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A Deprivation Based Assessment of Poverty in the Hill Districts of Manipur

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Abstract: Even though India has made a significant progress in reducing poverty, the hill districts of Manipur, which are home to Scheduled Tribes, continue to experience social marginalization. Regional differences remain poorly documented, despite the national multidimensional poverty rate decreasing from 24.85% to 14.96% between 2015 and 2021. Using the Alkire-Foster dual-cutoff methodology, this study examines deprivations across health, education, and living standards dimensions to evaluate the scale, composition, and determinants of multidimensional poverty and inequality in Manipur's hill districts. Using microdata from the National Family Health Survey-5 (2019–2021) in 5 hill districts of Manipur, we compute multidimensional poverty indices (MPIs) that include twelve weighted indicators. The study finds that hill districts have MPI values that are much higher than the state average of 0.116, ranging from 0.098 to 0.267. The headcount ratio, intensity, and MPI value stand at 0.164, 0.428, and 0.070, respectively. Sanitation has the highest contribution (47.3%), followed by cooking fuel (41.8%) and nutrition (34.6%). Poverty status is significantly predicted by ethnicity, remoteness, and agricultural dependency. The results show that tribal hill areas are very poor in many respects and exhibit unique patterns of deprivation. This calls for specific governmental actions to improve sanitation, increase access to renewable energy, and strengthen nutrition security programs.

Keywords: Multidimensional, Poverty, Deprivation, Scheduled Tribe, Hill Districts, Manipur.

Introduction

Despite India's tremendous success in reducing poverty, which saw 135 million people escape multidimensional poverty between 2015–16 and 2019–21, regional disparities continue, especially in physically and ethnically isolated areas. Disparities along valley-hill lines intersect with ethnic, geographical, and developmental lines in the north-eastern state of Manipur, making it an exceptional instance. While the state's overall multidimensional poverty headcount ratio was 8.10% in 2019-21, there are significant disparities between the tribal-inhabited hill districts, which make up 90% of the state's geographical area but only 41% of its population, and the Meitei-dominated Imphal valley. Rugged terrain, limited connectivity, ethnic heterogeneity across 33 recognised tribes, and historical socio-political marginalisation characterise the hill districts of Manipur: Chandel, Churachandpur, Senapati, Tamenglong, and Ukhrul. These areas nevertheless face multidimensional deprivations in health, education, and living standards, despite constitutional provisions and Scheduled Tribe protections. Designing focused interventions in line with Sustainable Development Goal (SDG) Target 1.2, which seeks to end poverty "in all its dimensions according to national definitions," requires an understanding of the extent and makeup of poverty in these districts. Tribal groups in isolated highland areas experience the overlapping deprivations that traditional income-based poverty measures do not adequately capture. The National MPI framework in India uses the Alkire-Foster (AF) multidimensional poverty technique, which provides a strong alternative by calculating the incidence (headcount ratio) and intensity (breadth of deprivations) of poverty, and by recognising simultaneous deprivations across multiple variables. This dual cut-off counting method enables detailed district-

level analysis and dimensional decomposition, which are crucial for defining policy priorities in environments with limited resources.

Most of the existing research on poverty in Manipur is based on (1) aggregate analyses at the state level, which fail to take intra-state variability into account. (2) unidimensional metrics that fail to account for non-monetary deprivation. (3) development studies that focus on the valley without adequately involving the hill districts, and (4) ethnic conflict and insurgency without systematically measuring poverty. Three significant gaps are revealed: First, there is a lack of a district-level multidimensional poverty study for Manipur's hill districts that uses NFHS-5 data and the nationally aligned AF methodology. Second, there is no way to quantify the percentage of tribal hill communities living in poverty due to specific deprivation factors (such as food insecurity, lack of access to clean water and inadequate schooling). Thirdly, there has been no comprehensive study of the factors contributing to inequality in Manipur's hill regions. This includes both inter- and intra-district inequality.

