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Multidimensional poverty in India: A study on rural-urban disparity analysis

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Abstract
Multidimensional poverty (MP) is a comprehensive measure that captures the various deprivations experienced by individuals and households, including health, education, and living standards. This study examines the status and improvement of multidimensional poverty across states and Union Territories (UTs) in India using secondary data from the fourth and fifth rounds of the National Family Health Survey (NFHS), conducted in 2015-16 (NFHS-4) and 2019-21 (NFHS-5), respectively. It also investigates the rural-urban disparity in MP. The study employs NITI Aayog's Multidimensional Poverty Index (MPI) to measure MP. The results indicate that MP is a widespread issue in India, with the highest rates in Bihar, Meghalaya, Jharkhand, Uttar Pradesh, and Rajasthan. There is a substantial decline in poverty incidence, poverty intensity and multidimensional poverty index across states and UTs between NFHS-4 and NFHS-5. However, the study highlights the consistent poverty intensity between rural and urban areas during the study period. Additionally, it reveals a higher incidence of poverty in rural areas than in urban areas across states. In contrast, the poverty intensity remains the same in both areas during the study period. These findings have important implications for policymakers and government agencies aiming to reduce poverty and inequality in India.

Keywords: Multidimensional poverty index, headcount ratio, poverty intensity, national family health survey, rural-urban disparity

1. Introduction
Poverty is a complex and multifaceted issue that affects millions of people worldwide. Across 112 countries, 6.3 billion people and 1.1 billion people (18.3 percent) live in acute multidimensional poverty. Nearly half (48.2 percent) of these poor people live in Sub-Saharan Africa (553 million), and over a third (35.0 percent) live in South Asian countries (402 million), (GMPI, 2024). Despite rapid economic growth and significant reductions in poverty since the 1990s, India remains home to a substantial proportion of the worlds poor. According to the World Bank, in 2020, approximately 176 million Indians lived on less than $3.20 per day, while around 73 million lived on less than $1.90 per day. Moreover, rural-urban disparity is a significant challenge for equitable distribution of resources and policy making. In India, poverty is a persistent problem that has been a major concern for policymakers and development practitioners. The traditional measures of poverty, based on income or expenditure, have been criticized for their narrow focus and inability to capture the full range of deprivations experienced by the poor. Multidimensional poverty, which considers multiple aspects of well-being, including health, education, and living standards, has emerged as a more comprehensive and nuanced approach to understanding poverty.
India has significantly reduced multidimensional poverty, with 135 million people lifted from poverty between 2015-16 and 2019-21. However, the latest MPI report indicates that about 16.4% of India's population still lives in multidimensional poverty, with higher poverty intensity in rural areas compared to urban centers. However, disparities persist across regions (Bagli, 2017; Das *et al*., 2022) [3, 4], rural and urban areas, and socioeconomic groups (Shah & Debnath, 2022) [20]. The rural-urban divide is a significant concern, with rural areas generally experiencing higher levels of poverty and deprivation (Ray *et al*., 2019) [17]. While the multidimensional poverty situation has been measured in rural (Shah & Debnath, 2022) [20] and urban (Jha & Tripathi, 2023; Shergill, 2023) [10, 22] areas separately across different states, the comparison between these two different areas has been ignored in

the present literature. Different factors contribute to poverty in rural and urban areas, such as economic growth (Singh, 2022) [23] and migration (Sarkar and Das, 2018) [19]. By examining the patterns and trends of poverty inequalities across Indian states, this study contributes to a deeper understanding of the complex and multifaceted nature of poverty in India. This research provides valuable insights for policymakers, researchers, and development practitioners seeking to address the pressing challenges of poverty and inequality in India. Understanding the nature and extent of multidimensional poverty in India and the disparities that exist across rural and urban areas is essential for designing effective poverty reduction strategies and wealth distribution.

The National Family Health Surveys (NFHS) provide a valuable data source for analyzing multidimensional poverty in India. The NFHS surveys collect data on a range of indicators, including health, education, living standards, and other social dimensions, which can be used to construct a multidimensional poverty index. This study uses data on Headcount Ratio (HCR), Intensity of Poverty and Multidimensional Poverty Index (MPI) as a measure of Multidimensional Poverty (MP) from NITI Aayog's National Multidimensional Poverty Index 2024 to analyze the status of multidimensional poverty in India, with a focus on rural-urban disparities.

The main objectives of this study are:

- To analyse the status and changes of multidimensional poverty in India.
- To examine the rural-urban disparities in multidimensional poverty in India.

This study contributes to the existing literature on multidimensional poverty in India by comprehensively analysing rural-urban disparities using NFHS data. Its findings have important implications for policymakers and development practitioners working to reduce poverty and inequality in India.

The remainder of this report is organized as follows. Chapter 2 provides a review of the literature on multidimensional poverty, with a focus on India. Chapter 3 describes the data and methodology used in the study. Chapter 4 presents the results of the analysis, including the trends and patterns of multidimensional poverty in India and the rural-urban disparities. Chapter 5 discusses the findings and implications of the study.

