RESEARCH ARTICLE

Poverty in India: The Rangarajan Method and the 2022–23 Household Consumption Expenditure Survey

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Abstract: This paper examines data on poverty in India from the most recent Household Consumption Expenditure Survey, whose reference year is 2022–23. When these data were released by the Government of India, reports and studies stated that the data showed a substantial decline in poverty in India. We computed poverty levels by using the method proposed by the Expert Group to Review the Methodology for the Measurement of Poverty chaired by Dr. C. Rangarajan, which submitted its report in 2014. Our results showed significantly higher levels of poverty in 2022–23 than previously suggested.

Keywords: Household Consumption Expenditure Survey, consumption poverty, Consumer Price Index, rural poverty, urban poverty, nutritional norms, inflation adjustment, head-count ratio, India.

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The Context

The release of the Household Consumption Expenditure Survey 2022–23 (HCES 2022–23) data by the Government of India has led to fresh discussions on poverty in India. There has been no official estimate of consumption poverty in India for any year after 2011–12.

In 2012, the head-count ratio of poverty in India was estimated to be 21.9 per cent, by applying a method to estimate poverty proposed by the Expert Group to Review the

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Methodology for Estimation of Poverty chaired by Dr. Suresh Tendulkar in 2009 (hereafter Expert Group (2009)) to data from the Consumer Expenditure Survey 2011–12 (Press Information Bureau [PIB] 2013). When this computation of the poverty line came under criticism, the Planning Commission of the Government of India appointed an Expert Group to Review the Methodology for the Measurement of Poverty chaired by Dr. C. Rangarajan (hereafter Expert Group (2014)), to "revisit" the methodology for the measurement of poverty (Swaminathan 2010; PIB 2013).

In its report submitted in June 2014, the Expert Group (2014) proposed an alternative method of calculating the poverty line (the details of which are discussed later in this article), and estimated that the head-count ratio of poverty in India for 2011–12, using this method, was 29.5 per cent of the population of India. The Government of India did not notify its official acceptance of this estimate.

Data from Consumer Expenditure Surveys (CES) carried out by the National Sample Survey Office (NSSO), that formed the basis for various poverty estimation exercises, have not been available for over a decade. A Consumer Expenditure Survey was conducted in 2017–18, but the findings were not released citing "data quality" concerns (PIB 2019).

In this interim period, in the absence of official survey data, individual researchers' estimates of the head-count ratio of poverty were largely, in the words of Himanshu (2022a), "shots in the dark."

A "factsheet" from the HCES 2022–23 data was released by the Government of India in February 2024, two months before elections to the Indian Parliament. On the basis of this initial release, B. V. R. Subrahmanyam, the Chief Executive Officer of the Government of India's central think tank, NITI Aayog, stated that the head-count ratio of poverty had come down to 5 per cent of the population (Dhoot 2024). Several others suggested that there had been a substantial decline in poverty (Anant 2024; Natti 2024; Perumal 2024; Rajora 2024). Their method was to use the Consumer Price Index to adjust a poverty line for 2011–12 for inflation and apply them to data from HCES 2022–23. Similarly, Rangarajan and Dev (2024) adjusted the Expert Group (2014) poverty line for 2011–12 using the Consumer Price Index and made a tentative estimate that 10.8 per cent of the population was below this poverty line in 2022–23.

Other scholars have questioned these claims, mainly on the grounds that the HCES 2022–23 survey method was not comparable with prior consumer expenditure survey rounds and that other evidence on the economy did not corroborate the assertion of a steep decline in poverty (Anand 2024; Himanshu 2024; Kishore and Jha 2024; Ghatak and Kumar 2024; Mehrotra and Kumar 2024).

This paper estimates a new poverty line from the HCES 2022–23 data by using the method proposed by Expert Group (2014) rather than by adjusting an earlier poverty line for inflation.

Given the differences between the survey methods followed in CES 2011–12 (the last available official consumer expenditure survey until now) and HCES 2022–23, there are problems of comparability of data between the two, and we have not attempted an intertemporal study. Nevertheless, there is merit in estimating poverty levels and a head-count ratio of poverty using HCES 2022–23 data, if only to evaluate the recent claims that this data reveals a very low head-count ratio of poverty in India.

