Multi-dimensional Poverty Index (MPI):
A state wise study of India in SAARC countries

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Abstract: Multi-dimensional poverty index is an international measure of acute poverty covering over 104 countries. As everyone knows that Poverty is measured as a single dimensional index such as income. But income alone misses a lot because India is growing fast in economic perspective but health, education and living standard not improved yet. It is the fact that India's per capita income lies in one of the top countries in the world but if we look on the other aspects like health, education and standard of living, then we find that India is not so good in the other aspects rather than the income. India lies on 73th position from 104 countries with a 53% multidimensional poor. Among the 29 states, some states of India having high per capita income, yet lies in the high multidimensional poverty index. It means those states have high per capita income but lacks in the health and standard of living. Some states like Kerala is in very good position in Multidimensional poverty index while remaining states are in very bad position in MPI according to OPHI. MPI illuminates a different set of deprivation and reflects the deprivation in very rudimentary services and core human functioning for people. It shows the number of people who are multidimensional poor and the number of deprivation with which poor household typically content.

Keywords: Poverty; Health, Education, Living standard.

Introduction

The Multidimensional Poverty Index (MPI) was developed in 2010 by Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Program and uses different factors University of Oxford, established in 2007. The OPHI aims to build and advance a more systematic methodological and economic framework for reducing multidimensional poverty, grounded in people's experiences and values. Poverty is often defined by one-dimensional measures, such as income. But no one indicator alone can capture the multiple aspects that constitute poverty. Multidimensional poverty is made up of several factors that constitute poor people's experience of deprivation – such as poor health, lack of education, inadequate living standard, lack of income (as one of several factors considered), disempowerment, poor quality of work and threat from violence. A multidimensional measure can incorporate a range of indicators to capture the complexity of poverty and better inform policies to relieve it. Different indicators can be chosen appropriate to the society and situation (Santos and Alkire, 2011). The MPI is an index designed to measure acute poverty. Acute poverty refers to 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 (Sen, 1999); such as being well 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 drinking water, adequate sanitation or clean fuel.

Use of Multidimensional approach

Generally poverty is estimated by income and we say that he or she is very poor because he or she has no money. But beyond income there are some other indicators which are adopted by MPI. These are the reasons:

❖ Income alone can miss a lot. For example, economic growth has been strong in India in recent years. In contrast, the prevalence of child malnutrition has remained at nearly 50 per cent, which is among the highest rates worldwide (Citizens' Initiative for the Rights of Children under Six. 2006. Focus on Children under five (FOCUS). New Delhi: Secretariat of the Right to Food Campaign). Multidimensional measures can complement income.

❖ Poor people themselves describe their experience of poverty as multidimensional. Participatory exercises reveal that poor people describe ill-being to include poor health, nutrition, lack of adequate sanitation and clean water, social exclusion, low education, bad housing conditions, violence, shame, disempowerment and much more.

❖ The more policy-relevant information there is available on poverty; the better-equipped policy makers will be to reduce it. For example, an area in which most people are deprived in education is going to require a different poverty reduction strategy to an area in which most people are deprived in housing conditions.

Some methods for multidimensional measurement, such as the OPHI-developed Alkire Foster method, can be used for additional purposes. In addition to measuring poverty and wellbeing, OPHI's method can be adapted to target services and conditional cash transfers or to monitor the performance of programs.

Objectives of the study

i.   To identify the regional pattern of Multidimensional Poverty index in India..
ii. To examine the impact of the Multidimensional Poverty Index on the Indian states.
iii. To identify the pattern of MPI of the SAARC countries.
iv. To examine the multidimensional poverty index among the Hindu castes.

Database and Methodology

This paper was based on the secondary data, collected from the different issues of different reports have been given by OPHI and the various research reports by Sabina Alkire and Amartya Sen. The methodology of this chapter addresses itself to the objectives of the study enunciated in the introductory part of this paper. Since the purpose is to examine the implications of Multidimensional Poverty index and to identify its impact as well study on the SAARC counties, Indian states and different Hindu castes in India. Index of Multidimensional Poverty has been calculated by the formula:

The MPI is calculated as follows:

H multiply by A or H $\times$ A

H: Percentage of people who are MPI poor (incidence of poverty)

A: Average intensity of MPI poverty across the poor (%)

The following three dimensions and ten indicators are used to calculate the MPI:-

Dimension	Indicators
Health	• Child Mortality • Nutrition
Education	• Years of school • Children enrolled
Living Standards	• Cooking fuel • Toilet • Water • Electricity • Floor • Assets

Health (each indicator is weighted equally at 1/6)
1. Child mortality: deprived if any child has died in the family
2. Nutrition: deprived if any adult or child for whom there is nutritional information is malnourished.

