



Traditional Poverty measurement and Multi-dimensional Poverty Index (MPI)

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Abstract

Traditionally poverty has been measured in one dimension, usually income or consumption. Income based poverty measures concentrate mainly on deprivations in one variable, i.e., income. But this traditional income based poverty measurement method has been always criticised as income, is uniquely not able to capture the multiple aspects that contribute to poverty. Hence since 1997 an UNDP's HDR have firstly measured poverty in ways different than traditional income based measure, which was replaced by Multidimensional Poverty Index (MPI) in 2010. It has again revised in 2014.

The MPI also has other advantages; it allows for comparison across countries or regions of the world, as well as within country comparisons between regions, ethnic groups, rural and urban areas, and other household and community characteristics. Furthermore, it enables analysis of patterns of poverty, i.e. how much each indicator and each dimension contributes to overall poverty. Due to its robust research methodology and diversity, MPI is widely used to understand the multidimensional nature of poverty in all countries of the world and thus to make policy decisions to curtail poverty.

Key Words: Poverty, Acute poverty, Multidimensional Poverty Index, (MPI), UNDP

Introduction:

When a person in the community is difficult to meet the basic needs that person is said to be 'poor'. Similarly, when a large section of society fails to solve the required basic needs for a long time, it is called 'mass poverty'. According to traditional criterion, income is considered to be a poverty measure. Recently, it is believed that the person or a group of people cannot meet the necessary requirement or living, sufficient nutrition's and community participation, than the person or community is called 'poor'. Public can be said to be in poverty when they are deprived of income and other resources needed to obtain the conditions of life- the diets, material goods, amenities, standards and services – that enable

them to play the roles, meet the obligations and participate in the relationship and customs of their society (**Poverty in focus, 2000**)

In the context of overall economic and sustainable development, accurate measurement of poverty is essential to decide what efforts should be made for poverty alleviation. In that sense, the question of which exact scientific method should be followed for poverty measurement is considered important. Still now the traditional income based poverty measurement method has been always criticised as income, is uniquely not able to capture the multiple aspects that contribute to poverty. Research methodology of the MPI was firstly introduced in **UNDP's HDR, 2010**. Since its inception, it has proven the most popular statistical tool for to understand comprehensive picture of poverty. This research paper provides detailed review of the nature, usefulness and the limitations of the MPI.

Objectives of the Study:

The present study has been carried out with the following objectives.

- A. To study the various concepts of the poverty.
- B. To study the significance of UNDP's Multidimensional Poverty Index (MPI).
- C. To understand the nature and the methodology Of MPI.
- D. To explain the importance of studying MPI at various level.

Research Methodology:

The present study has been applied the following research methodology.

1. The present study is based on secondary data.
2. Secondary data has been collected from various published sources on websites.
3. Descriptive analytical methodology has been used for the study.

Concepts of Poverty and Traditional Poverty Measures

In the third world countries, there is 'mass poverty' and there are also poorer group of peoples in developed countries. The concept of poverty has changing as per place, time and the individuals. Some of the key definitions of poverty have more clear meaning. **The United Nations High Commission for Refugees (UNHCR)** defines, "poverty" as a human condition characterized by the sustained or chronic deprivation of resources, capabilities, choices, security and power necessary for an adequate standard of living and other civil, cultural, economic, political as well as social rights (**UNHCR, 2004**).

As per UNCHR definition of poverty is a state of overall deprivations. "Absolute poverty" as a condition characterized by sever deprivation of basic needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information." It means rather than income other factor with human dignity is also important.

