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DECOMPOSING MULTIDIMENSIONAL POVERTY: A CASE STUDY OF MAMIT DISTRICT, MIZORAM

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ABSTRACT

Purpose: *The study intends to examine the incidence and intensity of multidimensional poverty in Mamit District of Mizoram.*
Methodology: *This study was based on primary data which was collected through a multi-stage stratified random sampling technique. At the first stage, Mamit District was selected solely based on socio-economic indicators for conducting the survey. The second stage involved random selection of 15 villages, five villages from each block. Requisite data were then collected randomly through structured questionnaires which was designed based on the requirement for computation of Multidimensional Poverty Index. From the collected data, the incidence of poverty (headcount ratio), the intensity of poverty and MPI were computed using Alkire-Foster Methodology. The study follows the 'Global MPI Brief Methodological Note, 2017' in the choice of dimensions, indicators, thresholds and weights assigned to each indicator.*
Results: *From the result of the analysis, the multidimensional poverty in the study area is moderate. The incidence of poverty across the study area is ranging between 0.32 - 0.38 while the intensity of poverty shows slight differences with negligible margin ranging between 0.39 – 0.411. Decompositions by indicators show that the nutrition has surpassed all other indicators with 22 percent contribution to overall MPI of Mamit district followed by year of schooling with 15 percent.*
Applications of this study: *The findings of the study can be based for formulation of government poverty reduction policies and can be used effectively in improving the existing poverty reduction strategies in the state.*
KEY WORDS: *Multidimensional Poverty, Decomposition, Mamit District, Mizoram.*

INTRODUCTION

An accurate definition of poverty is crucial to help organizations and governments understand which citizens and communities are most in need. Many institutions and scholars have attempted to define poverty, but a concise and universally accepted definition of poverty has never been emerged. There is some arbitrariness in any definition of poverty if keeping an eye on different dimensions and the tools used to measure poverty. There are number of factors that cause poverty because of which there exist number of definitions of poverty. Poverty may include social, economic, and political elements. Encyclopedia Encarta defines poverty as "the condition of having insufficient resources or income". According to the United Nations Human Development Report (UNHDR, 1998), poverty is defined as "a complex phenomenon that generally refers to inadequacy of resources and deprivation of choices that would enable people to enjoy decent living condition.''

A renowned Indian economist, Amartya Sen, (Sen.A, 1999) has argued that poverty should be seen as the deprivation of basic capabilities, where that deprivation limits the freedom of a person to pursue their goals in life. In the broadest sense, it means survival but also contribution and participation to social daily activities. For Sen 'capability deprivation' is a better measure of poverty than lowness of income. From the various definitions given above, it is clear that the concept of poverty is a complex phenomenon influenced by large number of factors. The study and interpretation of poverty is not an easy task as there are many ways of measuring poverty as there are ways of defining it. The measurement and definition of poverty depend on how it is viewed, how one like to study and interpret. Poverty thus has been a complex concept, having a range of meaning.

SIGNIFICANCE OF THE STUDY

The measures of poverty, in India, are usually single dimension which missed out multiple aspects that contribute to poverty. Since, single dimension does not capture the multiple deprivations experienced by poor; therefore, there is a possibility of focusing the wrong targets when policies are being formulated for reduction of poverty. This is the impediment that led to failure of Government policies and programmes. To fill this measurement problem, MPI was introduced by OPHI and UNDP in 2010. Since, MPI measures those experiencing multiple deprivations, arguably it is a better measure of poverty than the single dimension. In

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Mizoram, poverty has not been studied in terms of multidimensional aspects. It is therefore, an opportunity as well as a challenge to study incidence and intensity of multidimensional poverty in Mizoram.

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 addressed 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 the study area.

RESEARCH OBJECTIVES

1. To examine the incidence and intensity of poverty in the study area.
2. To compute and decompose MPI by dimensions in Mamit district.

METHODOLOGY

The study employed both secondary and primary data. Secondary data was collected from Mizoram Below Poverty Line (BPL) baseline survey 2016, Village Profile and Developments Indicators 2017-18, Mizoram Economics Survey 2018-19, Mizoram Statistical Hand Book 2018. For the collection of primary data, a multi-stage stratified random sampling technique was adopted. At the first stage, Mamit district selected due to the fact that the district has poor socio-economic indicators among the eight districts in Mizoram. At the second stage, all the three Rural Development Blocks were covered from which fifteen villages were randomly selected for conducting the survey. Requisite data were then collected randomly through structured questionnaires which was designed based on the requirement for computation of MPI.

COMPUTATION AND DATA ANALYSIS

All the computation and analysis were carried out using Excel version 2016. For the computation of MPI (denoted as M_0) the study follows the global MPI Brief Methodological Note, 2017 in the choice of dimensions, indicators, thresholds and weights assigned to each indicator**.** Two steps are involved in the computation of MPI: Step 1: Individual assessment based on household achievements to determine if he/she is below the deprivation cut-off in each indicator. People below the deprivation cut-off are given a score of 1 and are considered deprived in that indicator. Step 2: The deprivation of each individual is weighted by the indicator's weight. If the sum of the weighted deprivations is 33 percent or more of possible deprivations, the person is considered to be multidimensionally poor or MPI poor**.** Table-1 presents the dimensions, indicators, deprivation cut-off, and weights used in the global MPI 2017.

