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MULTIDIMENSIONAL POVERTY INDEX (MPI) – A TOOL FOR ESTIMATING POVERTY

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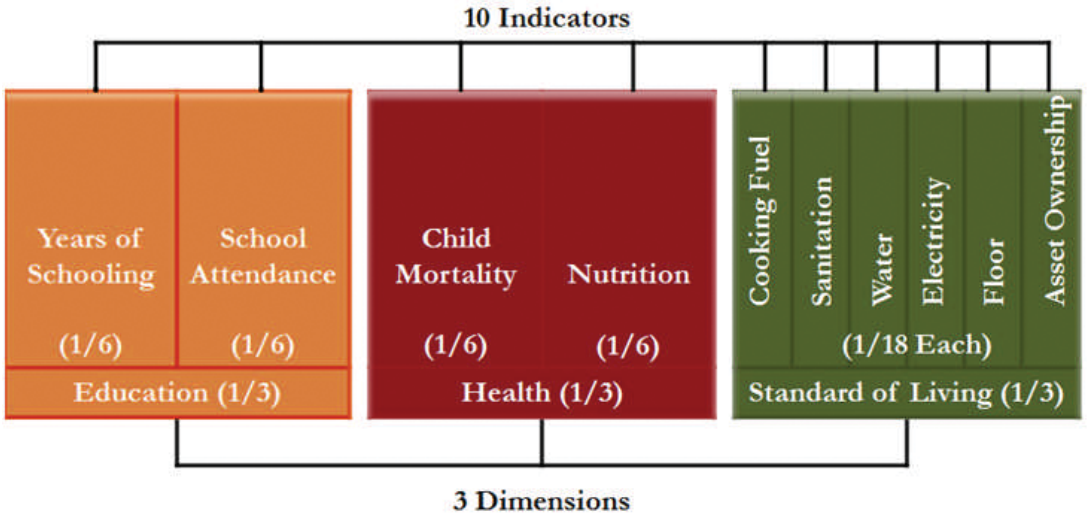
Concept

Poverty is the condition where people's basic needs for food, clothing, and shelter are not being met. Poverty is often defined by one-dimensional measures, such as income. The lives of people living in poverty are affected by more than just their income. But Multidimensional poverty is measured based on several factors like poor health, lack of education, inadequate living standard, lack of income, disempowerment, poor quality of work and threat from violence. The Multidimensional Poverty Index (MPI) reflects the deprivations that a poor person faces all at once with respect to education, health and living standard. 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. (Alkire & Maria, 2010)

The MPI gives a clear picture of people living in poverty, both across countries, regions and the world and within countries by urban/rural location, or other key household characteristics. It is the first international measure of its kind, and offers a valuable complement to income poverty measures because it measures deprivations directly. The MPI can be used as an analytical tool to identify the most vulnerable people, show aspects in which they are deprived and help to reveal the interconnections among deprivations. This enables policy makers to target resources and design policies more effectively (Alkire & Maria, 2010).

Utility

The MPI is an advanced analytical tool to measure poverty. It is essential for effective human development programs and policies by knowing the roots of poverty. MPI allows governments and other policymakers to understand the various sources of poverty for a region, population group, or nation and target their human development plans accordingly. The index can also be used to show shifts in the composition of poverty over time so that progress, or the lack of it, can be monitored (Alkire & Maria, 2010).



Indicators for Multidimensional Poverty Index along with their weightage

Computation Techniques

Poverty is measured using a methodology proposed by Alkire and Foster (2007, 2009) known as Multidimensional Poverty Index (MPI). MPI has three dimensions: health, education, and standard of living. These are measured using 10 indicators namely year of schooling, child enrollment, child mortality, nutrition, electricity, drinking water, sanitation, flooring, cooking fuel and assets.

1. **Education (each indicator is weighted equally at 1/6)**

- **Years of Schooling**: deprived if no household member has completed five years of schooling (16.66%).
- **Child Enrolment**: deprived if any school-aged child is not attending school in years 1 to 8 (16.66%).

2. **Health (each indicator is weighted equally at 1/6)**

- **Child Mortality**: deprived if any child has died in the family (16.66%).
- **Nutrition**: deprived if any adult or child for whom there is nutritional information is malnourished (16.66%).

