



# MULTIDIMENSIONAL POVERTY IN INDIA SINCE 2005-06

A DISCUSSION PAPER

## Abstract

*The National Multidimensional Poverty Index by NITI Aayog uses the internationally acclaimed Alkire Foster methodology with a difference that National MPI covers 12 indicators while global MPI covers 10 indicators. This analysis attempts to study the decline in poverty rates and number of multidimensionally poor people across various time periods. The recent report on National MPI was based on National Family Health Surveys 4 (2015-16) and 5 (2019-21). Owing to lack of data for the years between 2005-06 and 2015-16 and after 2019-21 concerning the incidence of poverty levels, headcount poverty ratios for 2013-14 and 2022-23 have been estimated based on compound growth rate of the reduction in the incidence of poverty levels between 2005-06 and 2015-16 and 2015-16 and 2019-21 respectively. Multidimensional poverty in India was found to decline from 29.17% in 2013-14 to 11.28% in 2022-23 with about 24.82 crore people escaping poverty during this period. At the States' level, Uttar Pradesh topped the list with 5.94 crore people escaping poverty followed by Bihar at 3.77 crore and Madhya Pradesh at 2.30 crore. All 12 indicators of MPI have shown remarkable improvement during this period.*

## Introduction

Traditionally, poverty has been measured by assessing monetary resources available for an individual or household. The monetary metric generally used were household income or consumption expenditure. However, this approach of measuring poverty has been criticized for not capturing the multiple deprivations which may be faced by individuals in their lives. Development not only constitutes economic progress, but also the process of expanding people's capabilities to convert resources into valuable outcomes.

The conventional measures of monetary poverty also suffer from several other limitations like:

1. Income, while necessary, is not a sufficient condition to ensure the overall well-being of individuals, as, income in some cases is spent on items which do not involve the welfare of the household.
2. Due to unavailability of income estimates, monetary poverty measures often rely on consumption expenditure. This may not accurately represent the household's income, especially when borrowed funds contribute to consumption. In such cases expenditure may surpass or fall short of the actual income depending on borrowing and lending/ saving behavior of household.
3. Household welfare depends not only on its own spending but also on state expenditures for people's well-being. Monetary poverty measurements overlook the effect of state interventions like subsidized food grains, shelter, sanitation, free education and health, and nutritional support.

Thus, the Multidimensional Poverty Index (MPI) is considered as a more direct and comprehensive measure of people's deprivation and poverty. MPI captures and reveals the outcome of economic growth and development, income and its distribution and various development initiatives of the State. Besides, it has been globally realised that non-monetary measures complement monetary measures to capture diverse dimensions of poverty.

## Multidimensional Poverty Index

The global Multidimensional Poverty Index (MPI) is based on the of Alkire and Foster (AF) methodology that identifies people as poor or not poor based on a dual-cutoff counting method. It follows the universally acknowledged metric designed to assess acute poverty, providing a complementary perspective to conventional monetary-based measures of poverty assessment.

Global MPI uses ten indicators covering three areas namely health, education and standard of living. Health dimension includes Nutrition and Child & Adolescent Mortality indicators, education dimension includes Years of Schooling and School Attendance indicators and standard of living dimension includes 6 household specific indicators namely, housing, household assets, type of Cooking Fuel, access to Sanitation, Drinking water and Electricity.

The MPI assesses poverty at the individual level. If a person is deprived in a third or more of ten (weighted) indicators, the global MPI identifies them as 'MPI poor'.

The MPI is computed by multiplying the incidence of multidimensional poverty (H) and the intensity of poverty (A), denoted as  $MPI = H \times A$ . Incidence (H) shows the percentage of people who are multidimensionally poor, and Intensity (A) shows the percentage of weighted deprivations the average multidimensionally poor person suffers from. The MPI value for a given population, therefore, is the share of weighted deprivations faced by multidimensionally poor individuals divided by the total population. Hence the MPI is known as the adjusted headcount ratio. MPI includes both the share of people in multidimensional poverty and the extent to which they are deprived.

## Constructing India's Multidimensional Poverty Index

In its pursuit of addressing the intricacies of poverty, both NITI Aayog and its predecessor, the Planning Commission, have systematically generated poverty estimates over time. Furthermore, NITI Aayog has been entrusted with the task of formulating an indigenized index for measuring multi dimensional poverty estimates as part of the Global Indices for Reform and Action (GIRG) initiative.

The national MPI adopts the dual-cutoff approach of the AF methodology, consistent with the methodology used in the global MPI report. The national MPI retains all the ten indicators from the global MPI and incorporates two additional indicators, Maternal Health and Bank Accounts, in line with India's national priorities.

India, comprising 36 States & Union Territories, and more than 700 administrative districts, requires a refined policy tool for data-driven decision-making and the formulation of sectoral policies at the sub-national level. In contrast to conventional monetary poverty assessments based on consumption surveys, the national Multidimensional Poverty Index (MPI) delves into deprivations up to the district level, providing a more nuanced perspective. This granular approach proves essential in India's diverse context, enabling targeted interventions to address acute poverty and uphold the principle of inclusivity, ensuring that "no one is left behind." It also offers a method for determining overlapping deprivations in health, education, and standard of living, directly influencing individuals' quality of life and overall well-being.