Survey Differences and Choice of Method

The question of comparability between CES 2011–12 and HCES 2022–23 has been the subject of much discussion since the release of the new data. While both surveys aimed to capture the consumption pattern of a representative sample of the Indian population by canvassing information regarding the quantity and monetary value of expenditure for a list of items of consumption, we identified four major differences in survey method between the two rounds. First, there are differences in terms of the items for which data were collected, though most items remain the same. The HCES 2022–23 survey aggregated certain items such as different millets (ragi, jowar, bajra, among others) while it disaggregated others. Unlike CES 2011–12, the new HCES 2022–23 also collected information on items such as free rice and free sugar supplied through the Public Distribution System. Secondly, the questionnaire employed by HCES 2022–23 is more detailed and follows a different order from CES 2011–12, and uses the computer-assisted personal interviewing (CAPI) technique as opposed to the paper-based technique used in CES 2011–12. The third difference is in the number of visits per household. While CES 2011–12 had investigators visit each household once to collect all the data from that household, HCES 2022–23 involved three visits to each household to collect information regarding expenditure on food, "consumables," and "durables" respectively. The fourth difference, which has received the most attention, is the change in sample design. HCES 2022–23 differs from CES 2011–12 in its sample design in two major ways. First, a portion of the rural sample is selected from villages within a 5 km distance from an urban area, and secondly, the selection criteria for the urban sample involves the ownership of non-commercial four-wheelers. Identifying the effects of these changes on the consumption expenditure data is beyond the scope of this paper. In our analysis, we have not reconciled these differences as we do not intend to compare the two rounds.

We have chosen the method proposed by Expert Group (2014) to estimate poverty from HCES 2022–23 data. The current official poverty line, proposed by Expert Group (2009), was calculated on the basis of data from CES collected with a "mixed reference period"

(Tendulkar *et al.* 2009). However, HCES 2022–23 collected data using a "modified mixed reference period," making the meaningful estimation of poverty using this method unfeasible (NSSO 2024). Consumption expenditure surveys typically ask respondents the quantity consumed and expenditure incurred for various items (such as milk, footwear, rent, travel, etc.) in the past *n* days. In this case, *n* is the reference period, which can typically be 7 days, 30 days, or 365 days. The Expert Group (2009) method used recall periods of either 365 days or 30 days, with a 365-day recall period for low-frequency items such as clothing, footwear, and educational expenses and a 30-day period for all other items. The HCES 2022–23 data contains a mix of three recall periods (for example, the recall period for milk consumption is 7 days, it is 30 days for cereals, and it is 365 days for most medical expenses). This makes it difficult to apply the Expert Group (2009) method to HCES 2022–23 data.

The Expert Group (2014), however, proposed a method to estimate poverty that used a "modified mixed reference period" (Rangarajan *et al.* 2014). While the poverty line derived by this method is higher than that derived via the method of the Expert Group (2009), it has its limitations (Deaton and Drèze 2014; Ramakumar 2014; Rangarajan and Dev 2015; Raveendran 2016). It has been argued (convincingly, we believe) that this method also tends to underestimate poverty.

The Expert Group (2014) method constructs a poverty line based on three components: expenditure on food, expenditure on essential non-food items, and other expenditures. The food component is based on nutritional norms. The essential non-food component is meant to be a normative measure, with the norm defined as being simply the median expenditure on these items (median expenditure could, of course, still be an insufficient level of expenditure from the point of view of need). It is also of concern that health expenses are not considered essential. The "other expenditures" component is tied to the food component. The method assumes that a person that has met their food requirement is *ipso facto* capable of meeting "other expenditures." This, too, is an assumption that will not be valid for many persons.

Notwithstanding these criticisms, the Expert Group (2014) method can be considered the closest to an "official" method of calculating poverty from the new data. We use this method to calculate, in the following section, a poverty line and poverty estimates from the HCES 22–23 data.

Data, Method, and Results

We use the Household Consumption Expenditure Survey 2022–23 (HCES 2022–23), the Periodic Labour Force Survey 2022–23 (PLFS 2022–23), and nutrition intake norms prescribed by the Indian Council of Medical Research – National Institute of Nutrition in 2020 (ICMR – NIN 2020) to generate a new poverty line using the Expert Group (2014) method. We repeat the same exercise with Consumer

Expenditure Survey 2011–12 (CES 2011–12), Employment Unemployment Survey 2011–12 (EUS 2011–12), and older nutrition intake norms prescribed by ICMR – NIN (2010). The latter exercise is not so much for comparison but for assessing the deviation between our estimation and the original results of the Expert Group (2014).

