

Review Article

Poverty Measurement: Time To Look Beyond Poverty Line – Do We Know How Poor Really The Poor Are?

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Abstract

Poverty leading to ill-health and ill-health pushing people to poverty is a vicious cycle. Measurement of poverty is important in any country as a large share of finance allocation is dependent on the number of poor people living in that respective state or region. In most of the countries poverty is expressed only in terms of proportion which says how many of them are poor with respect to the poverty line. Not much effort is actually made to express or derive further important measures which could help in giving the exact picture of poor people in the country. There are different measures which are deduced based on absolute poverty line starting from the simple measures such as poverty headcount ratio to robust measures such as Watt's index. This article mainly emphasizes on the practical issues to be considered before measuring the poverty line and also it critically appraises the available common measures of poverty.

Keywords: Poverty, Poverty line, Poverty gap

Introduction

Poverty creates ill-health because it forces people to live in environments that make them sick, without decent shelter, clean water or adequate sanitation. Poverty leading to ill-health and ill-health pushing people to poverty is a vicious cycle. The causal effect of ill-health and poverty is already established and strategies to reduce poverty are given top most priority. World Health Organization advocates and supports countries to design and implement 'pro-poor' health policies.^[1] Measurement of poverty is important in any country as a large share of finance allocation is dependent on the number of poor people living in that respective state or region. It is also a measure of index for

development in standard of living of the people in a country.^[2] Measurement of poverty is important to find the proportion of poor in the country as only this section may be eligible for certain public schemes and also to arrive at the required financial logistics for such schemes.

Though enough evidences on measures are available to assess the burden of poverty, all of them are mainly focusing on what proportion of people are living as poor.^[3] There is a dearth on discussion or evaluation on the appropriateness of the scales used in measuring the intensity of poverty. This article mainly emphasizes on the practical issues to be considered before measuring the poverty line and also it critically appraises the available common measures of poverty.

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Practical issues in measurement of poverty line

There are certain key issues which need to be addressed before going in for meas-

urement of poverty line. Firstly, we need to decide whether to measure absolute poverty line (which gives absolute number for income, below which all are poor) or relative poverty line (comparing with the rich people we say relatively about the status of the poor). This is important as the entire assessment and also methodology will differ. Secondly, we need to decide whether to measure the poverty line at a national level or regional level. This is important as after the measurement of regional or state poverty line, if it is used to estimate national poverty line or vice-versa, both will give different results as they have different levels of comparability. Thirdly, we need to fix a priori the unit of measurement as 'household' or 'individual'. This is important as both the units are independent of each other and trying to compute one from the other and using it for comparison is not acceptable just because the financial logistics differ in both of them.^[4] Fourthly, methodology of measuring poverty in a subjective or objective way and use of only monetary measures or inclusion of non-monetary measures also, must be decided before going into the field for measurement of population below the poverty line.

Different measures of poverty

There are different measures which are deduced based on absolute poverty line starting from the simple measures such as poverty headcount ratio, household poverty index, poverty gap, poverty gap index and squared poverty gap index to robust measures such as Watt's index and Sen-Shorrocks-Thon Index. It is necessary to know the axioms propounded by Amartya Sen for understanding these scales.⁵ The important four axioms are termed as 'focus', 'monotonicity', 'transfer' and 'decomposability'. The 'Focus' axiom states that poverty measure should be independent of 'non-poor'; i.e., the variation in those who are not poor must not alter the measure of poverty. Axiom 'Monotonicity' states that a decrease in the income of poor person should increase the poverty measure and vice versa. 'Transfer' axiom says that if money is transferred from a rich to poor person, it should decrease the poverty measure and vice versa.

'Decomposability' states poverty measure should increase when poverty in a subgroup increase and vice versa.^[5] In most of the countries poverty is expressed only in terms of proportion which says how many of them are poor with respect to the poverty line. Not much effort is actually made to express or derive further important measures which could help in giving the exact picture of poor people in the country.