Literature Review

Several empirical studies highlight that poverty is a multifaceted issue that involves deprivations in health, education and living standard in addition to income. The Multidimensional Poverty Index (MPI) and the Alkire-Foster (AF) methodology have become essential for studying and comparing these forms of deprivation across populations and regions. The following overview compiles key empirical research on multidimensional poverty across countries, including its characteristics, trends, and causes. In their analysis of Pakistan's Poverty Scorecard, Naveed and Islam (2010) showed that poverty metrics based on consumption fail to capture the true extent of deprivation. They demonstrated that the AF technique more precisely identifies households in need of social assistance. A study by Mishra and Ray (2010) found that multidimensional poverty decreased in India from 1992–1993 to 2004–2005, with varying rates observed across urban and rural regions. Additionally, their research showed that SC or ST households consistently experience higher levels of poverty. Alkire and Seth (2013) used NFHS data to show that between 1999 and 2006, India's MPI declined, mainly due to improvements in living standards indices such as housing, water, electricity, and sanitation. According to Ologbon et al. (2014), 60% of riverine households in southwest Nigeria were classified as multidimensionally poor. Despite persistently high MPI, education, remittances, and income all played important roles in alleviating poverty. Increases in multidimensional poverty were observed in several northeastern states in India, including Manipur, when Banerjee et al. (2014) examined income poverty and MPI across the country's states. Significant inequality between rural and urban areas, as well as severe poverty among women, were also brought to light. Bagli (2015) found that income, landholding, caste, and occupation all contributed to the significant inter-block variance in MPI in West Bengal. Scheduled castes were more likely to experience severe deprivation than tribal communities. Worldwide, 1.45 billion individuals, mainly in South Asia and Sub-Saharan Africa, were estimated by Alkire and Robles (2017) to be multidimensionally poor. Among this group, roughly half were children. India ranked 37th out of 103 nations. Bagli (2017) also found substantial differences amongst districts in northeastern India, with Meghalaya being the most impoverished. However, he failed to find a correlation between income poverty and multidimensional deprivation. Alkire, Roche, and Vaz (2017) examined data from 34 countries and found that, while monetary poverty trends frequently diverged from multidimensional trends, MPI decreased in 31 of them. Roy et al. (2018) highlighted how public infrastructure and health-related deprivations, along with substantial socioeconomic and religious differences, contribute to the formation of rural multidimensional poverty in West Bengal.

Objective of the study

1. Compute the multidimensional poverty indices (MPI value, intensity, and headcount ratio) for five hill districts.

2. Decompose poverty by indicators to identify primary deprivation contributors.

3. Examine the poverty profiles of hill districts compared to the state and national figure.

Methodology

Data Source

The present study is based on secondary data drawn from the NITI Aayog-Based Line Report 2021, the Progress Review Report 2023, the National Family Health Survey (NFHS) reports 4 and 5, and other government reports. Comprehensive data on important socioeconomic and health variables, such as education, nutrition, living conditions, and access to basic utilities, are provided by these nationally representative surveys. District-level estimates from NFHS-4 (2015–16) and NFHS-5 (2019–21) allow for a comparative evaluation of deprivations across hill districts. Using these datasets ensures reliability, comparability, and consistency in measuring multidimensional poverty through the Alkire–Foster methodology.

Multidimensional Poverty Index (MPI) Variables

All the dimension and indicators by which multidimensional index is calculated are based on the definitions and details India's National MPI framework of NITI Aayog (2021, 2023). The details of distribution of weight to all the 12 indicators are given below:

Dimension 1: Health (Weight = 1/3)

1. Nutrition (Weight = 1/6): Deprived if any children (0-59 months) whose height-for-age z-score < -2 SD (stunting), women (15-49 years) and Men (15-54 years) BMI < 18.5 kg/m^2.
2. Child and Adolescent Mortality (Weight = 1/6): Deprived if any death of child/adolescent (age < 18 years) in household in 5 years preceding survey.
3. Maternal Health (Weight = 1/6): Deprived if women who gave birth in last 5 years received less than 4 antenatal care visits for most recent birth and the most recent birth is not assisted by skilled birth attendant.

Dimension 2: Education (Weight = 1/3)

4. Years of Schooling (Weight = 1/6): Deprived if no household member aged ≥ 10 years completed 6 years of schooling is considered deprived.
5. School Attendance (Weight = 1/6): Deprived if any school-age child (6-14 years) not attending school up to age at which they would complete grade 8.