## Estimates of National Multidimensional Poverty

Multidimensional poverty for India for the years 2005-06, 2015-16, and 2019-21, was estimated using data from the corresponding National Family Health Survey (NFHS) rounds (3 to 5). The estimates are computed with due consideration to the harmonization of indicators across the aforementioned survey rounds. The results are presented in Table 1 which shows the levels of incidence and intensity of poverty as well as MPI values across 2005-06, 2015-16, and 2019-21. More than half of India's population (55%) was multidimensionally poor in year 2005-06 and the intensity of poverty was also as high as 55 per cent. The proportion of multi dimensionally poor persons in total population has fallen from 55.34% in 2005-06 to 24.85% in 2015-16 and to 14.96% in 2019-21.

**Table 1: India's Headcount Ratio, Intensity and MPI**

NFHS Year	Headcount Ratio (H)%	Intensity (A)%	MPI = H*A
2019-21	14.96	44.39	0.066
2015-16	24.85	47.14	0.117
2005-06#	55.34	54.96	0.304
#Based on estimations provided by Oxford Policy and Human Development Initiative (OPHI)			

These estimates show that on one hand India has significantly reduced the proportion of multidimensional poor people by 40.38 percentage points in roughly 15 years after 2005-06 while on the other hand the Intensity of Poverty, which measures the average deprivation score among the multidimensionally poor, reduced by 10.57 percentage points in the span of 15 years from 54.96% in 2005-06 to 47.14% in 2015-16 and further to 44.39% in 2019-21. This implies that extent of deprivation among the deprived population is falling. As a result, MPI value, which subsumes headcount ratio and extent of deprivation, witnessed reduction (improvement) from 0.304 to 0.117 in about 10 years after 2005-06. MPI reached 0.066 in the next 4.5 years to 2019-21.

It is interesting to find out whether the pace of decline in headcount poverty ratio, its severity and extent of multidimensional poverty (MPI) accelerated or decelerated over time. These changes can be ascertained from the annual rate of decline in the three types of estimates presented in Table 2.

Headcount ratio of poverty declined at the rate of 7.7 per cent between 2005-06 and 2015-16. The pace of decline became much faster in the next phase i.e. between 2015-16 and 2019-20.

Severity of deprivation declined at a slightly lower rate between NFHS year 2015-16 and 2019-21 compared to the previous decade. However, the product of the two i.e. MPI, showed 31 per cent higher rate of reduction after 2015-16 compared to 2005-06 to 2015-16. These results show a significantly faster reduction in deprivation after 2015-16 as compared to the previous decade.

**Table 2: Compounded annual rate of change (%) in Headcount Ratio, Intensity and MPI**

NFHS Year	Headcount Ratio (H)	Intensity (A)	MPI = H*A
2015-16 to 2019-21	-10.66	-1.33	-11.95
2005-06 to 2015-16	-7.69	-1.52	-9.11

*Note: Assuming 10 years between 2005-06 and 2015-16 and 4.5 years between 2015-16 and 2019-21*

The progress in MPI demonstrates India's dedication to achieving the target 1.2 of Sustainable Development Goal to reduce the proportion of men, women and children in all ages living in poverty in all its dimensions at least to half by 2030.

The recently released report 'National Multidimensional poverty: A Progress Review -2023' by NITI Aayog, based on the data of NFHS 4 and 5, shows that 13.5 crore people have escaped poverty between 2015-16 and 2019-21. Poverty in rural India fell from 32.59% to 19.28% while in urban areas it declined from 8.65% to 5.27%. Thus, rural population witnessed a larger decline in poverty as compared to urban population.

1. Significant reductions (improvement) were observed in all 12 indicators over the two time periods: Notably, deprivations in sanitation decreased by 21.8 percentage points, and deprivations in cooking fuel decreased by 14.6 percentage points between 2015-16 and 2019-21.
2. The overall decline in the Multidimensional Poverty Index (MPI) value can be predominantly attributed to advances in nutrition, years of schooling, sanitation, and cooking fuel, although there remains room for further enhancements.
3. The fastest reduction in the proportion of multidimensional poor was observed in the States of Uttar Pradesh, Bihar, Madhya Pradesh, Odisha, and Rajasthan.
4. Bihar, the state with the highest MPI value in NFHS-4 (2015-16), experienced the largest decline in the headcount ratio. Following closely, Madhya Pradesh and Uttar Pradesh demonstrated the next largest reductions in the headcount ratio. In terms of the number of MPI-poor individuals, Uttar Pradesh topped the list with 3.43 crore people escaping multidimensional poverty over the past five years, followed by Bihar (2.25 crore) and Madhya Pradesh (1.36 crore).

### Computing MPI for 2013-14 and 2022-23

A better understanding of the impact of various initiatives launched during the previous decade on poverty and deprivation can be obtained by comparing the estimates of poverty and deprivation in year 2013-14 with year 2022-23 even though the actual estimates for 2015-16 and 2019-21 clearly point to acceleration in rate of reduction in MPI after 2015-16 compared to 2005-06 to 2015-16. This requires interpolation of estimates for the year 2013-14 and extrapolation for the year 2022-23. Thus, 2013-14 figure was computed from the 2005-06 estimate using annual compound rate of 7.69% reduction (Table 2). Similarly, 2022-23 estimate was projected by applying compound rate of reduction achieved during 2015-16 to 2019-21. This method involves a lower percentage points reduction in poverty each year which is consistent with experience of the real world. This assumption entails a trajectory characterized by the same rate of decline rather than using a linear trend.

