EAC-PM Working Paper Series

EAC-PM/WP/30/2024

Changes in India's Food Consumption and Policy Implications:

A Comprehensive Analysis of Household Consumption Expenditure Survey 2022-23 and 2011-12

Mudit Kapoor[1]
Shamika Ravi[2]
Dr Sankar Rajan[3]
Dr Gaurav Dhamija[4]
Dr Neha Sareen[5]

[1] Economics and Planning Unit (EPU) & Member at Center for Research on the Economics of Climate, Food, Energy and Environment (CECFEE), Indian Statistical Institute, Delhi Center.

[2] Economic Advisory Council to Prime Minister of India

[3] Independent Consultant, Center for Research on the Economics of Climate, Food, Energy and Environment (CECFEE) at the Indian Statistical Institute, Delhi Center.

[4] Indian Institute of Technology (IIT) Hyderabad.

[5] Center for Research on the Economics of Climate, Food, Energy and Environment (CECFEE) at the Indian Statistical Institute, Delhi Center.

Table of Contents

Executive Summary

Significant changes are unfolding in India's food consumption pattern, with serious implications for our national agriculture, health, nutrition, and overall welfare policies that target poorer sections of society. The changing consumption basket of Indians will also impact the calculation of the Consumer Price Index in the future. A comprehensive analysis of the Household Consumption Expenditure Survey 2022–23 and comparisons with 2011–12 reveal striking changes in food consumption patterns over the last ten years, with potential implications for health outcomes. This comprehensive study is presented in four chapters.

Overall, there has been a ***significant increase in households' average monthly per capita expenditure across rural and urban India across all states and UTs***. The magnitude of the rise is substantial but varies across states and regions. For example, among rural areas, West Bengal has seen a consumption expenditure growth of 151%, while during the same period, Tamil Nadu witnessed a growth of approximately 214%. The small state of Sikkim saw consumption expenditure growth of a massive 394%. Overall, we find that growth for rural households was higher than for urban households, 164% for rural households versus 146% for urban households.

The share of total household expenditure on food has declined substantially in rural and urban areas and across all states and UTs. It is the *first time in modern India (post-independence) that average household spending on food is less than half the overall monthly spending* of households and is a marker of significant progress.

Within food items, ***the share of expenditure on cereal has declined significantly across rural and urban areas***. However, this decline was more substantial for the bottom 20% of the households in rural and urban areas. In all likelihood, this *reflects the effectiveness of the government's food security policies*, which provide free foodgrains to large numbers of beneficiaries across all states of the country, with a particular focus on the vulnerable bottom 20% of households.

Significant changes in the food composition of household expenditure have implications for agriculture policy and the country's health and nutrition policies. As household demand shifts and supply factors improve, *the government should continue to support agricultural policies*

that promote the production and accessibility of diverse food items, mainly fruits, vegetables, and animal-source foods. Agriculture policies will have to be tailored beyond cereals, whose consumption is declining across all wealth classes of society. At the same time, support policies like MSP, which overwhelmingly targets cereal procurement, will have a limited impact on the welfare of farmers.

These changes in the composition of household expenditure reflect changes in household demand and as well as notable improvements in supply factors, such as infrastructure, better storage, and efficient transportation, which have expanded the markets for perishable items such as fresh fruits, milk & milk products, eggs, fish, and meat, making them more accessible and affordable across all regions of India.

Across regions and consumption classes, we observe a significant ***increase in the share of household expenditure on served and packaged processed food***. This increase was universal across the classes but more pronounced for the country's top 20% of households and significantly more in urban areas. While food processing is a growth sector and a significant creator of jobs, this rising consumption of processed and packaged food will also likely affect health outcomes. Further research is needed to understand the nutritional implications of the growing consumption of packaged processed foods. Policies may be required to regulate the nutritional content of these foods and promote healthier alternatives.

The *significant decline in the share of cereals in household expenditure has allowed households to diversify their diets, with increased spending on milk & milk products, fresh fruits, and eggs, fish & meat*. This phenomenon was more pronounced for the bottom 20% of the households. Such schemes like PMGKAY, which provides *free food grains to approximately 800 million eligible people across the country, seem to have performed the role of an expansionary fiscal policy where households are spending their 'saved expenditure' from cereals on diverse food items like fresh fruits, milk & milk products, eggs, fish & meat etc*.

Beyond rising expenditure on diverse food items, we also analyze the *change in actual quantities (in kg) of various food items at the per capita household level*. We observed a

significant decline in cereals' average per capita[6] consumption (amount in Kg) across consumption classes and states/UT from 2011–12 to 2022–23 and across rural and urban areas. *For fresh fruits, milk & milk products, and eggs, fish & meat, a higher proportion of households consumed these products across all wealth classes and all states - and the average per capita consumption quantity also increased significantly* from 2011–12 to 2022–23. ***The results suggest an increase in dietary diversity of the household, which is marked by a shift away from cereal-based consumption towards a diet that includes fruits, milk & milk products, eggs, fish & meat.*** This is likely to have a crucial impact on health outcomes in the country. The most profound increase was for the bottom 20% of the households in rural and urban areas.

Seasonality in the consumption of certain food items has reduced significantly. This means that the variations in consumption across months have fallen for all classes of people. Compared to 2011–12, the month-to-month fluctuations in household consumption in 2022–23 have reduced. This suggests significant improvements in the availability, accessibility, and affordability of fresh fruits throughout the year and across all parts of the country, including remote regions. This is also the case for milk and milk products and eggs, fish and meat consumption.

The National Institute of Nutrition has published the Indian Food Conversion Table. Using this, **per capita micronutrient intake (in terms of adult female equivalent), iron, Zinc, folate, vitamin A, vitamins B1, B2, B3, B6, B12, vitamin C, and Calcium have been estimated**. The *estimated average daily intake of micronutrients* varied across consumption classes and states.

A dietary diversity index has been constructed using the micronutrient intake from various food categories. While cereal consumption has declined, leading to a decrease in micronutrients like iron and Zinc, there's been a significant improvement in dietary diversity across consumption classes and states. The increase in dietary diversity is linked to better infrastructure and access to a wider variety of foods. *An encouraging finding is the bottom 20% of households and the Northeastern states have shown the most significant gains in dietary diversity.*

[6] Our per capita measures are in terms of Adult Female Equivalent (AFE). A discussion regarding this is provided in Chapter 2.

We observed ***significant variations from the mean and the median in the average daily intake of micronutrients and dietary diversity within consumption classes and states/UTs***. This has important policy implications, as the impact will not necessarily be uniform. For example, government intervention to improve the average iron intake in the population could target the bottom 20%. Yet, the programme's impact could be very different depending on who the beneficiaries are within this subgroup. Significant proportions of people, even in the wealthier classes, have deficient iron intake in their diet. Therefore, policy interventions affecting micronutrient intake must be carefully calibrated and well-targeted.

Next, we analyze the relationship between nutritional intake and dietary diversity on health outcomes, particularly the prevalence of Anaemia. As expected, we found that *average Iron intake was inversely related to the prevalence of Anaemia*; however, we discovered a significant negative relationship between the prevalence of Anaemia and dietary diversity in sources of iron. This strong inverse relationship was observed across state/UTs and the NSS regions. ***Our analysis reveals that policies that aim to reduce anaemia among children and women would need to focus on improving iron intake and, more importantly, consider the dietary diversity of iron sources.***

An implication of this is that economic growth and development, which improve the dietary diversity of the household, can play an instrumental role in reducing the prevalence of Anaemia among children and women across India. Despite our numerous attempts to raise iron intake among the population, measures of Anaemia have not improved adequately. This compels us to think of the widespread appeal - yet limited impact - of universal fortification of cereals to improve iron intake and reduce the incidence of Anaemia in India. While such a program has a natural appeal due to the simplicity of implementation, we must acknowledge the empirical finding that a significant impact on reducing Anaemia might be achieved by pushing policies that promote dietary diversity at the household level.

The report also highlights some additional considerations. The report acknowledges the limitations of excluding served and packaged processed food from the micronutrient analysis. A separate study on this aspect is recommended due to its potential health implications. The study's focus on dietary diversity and its impact on Anaemia provides a valuable perspective for policymakers. However, further research could explore the relationship between dietary diversity and other health outcomes. The report's findings on the variations in micronutrient

intake and dietary diversity within populations emphasize the need for context-specific interventions. Understanding the specific needs and challenges of different groups is crucial for effective policy implementation.

Overall, the report provides valuable insights into India's evolving food consumption and nutrition landscape. The findings emphasize the importance of dietary diversity in improving nutritional outcomes and reducing Anemia prevalence. The study's policy implications highlight the need for a multi-faceted approach that addresses food security and nutrition through agricultural policy, nutrition interventions, and targeted programs.

Introduction

The Household Consumption Expenditure Survey (HCES) provides us with a detailed expenditure pattern of Indian households on three broad categories of items: (a) food, (b) consumables and services, and (c) durable goods. This report comprehensively analyzes household expenditure patterns using unit-level data from the HCES for 2011–12 and 2022–23, focusing on food.

The primary objective of this report is (i) to contrast the changes in the expenditure pattern from 2011–12 to 2022–23 and also highlight the variations across states, (ii) to focus on what households eat and how this has changed from 2011-12 to 2022–23, with particular emphasis for the poorest 20% of the household, (iii) to highlight seasonal variations in expenditure patterns of the household for food items, (iv) we also convert the detailed household food items from 2022–23 into its micronutrient components (such as Iron, Zinc, folate, Vitamin A, Vitamin B6, etc.) to understand patterns in micronutrient intake across states, consumption class, etc., (v) using detailed micronutrient intake from various food items we construct a dietary diversity index for the household, and (vi) lastly we correlate the average micronutrient intake at the state level such as Iron, and the dietary diversity source of the micronutrient to the prevalence of Anaemia in children (6 to 59 months) and women (15 to 49 years).

This comprehensive analysis helps us understand the implications of the significant changes in household consumption patterns on agricultural policy, food security, and infrastructure improvements on changing household expenditure patterns. Furthermore, a detailed analysis of households' food intake regarding dietary diversity and its micronutrient components has important implications for nutrition and micronutrient policy.

Data

This report exploits the unit-level data from the National Sample Survey (NSS) 68th round Type 2, conducted in 2011-12, and the Household Consumption Expenditure Survey (HCES) conducted in 2022–23. In both surveys, a detailed questionnaire of items that households typically spend money on was prepared.

There are four components of the survey:

(i) Household characteristics, where detailed information on household members, such as gender and age, is collected. Detailed information on which state the household belongs to, whether it resides in a rural or urban area, and the religion and social group of the household are collected. Survey weights are assigned based on the information on the listing of households from the latest census to capture the representativeness of the household.

(ii) The survey elicited detailed information on household expenditure on food items, such as cereals, milk & milk products, pulses, vegetables, eggs, fish, & meat, fresh fruits, dry fruits, edible oil, salt & sugar, spices, beverages, served processed food, and packaged processed food. Detailed data on sub-items was also collected for each of these broad items. For example, spending on cereals was further subdivided into rice, wheat, coarse grains, etc. In HCES [2022–23], detailed data on each sub-item was collected for ten states (Rajasthan, Punjab, Haryana, Gujarat, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Telangana and Uttar Pradesh) that consume high quantities of coarse grains such as ragi, jowar, bajra, millet, etc. Broadly, the survey has been inclusive regarding food items to capture the geographical diversity of eating habits across the country. The survey not only captured data on expenditure but also reported the quantities that were consumed by the household. Therefore, detailed data on the consumption of goods that were either home-produced or freely provided by the government was also captured in the survey. Both these surveys followed a mixed method recall, whereby for some food items, such as cereals, a 30-day recall was used, while for fresh fruits, a 7-day recall was used. It is also important to mention that in terms of food items, the NSS 68th round 2011–12 is very similar to HCES 2022–23, except for milk & milk products where in 2011–12 a 30-day recall period was used while in 2022–23 a 7-day recall period was used. Furthermore, the survey also provided data on the quantity and expenditure of food items from the Public Distribution System (PDS).

(iii) Data on consumables and services was collected. These items typically include medical expenditure, education, conveyance, expenditure on fuel & light, pan, tobacco, & intoxicants, etc. As in food items, mixed recall methods were used; for example, medical expenditure related to hospitalization was collected on a 365-day recall, whereas medical spending that did not require hospitalization was collected based on a 30-day recall. Pan, tobacco & intoxicants-related expenditure was collected based on a 7-day recall.

(iv) Data on durable items such as clothing, bedding, footwear, furniture, household appliances, etc., was collected on a 365-day recall.

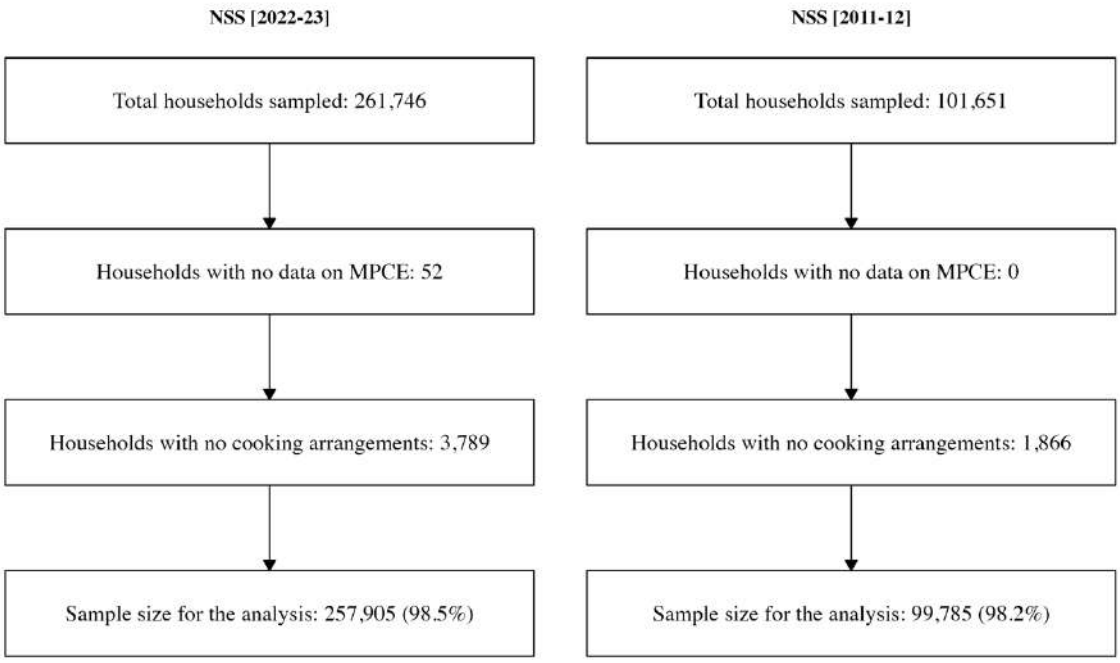
However, in 2022–23, the households were not surveyed in a single sitting to improve the data quality regarding the response rate. Instead, the households were visited three times. In the first visit, data on household characteristics was always collected. However, the food, consumables and durable goods surveys were randomized across the first and the subsequent two visits across the two successive months. The sequence of the survey was randomly determined for each household. Furthermore, the interviewing methodology was based on computer-assisted personal interviewing (CAPI).

A stratified two-stage sampling methodology was adopted to make the survey representative. The geographical coverage of the survey was all over India except for a few villages in the Andaman and Nicobar Islands. The survey duration was one year. For NSS 2011–12, it started in July 2011 and ended in June 2012, while for HCES, the survey was started in August 2022 and ended in July 2023.[7]

In HCES 2022–23, 261746 households were surveyed, while in NSS 2011–12, 101651 households were surveyed. To analyze the food intake and micronutrient data, we consider only those households with a cooking arrangement (typically, more than 98% of the households have cooking arrangements). The data inclusion is presented in the following figure 1.