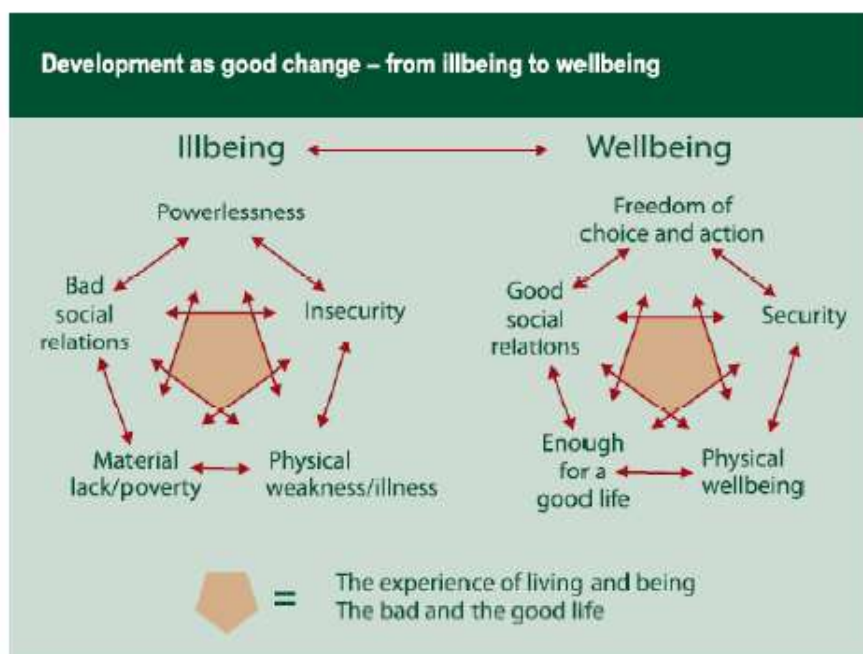
According to World Bank, 2001, "Extreme poverty" is being people who live on less than 1 US \$ a day, and "poverty" as less than 2 \$ a day. Generally poverty is a condition where has lack of property, lack of sources for fulfilled

basic needs. “Poverty is pronounced deprivation in well-being.” (**World Development Report, 2000**).

No property and unsatisfied basic needs and deprivations in health represent acute poverty condition. To be poor, is to be hungry, to lack shelter and clothing, to be sick and not cared for, to be illiterate and not schooled (**World development report, 2002**).

Above all definitions of poverty focus on an ill-mannered condition of well beings of the people. It includes material, social, cultural and political aspects of well-being. It gives us an idea about, who is poor? Rather than these all definitions of poverty, following chart gives us the idea about the exact difference between ill-being and well-being.

Chart no. 1.1



(Ref. : Poverty in focus, 2006)

The five main criteria of poverty in above chart are based on the Information received from the survey of 2, 00,000 men and female in 23 different countries: under the research project titled ‘voice of poor’ by the World Bank. Who is poor? Apart from the interpretations made by various experts and organizations in this regard, above reasoning of the poverty based on actual survey has and evaluation of well-being.

The following worldwide criteria of ill-being and poverty drawn from various Participatory studies are directive to research on poverty. 1) Being disabled 2) Lacking land, Livestock etc. 3) Being unable to decently bury their dead 4) Being unable to send their children to school. 5) Having more mouths to feed. 6) Lacking able-bodied family members 7) having bad housing 8) Suffering through destructive behaviours 9) Being “poor” in people, lacking social support. 10) Having to put children in employment. 11) Being single parents. 12) Having

Dr. Virupaksh R. Khanaj

to accept demeaning or low status work. 13) No sufficient food security. 14) Being dependent on common property resources etc. (Chambers 1997, HDR, 1997).

In short, for the traditional measurement of any type of poverty, following concepts were used worldwide.

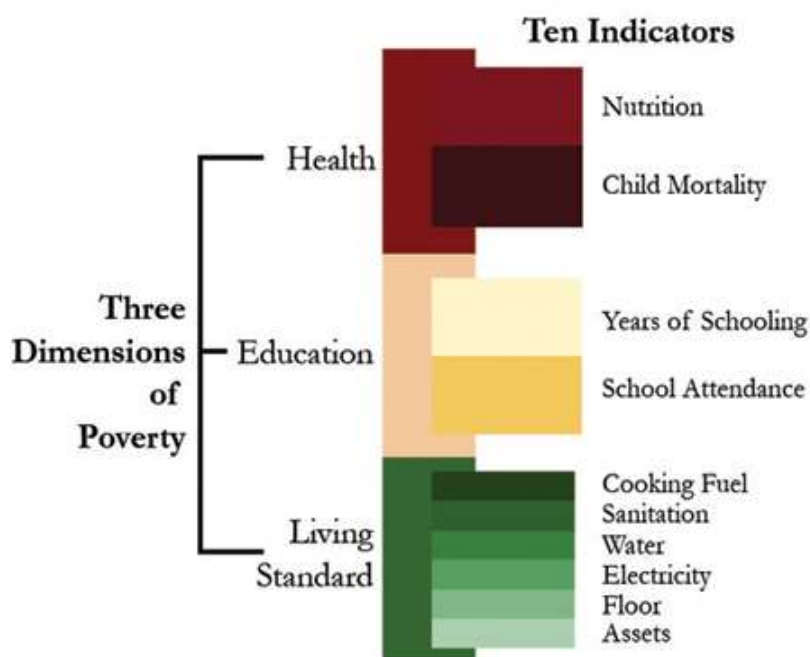
1. Absolute poverty – Absolute poverty lines reflect the value of resources needed to maintain a minimum level of welfare. The aim of absolute poverty line is to measure the cost involved in purchasing a basket of essential goods and services, which is sufficient for maintain or fulfil basic needs. Poverty line related to a dollar per capita a day is decided on the concept of absolute poverty. In underdeveloped or developing countries absolute poverty line concept are accepted and widely use to a greater extent. But developed countries have limited interest in this way.

