

RURAL POVERTY IN MAMIT DISTRICT, MIZORAM: **A MULTIDIMENSIONAL STUDY**

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Abstract

The object of this paper was to examine the multidimensional aspects of poverty in selected villages of Mamit District, Mizoram. We broadly followed the method of Global Multidimensional Poverty Index but some modification had been made in the choice of dimensions and indicators to suit the local level data. Similar to global Multidimensional Poverty Index (MPI) we applied Alkire-Foster dual cut-off approach (Alkire and Foster, 2011). We then computed the incidence and intensity of poverty to find the persistence multidimensional poverty in the study area. By decomposing the MPI by population sub-groups, dimensions and component indicators, we also showed the pattern of poverty in the study area. Based on the analysis 56% of people were facing multiple deprivations (incidence of poverty) while the intensity of poverty was computed to be 40%. The overall MPI was 0.22, which showed that the society was deprived in 22 % of the total potential deprivations it could experience overall.

Keywords:

Multidimensional Poverty Index,
Decomposition,
Mamit District.

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1. Introduction

The definition of poverty has been one of the most controversial issues even till today. Many institutions and scholars have attempted to give a clear-cut definition of poverty. However, there is some arbitrariness in any definition of poverty if keeping an eye on different dimensions and the tools used to measure poverty. Poverty thus has been a complex concept, having a range of meaning.

Recent studies have shown that poverty is a multidimensional phenomenon and no single indicator such as income can capture the multiple aspects that contribute to poverty. Thus, multidimensional poverty measure is necessary to reveal a more comprehensive picture of poverty. One such measure is global Multidimensional Poverty Index (MPI) developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP) in 2010. The methodology used to compute MPI is the Alkire-Foster method developed by Sabina Alkire and James Foster. One important feature of global MPI is that it is flexible in the choice of dimensions, indicators and unit of analysis. Thus, regional or national MPI can be developed by adapting its compositions based on the available data to better address the ground reality at local levels. Taking advantages of the method, we developed local level MPI as per our requirements for the assessment of poverty in the study area. Table-1 below shows modified MPI along with dimensions, indicators, threshold and weight for local level poverty analysis

Table-1: Composition of the MPI – Dimensions, Indicators, Threshold and Weight

DIMENSIONS	INDICATORS & THRESHOLD	WEIGHT
EDUCATION	Year of schooling -Deprive if no one has completed primary education.	1/8
	School attendance -at least one school age child who is not attending school.	1/8
HEALTH	Nutrition - having at least one household member malnourished.	1/8
	Child mortality -having had one or more children die(last 2 years prior to the survey)	1/8
LIVING STANDARD	Electricity - Deprived if household do not have electricity.	1/24
	Water - Deprived if clean water is more than 30 minutes walk from home.	1/24
	Sanitation - Deprived if household has no septic tank.	1/24
	Flooring - Deprived if the family has dirt floor or live in kutch/pucca house.	1/24
	Cooking fuel - Deprived if household cooks with wood.	1/24
	Asset - Deprived if household does not own any two of the following: TV, washing machine, Refrigerator, two wheeler, smart	1/24

	phone.	
ECONOMICS	Land man ratio - Deprived if the ratio is less than 0.5.	1/8
	Employment - Deprived if family does not have at least one source of regular income of not less than Rs 3000 per month	1/8

Source: Modified Global Multidimensional Index Developed by Oxford Poverty & Human Development Initiative (OPHI),2018

1.1 Problems

Measurement Problem: In India, poverty measures have been mostly one-dimensional, based on the cut-off point of income or consumption. However, this is a one-dimensional measure and the proportion of people who experience multiple deprivations and the intensity of such deprivations are not truly revealed. This is the case even in Mizoram where poverty has been measured using single indicator. Thus, it is vital to carry out multidimensional study on poverty to capture the true picture of level of poverty in the state.