[7] The survey questionnaire and Detailed survey methodology and estimation procedure for HCES 2022–23 can be accessed from the following link https://microdata.gov.in/nada43/index.php/catalog/194. For NSS 2011–12, same information can be accessed from the following link https://microdata.gov.in/nada43/index.php/catalog/126.

Figure 1: Sample Size



Chapter 1: Broad Changes in Household Consumption Expenditure from 2011–12 to 2022–23

Changes in Monthly Per-capita Expenditure (MPCE)

Our first set of results relates to changes in average monthly per capita expenditure (MPCE). Rural MPCE has increased from rupees 1,430 in 2011–12 to 3,773 in 2022–23, a growth of approximately 164%. However, there are significant variations across states. For example, West Bengal in the eastern region has grown from 1,291 in 2011–12 to 3,240 in 2022–23, a growth of approximately 151%, while during the same period in Tamil Nadu, the average MPCE in rural areas increased from 1,693 to 5,314, a growth of approximately 214%. The analysis suggests that the smaller northeastern state Sikkim has grown by 394% in terms of MPCE, which increased from 1,565 in 2011–12 to 7,730 in 2022–23.

In urban areas, the average MPCE grew from rupees 2,630 in 2011–12 to 6,459 in 2022–23, a growth of approximately 146%. Similar to rural areas, we found variations across states. For example, the average MPCE in Gujarat grew from 2,581 to 6,620 during the same period, a growth of approximately 156%, while for the central state of Uttar Pradesh, it grew from 2,051 to 5,042, an increase of roughly 146%. Similar to rural areas, the analysis for urban households suggests that the smaller northeastern state Sikkim has grown by 364% in terms of MPCE, which increased from 2,608 in 2011–12 to 12,106 in 2022–23.

Overall, we find that growth for rural households was higher than for urban households, 164% for rural households versus 146% for urban households.

The results are presented in Figures 2a & 2b.

Figures 2a:

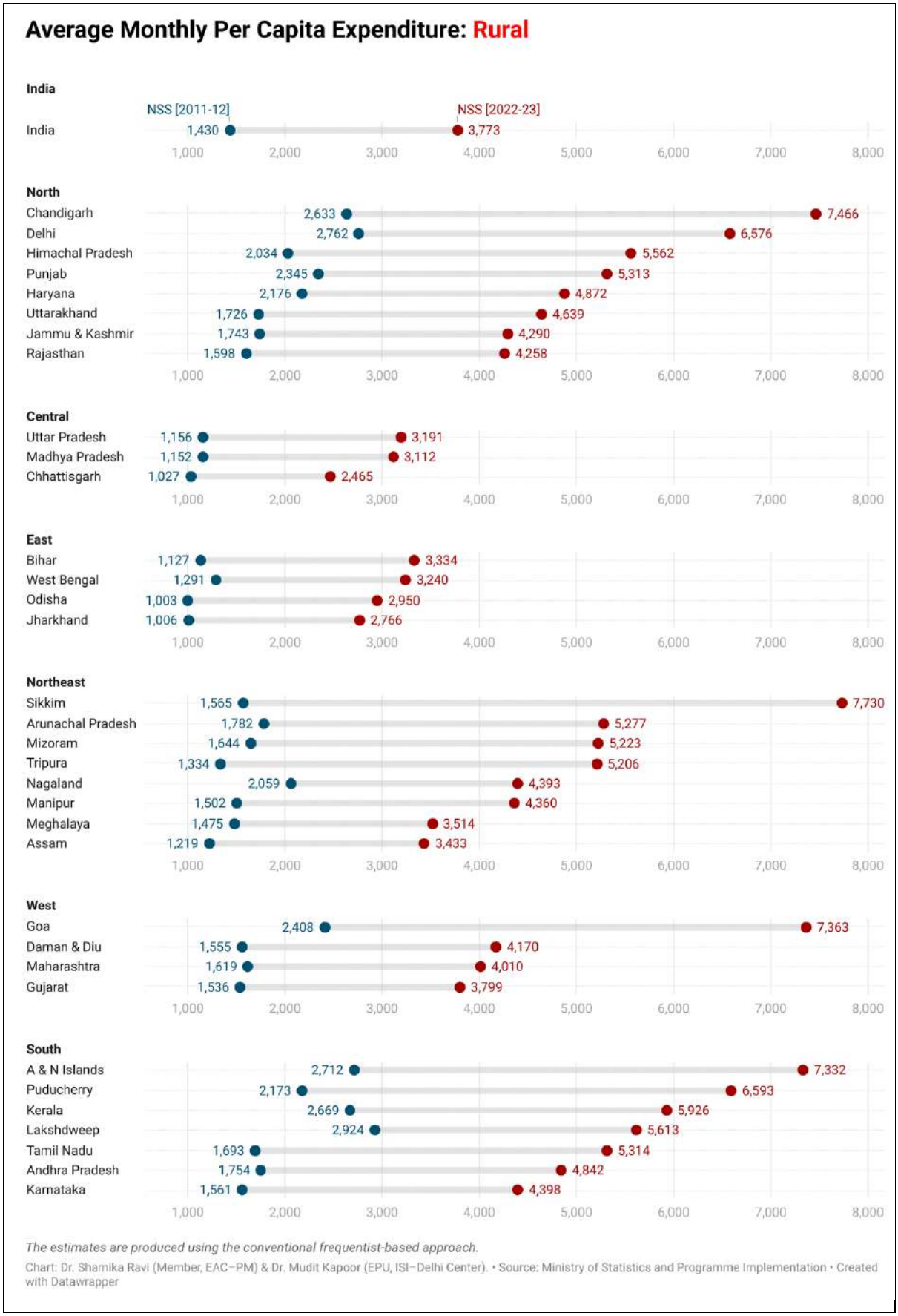
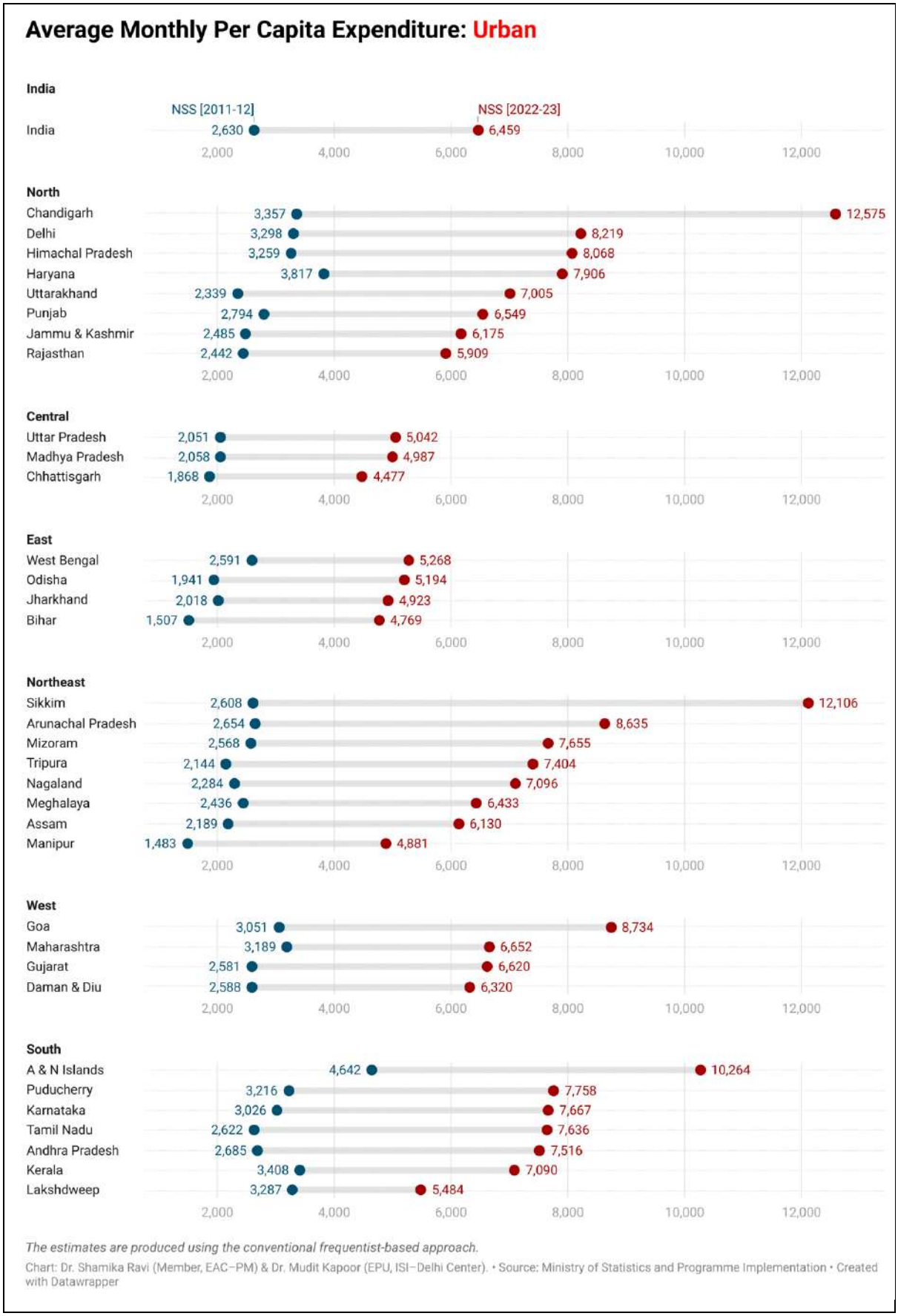

Average Monthly Per Capita Expenditure: Rural
India
NSS [2011-12]
NSS [2022-23]
India 1,430 3,773
North
Chandigarh 2,633 7,466
Delhi 2,762 6,576
Himachal Pradesh 2,034 5,562
Punjab 2,345 5,313
Haryana 2,176 4,872
Uttarakhand 1,726 4,639
Jammu & Kashmir 1,743 4,290
Rajasthan 1,598 4,258
Central
Uttar Pradesh 1,156 3,191
Madhya Pradesh 1,152 3,112
Chhattisgarh 1,027 2,465
East
Bihar 1,127 3,334
West Bengal 1,291 3,240
Odisha 1,003 2,950
Jharkhand 1,006 2,766
Northeast
Sikkim 1,565 7,730
Arunachal Pradesh 1,782 5,277
Mizoram 1,644 5,223
Tripura 1,334 5,206
Nagaland 2,059 4,393
Manipur 1,502 4,360
Meghalaya 1,475 3,514
Assam 1,219 3,433
West
Goa 2,408 7,363
Daman & Diu 1,555 4,170
Maharashtra 1,619 4,010
Gujarat 1,536 3,799
South
A & N Islands 2,712 7,332
Puducherry 2,173 6,593
Kerala 2,669 5,926
Lakshdweep 2,924 5,613
Tamil Nadu 1,693 5,314
Andhra Pradesh 1,754 4,842
Karnataka 1,561 4,398
1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000
The estimates are produced using the conventional frequentist-based approach.
Chart: Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center). • Source: Ministry of Statistics and Programme Implementation • Created with Datawrapper

Figure 2b:


Average Monthly Per Capita Expenditure: Urban
India
NSS [2011-12]
NSS [2022-23]
India 2,630 6,459
North
Chandigarh 3,357 12,575
Delhi 3,298 8,219
Himachal Pradesh 3,259 8,068
Haryana 3,817 7,906
Uttarakhand 2,339 7,005
Punjab 2,794 6,549
Jammu & Kashmir 2,485 6,175
Rajasthan 2,442 5,909
Central
Uttar Pradesh 2,051 5,042
Madhya Pradesh 2,058 4,987
Chhattisgarh 1,868 4,477
East
West Bengal 2,591 5,268
Odisha 1,941 5,194
Jharkhand 2,018 4,923
Bihar 1,507 4,769
Northeast
Sikkim 2,608 12,106
Arunachal Pradesh 2,654 8,635
Mizoram 2,568 7,655
Tripura 2,144 7,404
Nagaland 2,284 7,096
Meghalaya 2,436 6,433
Assam 2,189 6,130
Manipur 1,483 4,881
West
Goa 3,051 8,734
Maharashtra 3,189 6,652
Gujarat 2,581 6,620
Daman & Diu 2,588 6,320
South
A & N Islands 4,642 10,264
Puducherry 3,216 7,758
Karnataka 3,026 7,667
Tamil Nadu 2,622 7,636
Andhra Pradesh 2,685 7,516
Kerala 3,408 7,090
Lakshdweep 3,287 5,484
2,000
4,000
6,000
8,000
10,000
12,000
The estimates are produced using the conventional frequentist-based approach.
Chart: Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center). • Source: Ministry of Statistics and Programme Implementation • Created with Datawrapper

Decomposition of the Household Consumption Expenditure

Before we proceed with the analysis, it is essential to highlight that from now on, the per-capita analysis will proceed in terms of adult female equivalent (AFE). The intention for this is that there is a possibility that household composition in terms of gender and age might differ significantly across states and also over time. For example, two households may have the same number of adults, but the gender composition might differ. If we were to analyze per capita, there would be no difference in household structure. However, if we incorporate the differences in gender and age in terms of energy requirements, then the two households would be different. We exploit the information on household structure in terms of gender, age, and if there are children under the age of 2 in the household to construct for each household member the adult female equivalent in terms of energy requirement and use this information to construct the household size in terms of adult female equivalent.

The next set of results is based on estimates of the aggregates of household consumption expenditure.

Our analysis reveals that food as a share of the monthly consumption expenditure has fallen below 50%, which has happened for the first time in modern India. It is a noteworthy development and a marker of progress for India. This phenomenon is true for the country's rural and urban populations. For rural households, it declined from 53.0% in 2011–12 to 46.5% in 2022–23. This was primarily driven by the significant decline in the share of cereals from 10.7% in 2011–12 to 4.9% in 2022–23. *This decline in expenditure share is driven mainly by the free provision of wheat and rice under different schemes by the central and state governments*. Moreover, later in the study, we also show that, on average, there is a real and significant decline in the quantity of cereal consumed by households.

We also observed a decrease in the share of vegetable expenditure during the same period. However, in food items, we observe a marginal increase in household expenditure on Milk & Milk products, fresh fruits, and egg, fish & meat, which suggests that growth in consumption of these items has kept pace with growth in the overall household expenditure. Perhaps these changes reflect both demand and supply factors.

An increase in the share of consumables and services compensates for the decline in the share of food items. Within this category, the most significant increase has been the increase in the

share of expenditure on conveyance (which includes spending on diesel and petrol) from 4.2% in 2011–12 to 7.5% in 2022–23. It is also interesting to note that during this period, the share of expenditure on pan, tobacco, and intoxicants has increased collectively from 2.7% to 3.2%. A rural household in 2022–23 typically spent more on these items than fresh fruits. Another notable change is the increase in the share of expenditure of rural households on beverages, served and packaged processed food from 2011–12 to 2022–23.

Like rural households, urban households' share of food expenditure declined from 42.7% to 39.2% from 2011–12 to 2022–23. The most noticeable decline was in the share of spending on cereals, which declined from 6.6% to 3.6% during the same period. We also observed a decrease in the share of expenditure on vegetables. In contrast, the share of milk & milk products marginally increased, and for fresh fruits, eggs, fish & meat it remained somewhat similar at 2.5% and 3.6%, respectively. However, it is essential to note that the share of packaged processed food has increased from 2.3% in 2011–12 to 3.2% in 2022–23.

We also witnessed an increase in the share of expenditure on consumables and services from 45.4% to 48.2% from 2011–12 to 2022–23, and this was primarily driven by an increase in the share of expenditure on conveyance from 6.5% to 8.6% during the same period. The results are presented in Figures 3a & 3b.

Bottom 20%, Rural and Urban

We also analyzed the results of the change in the decomposition of household expenditure for the bottom 20% of households[8] in rural and urban areas.