2. Relative Poverty – Relative poverty lines usually use indicators based on monetary variables such as income or expenditure. In both cases, a minimum variable level is fixed below which people are classified as poor and above which are not poor. Relative poverty lines classify people in the society into two groups, poor and the rest.

3. Subjective poverty – Subjective poverty lines are based on the opinions held by individuals on themselves in relation to society as a whole. In other words, the concept of poverty used in these lines to divide the population into poor and non poor is based the perception households and individuals themselves have in relation to what it is to be poor.

UNDP's Multi-dimensional Poverty Index (MPI)

Chart no. 1.2



To compute the MPI in slums of Ichalkaranji, methodology explained in technical notes of HDR, 2016 has been employed. The MPI indicates multiple

HHs level deprivations in three components i.e. health, education and standard of living of slums dwellers in Ichalkaranji. The present study considers 10 indicators for deprivations of slums dwellers in Ichalkaranji. To measure the multidimensional poverty, the three dimension i.e. health, education and living standard which have been approved for the MPI of UNDP's HDR, 2016, have been sustained, however, there has been a change in the indicators under the dimension. Of course, these changes have been fixed after in-depth monitoring the living standards of slum peoples and discussing with them. The following table illustrates all dimensions and indicators and their weights related details. It has been further clarified the rationale behind the selection of indicators.

Table no. 1.1 – The MPI – Dimensions, Indicators, Thresholds and Weights

Sr. no	Dimensions and Indicators	Weight (%)	Rationale behind selection of indicators
	Education		
1	Any one has eight years of schooling	16.7	For the slum peoples, years of schooling acts as a proxy for the level of knowledge and understanding. Consequently, illiteracy indicates total deprivation and dependency.
2	. Any two adult illiterate	16.7	
	Health		
3	At least one malnourished (<18.5 BMI or stunted)	16.7	Health related Ist indicator is proxy at nutritional status of SHH's and IInd indicator shows the capability deprivation in actively participation and functioning's.
4	If one or more disabled or morbid	16.7	
	Living Standards		
5	If bathroom facility is available outside the dwelling	5.7	If yes, then. It is ashamed and unhygienic for women and girls.
6	Drinking water from public tap / borehole	5.7	If yes, then it indicates the deprivation for access to sufficient & potable water
7	No adequate sanitation	5.7	If yes, then it indicates the deprivation in ability to mix with other without shame.

8	Dirt floor	5.7	Proxy for the level of hygiene and cleanliness
9	No atleast one asset followed in each group. A) T. V. / telephone B) Motorbike / car / any three wheeler	5.7	If no, then it indicates the deprivations in information's. If no, it shows limitations in communication.
10	If SHH's getting ration facility from government	5.7	If SHH's has eligible for BPL category and getting ration facility (full/partial) then it shows limitation of earned income to fulfill the need of food grain for livelihood.

The MPI is an index designed to measure acute poverty. Acute poverty refers two main characteristics, first, it includes people living under conditions where they do not reach the minimum internationally agreed standards in indicators of basic functioning's, such as being nourished, being educated or drinking clean water, second, it refers to people living under conditions where they do not reach the minimum standards in several aspects at the same time. In other words, the MPI measures those experiencing multiple deprivations, people who, for example, are both undernourished and do not have clean water, adequate sanitation or clean fuel. **(MPI construction and Analysis, Revised draft 2015)**

The MPI is a composition of main three dimensions (education, health and living standards) including ten indicators. The present study determined a cut-off of 33.3% to identify the multi-dimensionally poor. 33.3 % deprivation cut-off for each indicator to obtain household deprivation score. To this, following two things are important to calculate deprivation.