Literature Review

Poverty has long been a critical issue in the global development discourse, evolving from income-based measurements to multidimensional approaches. The Multidimensional Poverty Index (MPI), introduced by Alkire and Foster (2011) [1], captures deprivations across various dimensions, such as health, education, and living standards. The Poverty, Prosperity, and Planet Report (World Bank, 2024) [29] shows that about 1 in 10 people globally is multidimensionally poor. Deprivations in nonmonetary dimensions, like access to schooling and basic infrastructure, compound poverty and perpetuate cycles of inequality. At a global level, the share of the poor is 64 percent higher when education and basic infrastructure are added alongside monetary poverty from 8.8 percent living below $2.15 per day to 14.5 percent (GMD, 2024) [6]. In the Indian context, multidimensional poverty is deeply intertwined with the rural-urban divide, owing to disparities in infrastructure, access to resources, and socioeconomic opportunities. Despite different policy supports, the current and recent literature reported widespread poverty across different countries like India (Vasishtha & Mohanty, 2021; Das *et al*., 2022) [28, 4], Pakistan (Raza & Khan, 2025) [16]; Bangladesh (Sydunnaher *et al*., 2019) [25]; Myanmar (Mohanty *et al*., 2018) [13]; Nigeria (Deinne & Ajayi, 2019) [5]; Brazil (Stankiewicz *et al*., 2021) [24]; Ethiopia (Tigre, 2018) [26]; Indonesia (Hanandita & Tampubolon, 2016) [8] and African countries (Katumba *et al*., 2019; Jackson, 2023) [12, 9]. Saddique *et al*. (2023) [18] reported that 22 percent of people are multidimensionally poor in Pakistan.

2.2 Conceptual Framework: Multidimensional Poverty

The MPI framework, as proposed by Alkire and Foster (2011) [1], has been widely adopted in studies assessing multidimensional poverty worldwide. It integrates indicators across three dimensions health (nutrition and child mortality), education (years of schooling and school attendance), and living standards (cooking fuel, sanitation, drinking water, electricity, housing, and assets). Researchers like Alkire and Santos (2014) [2] emphasize that this comprehensive framework provides a nuanced understanding of poverty that income-based measures fail to capture.

The significance of national MPI in India is highlighted in studies such as Tripathi and Yenneti (2020) [27], which reveal the extent to which rural and urban areas differ in their deprivation profiles. These variations underscore the need for localized and context-specific policy interventions.

2.3 Rural-Urban Disparities in Multidimensional Poverty

The rural-urban dichotomy plays a pivotal role in shaping the distribution and intensity of multidimensional poverty in India. Several studies have identified higher MPI scores in rural areas than in urban counterparts. For instance, Das, Ghosh, and Paria (2021) [4] highlight that rural regions exhibit pronounced deprivation in education and living standards due to limited access to quality services and infrastructure.

Similarly, Mondal, Kumar, and Mishra (2023) [14] examine poverty trends across Indian states and report that rural populations, particularly in states like Bihar and Uttar Pradesh, face entrenched deprivations in basic amenities. The disparity is also evident in urban areas, where slum populations exhibit multidimensional poverty levels comparable to rural regions (Kaibarta *et al*., 2022; Shergill, 2023) [11, 22].

2.4 Drivers of Disparities

The drivers of rural-urban disparities in multidimensional poverty are complex and multifaceted. On the other hand, urban poverty is often driven by the informal economy, housing insecurity, and migration-related challenges (Mukherjee, 2021) [15].

2.5 Regional and Temporal Trends in Multidimensional Poverty

Temporal analyses of multidimensional poverty in India indicate significant improvements over the years, yet disparities remain stark. According to Tripathi and Yenneti

(2020) [27], the overall MPI in India declined by approximately 50% between 2005 and 2016, with rural areas witnessing a sharper reduction than urban areas. However, the absolute poverty levels in rural regions remain disproportionately high. These trends are further corroborated by studies such as Das *et al*. (2021), which emphasize the need for region-specific poverty alleviation strategies.

2.6 Policy Implications and Gaps in Literature

The reviewed studies underscore the importance of targeted interventions to bridge rural-urban disparities. Policies focusing on rural infrastructure development, quality education, healthcare accessibility, and employment generation are critical. Additionally, the role of urban planning in addressing the challenges of urban poverty is emphasized (Mukherjee, 2021) [15].

Despite these insights, gaps in the literature persist. For instance, Sharma *et al*. (2022) [21] argue that existing studies often overlook the intra-urban and intra-rural disparities, which are equally critical. Furthermore, the lack of longitudinal studies limits the understanding of poverty dynamics over time. This section highlights significant rural-urban disparities in multidimensional poverty in India, driven by structural and systemic factors. While considerable progress has been made in reducing poverty, addressing these disparities requires a nuanced approach considering regional, social, and economic contexts. This study aims to contribute to the existing body of knowledge by comprehensively analysing multidimensional poverty in India, focusing on rural-urban disparities.

3. Materials and Methods

This chapter outlines the methodology employed in this study to examine the status of multidimensional poverty in India, utilising evidence from the National Family Health Survey (NFHS).

3.1 Multidimensional Poverty Index (MPI)

Poverty has traditionally been measured in terms of income, but this approach often fails to capture the broader dimensions of deprivation that affect people's lives. The United Nations Multidimensional Poverty Index (MPI) offers a more comprehensive framework for understanding poverty by considering multiple factors beyond income, such as health, education, and living standards. This approach emphasizes the incidence (the proportion of poor people) and intensity (the average deprivation score among the poor) of poverty, providing a fuller picture of how poverty affects different populations. The Multidimensional Poverty Index (MPI) is based on the Alkire and Foster (AF) methodology to classify individuals as poor or not poor based on a dual-cutoff method. It assesses acute poverty with ten indicators across three dimensions: health, education, and standard of living and equal weight is assigned to each dimension. Health includes nutrition and mortality; education covers years of schooling and attendance; and standard of living features six household indicators: housing, assets, cooking fuel, sanitation, drinking water, and electricity. NITI Aayog's national MPI adopts the AF dual-cutoff approach and includes all ten global indicators, adding maternal health and bank accounts to meet India's priorities.