The Expert Group (2014) was of the view that the consumption basket that defines the poverty line should include a food component, which addresses the question of adequate nourishment, a component that covers essential non-food items such as education, clothing, conveyance, and shelter, and a third component to address other "behaviourally determined" non-food expenditures. The method proposed by the Expert Group (2014) can be summarised as follows: first, average requirements for calories, proteins, and fats are calculated based on norms established by ICMR. These requirements are differentiated by age, gender, and activity levels for rural and urban populations to determine the normative levels of nourishment. Next, a food basket that meets these nutritional norms is defined by identifying the consumption levels of individuals within specific fractile classes. The average monthly per capita consumption expenditure (MPCE) on food for these classes is used to define the food component of the poverty line basket. Subsequently, the median expenditures on essential non-food items such as education, clothing, shelter, and conveyance are calculated. These values are treated as normative requirements for basic non-food expenses, and the expenditures by the median fractile class on these items are added to the poverty line basket. Finally, other non-food expenditures observed in the fractile classes meeting nutritional requirements are added. The sum of these three components is the new poverty line, expressed in terms of MPCE. This line is calculated separately for rural and urban areas. State-specific poverty lines are derived from these two lines using a relative Fisher Index, followed by the estimation of State-specific head-count ratios which are aggregated to arrive at the national head-count ratio for poverty (Rangarajan *et al.* 2014; Rangarajan and Dev 2015).

We deviate from the Expert Group (2014) method in three main ways. First, we rely on ICMR – NIN 2020 norms for nutrition intake instead of ICMR – NIN 2010 norms. Secondly, we use PLFS 2022–23 to estimate normative nutrition intake requirements, in place of a combination of Census 2011 and EUS 2011–12 used by the Expert Group (2014). This is because official age-wise population projections for rural and urban areas are not available, and a new census has not been carried out after 2011. Thirdly, we divided occupational groups into three activity levels – heavy, moderate, and sedentary – in the manner depicted in Table 1, following Alagh *et al.* (1979), as the exact method used by Expert Group (2014) for such a classification was not available.[1]

[1] This has also been observed by Raveendran (2016).

Table 1 *Occupational groups, by levels of intensity of activity*

Activity Level	Occupational Sectors
Heavy	Cultivation, Agricultural labour, Mining and quarrying, Construction
Moderate	Livestock rearing, Forestry, Fishing, Hunting, Plantations and allied activities, Manufacturing and repairing
Sedentary	Trade and commerce, Transport, Storage, Communication and other allied services

Note: Non-workers are assigned the same nutritional requirements as those engaged in sedentary activity.
Source: Alagh *et al.* (1979, p. 6).

In order to estimate nutrient content in food items, we have used the nutrition chart prepared for CES 2011–12 by the *Nutritional Intake in India Report 2011–12* (NSSO 2014).[2] There are differences in food items collected in 2011–12 and 2022–23 as discussed earlier. We account for this by developing a concordance chart between items from the two periods.

The Indian Council of Medical Research prescribes normative requirements of calorie, protein, and fat for different age-sex-activity level combinations (ICMR–NIN 2020). This is given in Table 2. First, we estimated the proportion of population in these categories using PLFS 2022–23 (Table 3) and calculated the average per capita nutrition requirements. We arrived at 2,120 kcal per day, 42 gm of protein per day, and 22 gm of fat per day for rural areas; the corresponding figures for urban areas are 1,963 kcal, 45 gm of protein, and 21 gm of fat per day (Table 4). Next, we divided the estimated distribution of population from HCES 22–23 into 20 fractile classes of MPCE, separately for rural and urban areas. We then calculated the average consumption of nutrition from food items for which data was captured by HCES 2022–23, for each fractile class. These values have been provided in Table 5. We aimed to find the fractile class for which the previously estimated nutrition levels are met, allowing for a 10 per cent leeway in line with Expert Group (2014) that argues such a variation will not affect nutrition adequacy.

We then estimated the average per capita expenditure on food items, essential non-food items (namely education, clothing, shelter,[3] and conveyance), and other non-food items for each fractile class. This is shown in Table 6. The Expert Group (2014) method defines the poverty line as the sum of expenditure on essential non-food items of the median (45–50th) fractile, the expenditure on food items by the fractile that meets the nutrition norms, and the expenditure on other non-food items by the same fractile that meets the nutrition norms. This line is calculated separately for rural and urban areas.

[2] This chart is prepared based on Indian Food Consumption Tables published by the Indian Council of Medical Research – National Institute of Nutrition. Five major Food Consumption Tables have been used in India; these were published in 1937, 1951, 1971, 1989, and 2017 respectively. The data in the chart we use are based on the 1989 tables, but remains the most recent one available.
[3] Shelter includes house rent and bedding expenses.