- 1) Any HH below the cut-off are not considered deprived SHH's. (< 33.33%)
- 2) If the sum of the weighed deprivations is 33.3% or more, then such SHH's is considered to be multi-dimensionally poor.

The present study, clearly the following criteria have been used to determine the slum HH's in multi-dimensional poverty.

- A) The SHH (and everyone in it) is multi-dimensionally poor, when deprivation score (MPI) is 33.3% or more.
- B) Having deprivation score of 20% to 33.3% are near multi-dimensionally poor SHH.
- C) Who have 50% or more deprivation score is considered severely multidimensionally poor SHH.

The MPI represents the share of the population (Head count ratio) that is multidimensionally poor adjusted by the intensity of the deprivation suffered. Hence, MPI is the adjusted headcount ratio (Alkire and Foster, 2011a). The MPI

value combines two concepts i.e. the incidence of poverty and the intensity or deprivation of poverty. It is important to understand the meaning of both concepts to analyze the conclusions of MPI.

1) Incidence of poverty indicates the proportion of multi-dimensionally poor people

(Within a given population) who experience multiple deprivations.

Formally, incidence of poverty is called the headcount ratio and it denotes H ,

$$H = \frac{q}{n}$$

Where,

q = the number of multi-dimensionally poor people

n = total population

2) The intensity of poverty indicates the average proportion of weighted indicators in which poor people are deprived. It denotes by A .

$$A = \frac{\sum_1^q ci}{q}$$

Where,

ci = Deprivation score of individual i

q = The number of multi-dimensionally poor persons.

Finally the formula of the MPI value is as follows,

$$MPI = H \times A$$

Main characteristics of the Multi-dimensional Poverty Index (MPI)

Following are the main characteristics of UNDP's Multi-dimensional Poverty Index (MPI).....

1. The Multi-dimensional Poverty Index (MPI) identifies multiple deprivations at the household and individual level in health, education and standard of living which depends upon household data.

2. The MPI identifies overlapping deprivations at the house hold level across the same three dimensions, involve in the HDI.

3. The MPI is a measure of “acute poverty” because it reflects overlapping deprivations in basic needs and also avoid confusion with the World banks measure of “extreme poverty”.

4. The MPI is an index designed to “acute poverty”. It refers to two main characteristics.

A. it includes people living under conditions where they do not reach the minimum internationally agreed standards in indicators of basic functioning's.

And B. it refers to people living under conditions where they do not reach the minimum standards in several aspects at the same time.

5. The MPI value summarizes information on multiple deprivations into a single number. The MPI combines two key piece of information i.e., the incidence of poverty and the intensity of their deprivation.

6. MPI wildly allows for comparison across countries or regions of the world, as well as within country comparisons between regions, ethnic groups, rural and urban areas and other key households and community characteristics.
7. The material standards of living dimension of the MPI acts as a proxy for economic wellbeing.
8. The MPI should be seen as a complementary measure of income poverty that goes beyond the monetary aspect of people's lives.
9. The MPI methodology shows aspects in which the poor are deprived and helps to reveal interconnections of among those deprivations.
10. The MPI consistent with the axiomatic approaches to poverty measurement in ways that UNDP's Human Poverty Index in 1996.
11. **The** MPI indicators are drawn from the Millennium Development Goals (MDG's) as far as the available internationally comparable data.

Limitations of the MPI

The MPI has some limitations due to data constraints. Following are the main limitations of MPI.