Measures to identify the proportion of poor people

The usual poverty estimates given as poverty ratio is actually the proportion of people who are poor in the total population expressed as a percentage. When share of the population whose consumption (or income) is below the poverty line is expressed this way it is called as 'Poverty Headcount Index or Poverty Headcount Ratio'. Similarly, when share of households who are below the poverty line for household is expressed in same fashion it is known as 'Household Poverty Index'. The ubiquity in its usage can be attributed to it being easily obtainable and understandable, especially to the policy makers of the respective countries. The major drawback of this index is that it just gives the proportion of people who are beneath the absolute poverty line but does not explain how much poor these people actually are in reality. For example, people who are under poverty line labelled as poor may become poorer with further deterioration but this cannot be captured by this index or measure of poverty. It also cannot explain the inequality of income among the poor. Thus, it satisfies only one among the four important axioms given by Sen (only the 'focus' axiom).^[6]

When measured again and again over a period of time to assess the development of living conditions among poor or to assess the impact of 'pro-poor programs' undertaken by the government; it may mask the achievements as it measures only the people who are below the poverty line. Unless people are taken out of poverty such that they are above poverty line the impact cannot be quantified even if majority of people who are poor have now become

less poor due to the targeted 'pro-poor' interventions but are yet to be brought out of the poverty line norm.

To allocate resources to bring the poor out of poverty

Some other measures of poverty that still uses the absolute poverty line cut-off but provides much more information about the situation of poverty in the country can be computed and be used for comparisons over time. One such important measure is called by the name 'Poverty Gap Index'. Here, poverty gap means the gap or difference between the fixed poverty line norm and the person's actual income; thereby measuring the depth of poverty. As we can see the product of the estimated poverty ratio (Poverty Headcount Index) and the poverty line gives the maximum amount required to bring the whole poor population of the country out of poverty. Importance of measuring poverty gap lies in the fact that, the sum of the poverty gaps of the poor individuals gives the minimum amount required to bring the country's poor people out of poverty. In developing countries where finance is a constraint, measurement of this poverty gap will help in proper allocation of funds and also for monitoring of its distribution.

To assess impact of pro-poor interventions

Another advantage of measuring poverty gap is that when measured after a period of time it is very sensitive to change of income in poor. Hence, it can give a proper assessment of the condition of the poor and whether the planned programs are actually reaching the poor (decrease in poverty gap) or has their condition actually worsened (increase in poverty gap).

When this poverty gap of individuals is divided by the poverty line norm and sum of it is taken it gives the percentage shortfall of income of poor compared to the poverty line norm which is more easily comparable than just the mere number of poverty gap. When this is further divided by the total population of the country it is called 'poverty gap index' and this captures the improvement when measured over time as it captures the number of people who were brought out of poverty. When this is divided by number of poor alone instead of the total population it gives an important measure known as 'poverty gap index in poor' which is used as a guide in distribution of resources or finance allocation (**fig 1**).^[6]

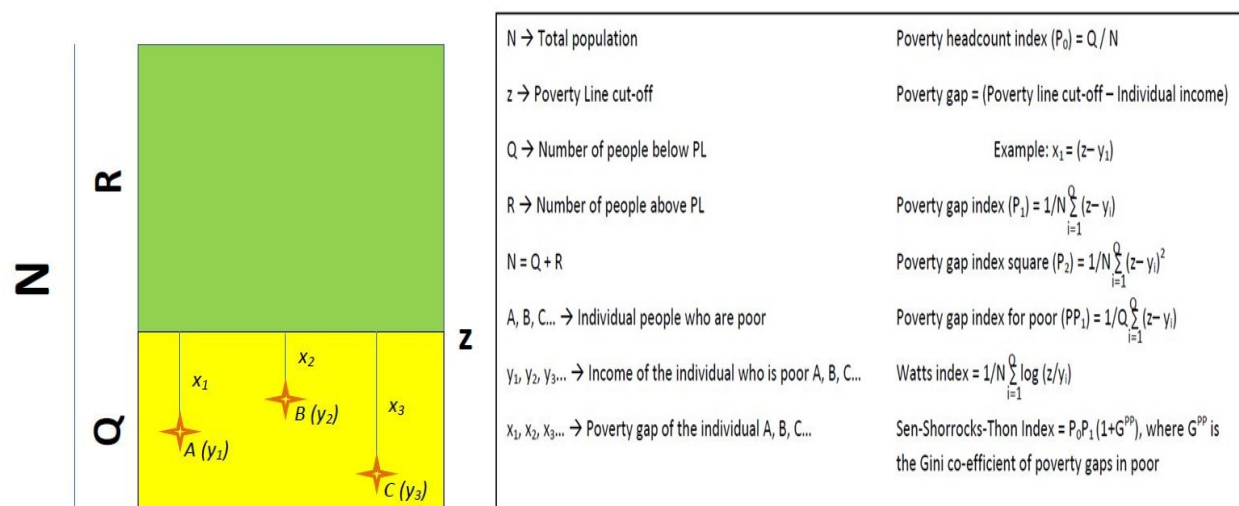


Fig 1. Schematic framework of various measures of poverty.