Education (each indicator is weighted equally at 1/6)
3. Years of schooling: deprived if no household member has completed five years of schooling
4. Child school attendance: deprived if any school aged child is not attending school up to class 8

Standard of Living (each indicator is weighted equally at 1/18)
5. Electricity: deprived if the household has no electricity
6. Sanitation: deprived if the household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households
7. Drinking water: deprived if the household does not have access to safe drinking water (according to MDG guidelines) or safe drinking water is more than a 30 minute walk from home round trip.
8. Floor: deprived if the household has a dirt, sand or dung floor
9. Cooking fuel: deprived if the household cooks with dung, wood or charcoal
10. Assets ownership: deprived if the household does not own more than one radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck

A person is considered poor if they are deprived in at least 33.33% of the weighted indicators. The intensity of poverty denotes the proportion of indicators in which they are deprived.

For example: **Niger**
MPI = 0.642
H = 0.927
A = 0.693

In Niger, 92.7% of the country's population is MPI poor (they are deprived in at least 33.33% of the weighted indicators, by definition). Those who are MPI poor suffer from deprivation in 69.3% of indicators, on average.

Ideally, the MPI would be able to make comparisons across gender and age groups, for example, along with documentation of intra-household inequalities. Yet because certain variables are not observed for all household members this was not possible. So each person is identified as deprived or not deprived using any available information for household members. For example, if any household member for whom data exists is malnourished, each person in that household is considered deprived in nutrition. Taking this approach – which was required by the data – does not reveal intra-household disparities, but it is intuitive and assumes shared positive (or negative) effects of achieving (or not achieving) certain.

Pattern of MPI: SAARC countries

The SAARC is an economic and political organization of eight countries in Southern Asia. In term of population its sphere of influence is the largest of any regional organisation, includes almost 1.5 billion people. These eight countries are: India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, Maldives and Afghanistan. An attempt is made to create a table of MPI for the SAARC countries by the help of given value of MPI and the % of people who are MPI poor.

Multidimensional Poverty Index of SAARC countries

SAARC countries	MPI value	Contribution of deprivation to overall poverty – education in %	Contribution of deprivation to overall poverty - health in %	Contribution of Overall poverty – living standards in %	MPI poor in %	Population of multidimensional poor in thousand
Maldives	0.018	13.6	81.1	5.3	5.2	16
Sri Lanka	0.021	6.3	35.4	58.3	5.3	1027
Bhutan	0.119	40.4	21.2	38.4	27.2	198

Pakistan	0.264	30.8	37.9	31.2	49.4	81236
India	0.283	21.8	35.7	42.5	53.7	612203
Bangladesh	0.292	18.7	34.5	46.8	57.8	83207
Nepal	0.350	23.6	43.4	48.5	64.7	18009
Afghanistan	-	-	-	-	-	-

This table shows the MPI of the SAARC countries. In the SAARC countries Bangladesh is the largest country in the MPI poor in percentage with the percentage of 57.8 and Maldives is the smallest country in terms of MPI poor in percentage and in Multidimensional poor's total population having 5.2% MPI poor and a total population of 16,000 Multidimensional poor. India has the second position in MPI poor in percentage and has the first position in the population of Multidimensional poor in SAARC countries. A cut-off of 33.3%, which is equivalent of one-third of weighted indicators, is used to distinguish between the poor and non-poor. If the household deprivation score is 33.3% or greater, that household (and everyone in it) is multidimensional poor. Households with a deprivation score greater than or equal to 20% but less than 33.3%vare vulnerable to or at risk of becoming Multidimensional poor. All the SAARC countries lie in different categories. Like Bangladesh, Nepal and India are in high MPI countries, means there is poverty more than 50%. On the other hand Pakistan and Bhutan are in medium category, and Sri Lanka and Maldives are in low MPI countries. The data of MPI of Afghanistan is not given due to unavailable sources for the collection of the data.

MPI pattern: across Indian States

India is a developing country located in the South Asian region. India has included in the medium MPI countries having the MPI value of 0.283. The contribution of deprivation to overall poverty in education, health and living standard in India is 21.8%, 35.7% and 53.7%. The total population of the MPI poor's in our country is 612203 that is in thousand. The twenty eight states of India are divided in to four categories from very high to low MPI. The table is given below:-

India: Poverty Index of States Multidimensional

State	MPI value	MPI Poor In percentage
Andhra Pradesh	0.209	44.5
Arunachal Pradesh	0.274	53.0
Assam	0.316	60.1
Bihar	0.479	79.3
Chhattisgarh	0.367	69.7
Delhi	0.054	12.4
Goa	0.085	19.4
Gujarat	0.201	41.0
Haryana	0.186	39.3
Himachal Pradesh	0.125	29.9
Jammu and Kashmir	0.194	41.0
Jharkhand	0.441	74.8
Karnataka	0.206	43.2