Table 2 *ICMR Nutritional norms for different age groups, by sex and activity levels, India, 2022–23*

Categories			Nutritional Norms		
Age	Sex	Activity level	Energy (kcal/day)	Protein (gm/day)	Fat (gm/day)
Less than 1			610	9.3	25
1—3			1010	11.3	25
4—6			1360	15.9	25
7—9			1700	23.3	30
10—12			2140	32.3	25
13—14	Female		2400	43.2	25
13—14	Male		2860	44.9	25
Adult	Female	Heavy	2720	45.7	20
Adult	Female	Moderate	2130	45.7	20
Adult	Female	Sedentary	1660	45.7	20
Adult	Female	Non-Worker	1660	45.7	20
Adult	Male	Heavy	3470	54	20
Adult	Male	Moderate	2710	54	20
Adult	Male	Sedentary	2110	54	20
Adult	Male	Non-Worker	2110	54	20
Elderly	Female		1660	45.7	20
Elderly	Male		2110	54	20

Source: Indian Council for Medical Research – National Institute of Nutrition (2020).

Results

Our first result is the construction of two new poverty lines for 2022–23: Rs 2,515 per capita per month for rural areas and Rs 3,639 for urban areas. The lower bounds of nutrition norms were met by the fifth fractile class in rural areas and the third fractile class in urban areas.

Next, State-specific poverty lines were derived based on a relative Fisher Index for each State. We have used the method for calculating the Fisher Index provided by Expert Group (2009), which was also the method adopted by the Expert Group (2014). Based on the Fisher Index for each State, the all-India poverty line was adjusted to define State-specific poverty lines. The set of State-specific poverty lines for 2022–23 is shown in Appendix Table 1.

Finally, we estimate the all-India head-count ratio of poverty as the weighted sum of State-specific head-count ratios based on State-specific poverty lines. This is done separately for rural and urban areas. We estimate a rural head-count ratio of 27.4 per cent, an urban head-count ratio of 23.7 per cent, and an overall head-count ratio of 26.4 per cent.

Table 3 *Share of different age groups in the total population, by sex and activity levels, India, 2022–23* in per cent

Categories			Share of the age group in the population	
Age	Sex	Activity level	Rural	Urban
Less than 1			1.09	0.88
1—3			4.85	3.77
4—6			7.14	4.07
7—9			5.65	4.06
10—12			6.31	4.92
13—14	Female		1.81	1.68
13—14	Male		1.96	1.76
Adult	Female	Heavy	5.91	0.66
Adult	Female	Moderate	2.63	1.98
Adult	Female	Sedentary	1.39	4.94
Adult	Female	Non-Worker	20.3	25.31
Adult	Male	Heavy	14.45	4.21
Adult	Male	Moderate	3.92	5.93
Adult	Male	Sedentary	5.98	15.97
Adult	Male	Non-Worker	6.35	8.35
Elderly	Female		4.88	5.81
Elderly	Male		4.88	5.71

Source: Authors' calculations based on NSSO (2023).

We repeated the same exercise using the Consumer Expenditure Survey 2011–12, Employment Unemployment Survey 2011–12, and ICMR – NIN 2010 norms to assess the deviation between our approach and that of the Expert Group (2014). The average per capita nutritional requirement norms we arrived at deviated slightly from those of the Expert Group (2014).[4] The expenditures for the three components for each fractile class align exactly with the findings of the Expert Group (2014),

Table 4 *Estimated per capita nutritional norms, India, 2022–23*

Nutritional Norm	Rural	Urban
Energy requirement (kcal/day)	2120	1963
Protein requirement (gm/day)	42	45
Fat requirement (gm/day)	22	21
90 per cent of energy requirement (kcal/day)	**1908**	**1767**
90 per cent of protein requirement (gm/day)	**38**	**40**
90 per cent of fat requirement (gm/day)	**20**	**19**

Note: Expert Group (2014) argued that a deviation of 10 per cent will not affect nutrition adequacy and identified the section that met the lower bound of this range for poverty estimations.
Source: Tables 2 and 3.

[4] The Expert Group (2014) used a combination of Census 2011 and EUS 2011–12 data for this. We have used only EUS 2011–12 to make it consistent with our approach for 2022–23.