Based on the interpolation of the MPI estimates between 2005-06 and 2015-16 the headcount ratio for the year 2013-14 comes to 29.17%. Similarly, the proportion of multidimensional poverty for the year 2022-23 is projected to be 11.28% based on the trend rate of 10.66% decline per year between 2015-16

and 2019-21. With this, India is much ahead of the target of reducing poverty in all its dimensions by half, by the year 2030.

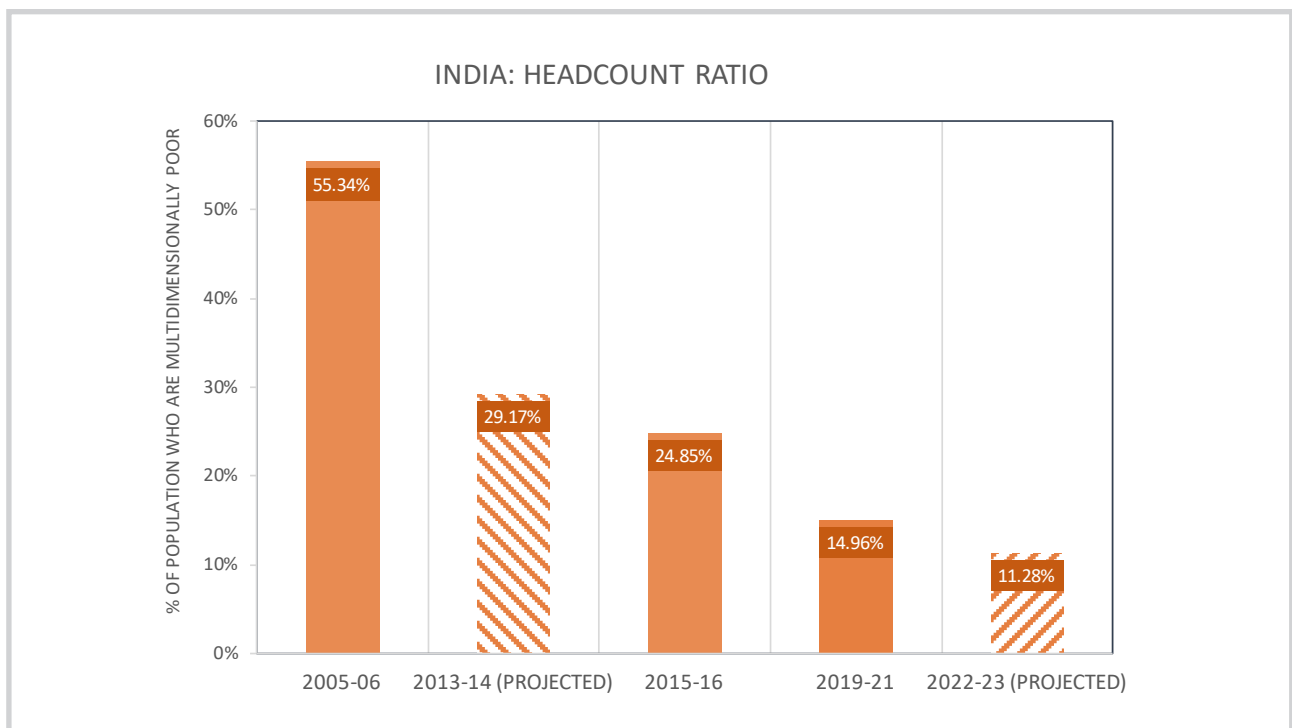
Consequently, the estimated absolute change in the headcount ratio over the 9-year period from 2013-14 to 2022-23 is 17.89 percentage points, which is equivalent to an approximately 24.82 crore individuals escaping multidimensional poverty.