Geographical Problems: Apart from this, studies on poverty in Mizoram so far have left out the far-flung areas because of hilly terrain, financial constraints, lack of time and energy, because of which the true picture of poverty in rural areas, is still ambiguous. Thus, rural areas need much attention from the researchers to extract deep knowledge and provide foundation for government policies.

1.2 Significance of the Study

Unlike other states in India, the urban population is more than rural population in Mizoram (except Goa). According to Census of India (2011), 52 per cent of the total population in Mizoram is in urban areas while 48 per cent lived in rural areas. However, despite the larger number of population in urban areas, poverty ratio according to Planning Commission has been higher in rural areas than that of urban areas. Besides, the Below Poverty Line (BPL) baseline survey 2016 conducted by Mizoram Statistical Development Agency, Directorate of Economics & Statistics, has also shown higher level of poverty in rural areas than in urban areas. This led to certain issues that need to be address such as why there has been higher incidence of poverty in rural areas, what are the factors responsible for higher incidence of poverty in rural areas. This study is therefore, the need of the hour to have an in depth analysis to highlight the multidimensional aspects of poverty in study area.

1.3 Scope and Limitation of the Study

The present study is limited to two selected villages; Kawrtethawveng (denoted as village-1) and Darlak (denoted as village-2) of Mamit District, Mizoram. As per the record of BPL baseline survey 2016, Darlak has 300 households, out of which 274 households are Above Poverty Line (APL) family and 26 households are BPL family.

Kawrtethawveng on the other-hand has 408 households, out of which 286 households are APL family and 122 households are BPL family.

Analogous to global MPI, the unit of analysis is the household. This is because of the fact that collecting individual level information for the 12 indicators is very difficult and time consuming. It requires huge expenditure and energy, which is beyond the capacity of the scholar. Due to the expensive nature of the study as well as time and financial constraint, only ten households from two villages are randomly selected for the basis of analysis.

1.4 Objectives of Study

1. To examine the incidence and intensity of poverty in Kawrtethawveng and Darlak villages.
2. To compare the patterns of poverty by decomposing the overall MPI in the study area.
3. To suggest measures to reduce the overall level of poverty in the study area.

2. Research Method

The study employed both secondary and primary data. Secondary data was collected from Mizoram Below Poverty Line (BPL) baseline survey conducted by Mizoram Statistics Development Agency, Directorate of Economics & Statistics. Primary data was collected through structured questionnaire which was designed based on the requirement for computation of Multidimensional Poverty Index. We broadly follow the method of Global Multidimensional Poverty Index yet slight modification has been made in the choice of dimensions, indicators, thresholds and weights assigned to each indicator to finely suit the local level data. All four dimensions are weighted equally and within each dimension, all indicators within dimension are given equal weights. The deprivation score of each person is calculated by taking a weighted sum of the number of deprivations, so that the deprivation score for each person lies between 0 and 1.

In this study, a person is identified as MPI poor if he or she has a deprivation score higher than or equal 0.25. MPI combines two key pieces of information: (1) the incidence

of poverty (proportion of people who experience multiple deprivations) and (2) the intensity of poverty (the average proportion of weighted deprivations they experience).

Formally, the first component is called the multidimensional headcount ratio (H) and can be expressed as,

$H = \frac{q}{n}$, where **H** is multidimensional headcount ratio, **q** is the number of people who are multidimensionally poor and **n** is the total population.

The second component measures the breadth of poverty and is calculated by following formula,

$$A = \frac{\sum_{i=1}^n C_i(k)}{q}$$

Where **A** intensity of poverty $C_i(k)$ is the censored deprivation score of individual *i* and **q** is the number of people who are multidimensionally poor

The MPI is then calculated by multiplying the incidence of poverty (H) and the intensity of poverty (A) and can be expressed as: $MPI = H \times A$.

Apart from this, the study also decomposed the MPI by population sub-groups and by dimensions and component indicators. Decomposition of MPI shows the pattern of poverty and help to reveal the interconnections among deprivations.