We found a very sharp decline in the share of the expenditure on food items among rural households, from 59.6% to 53.1% from 2011–12 to 2022–23. This decline was primarily driven by a decrease in the share of expenditure on cereals from 15.6% to 6.6%. We also observed a decline in the share of spending on vegetables from 8.5% to 7.1%. However, during the same period, we observed an increase in the share of expenditure on (a) milk & milk products from 6.3% to 8.6%, (b) eggs, fish & meat from 3.9% to 5.3%, and (c) fresh fruits from 1.4% to 2.2%. However, during the same period, the share of expenditure on packaged processed food increased from 1.8% to 3.1%.

[8] We consider the bottom 20% households in each state separately.

Overall, we observed an increase in the share of expenditure on consumables & services from 30.6% to 35.9%, mainly driven by growth in the share of spending on conveyance from 2.4% to 5.8%. It is also interesting to note that there has been an overall increase in the share of expenditure on durable items from 9.7% to 11.0%, with the share of spending on jewellery & ornaments increasing from 0.1% to 0.7% from 2011–12 to 2022–23.

We observed similar patterns of change in the composition of household expenditure for urban households. A notable decline was in the share of spending on cereal from 12.3% to 5.4% and vegetables from 7.3% to 5.8%. The share of expenditure increased for (a) milk & milk products from 7.5% to 8.5%, (b) eggs, fish & meat from 4.4% to 5.2%, and (c) fresh fruits from 2.0% to 2.5%. However, during the same period, the share of expenditure on packaged processed food also increased from 2.0% to 3.2%.

We also observed a notable increase in the share of expenditure on consumables and services, primarily driven by growth in the share of conveyance from 2.9% to 7.1%.
These results are presented in Figures 3c & 3d.

Figure 3a: Decomposition of Monthly Consumption Expenditure of Rural Households

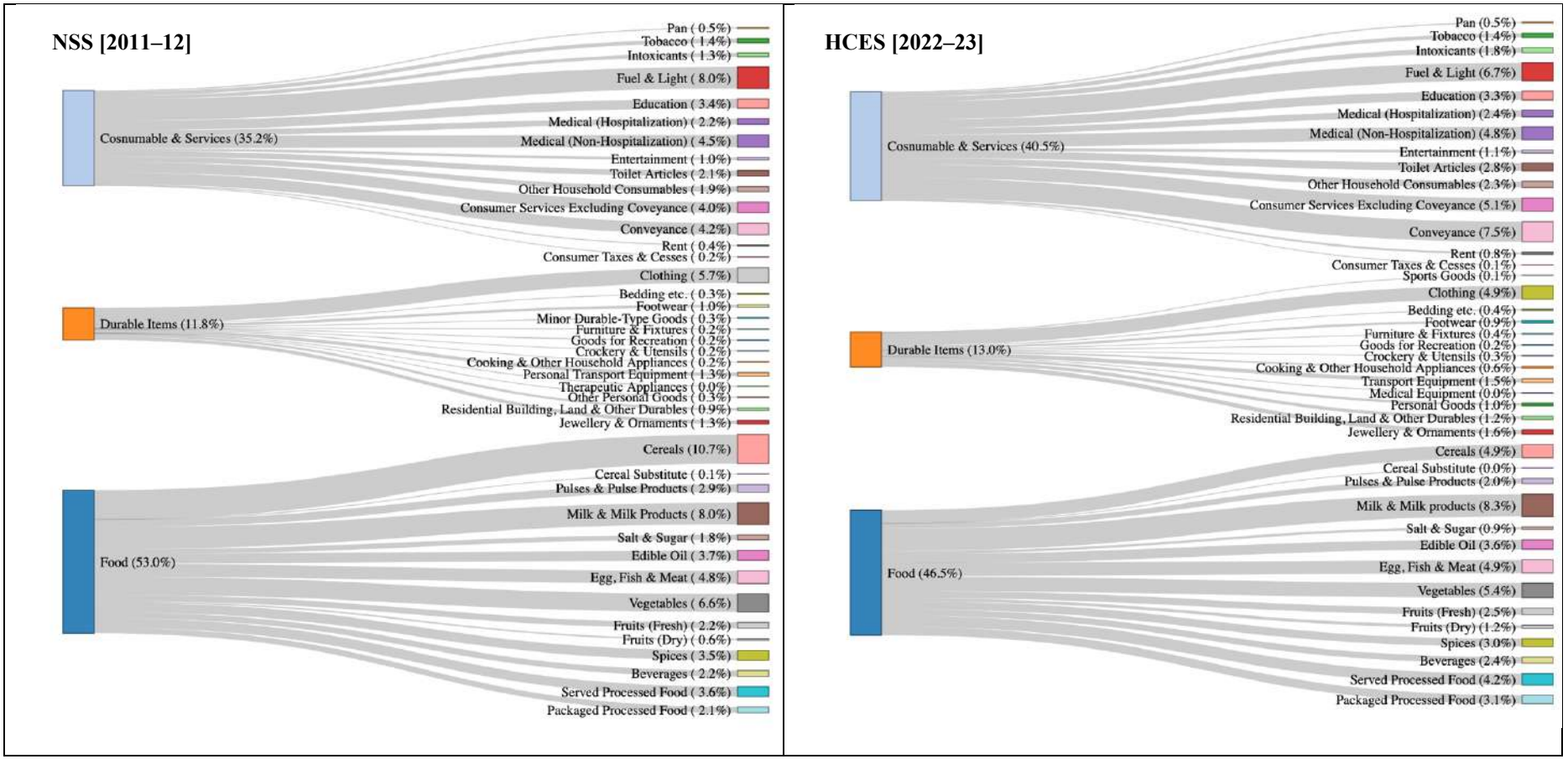


Figure 3b: Decomposition of Monthly Consumption Expenditure of Urban Households

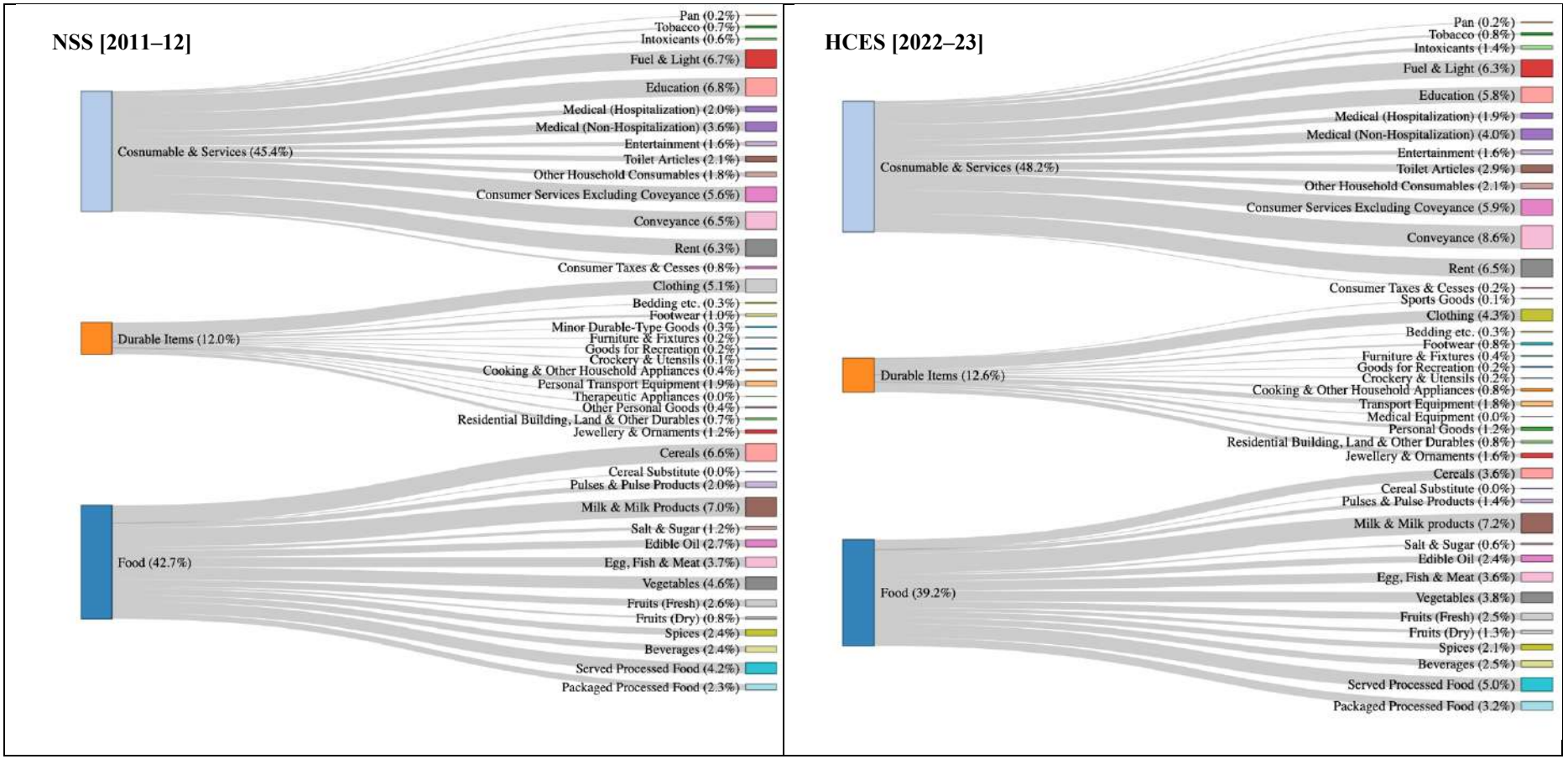


Figure 3c: Decomposition of monthly Consumption Expenditure of Bottom 20% of Rural Households

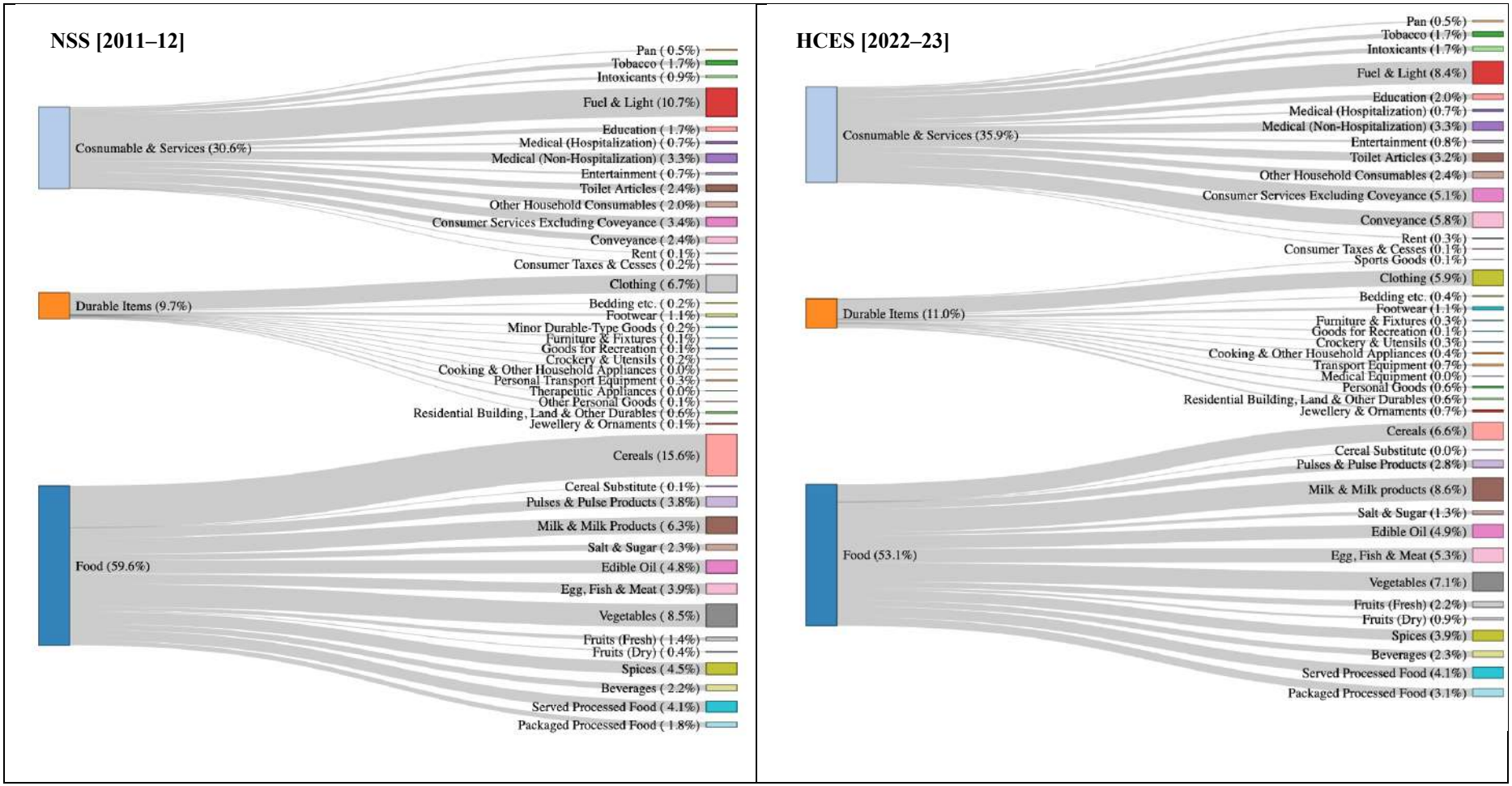
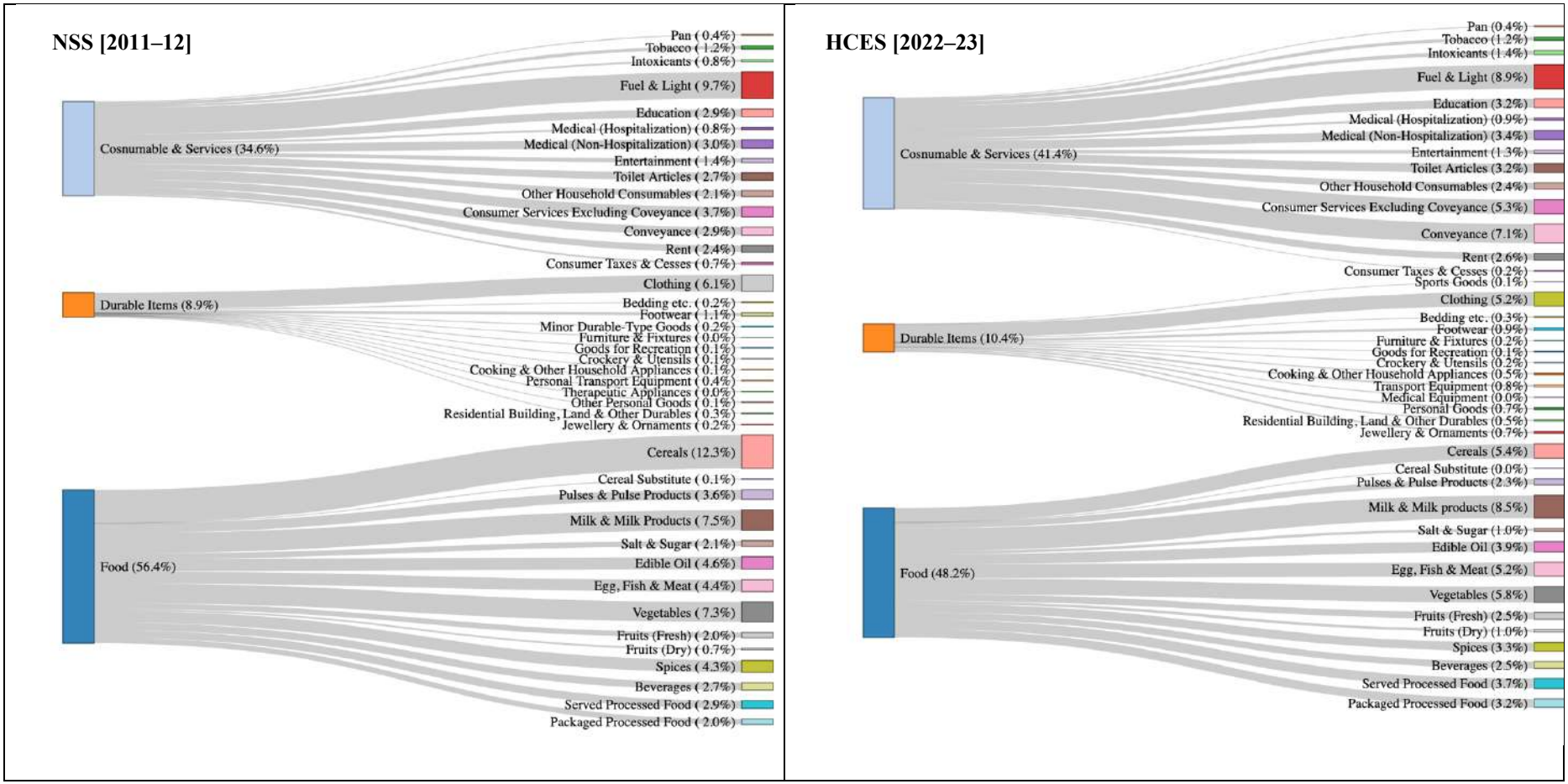