Table 5 *Estimated per capita consumption of specific nutrients, by fractile groups of monthly per capita expenditure, India, 2022–23*

Fractile Group of MPCE (in per cent)	Energy (kcal/day)		Protein (gm/day)		Fats (gm/day)	
	Rural	Urban	Rural	Urban	Rural	Urban
0—5	1558	1601	**41**	**44**	**30**	**38**
5—10	1756	1761	47	49	37	45
10—15	1849	**1854**	50	51	41	50
15—20	1907	1907	52	53	44	52
20—25	**1976**	1961	53	54	47	55
25—30	2024	1999	55	55	48	58
30—35	2054	2024	56	56	50	59
35—40	2109	2079	58	58	52	62
40—45	2134	2120	58	59	54	63
45—50	2180	2163	60	60	56	66
50—55	2218	2188	61	61	57	68
55—60	2247	2246	62	62	59	70
60—65	2311	2267	64	63	62	71
65—70	2330	2349	64	65	63	75
70—75	2386	2384	66	66	65	76
75—80	2444	2450	68	68	68	80
80—85	2491	2541	69	70	71	84
85—90	2568	2675	71	74	74	89
90—95	2726	2828	76	78	81	95
95—100	3095	3488	86	93	97	115

Note: MPCE stands for Monthly Per Capita Expenditure.
Source: Authors' calculations based on NSSO (2024).

allowing us to derive the same poverty line if we used the fractile classes that they identified. However, there was a difference in the calculated nutritional intakes for the fractile classes. While we were able to match our figures with those provided in the NSSO report titled *Nutritional Intake in India, 2011–12*, based on the same data, these values deviated from the calculations made by the Expert Group (2014). This suggests that the method of calculating nutritional intake employed by the Expert Group (2014) deviates from the method employed by NSSO. As a result, our analysis indicates that the urban nutritional norms are met by a higher fractile class than what was identified by the Expert Group (2014). This resulted in a higher poverty line for urban areas, and in turn, a higher HCR of poverty in 2011–12 as well. The corresponding tables have been provided as Appendix Tables 2 to 6. A summary of major statistics from the discussion in this section have been presented in Table 7 along with the inflation adjusted poverty lines and corresponding HCRs.

Although our method largely followed the original method of the Expert Group (2014), we computed a head-count ratio of 31.2 per cent in 2011–12, as against the 29.5 per cent estimated by the Expert Group (2014).

Table 6 *Estimated per capita expenditure on consumption categories, by fractile groups of monthly per capita expenditure, 2022–23* in rupees per month

Fractile Group of MPCE (in per cent)	Food		Essential Non-Food		Other Non-Food	
	Rural	Urban	Rural	Urban	Rural	Urban
0—5	744	1023	178	300	450	678
5—10	956	1288	241	431	585	888
10—15	1073	**1450**	280	520	666	**1022**
15—20	1166	1589	311	621	727	1112
20—25	**1248**	1698	338	686	**787**	1229
25—30	1330	1799	364	773	840	1338
30—35	1404	1905	391	852	895	1442
35—40	1466	2015	422	949	959	1532
40—45	1534	2130	458	1050	1017	1622
45—50	1610	2235	**480**	**1167**	1087	1723
50—55	1675	2334	519	1284	1162	1851
55—60	1751	2458	565	1394	1237	2003
60—65	1847	2559	603	1559	1316	2160
65—70	1917	2726	667	1747	1423	2296
70—75	2026	2876	723	1947	1540	2507
75—80	2143	3078	802	2176	1683	2764
80—85	2276	3310	906	2552	1874	3066
85—90	2459	3686	1044	2925	2153	3625
90—95	2757	4211	1277	3675	2605	4513
95—100	3617	6226	2166	6430	4719	8166

Note: Essential non-food comprises education, clothing, shelter, and conveyance expenses.
Source: Authors' calculations based on NSSO (2024).

Discussion and Concluding Remarks

This paper applies the method proposed by the Expert Group to Review the Methodology for the Measurement of Poverty, chaired by Dr. C. Rangarajan (Expert Group 2014), to data from Household Consumption Expenditure Survey 2022–23

Table 7 *Poverty lines and corresponding head-count ratios from various estimations based on the Expert Group (2014) method* in rupees per capita per month and per cent

Source of Estimation	Poverty Line		Head-Count Ratio		
	Rural	Urban	Rural	Urban	Overall
Expert Group estimates, 2011—12	972	1407	30.9	26.4	29.5
Authors' estimates, 2011—12	972	1502	31.3	30.8	31.2
Inflation-adjusted estimates, 2022—23	1837	2603	12.3	8.0	10.8
Authors' estimates, 2022—23	2515	3639	27.4	23.7	26.4

Source: Expert Group (2014) and inflation-adjusted estimates from Rangarajan and Dev (2024).