Table 1: Dimensions and Indicators of National MPI of NITI Aayog [$0 \leq MPI \leq 1$]

Dimension	Dimension Weight	Indicator	A Household is Considered Deprived If	Indicator Weight
Health	1/3	Nutrition	Any child between the ages of 0 to 59 months, or woman between the ages of 15 to 49 years, or man between the ages of 15 to 54 years -for whom nutritional information is available - is found to be undernourished.	1/6
		Child-Adolescent Mortality	A child/adolescent under 18 years of age has died in the family in the five years preceding the survey.	1/12
		Maternal Health	Any woman in the household who has given birth in the 5 years preceding the survey has not received at least four antenatal care visits for the most recent birth or has not received assistance from trained, skilled medical personnel during the most recent childbirth.	1/12
Education	1/3	Years of Schooling	Not even one member of the household aged 10 years or older has completed six 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
Standard of Living	1/3	Cooking Fuel	A household cooks with dung, agricultural crops, shrubs, wood, charcoal or coal.	1/21
		Sanitation	The household has unimproved or no sanitation facility, or it is improved but shared with other households.	1/21
		Drinking Water	The household does not have access to improved drinking water or safe drinking water and is at least a 30-minute walk from home (as a round trip).	1/21
		Electricity	The household has no electricity.	1/21
		Housing	The household has inadequate housing: the floor is made of natural materials, and the roof or wall is made of rudimentary materials.	1/21
		Assets	The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/21
		Bank Account	No household member has a bank account or a post office account.	1/21
Total	1			1

Source: NITI Aayog's National Multidimensional Poverty Index, 2023

Research Design

This study employed a quantitative research design, using secondary data from different rounds of National Family Health Surveys (NFHS) conducted in 2015-16 (NFHS-4) and 2019-21 (NFHS-5). The NFHS is a nationally representative survey conducted by the International

Institute for Population Sciences (IIPS) under the aegis of the Ministry of Health and Family Welfare, Government of India. We have also extracted NITI Aayog's report on the National Multidimensional Poverty Index published in 2023.

Headcount Ratio (Incidence of Poverty)	X	Intensity of Poverty	X	Multidimensional Poverty Index
The headcount ratio is computed by dividing the total number of people in the multidimensional poor by the total population.		The Intensity of multidimensional poverty is computed by summing the weighted deprivation scores of all the MPI poor divided by the total number of MPI poor		The MPI score is the product of the headcount ratio and intensity. It is known as the adjusted headcount ratio.

Fig 1: Computation of MPI

The first indicator is the Headcount Ratio (H), which measures the proportion of the multidimensionally poor population. It is calculated by dividing the number of multidimensionally poor individuals by the total population. Secondly, the Intensity of Poverty (A) refers to the average percentage of weighted deprivations experienced by people living in poverty, indicating how deeply and broadly they are affected by poverty across different dimensions like health, education, and living standards. The weighted deprivation scores of all needy individuals are summed and then divided by the number of poor individuals to determine the intensity of poverty. Finally, the MPI value is obtained by multiplying the headcount ratio (H) by the intensity of poverty (A), reflecting the proportion of people in poverty and the degree of their deprivation. Therefore, MPI = H x A ----- [$0 \leq MPI \leq 1$]. The idea of MP is crucial for poverty measurement because monetary income does not manifest overall human well-being. Summarizing the information on the different deprivations into a single index proves useful in making comparisons across populations and across time. Thus, MPI is calculated by considering the incidence and intensity of deprivation of health, education, and living standards. Higher HCR, Poverty Intensity and MPI values indicate higher deprivation from basic facilities. Thus, states and UTs showing a higher value in HCR, PI and MPI indicate high deprivation among the people and vice-versa.

The data on Headcount Ratio (HCR), Poverty Intensity and Multidimensional Poverty Index (MPI) are extracted from the National Multidimensional Poverty Report published by NITI Aayog in 2023 for comprising 36 States and Union Territories (UTs) in India. The analysis employed descriptive statistics, line graphs and inferential statistics. Measures such as mean, maximum, minimum, standard deviation (SD), and boxplots were utilized to depict the distribution of the studied variables. Line graphs illustrate the trends of variables across States and Union Territories (UTs). A T-test assessed the differences in the Multidimensional Poverty Index (MPI) and its sub-dimensions between States and UTs. Additionally, the T-Test compared the performance of MPI and its sub-dimensions between North-eastern States (NES) and those from the mainstream region. A T-test was also employed to explore the rural-urban divide in MPI.

Results and Discussion

Table 2 presents the HCR, Intensity, and MPI values of NFHS-4 and NFHS-5, conducted in 2015-16 and 2019-21, respectively. The data reveals significant progress in poverty alleviation between NFHS-4 and NFHS-5 in India. Both maximum and average Headcount Ratio (HCR) values decreased considerably, indicating a reduced proportion of the population living in poverty. Intensity scores, which measure the extent of deprivation among those in poverty, also showed a slight improvement on average. The incidence and intensity of poverty declined, highlighting substantial advancements across various dimensions, including health, education, and living standards. When comparing this to the progress made between NFHS-4 and NFHS-5, poverty alleviation continues.

