are not additive. Finally, all these exercises are based on a data set about which the data generator itself has no idea of the robustness and interpretations. In sum, we have "confusion worse confounded".

NOTES

1. GoI Order No M-11019/10/2005-PP, Planning Commission (Perspective Planning Division) attached to GoI (2009).
2. Though the existing literature on poverty and the background studies have provided valuable insights, the expert group seems to have missed an opportunity to focus on some fundamental issues. For instance, current academic discussion on child undernourishment seems to be misplaced. It is true there has hardly been any significant improvement in the child health status as revealed in the NFHS-II and NFHS-III findings. The high proportion of underweight children persists. An important reason for persistence of child malnutrition is the limited appreciation of and focus on healthcare during the first 1,000 days of pregnancy (Kumar 2007). Public policy

interventions focus largely on children after age two years. This seems to be the major factor responsible for a stable high proportion of underweight children in India. The adult population too is undernourished as reflected in health status indicators because such impacts are lasting and irreversible. Such issues would have profound implications for defining a poverty norm and the policy imperatives.

3. This is because the NSS has decided to collect information on household consumption based on a mixed recall period, that is, 365 days for low frequency items (clothing, footwear, durables, education and institutional health expenditure) and 30 days for all the remaining items in future.
4. For a comprehensive appreciation of the issues involved and the background, one should read Rath (1996).
5. "For normative consumer expenditure on health (NCEH for short), two components are distinguished, namely, (i) that on non-institutional healthcare (NCEH-N), that is, on treatments not requiring hospitalisation in 15 days preceding date of interview, and (ii) that on institutional healthcare (NCEH-I) requiring hospitalisation during 365 days preceding date of interview. Median cost per treatment and per case of hospitalisation has been derived from the 60th round (January-June 2005) NSS by state/rural/urban population. Age-specific incidence of treatment/hospitalisation reported in the same survey has been multiplied by age-distribution of the population to derive average incidence of treatment/hospitalisation. Since onset of illness and hospitalisation are contingent events, the average incidence of treatment/hospitalisation can be regarded as probability of onset of illness requiring treatment/hospitalisation. When we multiply the average incidence by the median cost of treatment/hospitalisation, we get expected normative expenditures to get treated/hospitalised which provide us with NCEH-N and NCEH-I respectively sum of which gives us NCEH by state/rural/urban population" (Footnote # 4; p 9).

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