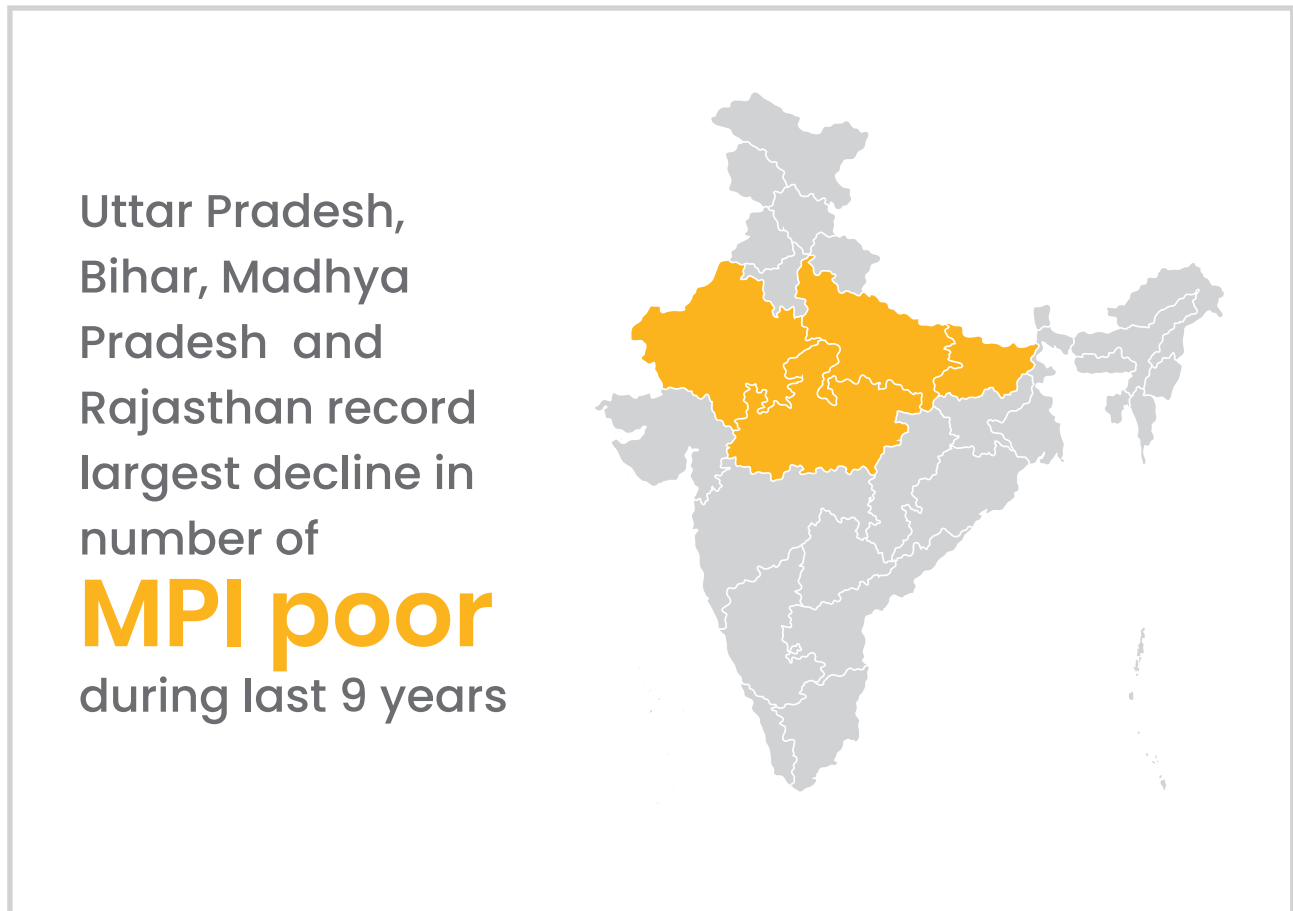
However, it is important to note that the reduction in poverty may differ, as various factors and externalities can influence the pace and trajectory of poverty alleviation efforts. The pace of reduction is generally faster when poverty levels are higher than when poverty levels are lower. The method used for extrapolation, based on rate of decline rather than percentage point decline, takes care of this to an extent. Besides, since part of the NFHS-5 data were collected before the pandemic, the estimates presented in this paper may not fully reflect the impact of Covid on the economy or the implications of subsequent government interventions.

The World Bank defines the international poverty line at US \$2.15 (in 2017 purchasing power parity [PPP] terms) a day to measure monetary poverty. The latest World Bank data indicates that the poverty headcount ratio at US \$2.15 a day (2017 PPP) decreased from 18.73% in 2015 to 11.9% in 2021 in India (Poverty and Inequality Platform, World Bank). With the ongoing rate of decline in India’s Multidimensional Poverty, the country is expected to reach single digit level of poverty by the year 2024-25.