Kerala	0.051	12.7
Madhya Pradesh	0.374	68.1
Maharashtra	0.184	37.9
Manipur	0.191	40.8
Meghalaya	0.307	56.6
Mizoram	0.094	21.0
Nagaland	0.264	51.7
Orissa	0.339	63.2
Punjab	0.112	24.6
Rajasthan	0.338	62.8
Sikkim	0.150	31.8
Tamilnadu	0.130	30.5
Tripura	0.269	54.6
Uttar Pradesh	0.369	68.1
Uttaranchal	0.185	39.5
West Bengal	0.304	57.4

Source: Oxford Poverty and Human Development Initiative (OPHI); MPI at a glance, Dec, 2011

Table: Multi-Dimensional Poverty Percentage among Indian States

Categories	MPI poor in percentage	Total states out of 29	Name of the States
Multidimensional Poor states	≥ 33.3	21	Bihar, Jharkhand, Assam, Andhra Pradesh, Orissa, Arunachal Pradesh, Manipur, Uttaranchal, Haryana, Gujarat, Rajasthan, West Bengal, Chhattisgarh, Tripura, Uttar Pradesh, Nagaland, Meghalaya, Karnataka, Maharashtra, J & K, Madhya Pradesh
Vulnerable Multidimensional Poor States	≥ 20	5	Himachal Pradesh, Mizoram, Punjab, Sikkim, Tamilnadu
Low Multidimensional Poor States	< 20	3	Goa, Kerala, Delhi

Source: Calculated by the data given by OPHI

This table divides the 28 Indian States into four categories. In the very first category that is very high MPI states includes one state, that is Bihar and having the MPI value of 0.479 and has more than 75% of MPI poor's. In the high MPI states there are 12 states, those includes U.P, Madhya Pradesh, Rajasthan, Orissa, Chhattisgarh, Jharkhand, Assam, Nagaland, Arunachal Pradesh, Chhattisgarh, Meghalaya and West Bengal. In the third category of medium MPI states, includes 11 states having the MPI value of 0.160-0.320. These fourteen states are Uttaranchal, Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Manipur, Maharashtra, Sikkim, Tamilnadu, Uttar Pradesh. Haryana has the MPI value of 0.186 and has the 39.3% proportion of poor's in the total population. In the fourth categories there are five Indian states having the MPI value of less than 0.160 and less than 25% of MPI poor's. These states are Kerala, Goa, Punjab, Delhi and Mizoram (map 1).
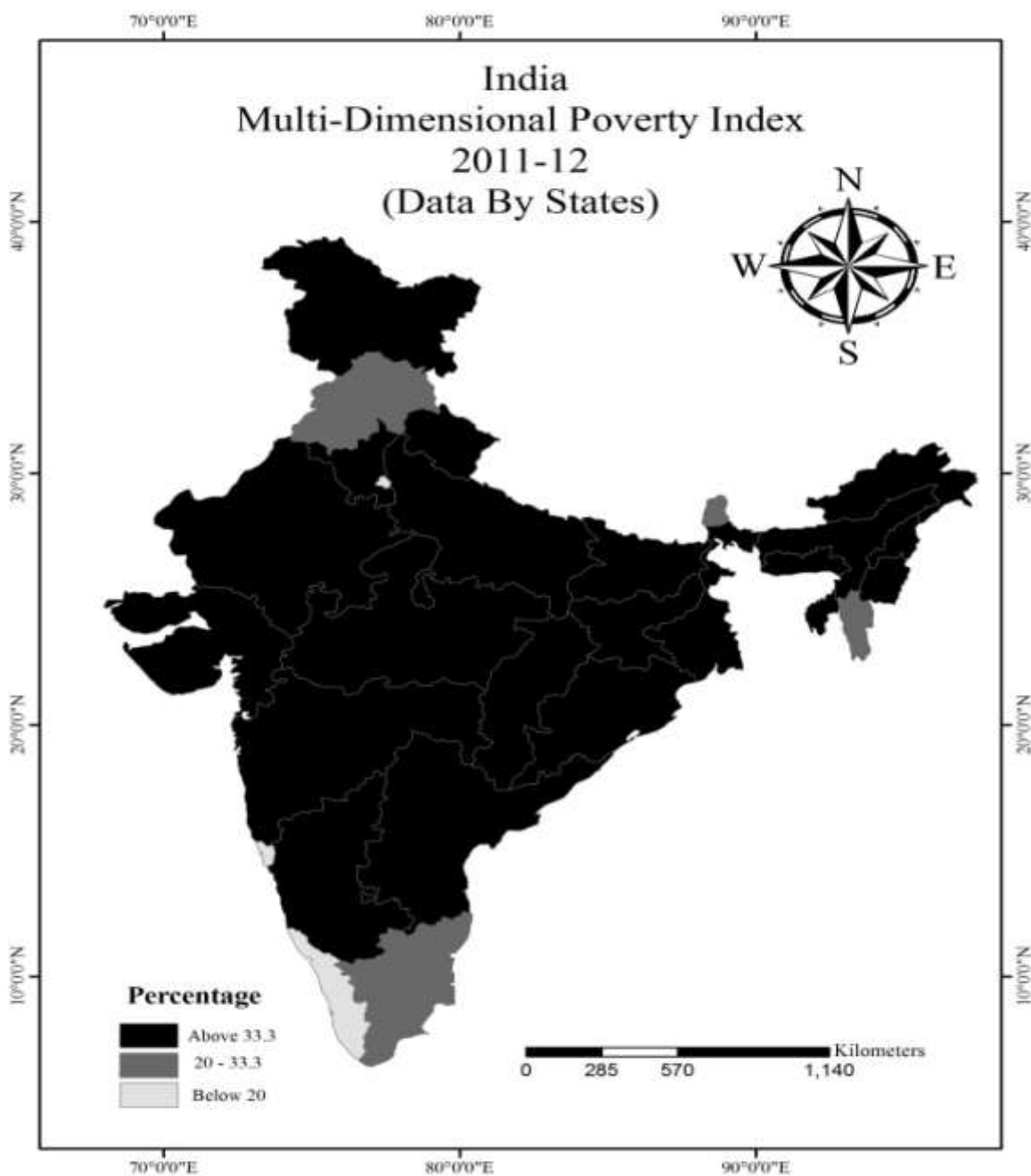
Map 1