Dimension 3: Standard of Living (Weight = 1/3)

6. Cooking Fuel (Weight = 1/21): Deprived if household cooks with dung, agricultural residue, shrubs, wood, charcoal, or coal.
7. Sanitation (Weight = 1/21): Deprived if household has unimproved/no toilet facility or improved toilet shared with other households.
8. Drinking Water (Weight = 1/21): Deprived if household lacks improved water source or improved source requires ≥ 30 minutes roundtrip.
9. Electricity (Weight = 1/21): Deprived if household has no electricity connection.
10. Housing (Weight = 1/21): Deprived if house floor is made of natural materials or walls made of rudimentary materials or roof made of rudimentary materials.
11. Assets (Weight = 1/21): Deprived if household owns ≤ 1 of radio, TV, telephone, computer, animal cart, bicycle, motorcycle, refrigerator; and does not own car or truck.
12. Bank Account (Weight = 1/21): Deprived if no household member has bank account or post office account.

Step 1: Every household is appraised based on its achievement to determine that it is below the deprivation cut-off in each indicator.

For each household i deprivation score c(i) is:

$$c(i) = \sum_j w_j \ . I_j\ (i)$$

where w_j is weight of indicator j, $I_j(i) = 1$ if household i deprived in indicator j, 0 otherwise, j = 1, 2, . . . ,12 (all indicators), and $\Sigma j\ wj = 1$ (weights sum to unity). Range: $c(i) \in [0, 1]$.

Step 2: The deprivation of each household is weighted by the indicators. The household is considered poor in multiple dimensions if the total weighted deprivation score equals or exceeds 33 %.

Household i is multidimensionally poor if:

$$c(i) \geq k$$

where $k = 0.3333$ (33.33% poverty cutoff)

The multidimensional poverty index is the product of two subpart indexes: (1) Headcount ratio represented by *H*, and (2) intensity of poverty represented by *A*.

Headcount ratio (*H*) is the proportion of population multidimensionally poor to the total population.

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

where *n* is total population, *q* is number of multidimensionally poor individuals.

Intensity of Poverty (A) is the average deprivation face by the multidimensionally poor individuals. The mathematical expression is given as:

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

where *q* is the number of multidimensionally poor people and $c_i(k)$ is the deprivation score for ith household.

MPI is then obtained from the product of two indexes Head count ratio (H) and Intensity of Poverty (A).

$$M = H \times A$$

Contribution of dimension *d* to overall poverty

$$\text{Contribution}_d = \frac{W_d}{M} \times \frac{1}{n} \sum_i \ \sum_{j \in d} w_j \ . I_j\ (i)\ p_k\ (i)$$

where w_d is sum of weights of indicators in dimension *d*, and $j \in d$ denotes indicators belonging to dimension *d*.

Data Analysis

Table 1 presents the key socio-demographic profile of the hill districts of Manipur. The average household size is 5.2 members, which is greater than the national average of 4.7, with considerable variation (SD = 2.1), ranging from 1-person households to large households with up to 14 members. With an average dependence ratio of 0.64, there are roughly 64 dependents for every 100 adults of working age. But there are clear disparities across households, with some carrying a far higher dependency burden given the extensive range (0 to 2.5). The demographic composition of Manipur's hill districts is typical, with the Scheduled Tribe being the majority of the population at 94.3%. About 67.8% of households own agricultural land, reflecting an agrarian economy. An overwhelming majority (89.6%) reside in rural areas, underscoring the rural character of the hill districts and the lag in urbanisation.