**Graph 1: Headcount Ratio (Proportion of population who are multidimensionally poor)**



**Multidimensional Poverty at State Level during the last 9 years**

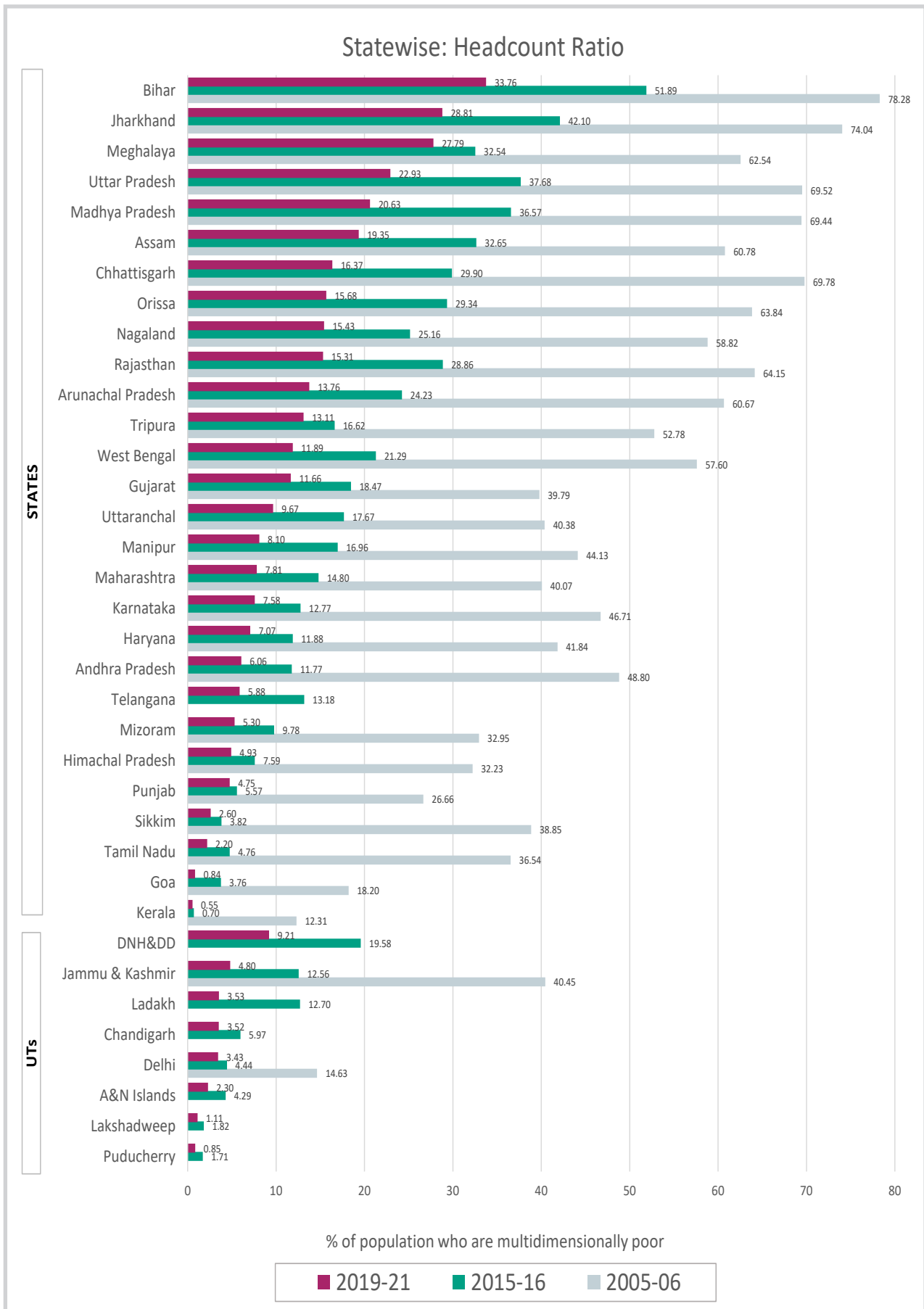


Similar to the national level projections, estimates of multidimensional poverty for the years at sub-national levels are presented in Graphs provided below. Estimate of projected headcount ratios for the years 2013-14 and 2022-23 along with the number of people who escaped poverty in various States/UTs is provided in Table 1 in the Annexure.