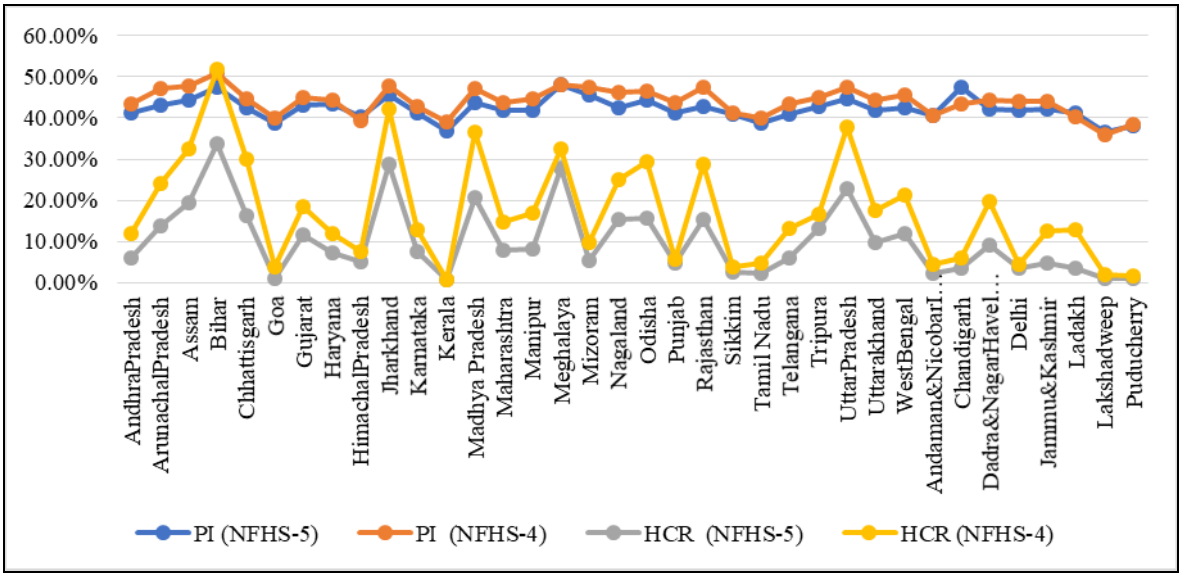
Table 2: Descriptive Statistics

Variables	HCR (NFHS-4)	HCR (NFHS-5)	Poverty Intensity (NFHS-4)	Poverty Intensity (NFHS-5)	MPI (NFHS-4)	MPI (NFHS-5)
Average	17.37%	10.24%	44.04%	42.28%	0.08	0.04
Maximum	51.89%	33.76%	51.01%	48.01%	0.27	0.16
Minimum	0.70%	0.55%	35.80%	36.47%	0.00	0.00
SD	0.13	0.09	0.03	0.03	0.06	0.04

Source: Authors' compilation

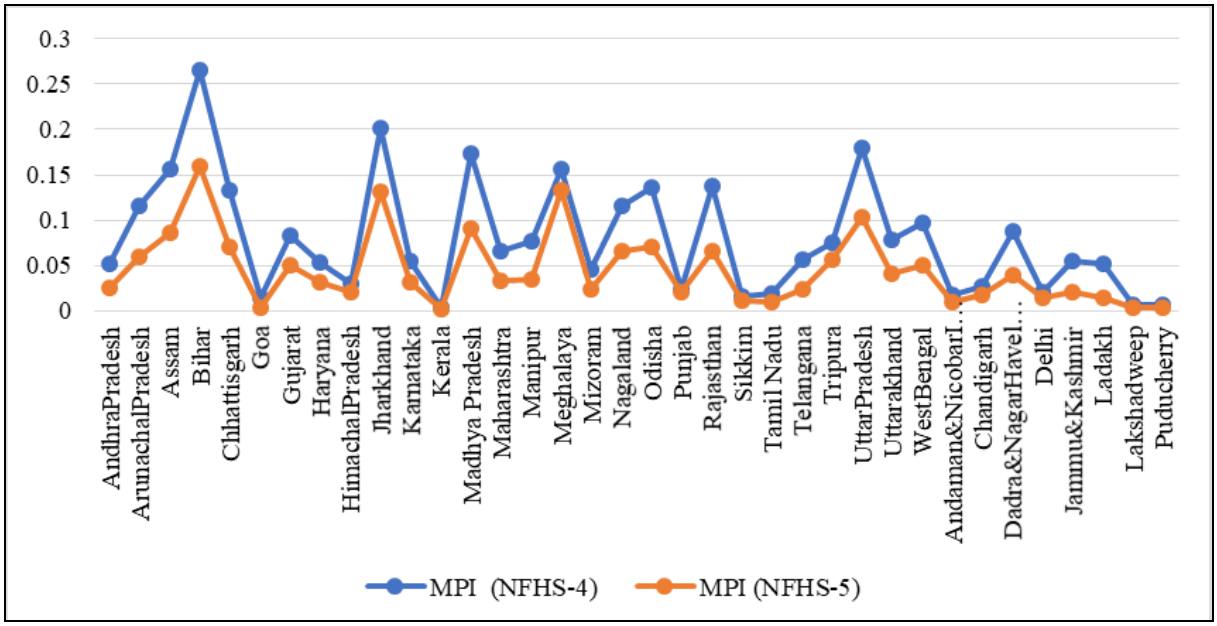
The Multidimensional Poverty Index (MPI) values, reflecting overall poverty across multiple dimensions, demonstrated substantial improvement, with both maximum and average values falling. Furthermore, reduced variability (measured through standard deviation) in HCR and MPI across regions suggests more uniform progress in poverty reduction during this period.