(HCES 22–23) in order to estimate a poverty line and the head-count ratio of poverty from these data.

Our results indicate that more than a quarter of all households in India have a monthly per capita expenditure that is below the poverty line in 2022–23. The head-count ratio of rural poverty (27.4 per cent) is higher than the head-count ratio of urban poverty (23.7 per cent).

Further enquiry into the reasons for high poverty levels in 2022–23 is the subject of our current research and will be dealt with in a subsequent paper. For the present, we note that the per capita energy consumption across quartiles of monthly per capita expenditure stagnated between CES 2011–12 and HCES 2022–23, and, in fact, declined by 2.6 per cent for the poorest quartile in rural India.[5]

The method of adjusting a prior poverty line using Consumer Price Index is inaccurate for at least two major reasons. First, the Consumer Price Index is calculated using outdated base weights for items in the consumption baskets. In the absence of new consumption expenditure data, these weights have not been updated for more than a decade. The weights assigned to items in the basket represent the estimated consumption pattern, which is likely to change over such a long period of time (Ramakumar 2014). A second and more important reason is that the Consumer Price Index, as apparent here, is not an instrument with which to track poverty. The consumption pattern of and prices experienced by the people below the poverty line differ from the consumption pattern of and prices experienced by the people above the poverty line.

Thus, our estimates are higher than the provisional head-count ratio of 10.8 for 2022–23 reported by Rangarajan and Dev (2024), derived by adjusting the 2011–12 poverty line of the Expert Group (2014) using the Consumer Price Index. It is also higher than estimates of poverty head-count ratios in other reports (Dhoot 2024; Perumal 2024; Natti 2024; Rajora 2024). These were also obtained by adjusting the official poverty line (taken from the report of the Expert Group (2009) chaired by Dr. Suresh Tendulkar) to current data.

Our results are also to be read in the context of evidence from research on rural wages, incomes of agricultural households, and the informal sector, which suggest that there has not been a substantial growth in incomes for the rural poor. Data from the Situation Assessment Surveys of Agricultural Households of 2012–13 and 2018–19 suggest that the average monthly incomes for agricultural households grew at 2.44 per cent per annum between these years, from Rs 8,843 to Rs 10,218 at constant prices (Bakshi 2021). Analysing data from two sources of wage rates from the Government of

[5] Appendix Tables 7, 8, and 9 provide some preliminary information. The per capita energy consumption across quartiles of monthly per capita expenditure indicates stagnation between 2011–12 and 2022–23. Appendix Tables 8 and 9 show consumption disparities between lower and upper quartiles.

India – the Wage Rates in Rural India and the Periodic Labour Force Surveys – Das and Usami (2023) find that real wage rates in India stagnated between 2014–15 and 2022–23. Analysis of data from NSSO's new Annual Survey of Unincorporated Sector Enterprises indicates a struggling informal sector with declining number of enterprises and stagnating wages (Das and Drèze 2024; Mohanan and Kundu 2024). Additionally, wages in the lower rung of the formal economy, such as daily earnings of factory floor workers, are observed by Singh (2024) to have grown only by 0.6 per cent per annum between 2002–03 and 2021–22 at constant prices, based on various rounds of the Annual Survey of Industries.

Our calculations show that more than a quarter of India's population falls below the poverty line constructed using the method of the Expert Group (2014). We note that the method that we use is one that is likely to underestimate poverty rather than overestimate it (Ramakumar 2014). Consumption poverty remains an urgent and important problem in India.

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Appendix

Appendix Table 1 *State-wise poverty lines, 2022–23* in rupees per month

State/Union Territory	Rural	Urban
All India	2515	3639
Andaman and Nicobar Islands (U. T.)	3848	4992
Andhra Pradesh	2609	3541
Arunachal Pradesh	3247	4248
Assam	2849	3933
Bihar	2616	3539
Chandigarh (U. T.)	2939	3999
Chhattisgarh	2382	3312
Dadra and Nagar Haveli and Daman and Diu	2603	3290
Delhi	3181	3964
Goa	3104	4100
Gujarat	2654	3913
Haryana	2799	3935
Himachal Pradesh	2575	3681
Jammu and Kashmir	2457	3397
Jharkhand	2263	3391
Karnataka	2627	3656
Kerala	2694	3650
Ladakh (U. T.)	2812	3910
Lakshadweep (U. T.)	3107	4078
Madhya Pradesh	2295	3425
Maharashtra	2665	3932
Manipur	3098	4067
Meghalaya	2756	3807
Mizoram	3225	4245
Nagaland	2980	4238
Odisha	2288	3324
Puducherry (U. T.)	2962	3655
Punjab	2763	3653
Rajasthan	2614	3577
Sikkim	3244	4506
Tamil Nadu	2815	3759
Telangana	2833	3823