1. The indicators include both outputs, such as years of schooling, and inputs, such as cooking fuel. It also includes both stock and flow indicators. A stock indicator is measured at a particular point in time, and it may have accumulated in the past. On the contrary, a flow indicator is measured per unit of time.
2. Second, the health data overlooks some groups' deprivations especially for nutrition. For example, in many countries there is no nutritional information for women. In other countries, there is no nutritional information for men, in others still, for children. Despite these serious drawbacks, the patterns that emerge are plausible and familiar.
3. Third, and connected with the above, although the MPI indicators were selected in order to guarantee as much cross-country comparability as possible, indicators' comparability is still imperfect for two reasons. First because, as detailed above in the case of nutrition, the information differs across the three surveys used. Second, because even when they collect the same information, the minimum acceptable standards on certain indicators, such as some of the living standard ones, may vary greatly according to the culture.
4. Fourth, as is well known, intra-household inequalities may be severe, but, for the moment, these cannot be reflected in the global MPI, precisely because there is no individual-level information for all the indicators. The health and living standard indicators, in particular, pose the main bottleneck here.
5. Fifth, households with no school-aged children are considered non-deprived in school attendance. Also, households with no under-five year's old children and no women in reproductive age are considered non-deprived in nutrition. Hence the incidence of deprivation in these indicators will reflect the demographic structure of the household and country.

6. Sixth, while the MPI goes well beyond a headcount ratio to include the intensity of poverty experienced, it does not measure the depth of poverty—how far away, on average, from the deprivation cut-off in each indicator poor people are. Nor does it measure inequality among the poor—how deprivation is distributed among the poor.

7. Finally, there are limits to the cross-country comparability of the MPI.

Usefulness of Multi-dimensional Poverty Index (MPI)

The utility of MPI is definitely greater than the traditional methods of poverty alleviation. The utility of UNDP's MPI is as follows

The Multi-dimensional Poverty Index (MPI) identifies multiple deprivations at the household and individual level in health, education and standard of living which depends upon household data. The MPI is a measure of “acute poverty” because it reflects overlapping deprivations in basic needs and also avoid confusion with the World banks measure of “extreme poverty”.

The MPI methodology shows aspects in which the poor are deprived and helps to reveal interconnections among those deprivations. This enables policymakers to target resources and design policies more effectively. This is especially useful where the MPI reveals areas or groups characterized by severe deprivations.

The MPI can be adopted using indicators and weights that make sense at the country level to create tailored national poverty measures.

The MPI can be useful as a guide to help governments tailor a poverty measure that reflects local indicators and data.

The MPI methodology can and should be modified to generate national multidimensional poverty measures that reflects local, cultural, economic, and other factors.

The Global MPI was devised as an analytical tool to compare acute poverty across nations.

The MPI has widely allows for comparison across countries or regions of the world, as well as within country comparisons between regions, ethnic groups, rural and urban areas and other key households and community characteristics.

Conclusions

The above study lead to the following major conclusions.

1. Compare to traditional poverty measures, the Multi-dimensional Poverty Index (MPI) identifies multiple deprivations at the household and individual level in health, education and standard of living. Hence we can understand the comprehensive picture of poverty.

2. The MPI is a measure is superior because it measures the “acute poverty”. Because it reflects overlapping deprivations in basic needs and also avoid confusion with the World banks measure of “extreme poverty”.

4. The MPI value summarizes information on multiple deprivations into a single number. Hence it is very useful to determine policy regarding poverty alleviation.
5. The MPI is an analytical tool to do comparative study of poverty because, the MPI widely allows for comparison across countries or regions of the world, as well as within country comparisons between regions, ethnic groups, rural and urban areas and other key households and community characteristics.
6. The MPI should be seen as a complementary measure of income poverty that goes beyond the monetary aspect of people's lives.
7. Due to its robust research methodology and diversity, MPI is widely used to understand the multidimensional nature of poverty in all countries of the world and thus to make policy decisions to curtail poverty.

Epilogue

The MPI has been an interesting and important statistical tool to provide a multi-dimensional poverty measure which can compete with the world bank's problematic but widely used 1.25 dollar a day income poverty indicator. Through this paper we can easily understand the nature, statistical methodology, usefulness and also the limitations of UNDP's MPI. No doubt, no one indicator, such as an income, is uniquely able to capture the multiple aspects that contribute to poverty. To understand the proportion of the poor at certain development level is most important. And people always want to know how many poor people are in a society as a proportion of the whole population. To this, the MPI combines two key pieces to measure acute poverty, one is, the incidence of poverty (the proportion of people within a given population who experience multiple deprivations), and two, the intensity of their deprivation (the average proportion of deprivations). Hence, despite of the limitations, being a versatile and robust research methodology and diversity, MPI is widely used to understand the multidimensional nature of poverty in all countries of the world and thus to make policy decisions to curtail poverty.

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