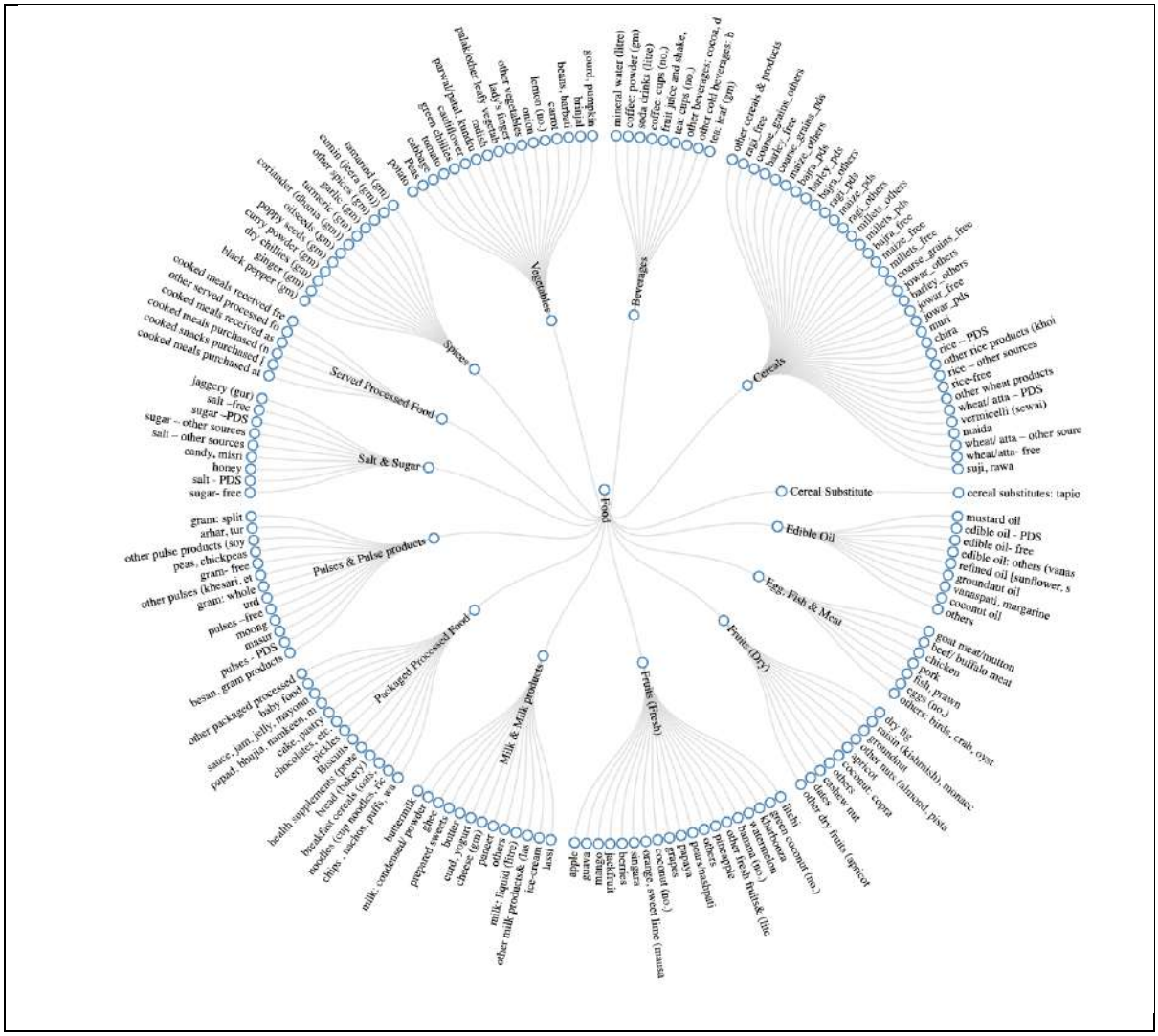
Figure 3d: Decomposition of Monthly Consumption Expenditure of Bottom 20% of Urban Households



Analysis of the Food Survey

So far in the analysis, we have considered expenditure by aggregating across all the households. From now on, we will use the unit-level data to estimate expenditure at the household level and then compute the weighted average across all the households using the sample weights provided in the survey. Before we proceed, it is vital to highlight that HCES collects data on more than 175 food items. The food items for which data is collected are presented in the following chart, Figure 4.

Figure 4: Food Items



Share of Food Expenditure in Total Household Consumption Expenditure

In the next part of the analysis, we depart from aggregate household expenditure across all households and focus on the household. In particular, we compute the proportion of food

expenditure to total household spending for each household for 2011–12 and 2022–23. We use this ratio across the households to compute the average ratio of household expenditure to total expenditure. We compute this for rural and urban areas and repeat the same analysis for states and Union Territories (UTs). We then extend this analysis to the Bottom 20% of the households in each state. We found that across the households in rural areas, the average share of food expenditure to total expenditure declined from 55.7% in 2011 to 12 to 48.6%. We also observed that this decline varied across the states and UTs. For example, in Tamil Nadu in the southern region, the average share declined by 10.2 percentage points from 55.4% in 2011–12 to 44.2% in 2022–23. However, for Punjab in the northern region, it declined by 4.2 percentage points from 48.3% in 2011–12 to 44.1% in 2022–23.

In urban areas, we saw an overall decline in the average share of household expenditure on food from 48% to 41.9%. Similar to rural areas, there were significant variations across the states and UTs. For example, in the northern region, the sharpest decline was in Uttarakhand, with a 9.6 percentage points reduction from 49.1% in 2011–12 to 39.5% in 2022–23. However, in the northeast, in Meghalaya, there was only a marginal decline from 43.4% to 42.5% during the same period. These results are reported in Figures 5a and 5b.

When we limit our attention to the Bottom 20% of rural households across states, we found a decline in the average share of food expenditure by 6.5 percentage points from 59.6% in 2011–12 to 53.1% in 2022–23. However, there was significant variation across states and UTs. For example, among the large states, the average share of food expenditure declined by 10.6 percentage points from 59% in 2011–12 to 48.4% in 2022-23. However, the average share fell by 4.5 percentage points during the same period, from 63.3% in 2011–12 to 58.8% in 2022–23. These results are presented in Figure 5c.

For urban households, we found a decline in the average share of household expenditure on food items by 8.1 percentage points from 56.9% in 2011-12 to 48.9% in 2022–23. Similar to rural areas, there was wide variation across states. One of the sharpest declines was observed in the eastern region of Odisha, a fall of 10.7 percentage points from 61.4% in 2011–12 to 50.8%. However, in Bihar, there was a 3.6 percentage point decline from 60.8% to 57.2% during the same period. The results are presented in Figure 5d.

Figure 5a: Change in the Share of Food Expenditure for Rural Households across States

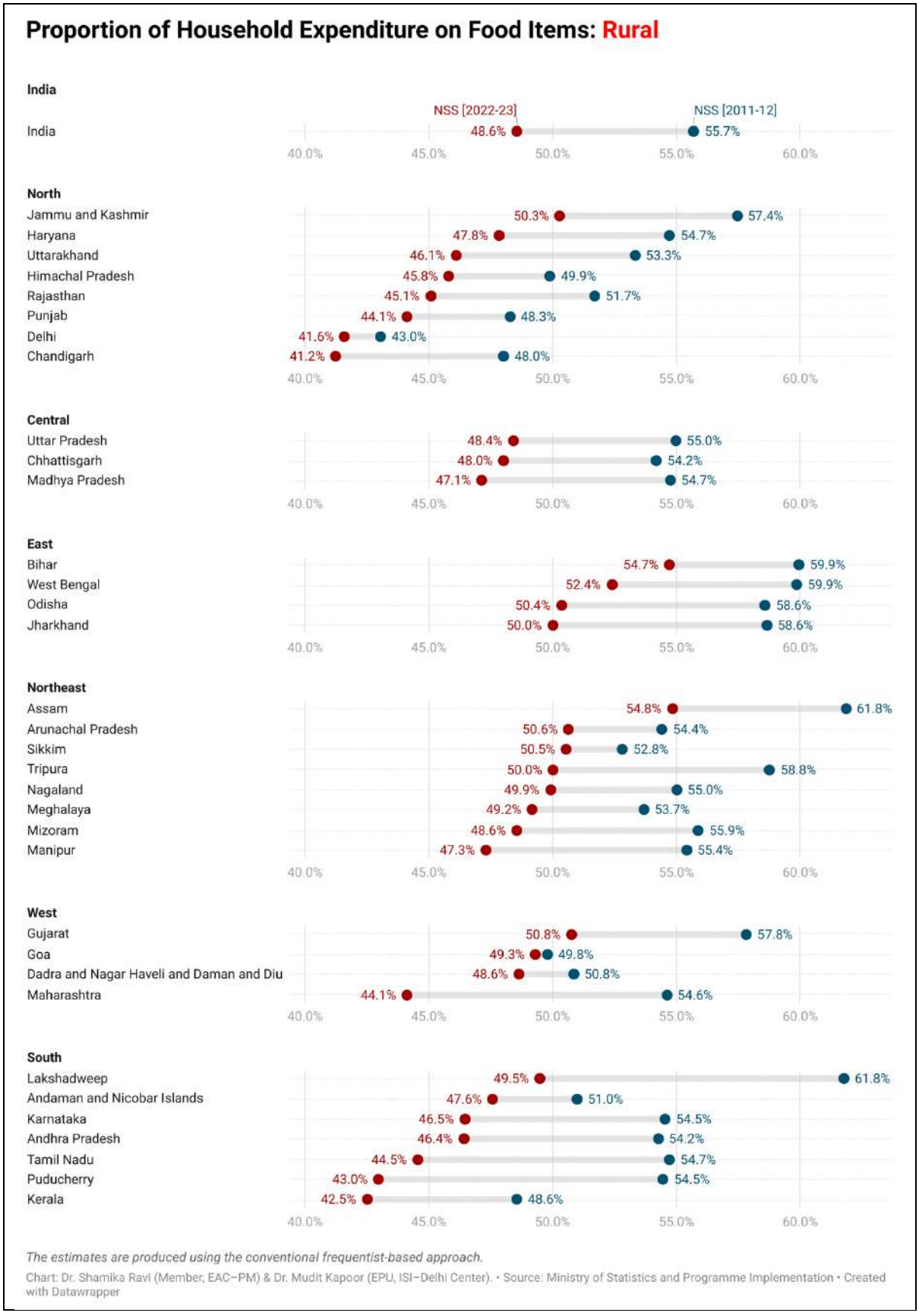


Figure 5b: Change in Share of Food Expenditure for Urban Households across States

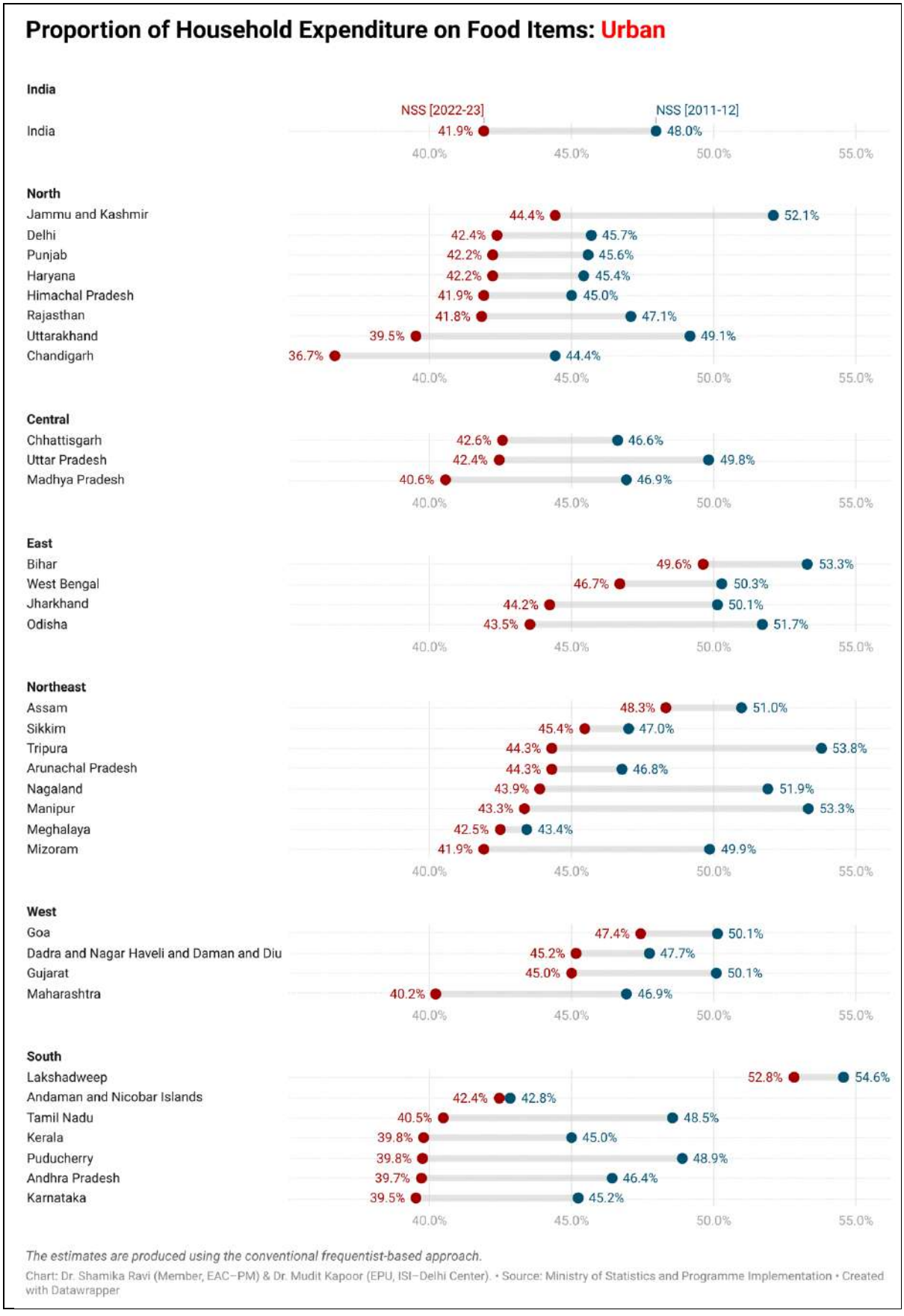


Figure 5c: Change in Share of Food Expenditure for Bottom 20% of Rural Households