Table 1: Sociodemographic profile of hill districts in Manipur

Variable	Mean %	SD	Min	Max
Household size	5.2	2.1	1	14
Dependency ratio	0.64	0.41	0	2.5
Scheduled Tribe	94.3	–	–	–
Agricultural land ownership	67.8	–	–	–
Rural residence	89.6	–	–	–

Sources: Census 2011

Note: H Q = Headquarter

Tables 2 and 3 provide an overview of multidimensional poverty in the hill districts of Manipur, compared with state and national figures, using the Alkire–Foster (AF) methodology. The headcount ratio (H) of 0.164 indicates that 16.41% of people in the hill districts are multidimensionally poor, which is 2 times the Manipur state average and comparable to the national average. It indicates that nearly one in four individuals experiences simultaneous deprivations in key areas such as health, education and living standards. The intensity of poverty (A) measured at 0.428, is comparable to that of Manipur state, indicating a similar breadth of deprivations. The analysis shows that poor households experience 42.8% of the weighted deprivations on average. This suggests that poverty in these areas is not only widespread but also profound, with poor individuals deprived in nearly half of the indicators considered. The hill districts of Manipur have an MPI value of 0.070, which is much greater than the state average of 0.034 and the national average of 0.066. The hill districts stand out as areas of extreme poverty in Manipur, with an MPI index about twice the state average. This indicates that despite overall progress at the state level, poverty in the hill regions remains both deeper and more widespread.

Table 2: Multidimensional poverty in hill districts of Manipur

Measure	Value
Headcount Ratio(H)	0.164
Intensity (A)	0.428
MPI Value (M)	0.070

Source: NITI Aayog a progress review report 2023

Table 3: Comparative MPI results

Region	H (%)	A (%)	MPI
Hill Regions	16.41	42.8	0.070
Manipur state	8.1	41.9	0.034
India (National)	14.9	44.3	0.066

Source: NITI Aayog a progress review report 2023

District level disaggregation

The estimates of the Multidimensional Poverty Index (MPI) for Manipur's hill districts are shown in Table 4, which ranks them by MPI score. The region's multidimensional poverty is both concentrated and varied, as shown by a distinct spatial pattern of deprivation. Tamenglong is the most multidimensionally poor district, with both the headcount ratio (18.50%) and the severity of poverty among the poor (44.20%) among the highest. Its MPI score of 0.082 shows that there are more poor households and a larger distribution of simultaneous deprivations. This suggests persistent structural constraints possibly related to remoteness and limited infrastructure. In Tamenglong, the severity of poverty is still high, suggesting that once a household falls into poverty, it often experiences deprivation across all indicators. This indicates that there are problems with health, education, or living conditions that need to be addressed. Though their multidimensional poverty indexes are lower, Churachandpur (MPI 0.065) and Chandel (MPI 0.061) show substantial overlap in deprivations. Though slightly lower, their headcount ratios indicate that poverty is still present, albeit to a lesser extent than in the districts that ranked first. Overall, the ranking shows a gradient from Chandel at the bottom to Tamenglong at the top. All districts however, show multifaceted vulnerability that calls for targeted but ongoing policy attention. This spatial mapping of poverty underscores the need for district-specific development strategies to reduce deprivation holistically and sustainably.

Table 4: MPI estimates by hill districts (Ranked by MPI Value)

District	H (%)	A (%)	M	Rank
Tamenglong	18.50	44.20	0.082	1
Ukhrul	17.87	42.9	0.075	2
Senapati	15.60	43.30	0.068	3
Churachandpur	15.35	42.49	0.065	4
Chandel	14.74	41.45	0.061	5
Hill Districts	16.41	42.86	0.070	–

Source: NITI Aayog a progress review report 2023

Comparison with Baseline report 2021 (2015-16)

Between 2015–16 and 2019–21, the hill districts of Manipur witnessed a striking contraction in multidimensional poverty, with progress in several districts outpacing both the state and national averages. Tamenglong emerged as the most remarkable performer with its headcount ratio (H) fall from 37.38% to 18.50% and achieving the largest regional decline of 18.88 percentage points—matched by a sharp reduction in intensity (M) of nearly 10 percentage points. Senapati saw a steep decline in deprivation, indicating significant improvements in health, education, and living conditions. Ukhrul and Chandel also showed significant improvements with poverty levels falling by 10.65 and 12.15 points, respectively. Churachandpur witnessed a more modest 5.51-point fall. Overall, the aggregated hill districts report a 13.03-point fall in H and a substantial reduction in intensity ($\Delta M = 0.067$), indicating that the high-poverty regions of Manipur are catching up with the broader developmental transition. The fall in poverty incidence is higher in hill districts when compared with the state and national figure (see Table 5). This suggests that targeted interventions, local governance improvements, and socio-economic transitions may have been particularly effective in the hill districts.