Figure 2 compares the incidence and intensity of poverty during NFHS-4 (2015-16) and NFHS-5 (2019-21), demonstrating significant progress in India in reducing both the Headcount Ratio (HCR) and the intensity of poverty. The HCR, which reflects the percentage of the population living in multidimensional poverty, has markedly declined across most states and union territories (UTs), indicating that fewer people now experience multiple deprivations in areas such as health, education, and living standards. Notable improvements can be observed in states like Bihar, where the HCR dropped from 51.89% to 33.76%, and Assam, decreased from 32.65% to 19.35%. Even in traditionally well-performing states like Kerala, the HCR saw slight reductions (0.70% to 0.55%), maintaining its status as a leader in social development.



Source: Authors' compilation

Fig 2: Headcount Ratio (HCR) and Poverty Intensity in States and UTs during NFHS-4 and NFHS-5



Source: Authors' compilation

Fig 3: MPI in States and UTs during NFHS-4 and NFHS-5

The intensity of poverty, indicating the average deprivation among those identified as poor, also showed reductions in most regions. While Bihar had the highest poverty intensity in both survey periods, it witnessed an improvement from 51.01% to 47.40%. Similarly, Assam recorded a reduction in intensity from 47.88% to 44.41%. These trends suggest that fewer people are considered poor, and the depth and severity of their deprivations have lessened. The decline in multidimensional poverty reflects the impact of initiatives to improve access to healthcare, education, and basic amenities. Programs like Swachh Bharat Abhiyan, rural electrification, and welfare schemes targeting marginalized communities likely played a pivotal role in driving these positive outcomes. However, states like Bihar, Jharkhand, and Madhya Pradesh still exhibit high poverty levels, emphasizing the need for sustained and targeted efforts to address regional disparities. This progress is a testament to India's strides in achieving more inclusive and equitable development, though continued vigilance and innovation are required to ensure this trajectory persists.

In Figure 3, a comparison of the Multidimensional Poverty Index (MPI) between NFHS-4 (2015-16) and NFHS-5 (2019-21) highlights substantial progress in poverty reduction across India's states and union territories (UTs). MPI, which measures both the prevalence and intensity of poverty, has declined across nearly all regions. Notable improvements can be seen in states like Bihar, where MPI fell significantly from 0.265 to 0.16, though it remains among the poorest states, reflecting persistent systemic challenges. Similarly, Assam achieved a notable decline in MPI from 0.156 to 0.086, marking considerable advancements in alleviating multidimensional poverty. States such as Kerala and Goa consistently demonstrated the lowest MPI, reducing further to 0.002 and 0.003, respectively, underscoring the role of strong social welfare systems and developmental policies. Union territories like Delhi and Chandigarh also recorded steady declines, reflecting improved access to basic services and living

conditions. The implications of these trends are far-reaching. The reduction in MPI indicates the positive impact of key governmental initiatives such as the Swachh Bharat Abhiyan, rural electrification projects, housing schemes like PM Awas Yojana, and healthcare programs under Ayushman Bharat. These efforts have improved access to sanitation, electricity, education, and healthcare for millions, thereby addressing the multidimensional aspects of poverty. However, disparities persist, with states such as Bihar and Uttar Pradesh continuing to report relatively high MPI values, emphasizing the need for targeted and region-specific interventions. This progress reflects India's strides toward achieving Sustainable Development Goals (SDGs), particularly those related to poverty alleviation, reduced inequalities, and improved living standards. Continued efforts and innovative approaches will be crucial to maintaining and accelerating this trajectory toward an equitable and inclusive future.

Table 3: T-test for HCR, PI and MPI between NFHS-4 (2015-16) and NFHS-5 (2019-21). (India Average)

Variable	Survey	Mean	Std. Dev.	T-Value	Pr(|T| > |t|)
HCR	NFHS-4	0.1737167	0.1289024	2.7673	0.0072*
	NFHS-5	0.1023806	0.0854802		
Poverty Intensity	NFHS-4	0.4404028	0.0329488	2.4813	0.0155*
	NFHS-5	0.4228444	0.0267761		
MPI	NFHS-4	0.0800278	0.0635922	2.8076	0.0065*
	NFHS-5	0.0449444	0.0397168		

Source: Authors' calculation, *Significance at 1% level

Table 3 presents the results of a t-test comparing the Headcount Ratio (HCR), Poverty Intensity (PI), and Multidimensional Poverty Index (MPI) between two survey periods: NFHS-4 and NFHS-5. The t-test results reveal significant differences in poverty metrics between NFHS-4 and NFHS-5. The Headcount Ratio (HCR), measuring the proportion of people living in poverty, dropped from 17.37% in NFHS-4 to 10.24% in NFHS-5, showcasing a substantial improvement. Similarly, Poverty Intensity (PI), which reflects the severity of poverty among the poor, decreased from 44.04% to 42.28%. The Multidimensional Poverty Index (MPI), encompassing various poverty indicators, also witnessed a notable reduction from 8.00% to 4.49%. All changes are statistically significant, as evidenced by small p-values.

These findings imply that India has made meaningful progress in poverty alleviation during the period between NFHS-4 (2015-16) and NFHS-5 (2019-21). Reductions in HCR, PI, and MPI indicate an overall improvement in living conditions, access to resources, and social development. However, the persistence of poverty-related issues, even at reduced levels, suggests that efforts must continue to target vulnerable populations and sustain this positive trajectory. Policymakers may consider these results as a basis for refining anti-poverty programs and ensuring that the gains are distributed equitably.