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Appendix Table 1 *(continued) State-wise poverty lines, 2022—23* in rupees per month

State/Union Territory	Rural	Urban
Tripura	2893	3923
Uttar Pradesh	2443	3701
Uttarakhand	2735	3707
West Bengal	2511	3576

Source: Authors' calculations from NSSO (2024).

Appendix Table 2 *ICMR nutritional norms for sections of the population and their estimated share in the population, 2011–12*

Categories			Estimated Population Share		ICMR Nutritional Norms (2020)		
Age	Sex	Activity level	Rural	Urban	Energy (kcal/day)	Protein (gm/day)	Fat (gm/day)
Less than 1			1.3	1.1	585	10.2	19
1—3			5.49	4.59	1060	16.7	27
4—6			6.57	5.02	1350	20.1	25
7—9			6.29	5.19	1690	29.5	30
10—12			7.52	6.22	2100	40	35
13—14	Female		1.97	1.78	2330	51.9	40
13—14	Male		2.31	2.07	2750	54.3	45
Adult	Female	Heavy	5.7	0.6	2850	55	30
Adult	Female	Moderate	1.31	1.68	2230	55	25
Adult	Female	Sedentary	22.06	26.08	1900	55	20
Adult	Female	Non-Worker	0.84	3.43	1900	55	20
Adult	Male	Heavy	16.77	4.08	3490	60	40
Adult	Male	Moderate	2.97	6.5	2730	60	30
Adult	Male	Sedentary	5.83	7.58	2320	60	25
Adult	Male	Non-Worker	4.85	16.03	2320	60	25
Elderly	Female		4.12	4.12	1900	55	20
Elderly	Male		4.11	3.93	2320	60	25

Source: Authors' calculations based on NSSO (2023).

Appendix Table 3 *Estimated per capita nutritional norms, 2011–12*

Nutritional Norm	Rural	Urban
Energy requirement (kcal/day)	2243	2092
Protein requirement (gm/day)	49	51
Fat requirement (gm/day)	28	26
90 per cent of energy requirement (kcal/day)	**2018**	**1883**
90 per cent of protein requirement (gm/day)	**44**	**46**
90 per cent of fat requirement (gm/day)	**26**	**23**

Note: Expert Group (2014) argued that a deviation of 10 per cent will not affect nutrition adequacy and identified the section that met the lower bound of this range for poverty estimations.
Source: Appendix Table 2a.

Appendix Table 4 *Estimated consumption of specific nutrients by fractile groups of monthly per capita expenditure, 2011–12*

Fractile Group of MPCE (in per cent)	Energy (kcal/day)		Protein (gm/day)		Fats (gm/day)	
	Rural	Urban	Rural	Urban	Rural	Urban
0—5	1634	1638	43	44	21	**27**
5—10	1815	1756	**48**	**48**	**26**	34
10—15	1904	1838	51	50	29	38
15—20	1964	1872	52	51	31	41
20—25	1979	**1915**	53	53	33	43
25—30	**2039**	1969	55	54	35	46
30—35	2080	2033	56	55	37	49
35—40	2087	2050	56	57	39	51
40—45	2147	2104	58	57	41	54
45—50	2168	2130	59	58	43	55
50—55	2220	2167	60	59	45	57
55—60	2236	2231	61	61	46	60
60—65	2268	2244	62	62	49	63
65—70	2313	2286	63	63	51	64
70—75	2362	2389	64	65	53	68
75—80	2436	2431	67	67	56	72
80—85	2526	2491	70	68	60	72
85—90	2554	2586	71	71	63	79
90—95	2667	2805	74	77	69	87
95—100	3263	3190	91	86	92	100

Source: Authors' calculations based on NSSO (2013b).