3. Standard of Living (each indicator is weighted equally at 1/18)

- **Electricity**: deprived if the household has no electricity (5.55%).
- **Drinking water**: deprived if the household does not have access to clean drinking water or clean water is more than 30 minutes' walk from home (5.55%).
- **Sanitation**: deprived if inhabitants do not have an improved toilet or if their toilet is shared (5.55%).
- **Flooring**: deprived if the household has dirt, sand or dung floor (5.55%).
- **Cooking Fuel**: deprived if cooking is done with wood, charcoal or dung (5.55%).
- **Assets:** deprived if the household does not own more than one of: radio, TV, telephone, bike, or motorbike, and do not own a car or tractor. (5.55%).

A household is identified as multi-dimensionally poor if and only if it is deprived in some combination of indicators whose weighted sum exceeds 30% of all deprivations.

Output and interpretation of results

Procedure (Kindly refer Table 1)

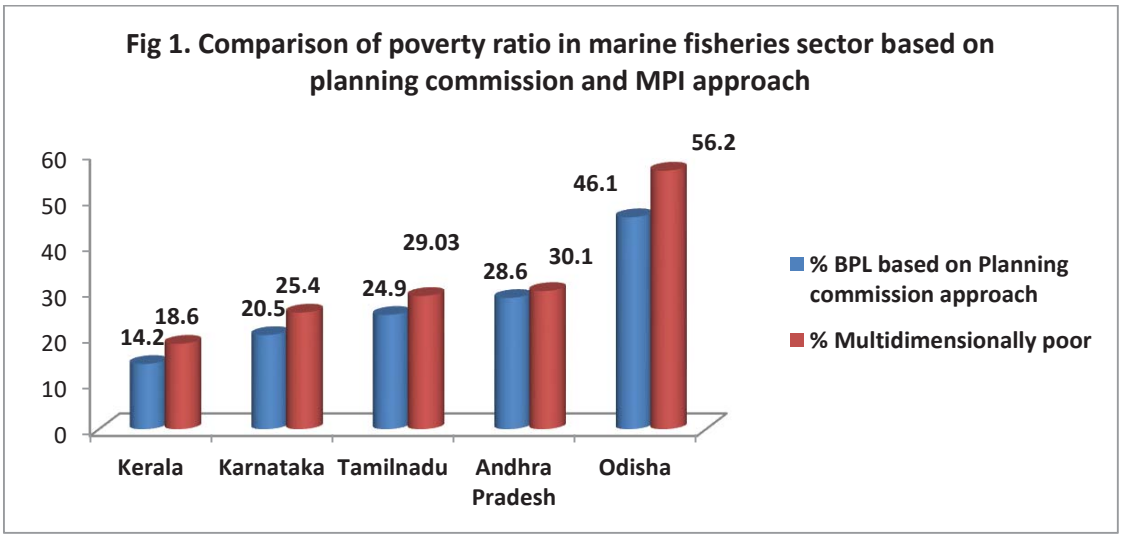
- Type the respondent name/household number in Column no. 1.
- Type the name of 10 indicators in the first row from Column no. 2-11.
- Row-wise, in each respondent, under each indicator enter only the deprived weightage value; if a family is not deprived in certain indicator, then enter the value as '0'.
- Similarly, enter the deprived weightage value under each respondent.
- Then Row-wise, add values from Column no. 2-11, which will give MPI value for that respondent/ household and enter it in Column 12.
- The respondent/household having the weighted sum more than 30%, it is categorized under multi-dimensionally poor household.
- Finally by dividing the total no. of multi-dimensionally poor household with total no. of households, we will get the poverty ratio for the particular sample.
- In the example mentioned below, out of 30 sample household, 15 household are multi-dimensionally poor; hence the poverty ratio is 50 %.