Table 4: T-test for HCR, PI and MPI between NFHS-4 (2015-16) and NFHS-5 (2019-21) in Rural and Urban

Variable	Survey	Mean	Std. Dev.	T-value	Pr(|T| > |t|)
HCR (Rural)	NFHS-4	0.2213889	0.1484695	3.2679	0.0017*
	NFHS-5	0.1241694	0.0990911		
HCR (Urban)	NFHS-4	0.0702361	0.0518712	2.6280	0.0105*
	NFHS-5	0.0431333	0.0337402		
Poverty Intensity (Rural)	NFHS-4	0.4429278	0.0333438	3.0503	0.0032*
	NFHS-5	0.4212472	0.0265883		
Poverty Intensity (Urban)	NFHS-4	0.430375	0.0287622	2.2116	0.0303**
	NFHS-5	0.4146639	0.0314566		
MPI (Rural)	NFHS-4	0.1022222	0.0730726	3.3148	0.0015*
	NFHS-5	0.0544722	0.0461597		
MPI (Urban)	NFHS-4	0.0313056	0.0247014	2.6261	0.0106*
	NFHS-5	0.0185556	0.015441		

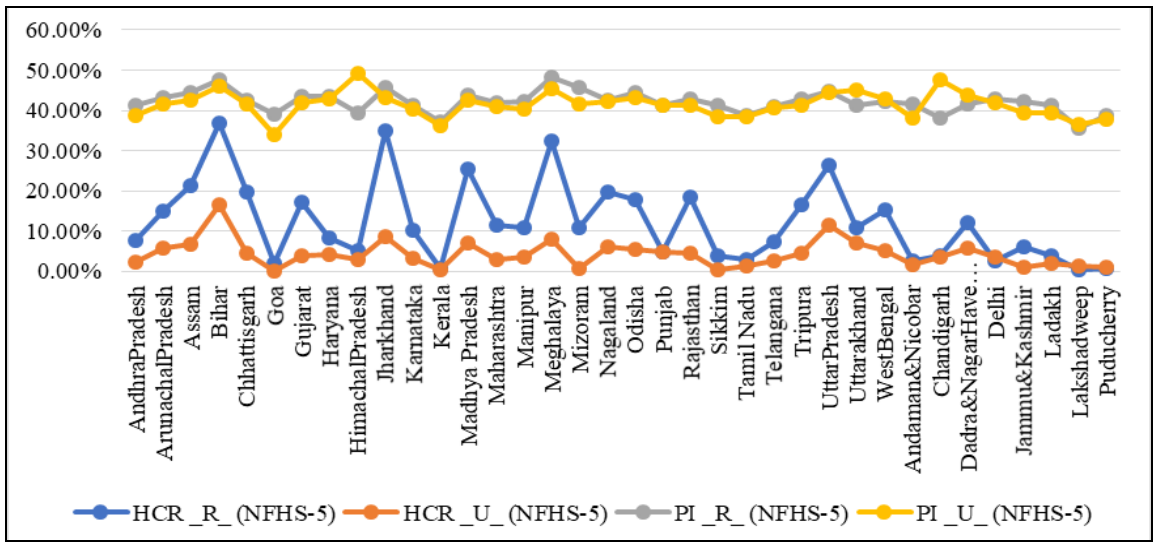
Source: Authors' calculation * and ** Significance at 1% and 5% level respectively.

Table 4 compares the differences in Headcount Ratio (HCR), Poverty Intensity (PI), and Multidimensional Poverty Index (MPI) between two surveys: NFHS-4 (2015-16) and NFHS-5 (2019-21) across rural and urban areas. The results reveal significant improvements in all three indicators over time, underscoring progress in poverty alleviation efforts. For rural areas, HCR dropped substantially from 0.2214 to 0.1242, indicating fewer households living in multidimensional poverty. Similarly, MPI saw a remarkable reduction from 0.1022 to 0.0545, while Poverty Intensity decreased from 0.4429 to 0.4212. These declines reflect meaningful strides toward reducing poverty intensity and its prevalence in rural regions. The changes were statistically significant, affirming the effectiveness of targeted programs or interventions during this period.

Urban areas also witnessed improvements, though less pronounced compared to rural regions. HCR fell from 0.0702 to 0.0431, and MPI dropped from 0.0313 to 0.0186. Poverty Intensity showed a reduction from 0.4304 to 0.4147. The statistical significance of these results reinforces the progress made in urban poverty reduction, though it implies a relatively slower pace compared to rural areas.

The findings suggest that efforts to reduce multidimensional poverty have been fruitful, particularly in rural areas where the reductions are more pronounced. This highlights the effectiveness of rural-focused policies and initiatives during

the survey period. The persistent gap between rural and urban improvements calls for balanced development approaches to ensure equitable poverty alleviation across regions. Additionally, the statistical significance of the results supports the adoption of similar strategies in future poverty reduction efforts.