Appendix Table 5 *Estimated expenditure on consumption categories by fractile groups of monthly per capita expenditure, 2011–12*, in rupees per month

Fractile Group of MPCE (in per cent)	Food		Essential Non-Food		Other Non-Food	
	Rural	Urban	Rural	Urban	Rural	Urban
0—5	316	415	54	83	152	203
5—10	401	533	71	112	195	264
10—15	452	600	80	144	218	312
15—20	493	656	88	181	235	344
20—25	516	**713**	99	204	261	**383**
25—30	**554**	769	102	242	**277**	415
30—35	586	822	111	271	293	465
35—40	612	889	120	310	314	492
40—45	640	919	132	364	333	538
45—50	678	977	**141**	**407**	347	571
50—55	710	1019	149	447	372	631
55—60	733	1096	166	507	402	661
60—65	775	1156	182	549	425	739
65—70	814	1210	195	634	461	808
70—75	861	1302	218	726	500	883
75—80	922	1384	241	831	550	1001
80—85	1002	1504	279	968	607	1129
85—90	1077	1650	340	1161	710	1375
90—95	1216	1946	442	1592	898	1812
95—100	1771	2859	834	3434	1877	3989

Source: Authors' calculations based on NSSO (2013b).

Appendix Table 6 *State-wise poverty lines, 2011–12* in rupees per month

State/Union Territory	Rural	Urban
All India	972	1502
Andaman and Nicobar Islands (U. T.)	1229	1845
Andhra Pradesh	1036	1475
Arunachal Pradesh	1132	1517
Assam	1023	1548
Bihar	976	1340
Chandigarh (U. T.)	1209	1577
Chhattisgarh	897	1314
Dadra and Nagar Haveli	1005	1669
Daman and Diu	1206	1552
Delhi	1353	1647

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Appendix Table 6 *(continued) State-wise poverty lines, 2011—12* in rupees per month

State/Union Territory	Rural	Urban
Goa	1166	1560
Gujarat	1134	1667
Haryana	1137	1637
Himachal Pradesh	985	1472
Jammu and Kashmir	982	1432
Jharkhand	940	1393
Karnataka	921	1491
Kerala	1031	1435
Lakshadweep (U. T.)	1166	1467
Madhya Pradesh	946	1455
Maharashtra	1084	1707
Manipur	1285	1732
Meghalaya	1124	1624
Mizoram	1159	1735
Nagaland	1279	1768
Odisha	878	1327
Puducherry (U. T.)	1070	1421
Punjab	1148	1604
Rajasthan	1059	1532
Sikkim	1090	1595
Tamil Nadu	989	1391
Tripura	912	1441
Uttar Pradesh	918	1446
Uttarakhand	984	1520
West Bengal	971	1501

Source: Authors' calculations based on NSSO (2013b).

Appendix Table 7 *Consumption of energy per capita by quartiles of monthly per capita expenditure, 2011–12 and 2022–23* in kcal per day

Quartiles of MPCE (in per cent)	Rural			Urban		
	2011—12	2022—23	% Change	2011—12	2022—23	% Change
0—25	1859	1811	—2.6%	1804	1821	1.0%
25—50	2104	2105	0.0%	2057	2085	1.4%
50—75	2279	2305	1.1%	2264	2300	1.6%
75—100	2690	2676	—0.5%	2701	2823	4.5%

Note: MPCE stands for Monthly Per Capita Expenditure.
Source: Authors' calculations based on NSSO (2024) and NSSO (2013b).

Appendix Table 8 *Per capita expenditure on non-food items by quartiles of monthly per capita expenditure, 2011–12 and 2022–23* in rupees per month

Quartiles of MPCE (in per cent)	Rural			Urban		
	2011—12	2022—23	% Change	2011—12	2022—23	% Change
0—25	290	913	214%	446	1498	236%
25—50	434	1383	219%	815	2490	206%
50—75	614	1951	218%	1317	3749	185%
75—100	1355	3846	184%	3458	7978	131%

Note: MPCE stands for Monthly Per Capita Expenditure.
Source: Authors' calculations based on NSSO (2024) and NSSO (2013b).

Appendix Table 9 *Per capita consumption of fats per calorie by quartiles of monthly per capita expenditure, 2011–12 and 2022–23* in grams per day

Quartiles of MPCE (in per cent)	Rural			Urban		
	2011—12	2022—23	% Change	2011—12	2022—23	% Change
0—25	0.015	0.022	45.5%	0.020	0.026	29.9%
25—50	0.019	0.025	32.7%	0.025	0.030	18.8%
50—75	0.021	0.027	24.2%	0.028	0.032	14.3%
75—100	0.025	0.029	15.5%	0.030	0.033	9.0%

Note: MPCE stands for Monthly Per Capita Expenditure.
Source: Authors' calculations based on NSSO (2024) and NSSO (2013b).

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