With all its uses; also comes with a major disadvantage in that it is not sensitive to the distribution of income among the poor. Hence, it cannot capture any transfer of income within people who are poor but no change in net gap. This index does not capture making one very poor and one better than what he was previously due to transfer of money among poor people.

III. To detect the change in the individual condition of the poor

Another measure of poverty which is actually related to poverty gap index is called 'Squared Poverty gap Index'. It is nothing but the square of the poverty gaps and hence it gives more weightage to those who are very poor compared to those who are just below the poverty line as larger the gap more the value of its square and also more the index. Thus, this index indicates not only the depth but also the severity of poverty in the country. As we can notice this index is sensitive to the distribution of income among the poor and if there is transfer of income, the net income remaining the same; the squaring of the poverty gaps and its sum rather than just the sum of the gaps as in poverty gap index gives an edge to this index and hence ability to detect the change in the individual condition of poor people.^[7]

The index increases when more poor people give money to less poor thereby becoming poorer and similarly decreases when the reverse happens. So it is sensitive to both progressive and regressive transfer of income among the population. It is actually the simplest measure of poverty that satisfies the four important axioms (as it accounts to some extent for decomposability axiom too) put forth by Amartya Sen in measuring poverty. Disadvantage of this measure is it may not be easily understandable and difficult to interpret. Sub group analysis or decomposability axiom is not answered to full extent by this index.

Watts' index was the first distribution sensitive poverty measure deduced. It is computed by dividing the poverty line by income of the poor person and then taking its logarithm, and then calculating the average of it. This in-

dex satisfies all the four axioms of Sen.^[7] Sen-Shorrocks-Thon Index is another such index which satisfies all the four axioms. It uses the most common measure of inequality called Gini coefficient (**fig 2**). It is measured as sum of two products; one is the product of headcount index and poverty index for poor and the other being the product of the headcount index, poverty index for poor and the Gini coefficient of the poverty gap ratios.^[8] The major advantage of these indices is that it helps in assessing the exit time from poverty (the time taken by the respective poor person to come out of poverty) which is important for planning 'pro-poor' interventions. Disadvantage being that these robust measures are difficult to interpret.

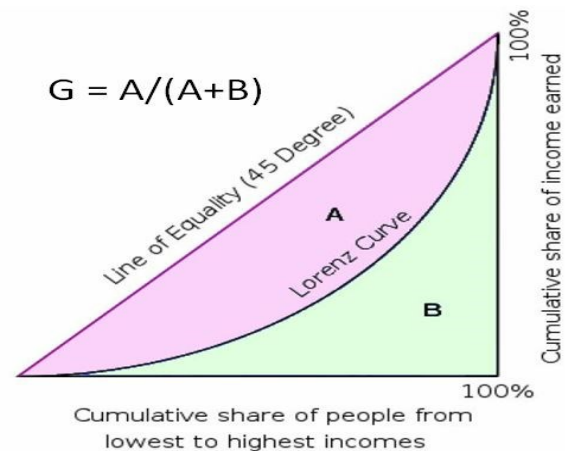


Fig 2. Process of calculating Gini coefficient. (Where, G = Gini coefficient, A = area between the line of equality and the Lorenz curve and $A+B$ = Total area under the line of equality).^[9]

Not only the measurement but also distribution of wealth or any measures taken to bring the poor out of poverty must be 'distribution sensitive'. It means the least poor person must first be made equal to the next poor person; now these two must be made equal to the next poor person and continued so on in order to get all out of poverty. To measure this distribution sensitivity, poverty measures must be sensitive; so that more weightage is given to when same income is added to the least poor compare to median poor.

Now with the focus shifted to include more

dimensions in measurement of poverty and not only consider income i.e., poverty line independent measures is a very good move. Still measurement of indices like Global Hunger Index, Multidimensional Poverty Index etc. as such may be helpful in international comparisons but may not be much helpful for within country comparisons.

In developing countries like India, data on other dimensions of poverty are yet to be assessed. Still measures based on poverty line will be used even in the near future to measure poverty. Hence, it is better to go for calculating at least poverty gap index or squared poverty gap index rather than restricting it only to poverty headcount ratio. Although other poverty line based much more distribution sensitive indices are available, like Watts Index, Sen-Thorbe Index; the challenge lies in making it easy to measure and also to interpret these measures.

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