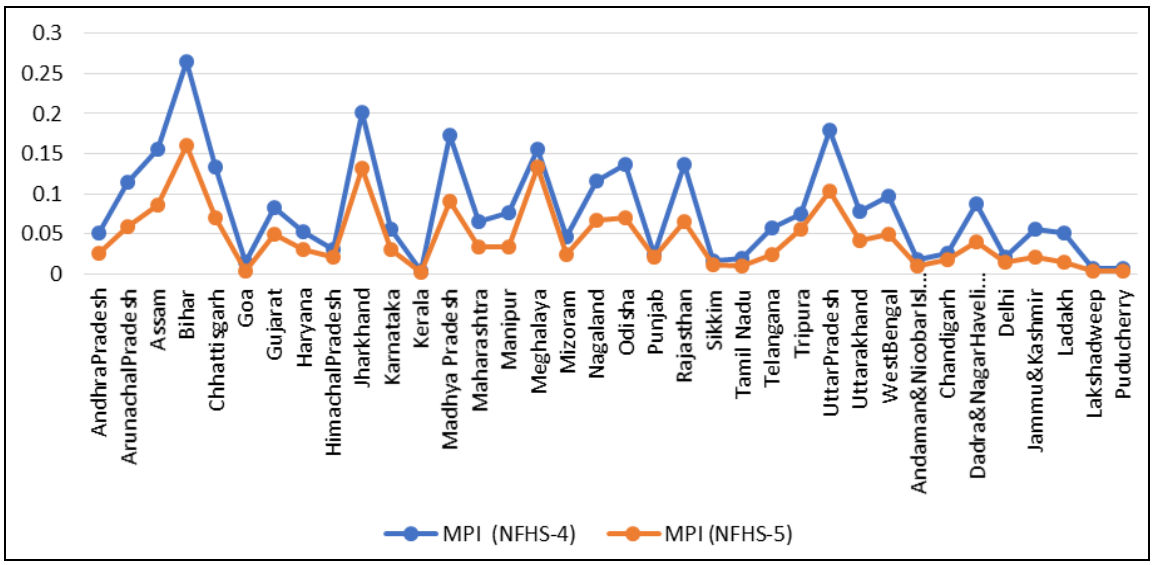


Source: Authors' compilation

Fig 4: Headcount Ratio (HCR) and Poverty Intensity (PI) in States and UTs in NFHS-5 (Rural-Urban Comparison)

Figure 4 summarises the incidence and intensity of poverty between rural and urban areas based on NFHS-5. The rural-urban comparison of multidimensional poverty based on Headcount Ratio (HCR) and poverty intensity during NFHS-5 (2019-21) highlights the persistent rural disadvantage in India. Rural areas consistently show higher HCRs across states, indicating a greater poverty prevalence than urban regions. For instance, Bihar demonstrates a striking rural-urban divide, with a rural HCR of 36.95% compared to 16.67% in urban areas, reflecting widespread multidimensional poverty in its rural population. Similarly, states like Assam and Madhya Pradesh exhibit rural HCRs significantly higher than urban levels, at 21.41% versus 6.88% and 25.32% versus 7.10%, respectively. Even in states with overall low poverty, such as Kerala and Goa, rural areas continue to show slightly higher HCRs, emphasizing the need for targeted rural interventions. While generally higher in rural areas, poverty intensity shows smaller gaps than HCRs, with rural populations experiencing marginally deeper poverty. For example, in Bihar, rural poverty intensity is 47.52%, slightly exceeding the urban intensity of 45.95%.

Some exceptions exist, such as Himachal Pradesh and Chandigarh, where urban poverty intensity surpasses rural levels, suggesting pockets of severe deprivation among urban populations. These trends have important implications, highlighting the systemic disparities between rural and urban areas. The findings underscore the need for sustained rural development initiatives, such as improving healthcare access, education, sanitation, and infrastructure, to address structural inequities. Meanwhile, urban poverty hotspots require targeted strategies to address deep deprivations among vulnerable populations in cities. Bridging these rural-urban gaps is critical to achieving more equitable and inclusive development and realizing India's Sustainable Development Goals (SDGs).



Source: Authors' compilation

Fig 5: MPI in States and UTs in NFHS-5 (Rural-Urban Comparison)

Figure 5 presents the rural-urban comparison of the Multidimensional Poverty Index (MPI) from NFHS-5 (2019-21). The line graph highlights significant disparities, with rural areas consistently facing higher levels of multidimensional poverty than urban areas. Rural MPI values reflect more profound deprivation across health, education, and living standards due to systemic challenges such as inadequate infrastructure and limited access to essential services. For instance, Bihar and Jharkhand, among the poorest states, show stark contrasts between rural and urban areas, with rural MPIs of 0.176 and 0.16, respectively, compared to 0.08 and 0.04 in urban regions. Meanwhile, states like Kerala and Goa maintain extremely low MPI values in both rural and urban areas, demonstrating the success of inclusive social and developmental policies. Certain regions, such as Punjab, show minimal rural-urban disparities, with MPI values of 0.02 for both areas, suggesting more equitable resource distribution.

The implications of these findings are crucial for policy formulation. The stark rural-urban divide underscores the need to bolster rural development programs by improving healthcare, education, employment opportunities, and infrastructure. Programs like rural electrification, housing schemes, and sanitation initiatives must continue and expand to address structural inequalities. Urban poverty, though comparatively lower, highlights pockets of deprivation that require targeted interventions, particularly in rapidly urbanizing states. Addressing these disparities is essential for achieving equitable and inclusive growth, ensuring that the most marginalized populations are not left behind. These trends align with India's broader commitment to the Sustainable Development Goals (SDGs), particularly those addressing poverty, inequality, and sustainable development.