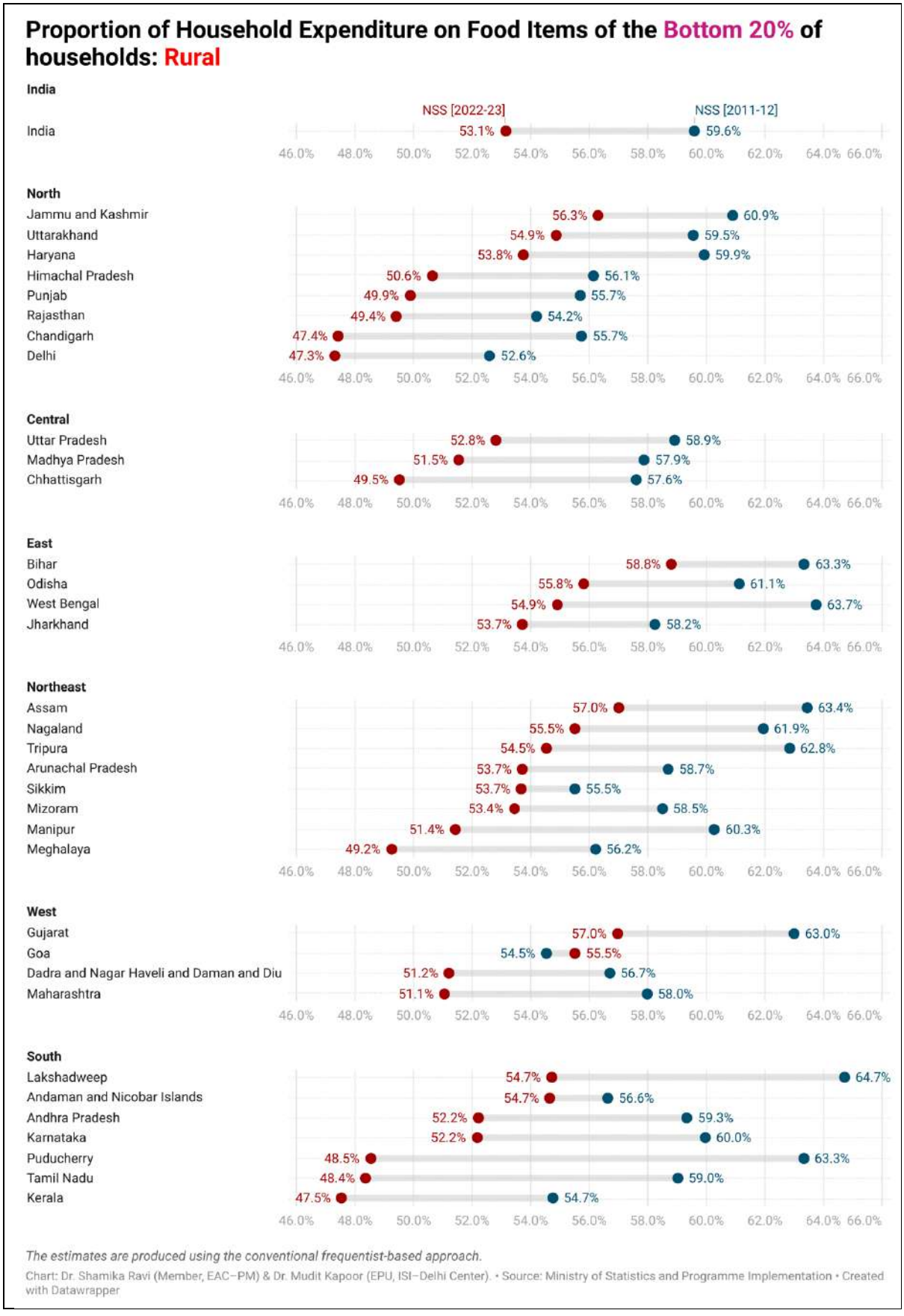
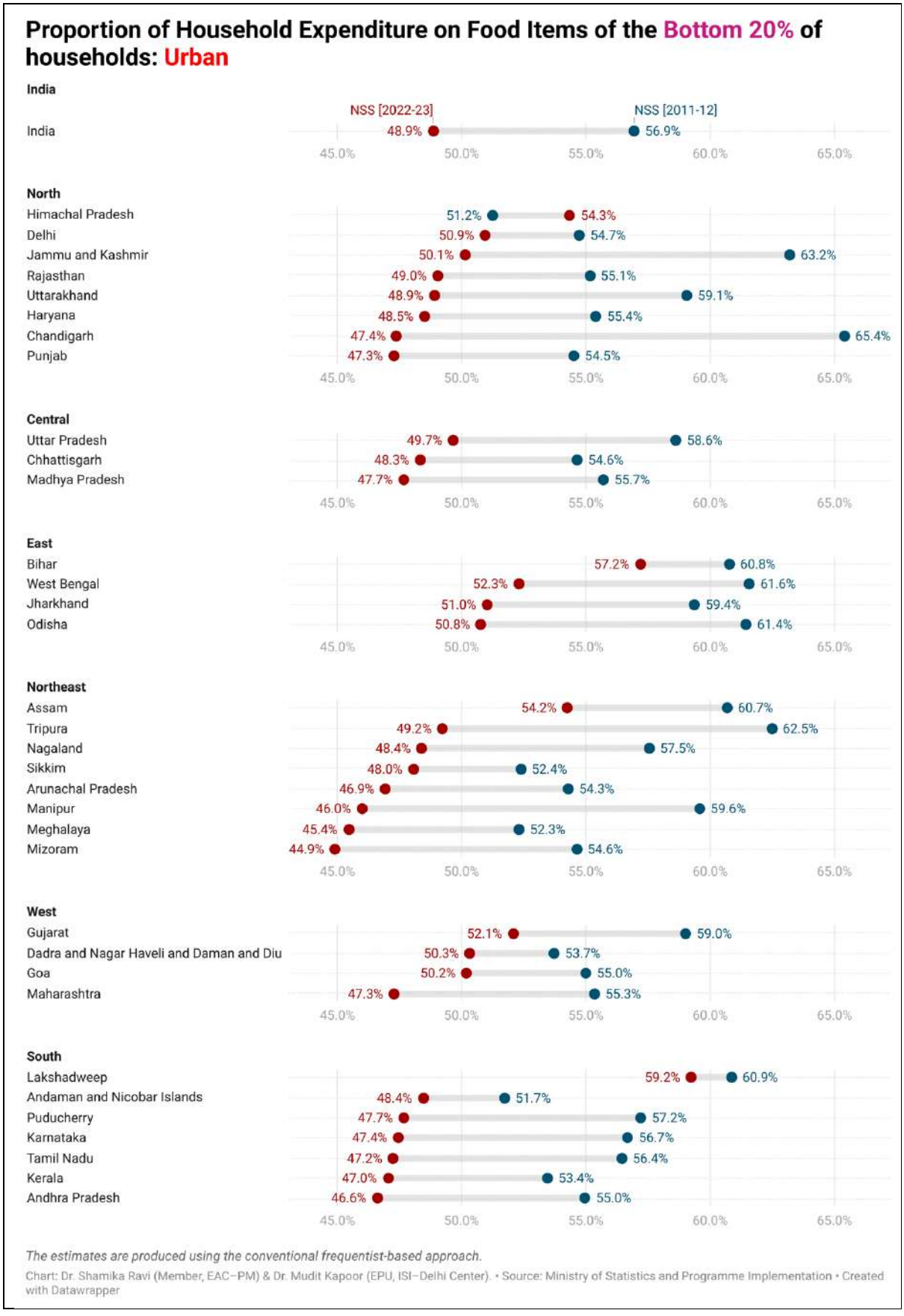


Figure 5d: Change in Share of Food Expenditure for Bottom 20% of Urban Households



Proportion of Food Expenditure Across Items

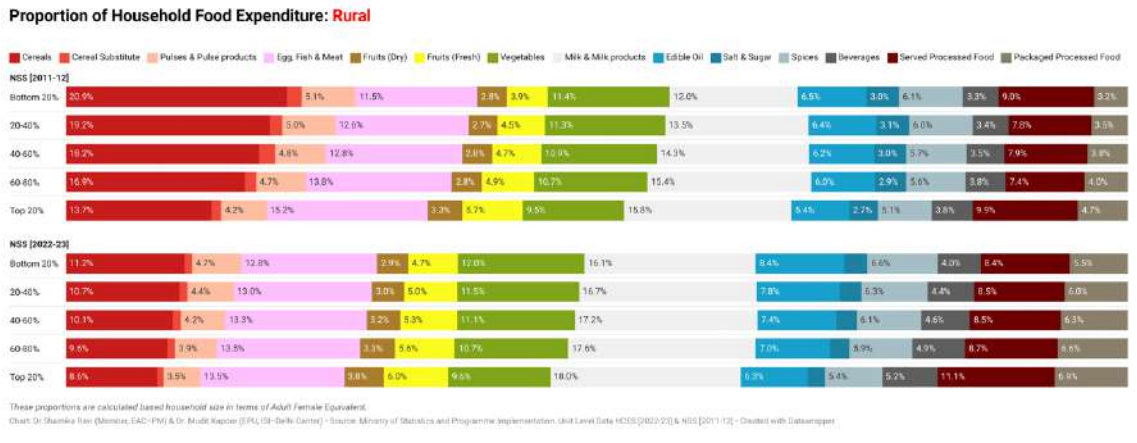
Next, we look at the weighted average of household food expenditure proportion spent across different items. We found a substantial decline in expenditure on cereals. This is true for every quintile group (consumption class) in the population and across the country's urban and rural areas. For the Bottom 20% of the rural households, the share of average spending on cereals declined from 20.9% in 2011–12 to 11.2% in 2022–23, while the average share of milk & milk expenditures increased from 12% to 16.1% during the same period. A similar pattern was observed across urban households as well. However, one noticeable trend across all consumption classes in rural and urban areas is the increase in the share of average household expenditure on packaged processed food; we found that the average share of expenditure on packaged processed food for the bottom 20% of rural households went up from 3.2% in 2011–12 to 5.5% in 2022–23, while for urban households in the same consumption class, it went up from 3.7% to 6.4% during the same period. Similarly, for the Top 20% of the rural households, it increased from 4.7% to 6.,9%, and for the urban households, it increased from 6.1% to 8.2% during the same period.

Among the urban households we observed an increase in the average share of expenditure on served processed food across all consumption classes.

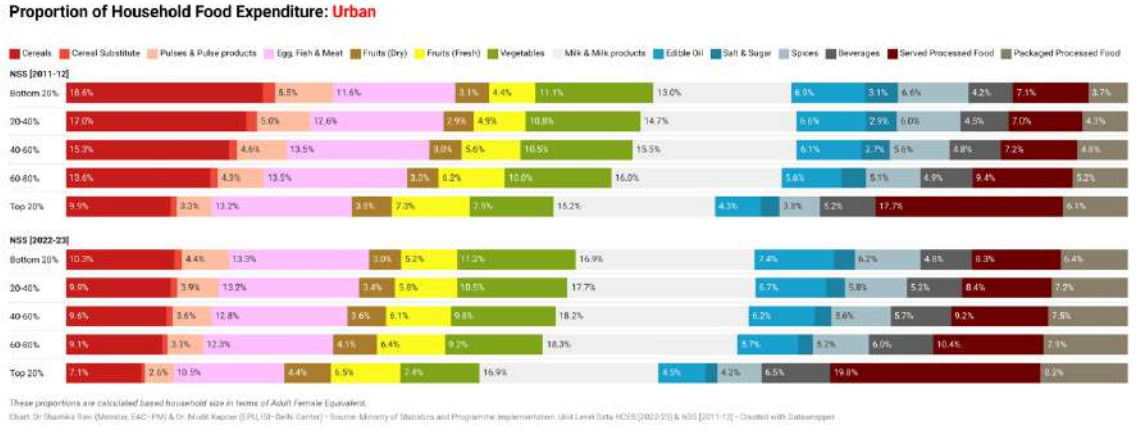
These results are reported in Figure 6.

Figure 6: Proportion of Food Expenditure on Food items

Rural



Urban



Key Takeaways

The key takeaways from this chapter are the following:

1. Overall, there has been a significant increase in households' average monthly per capita expenditure across rural and urban India across all states and UTs. The magnitude of the rise, while substantial, varies across states of the country.
2. The share of food expenditure in total household expenditure has declined substantially in rural and urban areas. We observe this phenomenon with variations in magnitude across states.
3. Within food items, the share of expenditure on cereal has declined significantly across rural and urban areas. However, this decline was more substantial for the bottom 20% of the households in rural and urban areas. In all likelihood, this reflects the effectiveness of the government's food security policies, which provide free foodgrains to large numbers of beneficiaries across all states of the country, with a particular focus on the vulnerable bottom 20% of households.
4. Significant changes in the food composition of household expenditure have implications for agriculture policy and the country's health and nutrition policies. These changes in the composition of household expenditure reflect changes in household demand and as well as notable improvements in supply factors, such as infrastructure, better storage, and efficient transportation, which have expanded the markets for perishable items such as fresh fruits, milk & milk products, eggs, fish, and meat, making them more accessible and affordable across all regions of India. The next chapter explores the changing household consumption patterns for different food groups in greater detail.
5. Across regions and consumption classes, we observe a significant increase in the share of household expenditure on served and packaged processed food. This increase was universal across the classes but more pronounced for the country's top 20% of households and significantly more in urban areas.
6. The significant decline in the share of cereals in household expenditure has allowed households to diversify their diets, with increased spending on milk & milk products, fresh fruits, and eggs, fish & meat. Beyond rising expenditure on diverse food items, the next chapter analyzes the increase in actual quantities (in kg) of various food items at the per capita household level.

Chapter 2: Food Intake across Households

Introduction

In this chapter, we focus on the food intake at the household level. We limit our analysis to households which have a cooking arrangement. Furthermore, for each household, we exploit information on the household members, such as gender, age and whether the household had children under two, to reconstruct the household size in terms of adult female equivalent.[9] The practical importance of doing this is to account for the fact that household composition in terms of gender and age can vary over time and across states and UTs. For example, this reconstruction allows us to account for differences in households with five adult male members versus households with five members, one of which is an adult male, the other an adult female, and the other three members are children between 2 and 5 years.

Our focus will be on the following food items: (i) fresh fruits, (ii) milk & milk products, (iii) eggs, fish & meat, (iv) vegetables with and without potatoes and onions, and (v) cereals. The analysis will produce estimates for the proportion of households that consume these food items and the average quantity of consumption across the households.[10] We provide estimates separately for rural & urban areas and different consumption classes (such as Bottom 20%, Top 20%, etc.). We provide estimates for NSS 2011–12 and HCES 2022–23 for comparisons.
It is essential to mention here that data on food items is collected using different recall methods. For example, data on the quantity of cereal consumed is collected based on a 30-day recall, while data on the quantity of fresh fruits is collected based on a 7-day recall. For comparison, we convert quantity data based on different recall methods into 30-day, which implies that for each food item with a 7-day recall, we multiply it by 30/7.[11]

[9] The critical intuition for doing this is that energy requirements vary across age and gender and depend on whether the female is pregnant or lactating. The HCES does not contain data on the pregnancy status of the female, and so we exploit information on whether there is a child under the age of two in the household and if that is the case. All adult females between 18 to 49 years would have a higher energy requirement.
[10] Details on the construction of household consumption can be made available upon request.
[11] Except for milk & milk products, the recall methods used were the same for NSS 2011–12 and HCES 2022–23. For NSS 2011–12, 30-day recall method was used for milk & milk products while in HCES 2022–23 7-day recall was used.

Statistical Methods

We use a multi-level model[12] to estimate the proportion of households that consume a particular food item and the average quantity consumed by a household.

In particular, we run the following random effects model,

$$Probability\ of\ whether\ a\ houshold\ consumes\ a\ particular\ food\ item\ f = constant + (state) + (sector) + (consumption\ class) + (panel) + error\ tem,$$

where the *state* is the state/UT the household belongs to, the *sector* is whether the household resides in the rural or urban area, The *consumption class* exploits information on the monthly per capita expenditure of the household, and for each state/UT, rural and urban areas, we construct the consumption class quintiles (for example, Bottom 20%, 20–40%, …, Top 20%). Based on the MPCE of the household, state and the sector the household belongs to, it is assigned to a specific consumption class. The variable *panel* refers to the month the household was surveyed for NSS 2011–12. However, for HCES 2022–23, since the exact month of the survey is unavailable, we have information on the three months that households are likely to have been interviewed for the food survey. There were ten panels in HCES 2022–23. The first panel consisted of the three months [August, September, October], followed by [September, October, November], and so forth, while the last panel was [May, June, July]. We know the panel of months when the food survey was conducted for each household and not the exact month. Our objective in including this is to assess if there was any seasonality.