Table 1: MPI computation

S.No	Respondent	Years of Schooling	Child Enrolment	Child Mortality	Nutrition	Electricity	Drinking water	Sanitation	Flooring	Cooking Fuel	Assets	MPI
	1	2	3	4	5	6	7	8	9	10	11	12
1	Robert	0	0	0	16.7	0	0	0	0	5.6	0	22.3
2	Mariya	0	0	16.7	16.7	0	0	0	0	5.6	5.6	**44.6**
3	Anthony Sami	0	0	0	16.7	0	5.6	0	0	0	5.6	27.9
4	Irudayaraj	0	0	0	16.7	0	0	0	0	5.6	5.6	27.9
5	Alonciyas	0	0	0	16.7	0	0	5.6	0	5.6	5.6	**33.5**
6	Arokiyadas	0	0	0	16.7	0	0	0	0	5.6	5.6	27.9
7	Arul Prakasam	0	0	16.7	16.7	0	0	5.6	0	0	5.6	**44.6**
8	Pusparaj	0	0	16.7	16.7	0	0	0	0	0	5.6	**39**
9	Jayaseelan	0	0	0	16.7	0	5.6	5.6	0	0	5.6	**33.5**
10	Sagayaraj	0	0	0	16.7	0	0	0	0	5.6	5.6	27.9
11	John Britto	0	0	0	16.7	5.6	5.6	5.6	0	5.6	5.6	**44.7**
12	Justin	0	0	0	16.7	0	0	5.6	5.6	5.6	5.6	**39.1**
13	Alex	0	0	0	16.7	5.6	0	5.6	0	5.6	5.6	**39.1**
14	Kristhuraj	0	0	0	0	0	5.6	5.6	0	5.6	5.6	22.4
15	Jackson	0	0	0	0	0	5.6	0	0	0	5.6	11.2
16	Muthu Raja	0	0	0	16.7	0	5.6	0	0	5.6	5.6	**33.5**
17	Alonce Mary	0	0	0	0	0	5.6	5.6	0	5.6	5.6	22.4
18	Vinanace	0	0	0	16.7	0	0	0	0	5.6	5.6	27.9
19	Francis	0	0	16.7	16.7	0	0	5.6	0	0	0	**39**
20	Mokkas	0	0	0	16.7	0	0	5.6	0	0	5.6	27.9
21	Jalastin	0	0	0	16.7	0	0	5.6	0	5.6	0	27.9
22	Hendry	0	0	0	16.7	0	5.6	0	0	0	5.6	27.9
23	Clement	0	0	0	16.7	0	0	5.6	0	5.6	5.6	**33.5**
24	Mocham	0	0	0	16.7	0	0	5.6	0	5.6	5.6	**33.5**
25	Jackson	0	0	0	16.7	0	0	5.6	0	5.6	5.6	**33.5**
26	Seelorias	0	0	0	16.7	0	0	0	0	5.6	0	22.3
27	Leninraj	0	0	0	16.7	0	0	5.6	0	0	0	22.3
28	Arokia Vinod	0	0	0	0	5.6	5.6	5.6	5.6	5.6	5.6	**33.6**
29	Kemlas	16.7	0	0	16.7	0	5.6	5.6	0	5.6	5.6	**55.8**
30	Raj	0	0	0	16.7	0	5.6	0	0	5.6	0	27.9