Table-1: Dimensions, Indicators, Deprivation cut-off and Weightage of Global MPI 2017.

Dimensions	Indicators	Deprived if...	Weight
Education	Years of Schooling	No household member aged 10 years or older has completed five years of schooling.	1/6
	School Attendance	Any school-aged child is not attending school up to the age at which he/she would complete class 8	1/6
Health	Child Mortality	Any child has died in the family in the five-year period preceding the survey.	1/6
	Nutrition	Any adult under 70 years of age or any child for whom there is nutritional information is undernourished in terms of weight for age.	1/6
Living Standard	Electricity	The household has no electricity	1/18
	Improved Sanitation	The household's sanitation facility is not improved or it is improved but shared with other households.	1/18
	Improved Drinking Water	The household does not have access to improved drinking water or safe drinking water is at least a 30- minute walk from home, roundtrip.	1/18
	Flooring	The household has a dirt, sand, dung, or 'other' (unspecified) type of floor.	1/18
	Cooking Fuel	The household cooks with dung, wood or charcoal.	1/18
	Assets ownership	The household does not own more than one of these assets: radio, TV, telephone, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/18

Source: Global MPI Brief Methodological Note, 2017

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MPI is a product of two parameters viz. (1) the incidence of poverty denoted as H and (2) the intensity of poverty denoted as A.

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;

$$A = \frac{\sum_{i=}^{n} Ci\,(k)}{q},$$

Where, A is the intensity of poverty, Ci(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; $M_0 = H \times A$.

1.10.3 Decomposition of MPI (M_0)

The study also decomposed MPI by population sub-groups and by dimensions and component indicators. Decomposition by population sub-group simply refers to calculation of MPI for a particular group after which the contribution of each group can be calculated by the following formula;

$$\text{Contribution of Sub-Group to } M_0 = \frac{\frac{n_i}{n}MPI_i}{\text{Overall MPI}} X\ 100$$

Where, M_0 the overall MPI, n_i is the population of i^{th}group and n is the total population. $MPI_i$is the MPI of i^{th}Group,

Decomposing by indicators has the same analogy with the above decomposition. It can be decomposed by computing the censored headcount ratio in each indicator multiplied by their respective weight assigned.

The censoredheadcount (CH) ratio of an indicator/ a dimension denotes the proportion of the MPI poor who are both multidimensionally poor and simultaneously deprived in that indicator/dimension. After decomposing by component indicators, the contribution of each indicator can be worked out by the following formula;

$$\text{Contribution of indicator i to } M_0 = \frac{Wi\ CHi}{\text{Overall MPI}} X\ 100$$

Where, w_i is the weight of i^{th} indicator and CHiis the censored headcount ratio of i^{th}indicator Contribution of each dimension is simply adding up the contribution of each indicator within the dimension.

RESULT AND DISCUSSION

The overall state of multidimensional poverty in Mamit district is shown in Table-2 below

Table-2: Status of Multidimensional Poverty, Mamit District, Mizoram.

Sl.No	Particulars	Mamit District
1	Headcount Ratio (H)	0.354
2	Intensity of Poverty (A)	0.403
3	MPI (Adjusted Headcount Ratio/ M_0)	0.143

Source: Calculated from Field Survey Data, 2019-2020

Table-2 clearly shows the overall multidimensional scenario of Mamit district. The district has an incidence of poverty (headcount ratio) of 0.355 and 0.403 intensity of poverty. The MPI in Mamit district is 0.143. The performance of Mamit district is similar to the various existing official records of Government of Mizoram. As per Mizoram Economic Survey 2018-19, Mamit district has the highest percentage of BPL household with 35.64 percent. Being a backward region in the state, National Institute for Transforming India Aayog (NITI Aayog) also identified the district to be one of the 117 aspirational districts in India.

Block-wise Decomposition of MPI in Mamit District

In decomposition of MPI by population sub-group (i.e. block-wise), we simply compute headcount ratio, intensity of poverty and MPI for each block in the district separately which is essential to highlight the geographical prevalence of poverty within the district as well as among the blocks in the district. It also gives us contribution of each block to the overall MPI of Mamit district. Table-3 below shows decomposition of MPI by Block-wise.