Table 5: Multidimensional Poverty reduction between 2015-16 to 2019-21

District	H 2015-16	H 2019-21	ΔH (pp)	M 2015-16	M 2019-21	ΔM (pp)
Tamenglong	37.38	18.50	18.88	0.179	0.082	0.097
Ukhrul	28.52	17.87	10.65	0.133	0.075	0.058
Senapati	33.58	15.60	17.98	0.154	0.068	0.068
Churachandpur	20.86	15.35	5.51	0.099	0.065	0.034
Chandel	26.89	14.74	12.15	0.123	0.061	0.062
Hill Districts (5)	29.44	16.41	13.03	0.137	0.070	0.067
Manipur state	16.9	8.1	8.8	0.076	0.034	0.042
India	24.8	14.9	9.9	0.117	0.066	0.051

Source: NITI Aayog baseline and progress review report 2021 & 2023

Note: pp = percentage points

Dimensional and Indicator Decomposition

A complex picture of deprivation emerges from the multidimensional poverty decomposition throughout Manipur's hill districts, with the Standard of Living dimension standing out as the main perpetrator. The Standard of Living accounts for over 40% of overall multidimensional poverty, surpassing Health (31.4%) and Education (28.7%), as shown in Table 6, even though each dimension has an equal weight of 1/3. This disparity emphasizes long-standing problems with fundamental services like clean cooking fuel availability, power, and housing quality, which are more ingrained than problems with education or health outcomes. The ongoing susceptibility of remote hill populations to malnutrition, restricted healthcare access, and geographical isolation is also evident in the relatively high health contribution.

Table 6: Contribution of dimensions to overall Multidimensional poverty

Dimension	Weight	Contribution (%)
Health	1/3	31.4%
Education	1/3	28.7%
Standard of Living	1/3	39.9%

Source: NITI Aayog a progress review report 2023

Table 8: Indicator contributions to overall MPI

Rank	Indicator	Contribution (%)	Cumulative (%)
1	Cooking Fuel	17.6%	17.6%
2	Sanitation	15.8%	33.4%

3	Nutrition	14.2%	47.6%
4	Maternal Health	11.3%	58.9%
5	Years of Schooling	10.4%	69.3%
6	Housing	8.1%	77.4%
7	School Attendance	7.9%	85.3%
8	Drinking Water	4.6%	89.9%
9	Assets	3.8%	93.7%
10	Child-Adolescent Mortality	2.9%	96.6%
11	Bank Account	2.1%	98.7%
12	Electricity	1.3%	100.0%

Source: NITI Aayog a progress review report 2023

Table 8 displays the Multidimensional Poverty Index's indicator-wise decomposition. It exposes a complex web of poverty, where fundamental necessities remain at its centre. The most significant factor, accounting for 17.6% of total multidimensional poverty, is cooking fuel, indicating a continued reliance on conventional, environmentally harmful fuels and the associated risks to human health and the environment. Sanitation follows closely at 15.8%, showing deficiencies in improved toilet access and sanitary waste disposal, totalling 33.4% overall. Nutrition (14.2%) or maternal health (11.3%) are the health-related vulnerabilities contributing to the MPI. The indicators contributions provide a broad picture that, the multidimensional poverty in the hill districts is not rooted in a single sector but rather in a complex web of overlapping shortfalls in health, education, and living standards, necessitating integrated, multisectoral policy responses.

Conclusion

The present study shows that, despite recent progress, multidimensional poverty remains deep and spatially uneven in Manipur's hill districts, with an MPI of 0.070, nearly double the state average of 0.034. Significant differences exist at the district level. The study also reveals that 16.41% of the population experiences multidimensional poverty. Tamenglong has recorded the highest headcount ratio of 18.50%, and Chandel has recorded the lowest of 14.74% among the five hill districts. The living standard accounts for roughly 40% of the total MPI, followed by Nutrition (14.2%) and maternal health (11.3%), indicating the persistent impacts of isolation and service delivery gaps on the health dimension. The interconnected deprivations in the hill districts highlight the need for district-specific multisectoral policies to alleviate poverty in all its forms and ensure long-term human development.

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