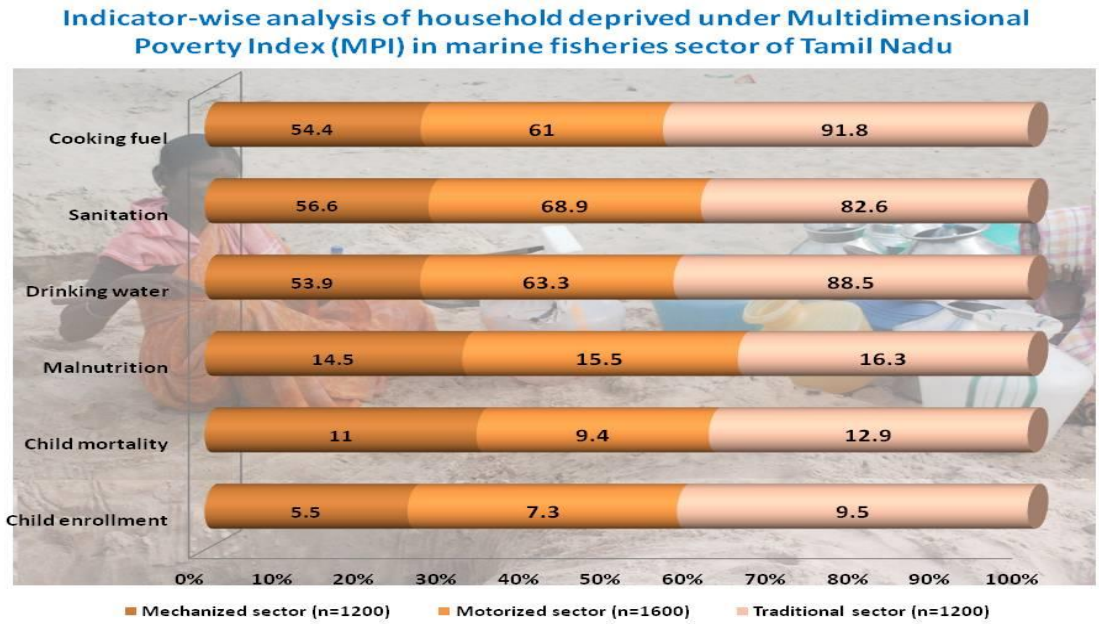
Under the project 'A diagnostic study on dimensions, causes, and ameliorative strategies of poverty and marginalization among the marine fisher folk of India' poverty ratio based on MPI approach and planning commission approach was studied for five states namely Kerala, Karnataka, Tamil Nadu, Odisha and Andhra Pradesh.

The study found that the multidimensional poverty ratio for Kerala, Karnataka, Tamil Nadu, Odisha and Andhra Pradesh through MPI approach was 18, 25, 29, 56 and 30 per cent respectively (Fig 1). It is important to note that the poverty ratio is high through MPI approach in comparison to planning commission approach in all the three states. The reason behind that was planning commission approach is based on one parameter expenditure/income, whereas the MPI approach in based on 10 indictors. Apart from income, a household may be deprived of other indicators, which may lead to increase in poverty ratio.



Indicator-wise MPI analysis in Tamil Nadu

Indictor-wise analysis of MPI in Tamil Nadu revealed that majority of the households is deprived of drinking or clean water and proper sanitation facilities. Use of wood, charcoal or dung for cooking was also found to be more. Very few cases of child mortality and malnutrition are reported in marine fisheries sector. School drop outs was also on the lower side (Fig 2).



Limitations of MPI (Rippin, 2010)

- Since the MPI simply counts the number of items lacked by households, it assumes that no correlation exists between them. This assumption is not realistic. It is rather safe to say that, for instance, proper sanitation and safe drinking water are related to health as well as educational indicators.
- The MPI is unable to capture inequality.
- The cut-off level of 30% is an arbitrary choice; changing it would affect poverty rates and even country rankings.

Suggested readings

- Alkire, S. (2007). 'The Missing Dimensions of Poverty Data: An Introduction', *Oxford Development Studies*, 35(4), 347-359.
- Alkire, S. (2008). 'Choosing Dimensions: The Capability Approach and Multidimensional Poverty.' *In*: Kakwani, Nanak and Jaques Silber (Eds.), *The Many Dimensions of Poverty*, p 89–119. Basingstoke: Palgrave-MacMillan.
- Alkire, S., & Eli, K. (2010). 'Multidimensional poverty in developing countries: a measure using existing international data', *mimeo,* Oxford Poverty and Human Development Initiative, Oxford Department of International Development, University of Oxford.
- Alkire, S., & Foster, J. (2007). 'Counting and Multidimensional Poverty Measurement', *Oxford Poverty and Human Development Initiative, Working Paper* No. 7, Oxford Department of International Development, University of Oxford.
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- Alkire, S., & Seth, S. (2008). 'Multidimensional Poverty and BPL Measures in India: A comparison of Methods', *Oxford Poverty & Human Development Initiative (OPHI) Working Paper* 15, Oxford Department of International Development, University of Oxford.
- Alkire, Sabina and Maria Emma Santos (2010): Acute multidimensional poverty: a new index for developing countries, Oxford: Oxford Poverty & Human Development Initiative (Working Paper 38)
- Rippin, N. (2010). A Response to the Weaknesses of the Multidimensional Poverty Index (MPI): The Correlation Sensitive Poverty Index (CSPI). *Briefing paper*, 19/2011. German Development Institute.