We run the model separately for NSS 2011–12 and HCES 2022–23. As a reminder, we limit this part of the analysis to households with cooking arrangements.

The second regression is for the quantity of food items consumed in 30 days. In particular, we run the following random- effects or multi-level model for the households,

$$log\ \ value\ of\ the\ quantity\ of\ the\ food\ item\ consumed = constant + (state) + (sector) + (consumption\ class) + (panel) + error\ tem.$$

[12] For a brief discussion on these models see Gelman (2006): *Multilevel (Hierarchical) Modeling: What It Can and Cannot Do* (http://www.stat.columbia.edu/~gelman/research/published/multi2.pdf). For detailed discussion follow *Multi level Modeling Using R* (3rd edition) W Holmes Finch and Jocelyn E. Bolin.
Data Analysis Using Regression and Multilevel/Hierarchical Models Gelman and Jennifer Hill.

Since this regression is based on log values, it drops all households with zero quantities consumed. Given that some households may have zero consumption of a particular food item, we estimate the average quantity consumed in two stages. In the first stage, we predict whether the household will have zero or positive consumption, and in the second stage, if we predict the household to have zero consumption, then we assign the quantity consumed to be zero; otherwise, we take the exponential value of the prediction from the second stage.

We fit a linear and generalized linear mixed-effects model using the statistical package lme4[13]: Linear Mixed-Effects Models using 'Eigen' and S4, which is available for *R,* a programming language for statistical computing and graphics.[14]

We use the regression results to present the estimates of the average value. In particular, for each food item, we will present three sets of results for the proportion of households consuming the food item and the average quantity consumed by the households. We present these results for the quintiles of the consumption class, variations across states/UTs, and variations across the monthly panels, which, to some extent, reflect seasonality.

(i) Fresh Fruits

Consumption Quintile Classes

We found that the proportion of rural households consuming fresh fruits increased from 63.8% in 2011–12 to 90.3% in 2022–23. There was variation across the consumption classes. We report a scale factor reflecting the highest to the lowest value ratio to capture differences across consumption classes. In 2011–12, the proportion of the bottom 20% of rural households that consumed fresh fruits was 44.2%, while for the top 20%, it was 79.9%, a scale factor of 1.81. However, by 2022-23, 82% of the bottom 20% of rural households were consuming fresh fruits, while 94.8% of the top 20% were consuming fresh fruits, reflecting a scale factor of 1.16. These results seem to suggest that there has been a very dramatic increase in the proportion of households consuming fresh fruits, particularly among the bottom 20% of rural households. These results are reported in Figure 7a.

[13] Bates D, Mächler M, Bolker B, Walker S (2015). "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software*, **67**(1), 1–48. doi:10.18637/jss.v067.i01. The package is available on https://cran.r-project.org/web/packages/lme4/index.html.

[14] R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/. https://www.r-project.org/about.html.

We found similar results for urban households as well. From 2011–12 to 2022–23, the proportion of the bottom 20% of urban households consuming fresh fruits increased from 60% to 88.7%. Overall, it increased from 76.0% to 94.1%. Similar to rural areas, among the households, we saw the gap between the top 20% and the bottom 20% narrowed from scale of 1.49 in 2011–12 to 1.09 in 2022–23. These results are reported in Figure 7c.

We found that the average per capita consumption of fresh fruits in terms of adult female equivalent among rural households increased from 1.9 kgs in 2011–12 to 2.7 kgs in 2022–23, an increase of 42%. In 2011–12, the top 20% consumed four times more than the bottom 20%, and this ratio reduced to 2.81 in 2022–23. This implies narrowing the consumption gap between the rich and the poor. Even though the average per-capita consumption of fresh fruits increased in all consumption classes, it increased the highest for the bottom 20%, from 0.8 kgs in 2011–12 to 1.7 kgs in 2022–23, an increase of approximately 88%.

We observed similar results for urban households. The gap between the rich and the poor narrowed, while the average per-capita consumption of fresh fruits increased across all consumption classes. It is essential to mention that among the bottom 20% of urban households, the proportion of households consuming fresh fruits increased from 60% to 89% from 2011–12 to 2022–23, while the average per-capita consumption for the same households increased from 1.3 kgs to 2 kgs during the same period, an increase of approximately 54%. These results are reported in Figures 7a and 7b.

State/UT

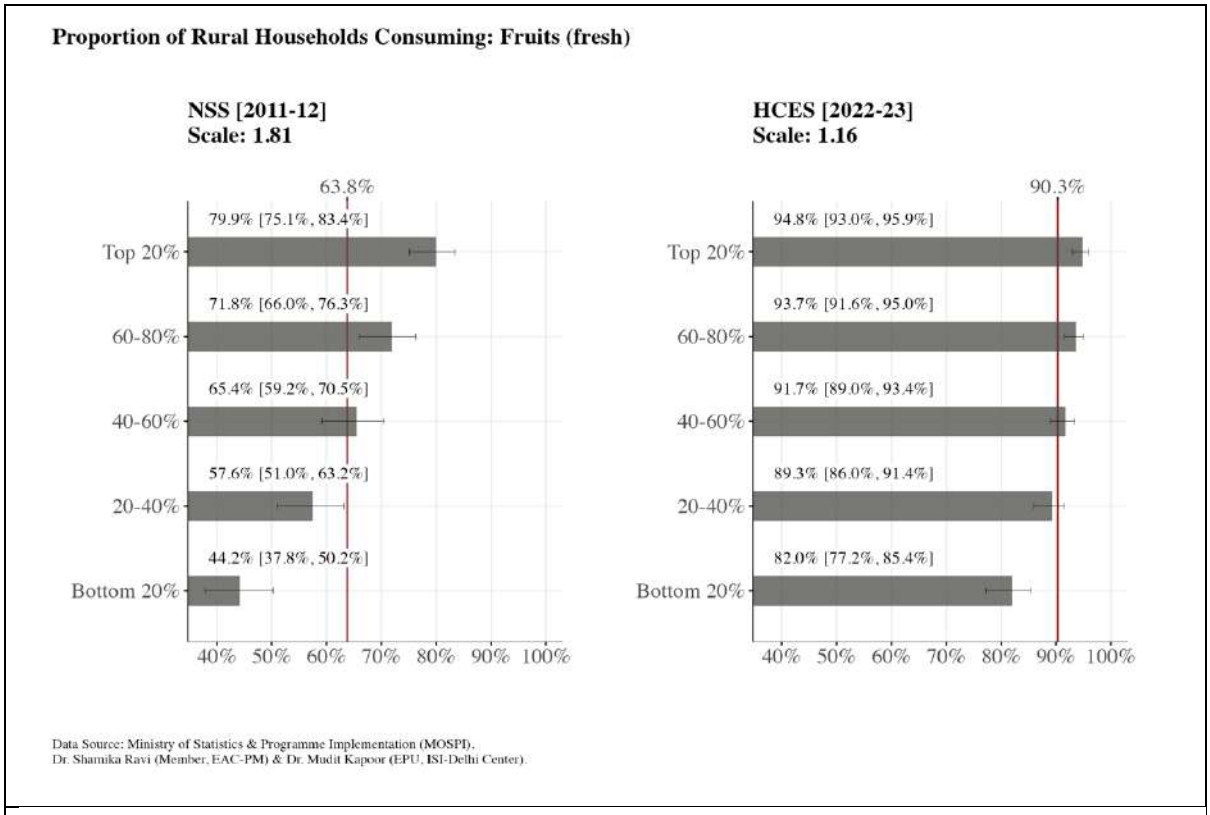
We observed significant variations across states/UTs regarding the proportion of households consuming fresh fruits and the average per-capita quantity of consumption. However, the interstate differences have reduced significantly from 2011–12 to 2022–23. A higher proportion of households in southern states (such as Kerala and Tamil Nadu) typically consume fresh fruits, and the average per capita quantity is also usually higher among southern states relative to northern and central states (such as Rajasthan, Uttar Pradesh, Bihar). However, for both rural and urban areas, the scale (ratio of the highest to the lowest) reduced from 16.42 in 2011–12 to 6.42 in 2022–23 rural areas, while it decreased from 12.27 to 5.70 during the same period in urban areas. The lowest per-capita consumption of fresh fruits was observed for Jharkhand at 0.5 kgs for 2011–12, and it went up to 1.2 kgs in 2022–23, an increase of roughly 140%. However, for urban areas in Jharkhand, the per-capita average consumption increased

by 100% from 0.8 kgs to 1.6 kgs during the same period. These results are reported in Figures 7c to 7f.

Seasonality

We observed seasonality both in terms of proportions of households consuming fresh fruits and average per-capita consumption across different months for 2011–12 and various panels of months in 2022–23. For example, among the rural households in 2022–23, the average per-capita consumption was 3.4 kgs in a month for households surveyed in panel April, May, and June, while it was 2.4 kgs for households surveyed in panel January, Feb, and March. These results are reported in Figures 7g to 7h.

Figure 7a: **Rural**



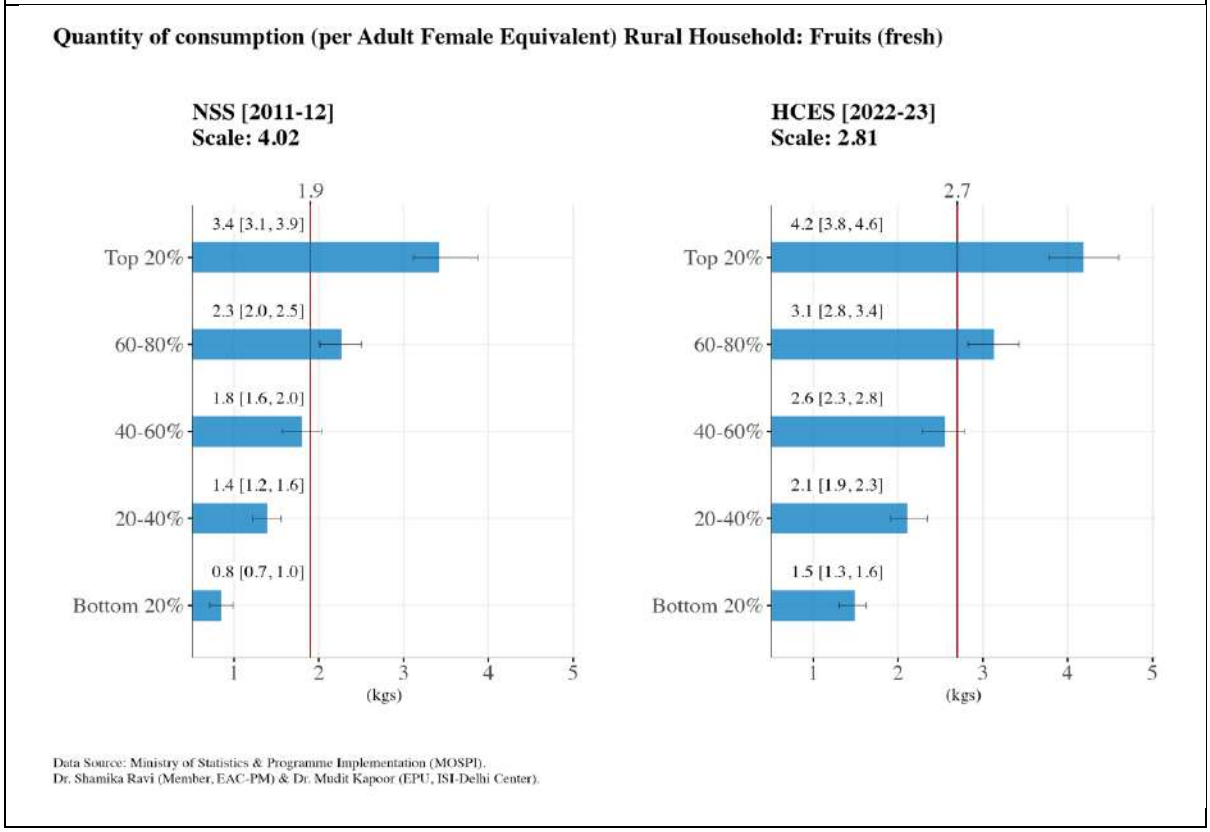
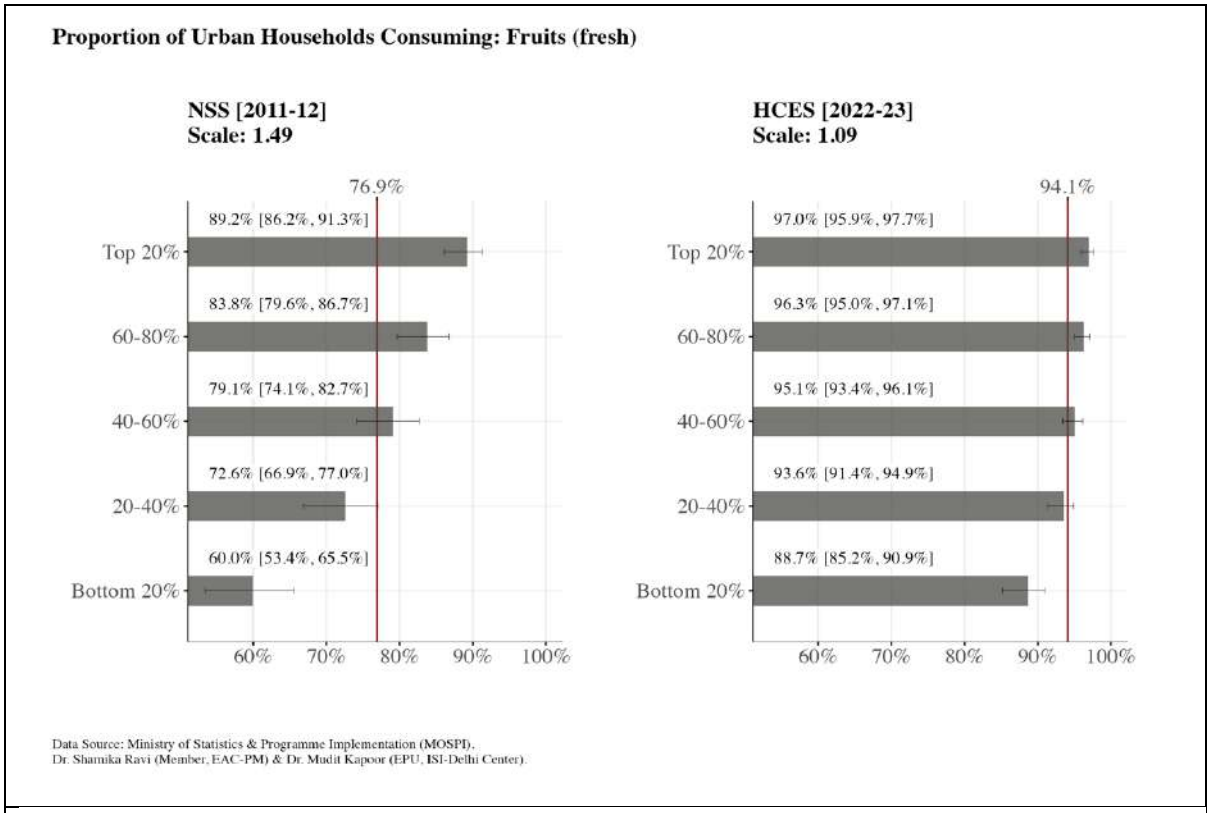