So, it is clear that there is so much variability of MPI among the Indian states. In the eight Eastern Indian states six states lie in the medium MPI category and two of them lie in the low MPI category. Among the twenty eight Indian states Bihar occupies the top rank in the MPI. It means Bihar is deprived in all the indicators given by the MPI. On the other hand Kerala occupies the lowest position in terms of MPI; it means Kerala is in a good position in the education, health, and living standard.

Multidimensional Poverty across Hindu Castes and Tribes in India:

Castes	MPI	Percentage of MPI poor
Scheduled Caste	0.361	65.8%
Scheduled Tribe	0.482	81.4%
Other Backward Class	0.305	58.3%
General	0.157	33.3%

Source: Oxford Poverty Human Development Initiative, 2011. The table shows the breakdown of MPI across four social groups among Hindus in India. It can be seen that 81.4 percent of the Scheduled Tribes are poor, compared with 33.3 percent for the general population. OBC has 58.3% MPI poor's and S.C. has 65.8% MPI poor across Hindu castes and tribes in India.

Evaluation of MPI as a poverty Indicator

It is a sincere effort towards expansion as well as simplification of poverty estimation. Comparison with HDI was developed by Mahbub ul Haq and Amartya Sen, in 1990, and was also developed by UNDP. The UNDP is trying to improve on the HDI formula by introducing the IHDI (Inequality affected HDI).

Similarities with HDI Both HDI and MPI use the 3 broad dimensions:

1. Health 2. Education 3.Standard of living

Differences with HDI

HDI uses only single indicators for each dimension of Poverty while MPI uses more than 1 indicator for each dimension of poverty. HDI = Geometric mean of (Normalized Indices of 3 dimensions) HDI is calculated for almost all the countries, while MPI is calculated for only 104 countries. HDI is somewhat biased towards the GDP per capita, as has been demonstrated by some studies which found high correlation between HDI and log of GDP per capita. Hence, HDI has been criticized as the other development parameters were being ignored.

Conclusion

MPI is an international measure of acute poverty covering over 104 countries. Poverty is measured as a single dimensional index such as income. But income alone misses a lot because India is growing fast in economic perspective but health, education and living standard not improved yet. MPI was introduced in 2010 to achieve the MDGs goals. MPI considers three dimensions (Health, education and living standard) for the measurement of multidimensional poverty. There are ten indicators in these dimensions. MPI reports tell that 51% of South Asia and 28 % of Africa are multidimensional poor. India lies on 73th position from 104 countries with a 53% multidimensional poor. Among the 28 states Goa, Punjab, Himachal Pradesh, Tamilnadu are in vulnerable stage. Kerala is in very good position in Multidimensional poverty index while remaining states are in very bad position in MPI according to OPHI. It complements traditional income based poverty measures by capturing the severe deprivations that each person faces at the same time with respect to education, health and living standard. MPI illuminates a different set of deprivation and reflects the deprivation in very rudimentary services and core human functioning for people. It shows the number of people who are multidimensional poor and the number of deprivation with which poor household typically content. So we can say that MPI is the most important measure of the poverty because of its multi-dimensions and multi indicators which provide the reason behind the causes and affect of poverty and the solution how to prevent the poverty.

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