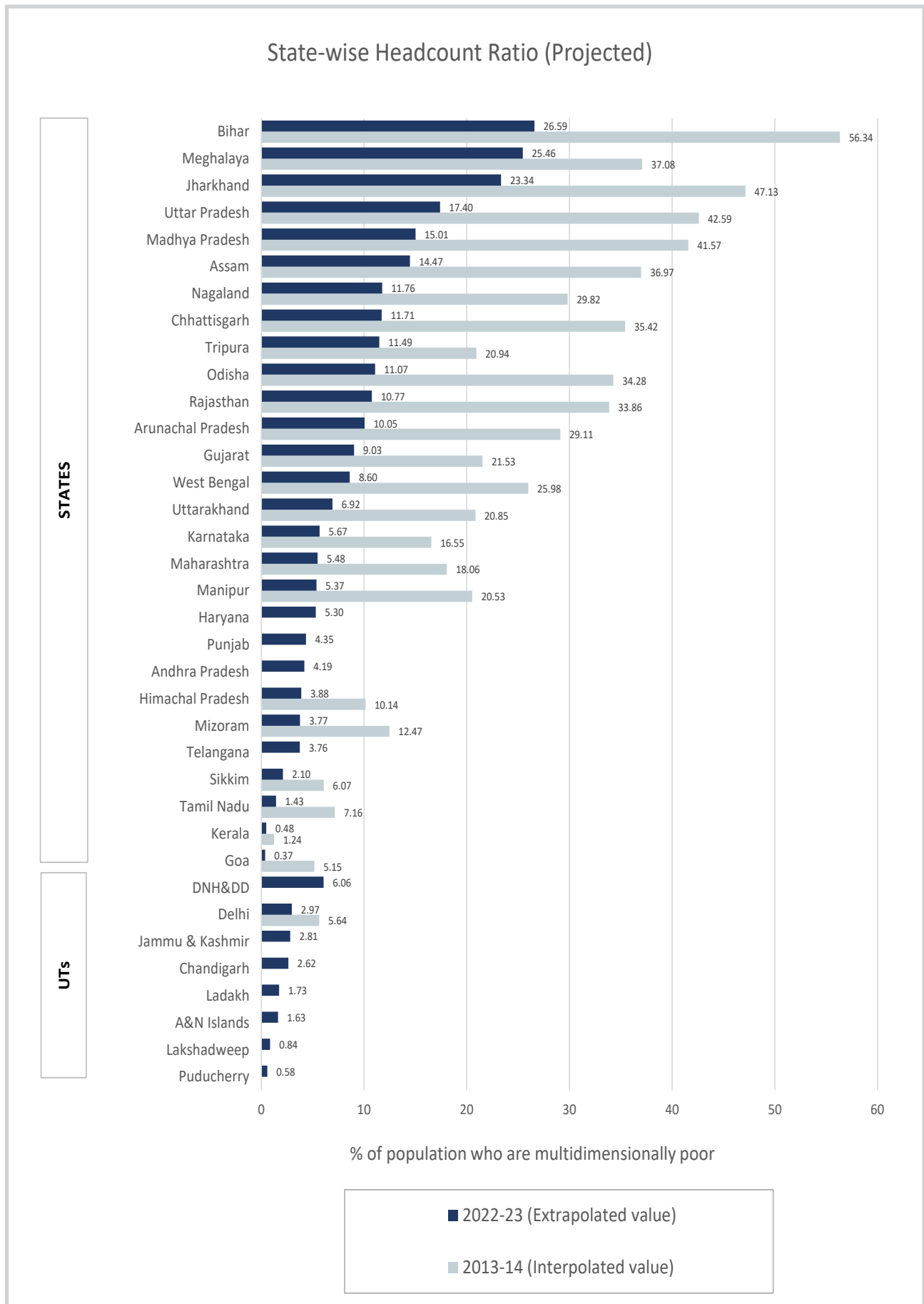
The fastest reduction in the number of multidimensional poor was observed in the States of Uttar Pradesh followed by Bihar, Madhya Pradesh, and Rajasthan. Uttar Pradesh registered the largest decline in the number of poor with 5.94 crore people escaping multidimensional poverty during the last nine years followed by Bihar at 3.77 crore and Madhya Pradesh at 2.30 crore. It is also observed that the States with higher poverty incidence have witnessed higher reduction in headcount ratio poverty over the years, thus indicating that inter-state multidimensional poverty differentials across various States have declined over the years. The correlation between incidence of poverty during 2013-14 and percentage point reduction in poverty by 2022-23 was 0.939.

<p>India likely achieved <b>SDG Target 1.2</b> (reducing multi-dimensional poverty by at least half) much ahead of 2030</p>		<p>All <b>12 indicators</b> show significant signs of improvement</p>
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Graph 2: State-wise: Headcount Ratio

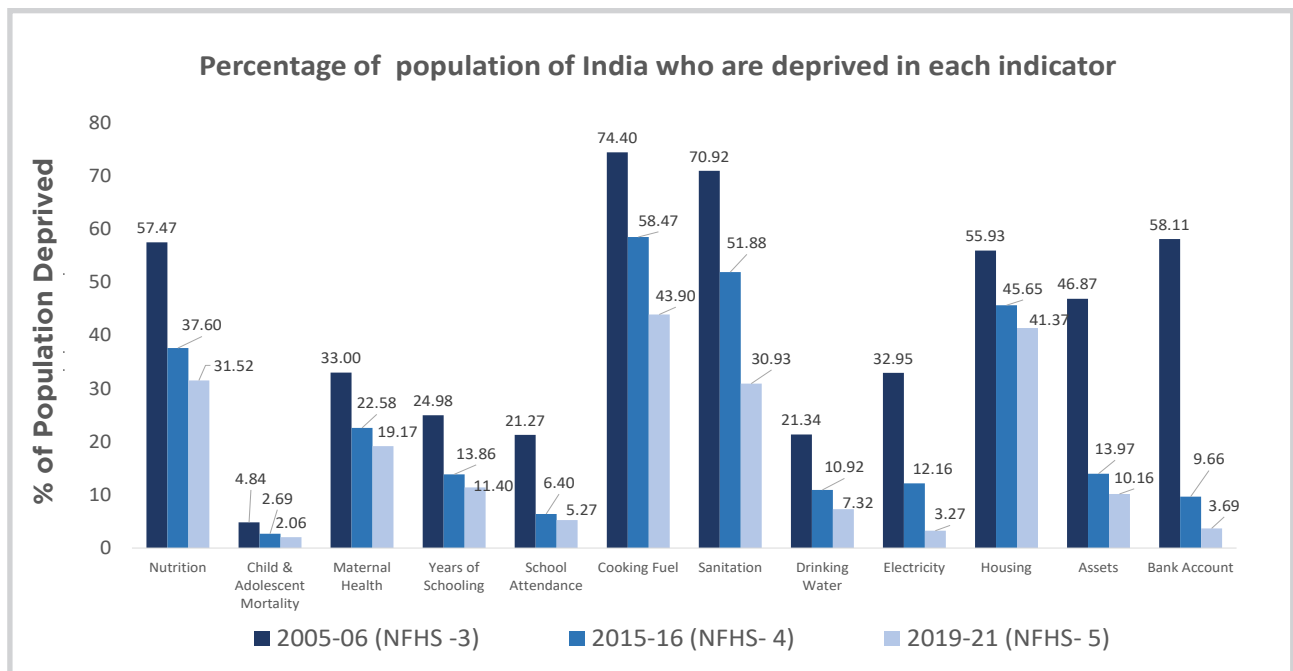


Graph 3: State-wise Headcount Ratio (Projected)