Decomposition by population sub-group can be done by the following formulae.

$$\text{Contribution of Sub-Group to MPI} = \frac{\frac{n_i}{n} MPI_i}{\text{Overall MPI}} \times 100$$

Where n_i is the population of i^{th} group and n is the total population. MPI_i is the MPI of i^{th} Group.

Contribution of each dimension is simply adding up the contribution of each indicator within the dimension. Decomposition by indicators can be done easily by the following formulae.

$$\text{Contribution of indicator } i \text{ to MPI} = \frac{w_i CH_i}{\text{Overall MPI}} \times 100$$

Where w_i is the weight of i^{th} indicator and CH_i is the censored headcount ratio of i^{th} indicator.

3. Results and Analysis

3.1 Assessment of Multidimensional Poverty Level

The state of overall poverty incidence is shown in Table-2 along with the deprivations score of households in each indicator for both Kawrtethawveng (denoted as village-1) and Darlak (denoted as village-2). If the sum of the weighted deprivations score by a household is more than or equal to one-fourth of the total deprivation (i.e.0.25), then, the household is considered as multidimensionally poor. If the score is less than one-fourth of the total indicators (i.e.0.25) then they are considered as non-poor.

Table-2: Overall MPI Estimation

Sl. No	Description	Village-1										Village-2									
		8	10	11	7	5	5	5	10	9	4	6	8	2	3	7	4	4	2	5	9
1	Household size	8	10	11	7	5	5	5	10	9	4	6	8	2	3	7	4	4	2	5	9
2	Score of Households (sum of each deprivation multiplied by its weight)	0.29	0.50	0.37	0.12	0.08	0.08	0.37	0.25	0.12	0.66	0.25	0.21	0.46	0.50	0.21	0.54	0.08	0.41	0.50	0.08
3	Is the household poor (c > 1/4 = 0.25)?	Y	Y	Y	N	N	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	N	Y	Y	N
4	Censored Score Ci (K) (average deprivation score of the multidimensionally poor people)	0.30	0.50	0.34	0	0	0	0.40	0.25	0	0.66	0.25	0	0.46	0.50	0	0.54	0	0.41	0.50	0
5	Multidimensional Headcount ratio(H)	Total No. of Poor Households (q) / Total Households (n) H = q/n = 70/124 = 0.56																			
6	Intensity of Poverty (A)	2.40	5.00	4.00	0	0	0	2.00	2.50	0	2.65	1.50	0	0.92	1.50	0	2.16	0	0.82	2.5	0
		$A = \frac{\sum_{i=1}^n Ci(k)}{q} = 0.40$																			
7	Over all MPI	MPI = (H x A) = 0.22																			

Source: Field Survey, 2018.

Note: The MPI represents the share of the population that is multidimensionally poor adjusted by the intensity of the deprivation suffered. Y=Poor, N=Non-poor

As seen in Table-2, 56% of people are found to be MPI poor out of the total sample households. This means that 56 per cent of the people are deprived in more than one-fourth of the total deprivations. This intensity of poverty is estimated to be 40% showing that the poor are on average deprived in 40 per cent of the weighted indicators. If we multiply the incidence of poverty and the intensity of poverty, we get the value MPI equal to 0.22. The MPI value abridges information on multiple deprivations into a single number. Thus, the MPI value of 0.22 confirms that the respondents are deprived in 22 per cent of the total potential deprivations they could experience overall.

3.2 Decomposition of Multidimensional Poverty Index

One key feature of MPI method is that it can be decomposed by population sub-group or by component indicators. Decomposition is an important and useful tool to understand the contribution of each dimension, indicator and population sub-group to multidimensional poverty. Decomposition by population sub-groups enable us to pinpoint which groups are most vulnerable and deprived while decomposition by component dimension and indicators help to indentify the most prevailing deprivations people experienced. Through the decomposition analysis of MPI, policies can be formulated to improve those indicators in which people deprived most and to target those sub-groups that contribute more to multidimensional poverty.