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Table-3: Decomposition of MPI by Block-wise in Mamit District

Name of Blocks (Column-1)	H (Column-2)	A (Column-3)	MPI (Column-4)	Percentage Contribution to Mamit District MPI (Column-5)
Reiek	0.322	0.393	0.127	28
W. Phaileng	0.36	0.403	0.145	32
Zawlnuam	0.378	0.427	0.161	40
Mamit District	0.354	0.403	0.143	**100**

Source: Calculated from Field Survey Data, 2019-2020

Looking at the incidence of poverty in column-2 of Table-3, Zawlnuam block has the highest incidence of poverty followed by W.Phaileng block with headcount ratio of 0.378 and 0.36 respectively. Reiek block has the lowest incidence of poverty in Mamit district. From the result of the analysis, Mamit district has high incidence of poverty ranging between 0.32 - 0.38.

The intensity of poverty in column-3 also shows slight differences with negligible margin ranging between 0.39 – 0.411. Reiek block did not exceed 0.4 while the rest of the block viz. W.Phaileng and Zawlnuam exceed 0.4 indicating that multidimensional poverty is more severe in these two blocks. The highest intensity of poverty is seen in Zawlnuam block.

As explained above, analysis of incidence and intensity of poverty may look confusing and ambiguous since block with low incidence of poverty can be block with high intensity of poverty. In order to have a better understanding, these two pieces of information are bridged into a single number. This combined information on incidence and intensity of poverty is called MPI. If all households are multidimensionally poor (i.e. deprivation score ≥ 1/3 of the indicators) then percentage of MPI poor will be 100 percent and 'headcount ratio (H) in this case will be 1 and hence MPI will be equal to the value of intensity of poverty (A). If MPI poor, on the other hand, are deprived in all the indicators then intensity of poverty (A) in this case will be 1 and the value of MPI will be equal to headcount ratio (H). Thus MPI reflects the proportion of weighted deprivations that the poor experience in a society out of the total potential deprivations that the society could experience.

As seen in case of incidence and intensity of poverty, the values of MPI in various blocks are also compacted into a small range between 0.127- 0.161. The most deprived block identified on the basis of the 10 set of indices has been Zawlnuam with MPI value of 0.161 followed by W. Phaileng block with MPI value of 0.145.Reiek block has relatively lower value of MPI with 0.127. From the result of the analysis, it is clear that though there are variations in multidimensional poverty within Mamit district, yet the degree of variation is marginal.

Decomposition of MPI by Dimensions and Indicators in Mamit District

While decompositions by population sub-groups show the geographical pattern of multidimensional poverty, decomposition by dimensions and indicators tell the contribution of each dimension and indicator and is helpful to identify the degree of deprivation of various dimension and indicators. Table-4 below shows decomposition by dimensions and component indicators in Mamit district. It shows censored headcount ratio, percentage contribution of dimensions and indicators. Important point to be noted is that indicator having larger value of censored headcount ratio can have smaller contribution to MPI because of different weights assigned to indicators.

Table-4: Decomposition by Dimensions and Component Indicators

Dimensions	Indicators	Censored Headcount Ratio	Percentage Contribution by Indicators	Percentage Contribution by Dimensions
Education	Years of Schooling	0.130	15	21
	School Attendance	0.050	6	
Health	Child Mortality	0.090	10.5	32.5
	Nutrition	0.191	22	
Standard of Living	Electricity	0.013	0.5	46.5
	Sanitation	0.208	8.8	
	Drinking Water	0.202	8	
	Flooring	0.236	9	
	Cooking	0.350	14	
	Assets	0.165	6.5	

Source: Source: Calculated from Field Survey Data, 2019-2020

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As shown in Table-4, the dimension of standard of living is the largest contributor to overall MPI of Mamit district with 46.5 percent. This signifies the overall low standard of living in the district. The second largest contributor to overall MPI of the district is the dimension of health with 32.5 percent. The least contributor is education dimension with 21 percent.

Decompositions by indicators show the degree of specific deprivations that people experienced. Nutrition has surpassed all other indicators with 22 percent contribution to overall MPI of Mamit district followed by year of schooling with 15 percent. These two indicators are also the first two contributors to overall MPI in the whole study area. Cooking fuel unexpectedly becomes the third largest contributor with 14 percent. These clearly indicates that cooking fuel, despite small and negligible weight assigned, is one of the most prevailing deprivations in Mamit district. The finding also expresses the need for urgency of climate action in Mamit district since many people are using wood as cooking fuel. Child mortality, with 10.5 percent, is one of the indicators that need more attention since child mortality indicates a lot and has a say not just about death of children but also the ignorance of family, their inability to avail health services and hence the complexity of poverty. Considering all these factors, the contribution of child mortality with 10.5 percent is an alarming result and requires special attention to improve. The contributions of the rest of the indicators show slight differences ranging between 6 percent and 9 percent except the indicator of electricity which does not exceed even1 percent.

CONCLUSION

In this study the multidimensional aspects of poverty are measured using Global MPI Methodological Note, 2017, which follows the Alkire-Foster Methodology. The study clearly identified the incidence and intensity of poverty in the study area. By decomposing the MPI into population sub-groups and dimension, the pattern and distribution of poverty was also highlighted. The study concluded that the incidence and intensity of poverty in the study area was more or less moderate and is consistent with the existing records of the Government of Mizoram.

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