### Indicator-wise Performance



Attempt has also been made to examine the indicator-wise performance between the three NFHS surveys to analyse the reduction in deprivation across various domains. The broad trend of headcount ratio for the 12 indicators across three survey years using National MPI methodology is presented in the following chart:

The graph below recapitulates the progress in removing deprivation of India’s population. Within the standard of living dimension, highest levels of deprivation in 2005-06 were found in indicators such as Cooking Fuel (74.40%), Sanitation (70.92%), and Bank Account (58.11%) . On the other hand, Child & Adolescent Mortality (4.84%), School Attendance (21.27%), and Drinking Water (21.34%) had the lowest levels of deprivation in 2005-06. The latest estimates show that Cooking Fuel (43.90%) and Housing (41.37%) continue to have the highest deprivation, while indicators like Child & Adolescent Mortality (2.06%), Electricity (3.27%), and Bank Account (3.69%) maintain the lowest deprivation levels based on NFHS-5 (2019-21).

### Government Interventions to reduce MPI

The Government of India has made significant strides in enhancing the quality of life for millions of individuals, with a focus on the SDG 1.2 target of halving poverty in all its dimensions. Initiatives such as Poshan Abhiyan and Anaemia Mukh Bharat have played a crucial role in addressing reach to health facilities, resulting in a substantial reduction in deprivation.

Government of India operates one of the largest food security programme in the world in the form of Targeted Public Distribution System through 5.4 lakh fair price shops. Under National Food Security Act (NFSA), foodgrains are provided to 81.35 crore beneficiaries covering 75% population in rural areas and 50% population in urban areas. Recently, Government has decided to continue providing free food grains to NFSA beneficiaries under Pradhan Mantri Garib Kalyan Anna Yojana for a period of five years w.e.f. 1st January, 2024.

Mission Poshan 2.0 and Saksham Anganwadi have significantly contributed to fostering a healthier India, impacting millions of lives through key schemes like POSHAN Abhiyaan, Anganwadi Services, and the Scheme for Adolescent Girls. Poshan Vatikas or Nutri-gardens have been established nationwide to facilitate easy and affordable access to fruits, vegetables, medicinal plants, and herbs. Through around 14 lakh Anganwadi centres, the programme is touching lives of nearly 10

crore beneficiaries which includes around 8.87 crore children under 6 years and 1.1 crore pregnant and lactating mothers. With hot cooked meals given to 93 lakh beneficiaries and take-home ration to 2.7 crore beneficiaries, the programme has immensely contributed to a healthy India.

Further, Pradhan Mantri Poshan Shakti Nirman (PM POSHAN), a flagship programme of Government of India, is the largest School feeding Scheme in the world to address the twin problems of improving the nutritional status and school enrolment of children. Under the Scheme, there is provision of hot cooked meal to children of pre-schools or Bal Vatika (before class I) in primary schools and 11.80 crore children of classes I to VIII studying in 11.20 lakh schools.

Another programme instrumental in improving maternal health is the Pradhan Mantri Surakshit Matritva Abhiyan, offering assured, comprehensive, and quality antenatal care to all pregnant women universally on the 9th of each month. The programme has conducted 3.94 crore free antenatal checkups.

The Ujjwala Yojana has provided clean cooking fuel to an impressive 31 crore individuals, distributing 10 crore LPG connections. Beyond creating smoke-free kitchens, this initiative has protected numerous women from chronic respiratory disorders. Increased LPG access has relieved women from the burdensome task of collecting traditional fuels, enabling them to participate more actively in community life and pursue income-generating opportunities. The substantial growth in LPG coverage has significantly improved women's health and made kitchens environmentally beneficial by eliminating smoke.

Initiatives like Saubhagya have improved electricity coverage for almost 100% of the population, benefiting an additional 2.86 crore households and rendering kerosene lamps obsolete, thus improving respiratory health and eyesight. Transformative campaigns like Swachh Bharat Mission (SBM) and Jal Jeevan Mission (JJM) have led to a nationwide wave of improved sanitation facilities providing 14 crore tap water connections and construction of 11.33 crore IHHL in rural areas.

The Pradhan Mantri Jan Dhan Yojana (PMJDY) has been a driving force for change, witnessing the opening of over 50 crore bank accounts in recent years. This mammoth initiative has played a central role in bringing a significant section of the population into the formal financial system, providing efficient access to government schemes, savings, and credit.

The PM Awas Yojana has revolutionized living conditions in both urban and rural areas, facilitating the construction of over 4 crore homes for the underprivileged. This has ensured that a majority of families now have access to safe, secure, and comfortable living spaces.