3.3 Decomposition by Population Sub-Groups

The overall MPI is decomposed by village-1 and village-2. Decomposition by population sub-group requires computation of MPI for each sub-group separately. (i.e. for village 1 & 2). Table-3 below shows decomposition of overall MPI by population sub-group.

Table-3: Decomposition of MPI by Population Sub-Group

Description	Village-1	Village-2
Multidimensional Head Count Ratio	64.8%	44%
Intensity of Poverty	0.39%	43%
MPI	0.24	0.19
Percentage Contribution to Overall MPI	35%	65%
Overall MPI	0.22	

Source: Field Survey 2018

As shown in Table-3 multidimensional head count ratio was estimated to be 64.8 % for village-1 while the estimate for village-2 was only at 44%. It is clear from Table-3 that village-1 has more number of people who are facing multiple deprivations. However, the intensity of poverty (the average number of deprivations people experience at the same time) is relatively higher in village-2 with a record of 43% while village-1 has touched only 39%. This reveals that even though there is more number of people who are multidimensionally poor in village-1, the intensity of poverty is higher in village-2. This means that on an average, the number of deprivations experienced by the poor in village-2 is more than that of village-1.

Table-3 also shows variation in MPI values of both villages. Village-1 has higher MPI value of 0.24 while village-2 score only 1.9 MPI value. One interesting finding in this village-wise analysis is that the MPI score for village-1 (i.e. 0.24) is higher than the overall MPI (i.e. 0.22) while it is lower for village-2 which witness MPI value of 0.19. Regarding contribution made by villages to overall MPI, it is obvious that village-1 has more contribution with 65 % while village-2 contributes only 35%.

3.4 Decomposition by Dimensions

Table-4 below illustrates dimension-wise as well as indicator-wise decomposition. As can be seen below, decomposition of MPI by dimension indicates that economics dimension alone accounts for about 46% of multidimensional poverty in the study area. It has the largest contribution to overall MPI followed by standard of living. Health dimension has the least contribution touching only 10% of overall MPI. The composition of education, health, economics and standard of living are 12%, 10%, 46% and 32% respectively. From these results, it is obvious that economics dimension is the most serious deprivation that the people experienced. Economics dimension is measured by two indicators; viz. employment and land man ratio. People are mostly deprived in these two indicators. It may be due to the fact that the study area is inhabited heavily by the agrarian people whose livelihoods are strongly connected with agriculture. The analysis also depicts that the extent of deprivation is very low in both education and health dimension in comparison with that of economics and standard of living.

Table-4: Decomposition by Dimensions and Indicators

Dimensions	Indicators	Censored Headcount Ratio (p)		Weigh (q)	P.Q	% of Indicators Contribution	% of Dimension contribution
EDUCATION	Year of Schooling	9/124	0.073	1/8 = 0.125	0.009	4	12
	School Attendance	19/124	0.153	1/8 = 0.125	0.019	8	
HEALTH	Child Mortality	4/124	0.032	1/8 = 0.125	0.004	2	10
	Nutrition	18/124	0.145	1/8 = 0.125	0.018	8	
ECONOMICS	Land Man Ratio	60/124	0.483	1/8 = 0.125	0.060	27	46
	Employment	42/124	0.338	1/8 = 0.125	0.042	19	
STANDARD OF LIVING	Electricity	6/124	0.048	1/24 = 0.04	0.002	1	32
	Water	49/124	0.395	1/24 = 0.04	0.016	7	
	Sanitation	70/124	0.564	1/24 = 0.04	0.022	10	
	Cooking Fuel	70/124	0.564	1/24 = 0.04	0.022	10	
	Flooring	5/124	0.040	1/24 = 0.04	0.002	1	
	Assets	26/124	0.200	1/24 = 0.04	0.008	3	
Over all MPI					$\sum p.q = 0.22$		

Source: Field Survey 2018

Note: The censored headcount ratio is obtained simply adding up the number of people who are poor and deprived in that indicator and dividing by the total population.