Table 5: T-test for the difference in HCR, PI and MPI between Rural and Urban areas based on NFHS-4 and NFHS-5

Variable	Survey	Mean	Std. Dev.	T-value	Pr(|T| > |t|)
HCR (NFHS-4)	Rural	0.2213889	0.1484695	5.7666	0.0000*
	Urban	0.0702361	0.0518712		
HCR (NFHS-5)	Rural	0.1241694	0.0990911	4.6449	0.0000*
	Urban	0.0431333	0.0337402		
Poverty Intensity (NFHS-4)	Rural	0.4429278	0.0333438	1.7104	0.0916
	Urban	0.430375	0.0287622		
Poverty Intensity (NFHS-5)	Rural	0.4212472	0.0265883	0.9590	0.3409
	Urban	0.4146639	0.0314566		
MPI (NFHS-4)	Rural	0.1022222	0.0730726	5.5163	0.0000*
	Urban	0.0313056	0.0247014		
MPI (NFHS-5)	Rural	0.0544722	0.0461597	4.4274	0.0000*
	Urban	0.0185556	0.015441		

Source: Authors' calculation, *Significance at 1% level.

Table 5 examines the differences in multidimensional poverty indicators Headcount Ratio (HCR), Poverty Intensity (PI), and Multidimensional Poverty Index (MPI) between rural and urban areas, based on NFHS-4 (2015-16) and NFHS-5 (2019-21). Across both surveys, rural areas consistently exhibit higher levels of poverty compared to urban areas, as reflected in all three metrics. These differences are statistically significant for HCR and MPI, underscoring substantial disparities in multidimensional poverty prevalence between the two regions.

In terms of the Headcount Ratio (HCR), which measures the proportion of individuals living in multidimensional poverty, rural areas report significantly higher averages than urban areas in both survey periods. For NFHS-4, rural HCR was 0.2214 compared to 0.0702 in urban areas, with a highly significant T-value of 5.7666 (P=0.0000). A similar pattern persists in NFHS-5, where rural HCR reduced to 0.1242 yet remained significantly higher than the urban figure of 0.0431 (T-value: 4.6449, P=0.0000). These findings highlight that while progress has been made in reducing poverty in both rural and urban settings, rural areas continue to face significantly higher poverty prevalence.

Regarding Poverty Intensity (PI), which reflects the average deprivation intensity experienced by those in poverty, differences between rural and urban areas are less pronounced and statistically insignificant. For NFHS-4, rural PI (0.4429) was slightly higher than urban PI (0.4304), but the difference was not statistically significant (T-value: 1.7104, P=0.0916). Similarly, in NFHS-5, rural PI stood at 0.4212 and urban PI at 0.4147, with a T-value of 0.9590 and a p-value of 0.3409. These findings suggest that while the intensity of poverty may be similar across rural and urban areas, the greater prevalence of poverty in rural regions remains a critical concern.

For the Multidimensional Poverty Index (MPI), which aggregates HCR and PI to provide an overall measure of multidimensional poverty, rural areas again exhibit significantly higher values than urban areas. In NFHS-4, the rural MPI was 0.1022, markedly higher than the urban MPI of 0.0313, with a T-value of 5.5163 (P=0.0000). The same trend is observed in NFHS-5, where the rural MPI dropped to 0.0545 but remained significantly higher than the urban MPI of 0.0186 (T-value: 4.4274, P=0.0000). This consistent disparity reflects the persistent challenges faced by rural populations in overcoming multidimensional poverty during the study period.

The findings emphasize the persistent and significant disparities in poverty between rural and urban areas, particularly in terms of HCR and MPI. Despite improvements over time, rural areas continue to face disproportionately higher poverty levels, indicating the need for focused and region-specific interventions. While the similarity in Poverty Intensity suggests some alignment in the depth of poverty across regions, the higher prevalence in rural areas underscores the urgency of targeted poverty reduction programs. Policymakers should prioritize addressing the structural factors driving rural poverty, such as limited access to quality education, healthcare, and economic opportunities. Investments in rural infrastructure, skill development, and social protection mechanisms could

help bridge the gap between rural and urban poverty levels. At the same time, urban poverty dynamics should not be overlooked, as rapid urbanization could exacerbate vulnerabilities in specific segments of the population. Achieving balanced and inclusive development requires coordinated efforts to ensure that no region is left behind in the fight against multidimensional poverty.

Conclusions

This study presents a comprehensive analysis of multidimensional poverty in India, underscoring the disparities between rural and urban areas and the regional variations for the first time through the lens of NITI Aayog's National Multidimensional Poverty Index. The findings suggest that multidimensional poverty is a pervasive issue within India. There has been a significant decline in MPI between NFHS-4 and NFHS-5 in both rural and urban areas during the study period. However, significant disparities persist across states, union territories, and regions. The study indicates a notable decline in the incidence and intensity of multidimensional poverty across states and union territories between NFHS-4 and NFHS-5.

The study additionally underscores the persistent intensity of poverty across all states, union territories, and regions throughout the study period. Furthermore, it indicates a higher prevalence of poverty in rural regions compared to urban areas across various states, whilst the intensity of poverty remains consistent in both settings during the study duration. These findings carry significant implications for policymakers and development practitioners engaged in efforts to combat poverty and inequality in India. The results of the study may guide targeted interventions and policies tailored to address the particular needs and challenges of different states, union territories, and regions. Moreover, the findings can promote collaboration among policymakers, researchers, and development practitioners to tackle poverty and inequality effectively. In summary, this study enhances the understanding of multidimensional poverty in India and offers valuable insights for those working to address this pressing issue. The study employed secondary data spanning two years, which may have inherent limitations regarding coverage, accuracy, and reliability. A longitudinal approach would provide a more comprehensive understanding of poverty. This study is based on state-level data; incorporating district-level and unit-level data would yield a more thorough overview of the poverty landscape.

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