## Conclusions

Over the last nearly two decades, there have been substantial improvements in quality of lives of people with poverty levels declining sharply from more than 50% to 11.28%. India is all set to reach single digit poverty levels during 2024. The rate of decline in multi dimensional poverty has accelerated during the period 2013-14 to 2022-23. This is made possible by a large number of initiatives/ schemes of the Government targeted at improving specific deprivation aspects. About 24.82 crore people escaping multidimensional poverty with a fall in headcount ratio by 17.89 percentage points will also help in accelerating the achievement of Sustainable Development Goals. While the performance of States varies, some States which were historically having high poverty have made remarkable progress in bringing people out of poverty, thus reducing inter-state variations in multidimensional poverty. With this, the fundamental problems in accessing basic services are getting resolved fast so that the country can look towards becoming a developed nation i.e. Viksit Bharat @2047.

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**This paper is written by Prof. Ramesh Chand, Member, NITI Aayog and Dr. Yogesh Suri, Senior Adviser, NITI Aayog with technical inputs from United Nations Development Programme (UNDP) & Oxford Policy and Human Development Initiative (OPHI). Views expressed are personal.**

**Annexure**

**Table 1: State wise Poverty estimates in last 9 years (From 2013-14 to 2022-23)**

S.No	State/UT	Headcount Ratio (%)					No. of People who escaped multidimensional poverty (Estimated) (in lakh)
		2005-06	2015-16	2019-21	2013-14 (Interpolated using data from 2005-06 & 2015-16)	2022-23 (Extrapolated using data from 2015-16 & 2019-21)	
1	Andhra Pradesh	48.80	11.77	6.06	*	4.19	*
2	Arunachal Pradesh	60.67	24.23	13.76	29.11	10.05	2.98
3	Assam	60.78	32.65	19.35	36.97	14.47	80.36
4	Bihar	78.28	51.89	33.76	56.34	26.59	377.09
5	Chhattisgarh	69.78	29.90	16.37	35.42	11.71	71.55
6	Goa	18.20	3.76	0.84	5.15	0.37	0.75
7	Gujarat	39.79	18.47	11.66	21.53	9.03	89.41
8	Haryana	41.84%	11.88	7.07	*	5.30	*
9	Himachal Pradesh	32.23	7.59	4.93	10.14	3.88	4.67
10	Jharkhand	74.04	42.10	28.81	47.13	23.34	93.92
11	Karnataka	46.71	12.77	7.58	16.55	5.67	73.64
12	Kerala	12.31	0.70	0.55	1.24	0.48	2.72
13	Madhya Pradesh	69.44	36.57	20.63	41.57	15.01	230.00
14	Maharashtra	40.07	14.80	7.81	18.06	5.48	159.07
15	Manipur	44.13	16.96	8.10	20.53	5.37	4.89
16	Meghalaya	62.54	32.54	27.79	37.08	25.46	3.89
17	Mizoram	32.95	9.78	5.30	12.47	3.77	1.08
18	Nagaland	58.82	25.16	15.43	29.82	11.76	4.03
19	Odisha	63.84	29.34	15.68	34.28	11.07	102.78
20	Punjab	26.66	5.57	4.75	*	4.35	*
21	Rajasthan	64.15	28.86	15.31	33.86	10.77	187.12
22	Sikkim	38.85	3.82	2.60	6.07	2.10	0.27
23	Tamil Nadu	36.54	4.76	2.20	7.16	1.43	43.98
24	Telangana	*	13.18	5.88	*	3.76	*
25	Tripura	52.78	16.62	13.11	20.94	11.49	3.92
26	Uttar Pradesh	69.52	37.68	22.93	42.59	17.40	593.69
27	Uttarakhand	40.38	17.67	9.67	20.85	6.92	16.21
28	West Bengal	57.60	21.29	11.89	25.98	8.60	172.18
29	Andaman & Nicobar Islands	*	4.29	2.30	*	1.63	*
30	Chandigarh	*	5.97	3.52	*	2.62	*
31	Dadra & Nagar Haveli & Daman & Diu	*	19.58	9.21	*	6.06	*
32	Delhi	14.63	4.44	3.43	5.64	2.97	5.69
33	Jammu & Kashmir	40.45	12.56	4.80	*	2.81	*
34	Ladakh	*	12.70	3.53	*	1.73	*
35	Lakshadweep	*	1.82	1.11	*	0.84	*
36	Puducherry	*	1.71	0.85	*	0.58	*
	<b>India</b>	<b>55.34</b>	<b>24.85</b>	<b>14.96</b>	<b>29.17</b>	<b>11.28</b>	<b>2482.16</b>

The State of Telangana was formed in 2014, splitting from the state of Andhra Pradesh. As such, the state existed as a separate sampling unit in 2015-16 and 2019-21, but this was not the case in 2005-06.  
 The 2005-06 estimates for Jammu & Kashmir include both Jammu & Kashmir and Ladakh. Thus, separate estimates for Ladakh don't exist in 2005-06. However, separate estimates for Ladakh and Jammu & Kashmir exist for 2015-16 and 2019-21.  
 Union Territories: Andaman & Nicobar, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep, and Puducherry were not sampled in NFHS 2005-06. In NFHS 3 (2005-06), the sampling unit that formed the state of Chandigarh was part of the two neighboring states of Punjab and Haryana. While in 2015-16 and 2019-21, Chandigarh had separate estimates.  
 The estimates are based on the India and State/UTs population projections by MoHFW.

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