These may be attributable to the fact that Mizoram has been occupying the second highest literacy rate among states in India which signifies better performance in educational dimension than most other states. Regarding health dimension, the fruitful result can be linked to sketch out the performance of Integrated Child Development Services (ICDS) at village level. ICDS has already been roll out in almost all villages, except some remote clusters which cannot be counted as villages. This ICDS has been providing food, pre-school education, and primary healthcare to children below 6 years of age, pregnant and lactating mothers. This has a positive result when measuring health dimension by MPI.

3.5 Decomposition by Indicators

Decomposition by dimensions can further be decomposed into its component indicators to understand the pattern of deprivations more deeply. Decomposition by component indicators is also illustrated in Table-4, which depicts large variation in term of contribution to overall MPI across indicators. On ranking land-man ratio holds top-position with 27% followed by employment, which account for 19% of overall MPI. The share of some indicators like; year of schooling, child mortality, electricity, house type and assets are almost negligible as each of the indicator contributes less than 5% to overall MPI. The contribution of cooking fuel and sanitation to overall MPI is 10% each, while both school attendance and nutrition also contribute 8% each. Water is also a problem largely in the study area as the indicator contributes 7% to overall MPI.

Indicator-wise decomposition illustrates that the contributions made by land-man ratio and employment are large compared to other indicators. Hence, it is worth noting that in the study area, economic indicators are two leading contributors to multidimensional poverty. This clearly reveals that lack of permanent land and sources of income are the main problems being faced in rural areas. When looking at decomposition by dimensions above, the dimension of standard of living occupied the second position with

32% of MPI. However, Indicators wise decomposition of standard of living dimension clearly reveals that the contributions of electricity and housing to MPI are 1% each only, which is almost negligible signifying that house type and electricity are the least prevailing deprivation in the study area. Thus, the analysis clearly shows that water, sanitation and cooking fuel are the prevailing deprivation out of standard of living dimension with a contribution of 7%, 10% and 10% to overall MPI respectively.

3.6 Recommendation

- Economic dimension, which consist of land-man ratio and employment, needs special address, as it is the most serious deprivation that people experienced in rural areas. Direct government intervention in the redistribution of land, fixation of size of land holding will be effective to standardize land-man ratio in the state.
- Regular employment is also a big issue in rural areas. People are engaged in agriculture and allied activities, yet this sector fail to provide gainful employment throughout the year and hence unable to generate regular income. Skills development, Promotion of non-farm activities, agriculture marketing, and introduction of minimum support price crops will be the best solution.
- Among the six-component indicators of dimension of standard of livings, Sanitation and Cooking Fuel need to be focused. People in the study area did not practice open defecation, yet their toilets are not properly maintained and shared with their neighbours. Awareness on importance of sanitation and government schemes like Swachh Bharat Mission may be utilized.
- Improvement in LPG services in rural areas should also be given a high priority as people are using firewood, which is not eco-friendly and can pose serious environmental threats in the near future.
- The indicator of school attendance and nutrition under the dimensions of education and health also contributes 8% to overall MPI. Government of Mizoram should re-examined and revise its education policy to have better performance in these two dimensions.
- Multidimensional study for the state as whole will give us the true picture of poverty in Mizoram. Thus, Government of Mizoram should widen its policies and take into account the importance of multidimensional study.

4. Conclusion

In this paper, we developed local level MPI by adapting global MPI to assess the multidimensional aspects of poverty in the study area. The constructed MPI identifies multiple deprivations at the individual or household level in the dimensions of health, education, economics and standard of living. From the analysis, it is clear that people are suffering multiple deprivations in varying degree. The findings are expected to have empirical insights for effective policy formulation, which, in turn, will lead to the improvement in the welfare of the people in Mizoram.

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