Figure 7b: **Urban**



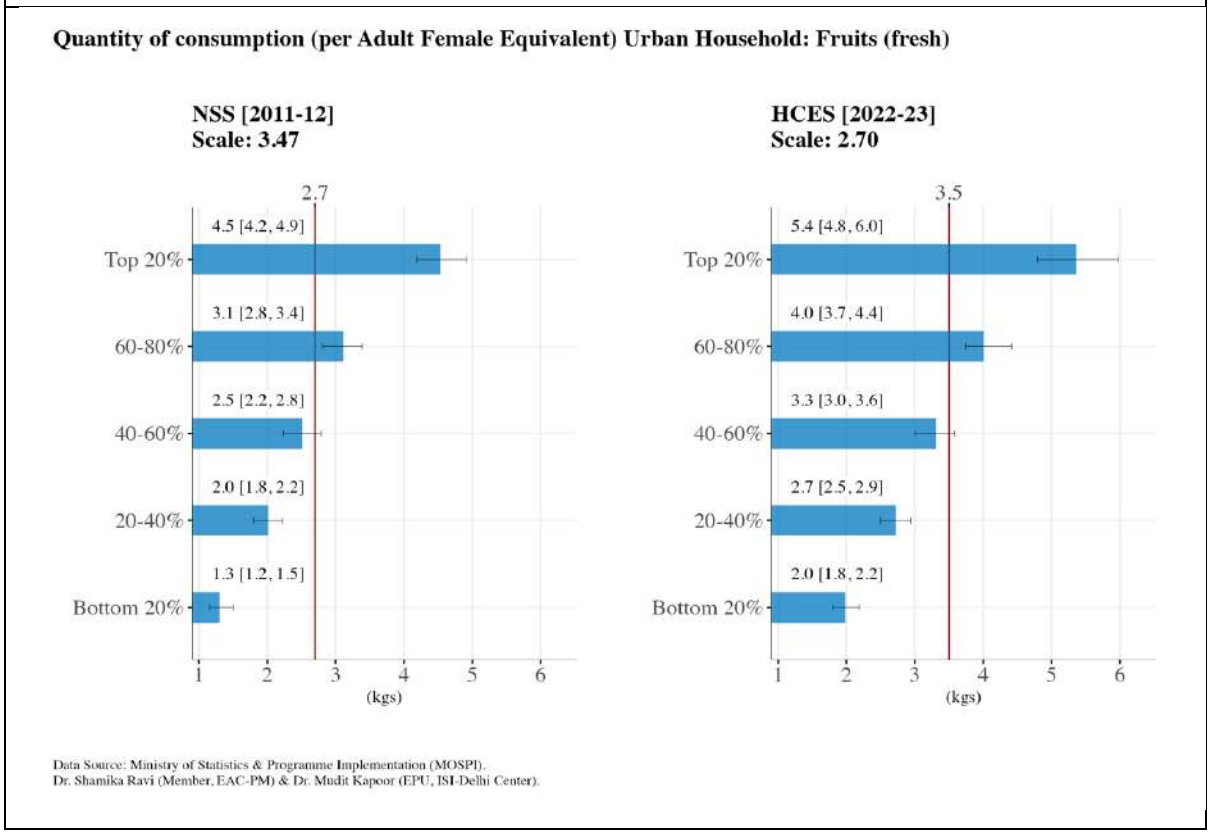


Figure 7c


Proportion of Rural Households Consuming: Fruits (fresh)
NSS [2011-12]
Scale: 2.90
63.8%
North
HP
JK
HR
DL
UK
PB
KT
CH
Central
MP
CG
UP
East
OD
WB
BR
JH
Northeast
ML
AS
TR
AR
MG
MZ
NL
SK
MN
West
GA
MH
GJ
DD
South
KL
KA
TN
PY
LD
AP
AN
40%
60%
80%
100%
HCES [2022-23]
Scale: 1.38
90.3%
North
CH
DL
HR
HP
JK
PB
UT
RJ
Central
MP
UP
CG
East
BR
WB
OD
JH
Northeast
TR
SK
AR
MG
MI
MZ
AS
NL
West
GA
MH
GJ
DD
South
KA
KL
PY
TN
LD
AP
AN
40%
60%
80%
100%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Proportion of Urban Households Consuming: Fruits (fresh)
NSS [2011-12]
Scale: 1.94
76.9%
North
HP
JK
HR
DL
UK
PB
KT
CH
Central
MP
CG
UP
East
OD
WB
BR
JH
Northeast
ML
AS
TR
AR
MG
MZ
AS
SK
MN
West
GA
MH
GJ
DD
South
KL
KA
TN
PY
LD
AP
AN
50%
60%
70%
80%
90%
100%
HCES [2022-23]
Scale: 1.22
94.1%
North
CH
DL
HR
HP
JK
PB
UT
RJ
Central
MP
UP
CG
East
BR
WB
OD
JH
Northeast
TR
SK
AR
MG
MI
MZ
AS
NL
West
GA
MH
GJ
DD
South
KA
KL
PY
TN
LD
AP
AN
50%
60%
70%
80%
90%
100%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 7d

Proportion of Rural Households Consuming: Fruits (fresh)

State	NSS [2011-12]	HCES [2022-23]
North		
Jammu and Kashmir	68.4% [31.8%, 92.5%]	92.5% [87.2%, 95.9%]
Himachal Pradesh	70.9% [53.0%, 84.5%]	88.5% [79.2%, 94.4%]
Punjab	55.3% [37.8%, 71.0%]	89.3% [88.2%, 90.2%]
Chandigarh	52.3% [49.5%, 54.9%]	98.3% [97.9%, 98.6%]
Uttarakhand	60.7% [53.4%, 67.2%]	92.9% [77.1%, 99.0%]
Haryana	67.8% [51.7%, 80.7%]	92.7% [86.6%, 96.4%]
Delhi	67.5% [64.0%, 70.7%]	97.2% [96.7%, 97.6%]
Rajasthan	55.2% [53.3%, 57.0%]	81.6% [80.6%, 82.6%]
Central		
Uttar Pradesh	53.9% [52.0%, 55.7%]	90.3% [89.7%, 90.9%]
Chhattisgarh	57.9% [54.1%, 61.4%]	74.4% [70.5%, 77.8%]
Madhya Pradesh	62.3% [60.4%, 64.1%]	92.1% [91.1%, 93.0%]
East		
Bihar	50.1% [36.1%, 63.1%]	90.0% [86.1%, 93.0%]
West Bengal	51.6% [40.8%, 61.6%]	86.2% [84.1%, 88.0%]
Jharkhand	33.9% [30.5%, 37.2%]	72.6% [70.4%, 74.5%]
Odisha	60.6% [57.9%, 63.0%]	85.1% [66.7%, 95.4%]
Northeast		
Sikkim	38.5% [36.5%, 40.4%]	95.7% [95.4%, 96.0%]
Arunachal Pradesh	49.9% [48.0%, 51.8%]	95.5% [95.1%, 95.8%]
Nagaland	46.3% [43.7%, 48.7%]	86.8% [85.8%, 87.7%]
Manipur	36.8% [34.7%, 38.7%]	93.8% [93.4%, 94.3%]
Mizoram	48.0% [45.5%, 50.4%]	89.3% [88.5%, 90.0%]
Tripura	58.7% [54.6%, 62.4%]	99.1% [99.0%, 99.2%]
Meghalaya	59.5% [55.0%, 63.6%]	93.0% [92.4%, 93.6%]
Assam	59.4% [56.9%, 61.7%]	88.4% [86.5%, 90.0%]
West		
Gujarat	62.7% [61.1%, 64.1%]	86.2% [82.2%, 89.5%]
DDDH	55.4% [53.6%, 57.0%]	71.9% [70.5%, 73.2%]
Maharashtra	75.9% [65.1%, 84.4%]	88.9% [88.2%, 89.5%]
Goa	92.6% [90.2%, 94.5%]	97.3% [95.1%, 98.6%]
South		
Andhra Pradesh	78.4% [70.8%, 84.5%]	89.2% [88.6%, 89.9%]
Karnataka	95.6% [93.5%, 97.2%]	98.5% [96.9%, 99.4%]
Lakshadweep	82.2% [75.0%, 87.9%]	94.2% [91.9%, 96.0%]
Kerala	98.4% [98.0%, 98.8%]	98.0% [97.2%, 98.6%]
Tamil Nadu	92.2% [89.8%, 94.1%]	96.9% [95.1%, 98.1%]
Puducherry	91.9% [91.0%, 92.6%]	97.2% [94.6%, 98.7%]
Andaman & Nicobar	78.0% [76.7%, 79.1%]	86.3% [82.0%, 89.7%]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Proportion of Urban Households Consuming: Fruits (fresh)

State	NSS [2011-12]	HCES [2022-23]
North		
Jammu and Kashmir	80.3% [48.7%, 96.4%]	95.6% [92.4%, 97.7%]
Himachal Pradesh	83.1% [69.7%, 92.1%]	93.1% [87.0%, 96.8%]
Punjab	71.2% [55.3%, 83.6%]	93.7% [93.0%, 94.3%]
Chandigarh	69.0% [66.6%, 71.3%]	99.0% [98.8%, 99.2%]
Uttarakhand	75.9% [70.0%, 80.9%]	95.8% [85.5%, 99.4%]
Haryana	81.0% [68.5%, 89.9%]	95.7% [92.0%, 98.0%]
Delhi	81.1% [78.5%, 83.4%]	98.4% [98.1%, 98.7%]
Rajasthan	71.5% [69.8%, 73.1%]	88.7% [87.9%, 89.4%]
Central		
Uttar Pradesh	70.4% [68.8%, 72.0%]	94.3% [93.9%, 94.7%]
Chhattisgarh	73.7% [70.7%, 76.5%]	83.6% [80.7%, 86.1%]
Madhya Pradesh	77.3% [75.7%, 78.7%]	95.4% [94.8%, 96.0%]
East		
Bihar	66.8% [53.5%, 77.9%]	94.1% [91.6%, 95.9%]
West Bengal	68.3% [58.4%, 76.7%]	91.7% [90.3%, 92.9%]
Jharkhand	51.1% [47.2%, 54.6%]	82.2% [80.6%, 83.7%]
Odisha	75.9% [73.7%, 77.8%]	90.8% [77.7%, 97.4%]
Northeast		
Sikkim	56.0% [53.8%, 57.9%]	97.6% [97.4%, 97.8%]
Arunachal Pradesh	67.0% [65.1%, 68.7%]	97.4% [97.2%, 97.6%]
Nagaland	63.6% [61.1%, 66.0%]	92.1% [91.4%, 92.7%]
Manipur	54.2% [51.9%, 56.3%]	96.5% [96.2%, 96.7%]
Mizoram	65.2% [62.8%, 67.4%]	93.7% [93.2%, 94.2%]
Tripura	74.4% [71.0%, 77.3%]	99.5% [99.5%, 99.5%]
Meghalaya	75.0% [71.3%, 78.3%]	96.0% [95.6%, 96.3%]
Assam	74.9% [72.9%, 76.8%]	93.1% [91.9%, 94.2%]
West		
Gujarat	77.5% [76.2%, 78.7%]	91.7% [89.1%, 93.8%]
DDDH	71.7% [70.0%, 73.2%]	81.8% [80.6%, 82.8%]
Maharashtra	86.7% [79.3%, 92.0%]	93.4% [93.0%, 93.8%]
Goa	96.5% [95.2%, 97.4%]	98.5% [97.2%, 99.2%]
South		
Andhra Pradesh	88.3% [83.4%, 92.1%]	93.7% [93.2%, 94.1%]
Karnataka	98.0% [96.9%, 98.7%]	99.1% [98.2%, 99.6%]
Lakshadweep	90.7% [86.3%, 94.0%]	96.7% [95.3%, 97.7%]
Kerala	99.3% [99.1%, 99.4%]	98.9% [98.4%, 99.2%]
Tamil Nadu	96.3% [95.0%, 97.2%]	98.3% [97.2%, 99.0%]
Puducherry	96.1% [95.6%, 96.5%]	98.4% [96.9%, 99.3%]
Andaman & Nicobar	88.2% [87.3%, 88.9%]	91.7% [88.9%, 94.0%]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 7e

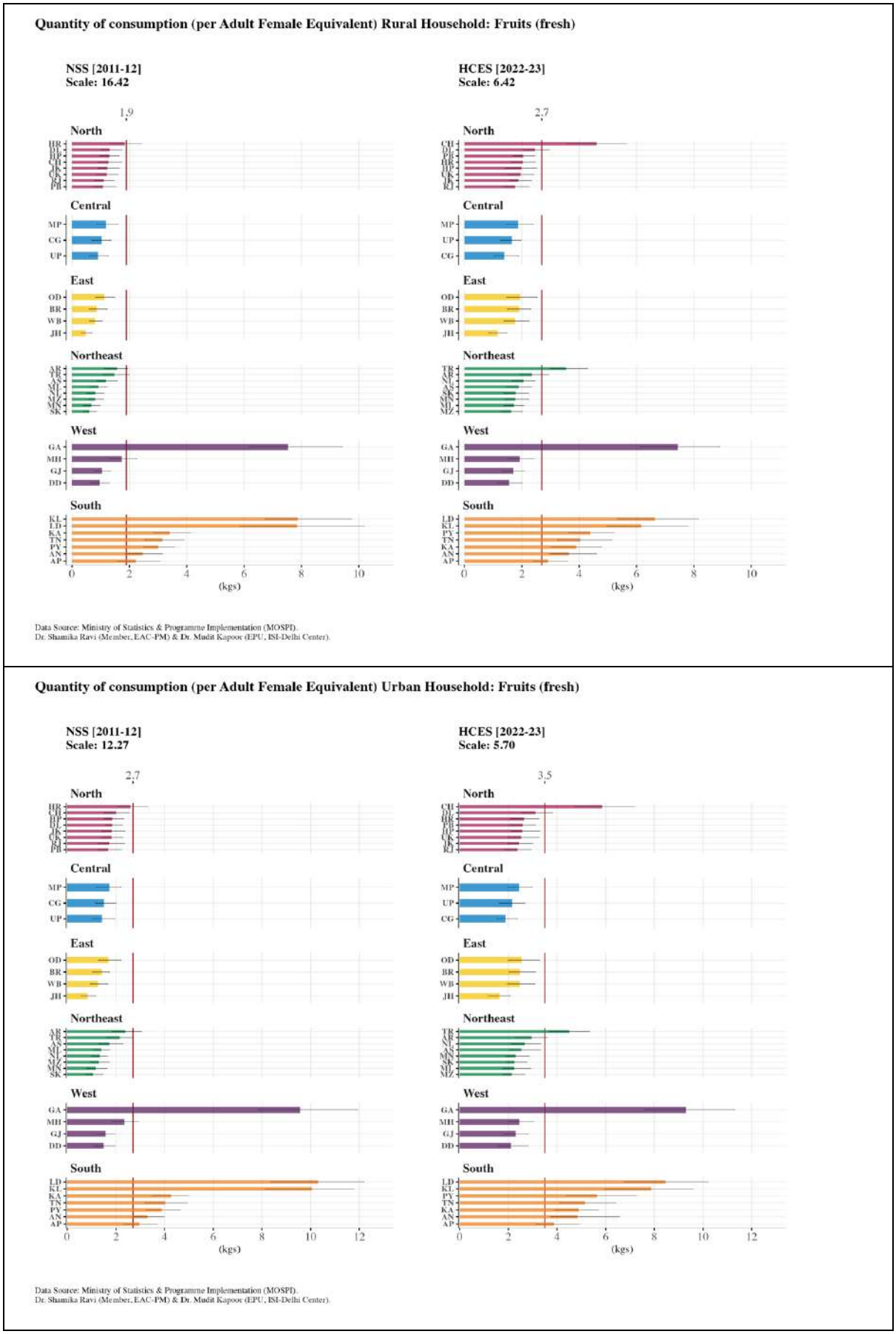

Quantity of consumption (per Adult Female Equivalent) Rural Household: Fruits (fresh)
NSS [2011-12]
Scale: 16.42
HCES [2022-23]
Scale: 6.42
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Quantity of consumption (per Adult Female Equivalent) Urban Household: Fruits (fresh)
NSS [2011-12]
Scale: 12.27
HCES [2022-23]
Scale: 5.70
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 7f

Quantity of consumption (per Adult Female Equivalent) Rural Household: Fruits (fresh)

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	1.2 [0.9, 1.7]	1.9 [1.6, 2.3]
Himachal Pradesh	1.3 [1.0, 1.6]	2.0 [1.4, 2.5]
Punjab	1.1 [0.7, 1.5]	2.0 [1.7, 2.5]
Chandigarh	1.3 [0.9, 1.7]	4.6 [3.6, 5.7]
Uttarakhand	1.2 [0.9, 1.6]	1.9 [1.5, 2.4]
Haryana	1.8 [1.3, 2.4]	2.0 [1.6, 2.5]
Delhi	1.3 [1.0, 1.8]	2.5 [2.1, 3.0]
Rajasthan	1.1 [0.8, 1.5]	1.8 [1.4, 2.3]
Central		
Uttar Pradesh	0.9 [0.6, 1.3]	1.7 [1.3, 2.0]
Chhattisgarh	1.0 [0.7, 1.4]	1.4 [1.0, 1.9]
Madhya Pradesh	1.2 [0.9, 1.6]	1.9 [1.5, 2.4]
East		
Bihar	0.9 [0.6, 1.2]	1.9 [1.5, 2.3]
West Bengal	0.8 [0.6, 1.1]	1.8 [1.4, 2.3]
Jharkhand	0.5 [0.3, 0.7]	1.2 [0.9, 1.5]
Odisha	1.1 [0.8, 1.5]	1.9 [1.5, 2.5]
Northeast		
Sikkim	0.6 [0.4, 0.9]	1.8 [1.4, 2.2]
Arunachal Pradesh	1.6 [1.1, 1.9]	2.4 [1.9, 2.9]
Nagaland	0.8 [0.5, 1.1]	2.1 [1.7, 2.5]
Manipur	0.7 [0.4, 1.0]	1.8 [1.4, 2.3]
Mizoram	0.8 [0.6, 1.1]	1.6 [1.3, 2.0]
Tripura	1.5 [1.1, 2.0]	3.5 [3.0, 4.3]
Meghalaya	0.9 [0.6, 1.2]	1.7 [1.4, 2.1]
Assam	1.2 [0.9, 1.6]	1.9 [1.5, 2.4]
West		
Gujarat	1.0 [0.8, 1.3]	1.7 [1.3, 2.1]
DDDH	1.0 [0.6, 1.3]	1.6 [1.2, 2.0]
Maharashtra	1.7 [1.3, 2.3]	1.9 [1.5, 2.4]
Goa	7.5 [6.2, 9.4]	7.4 [6.1, 8.9]
South		
Andhra Pradesh	2.2 [1.6, 3.1]	2.9 [2.4, 3.6]
Karnataka	3.4 [2.9, 4.2]	3.9 [3.0, 4.8]
Lakshadweep	7.8 [5.8, 10.2]	6.6 [5.3, 8.2]
Kerala	7.9 [6.7, 9.7]	6.2 [5.0, 7.8]
Tamil Nadu	3.2 [2.5, 3.9]	4.0 [3.2, 5.1]
Puducherry	3.0 [2.5, 3.6]	4.4 [3.6, 5.2]
Andaman & Nicobar	2.5 [1.9, 3.2]	3.6 [3.0, 4.6]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

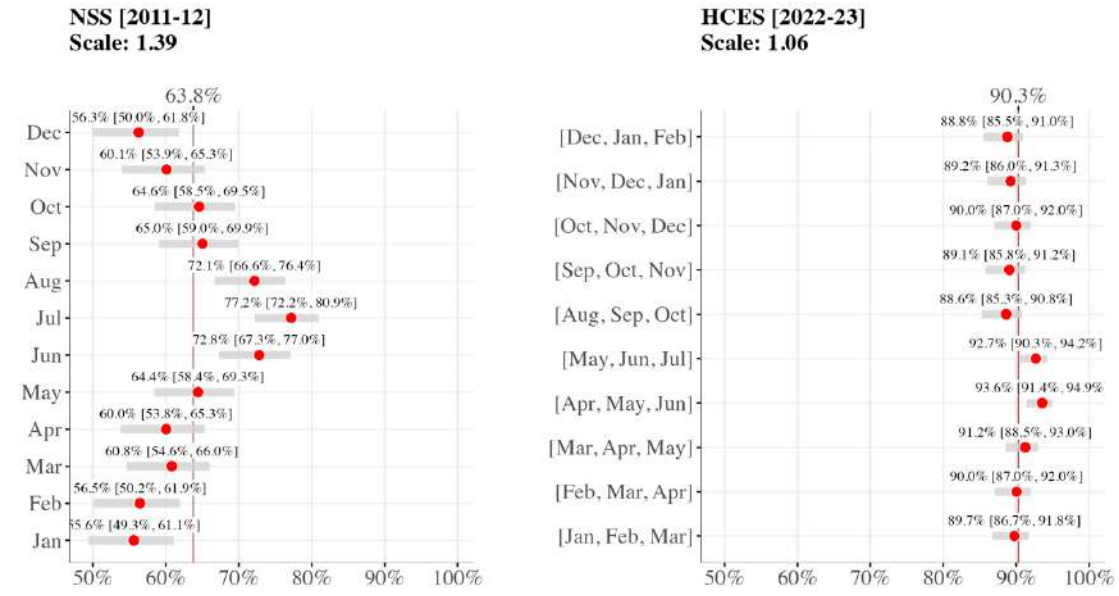
Quantity of consumption (per Adult Female Equivalent) Urban Household: Fruits (fresh)

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	1.8 [1.4, 2.4]	2.4 [2.0, 3.0]
Himachal Pradesh	1.9 [1.5, 2.3]	2.6 [2.1, 3.3]
Punjab	1.7 [1.3, 2.2]	2.6 [2.1, 3.1]
Chandigarh	2.0 [1.5, 2.5]	5.8 [4.7, 7.2]
Uttarakhand	1.8 [1.4, 2.3]	2.5 [2.0, 3.3]
Haryana	2.6 [2.0, 3.3]	2.6 [2.1, 3.3]
Delhi	1.9 [1.6, 2.3]	3.1 [2.5, 3.8]
Rajasthan	1.7 [1.2, 2.4]	2.4 [1.8, 2.9]
Central		
Uttar Pradesh	1.4 [1.0, 1.9]	2.1 [1.6, 2.7]
Chhattisgarh	1.5 [1.2, 2.0]	1.9 [1.5, 2.4]
Madhya Pradesh	1.7 [1.2, 2.2]	2.4 [2.0, 3.0]
East		
Bihar	1.4 [1.0, 1.7]	2.5 [2.0, 3.1]
West Bengal	1.3 [1.0, 1.7]	2.5 [2.0, 3.1]
Jharkhand	0.8 [0.6, 1.2]	1.6 [1.2, 2.1]
Odisha	1.7 [1.3, 2.2]	2.6 [2.0, 3.3]
Northeast		
Sikkim	1.1 [0.7, 1.5]	2.2 [1.9, 2.8]
Arunachal Pradesh	2.4 [1.9, 3.0]	3.0 [2.3, 3.6]
Nagaland	1.3 [1.0, 1.7]	2.7 [2.1, 3.3]
Manipur	1.2 [0.8, 1.6]	2.3 [1.9, 2.9]
Mizoram	1.3 [1.0, 1.7]	2.1 [1.8, 2.7]
Tripura	2.2 [1.6, 2.7]	4.5 [3.7, 5.3]
Meghalaya	1.4 [1.1, 1.8]	2.2 [1.8, 2.9]
Assam	1.7 [1.3, 2.3]	2.5 [2.1, 3.3]
West		
Gujarat	1.6 [1.2, 2.0]	2.3 [1.8, 2.8]
DDDH	1.5 [1.1, 2.0]	2.1 [1.6, 2.8]
Maharashtra	2.4 [1.8, 2.9]	2.4 [2.0, 3.0]
Goa	9.6 [7.9, 11.9]	9.3 [7.6, 11.3]
South		
Andhra Pradesh	3.0 [2.3, 3.7]	3.9 [3.1, 4.9]
Karnataka	4.3 [3.5, 5.0]	4.9 [3.9, 5.7]
Lakshadweep	10.3 [8.4, 12.2]	8.5 [6.8, 10.2]
Kerala	10.1 [8.1, 11.8]	7.9 [5.9, 9.6]
Tamil Nadu	4.0 [3.2, 4.9]	5.1 [4.1, 6.4]
Puducherry	3.9 [3.2, 4.6]	5.7 [4.4, 7.3]
Andaman & Nicobar	3.3 [2.7, 4.0]	4.8 [3.7, 6.6]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

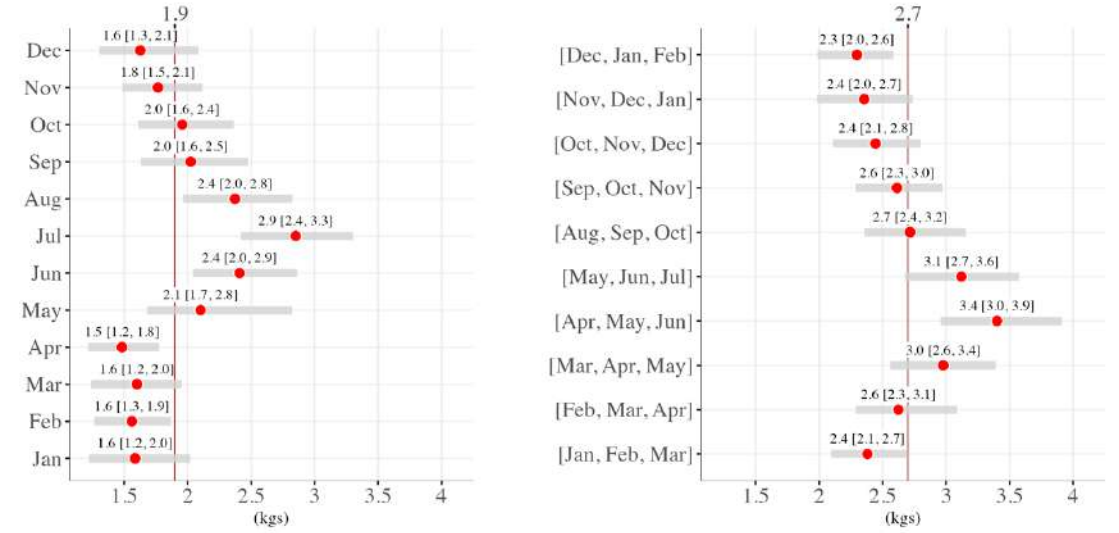
Figure 7g

Proportion of Rural Households Consuming: Fruits (fresh)



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

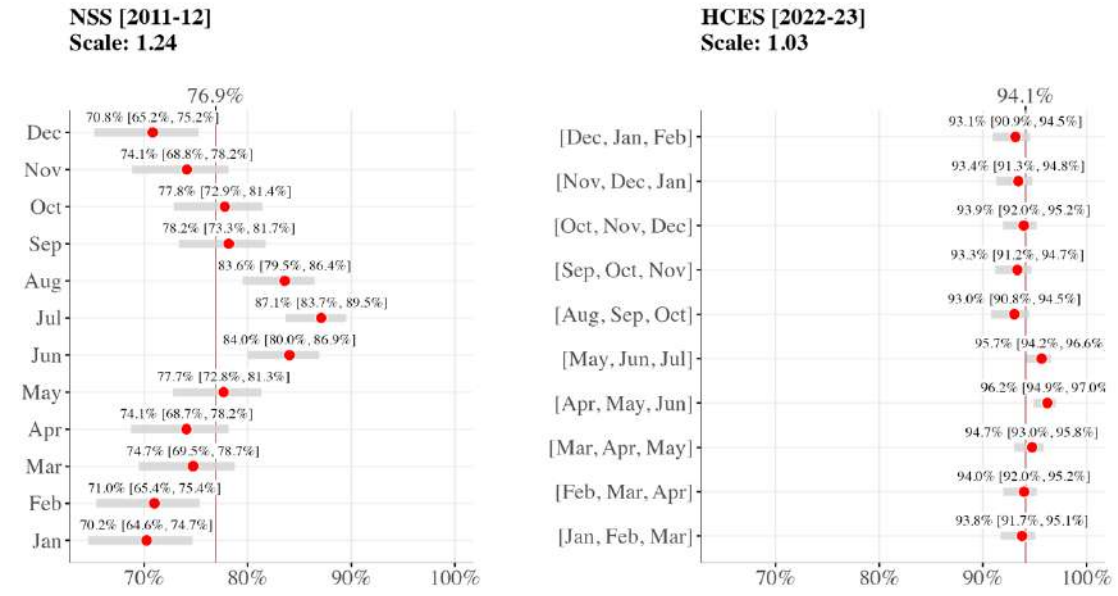
Quantity of consumption (per Adult Female Equivalent) Rural Household: Fruits (fresh)



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

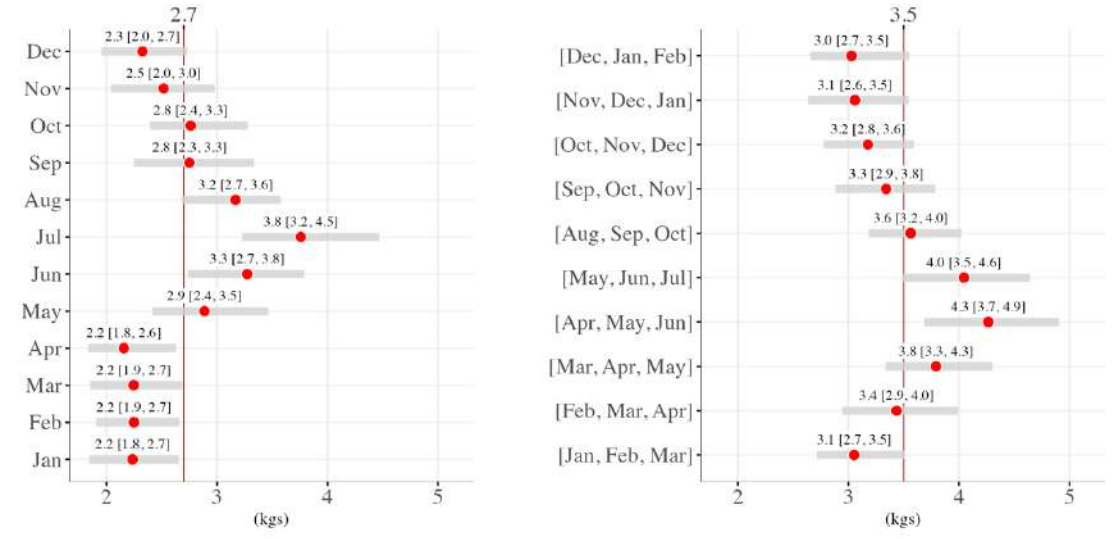
Figure 7h

Proportion of Urban Households Consuming: Fruits (fresh)



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Fruits (fresh)



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(ii) Milk & Milk Products

Consumption Quintile Classes

We observed an increase in the proportion of households consuming milk & milk products from 80.1% to 92.2% for rural households and 90.6% to 95.9% for urban households from 2011–12 to 2022–23. For the Bottom 20% of the rural households, we observed an increase of roughly 26 percentage points increase in the proportion of households consuming milk &milk products from 65% to 86%. Not only was there an increase in the proportion of households, but the average quantity of consumption for rural Bottom 20% of households increased from 2.2 kgs to 3.2 kgs, an increase of 46%. In comparison, for the urban households, it increases from 3.1 kgs to 4.1 kgs during the same period for the Bottom 20%. We also observed a decline in the gap between the top 20% and Bottom 20% among rural and urban households from 2011–12 and 2022–23. These results are presented in Figures 8a and 8b.

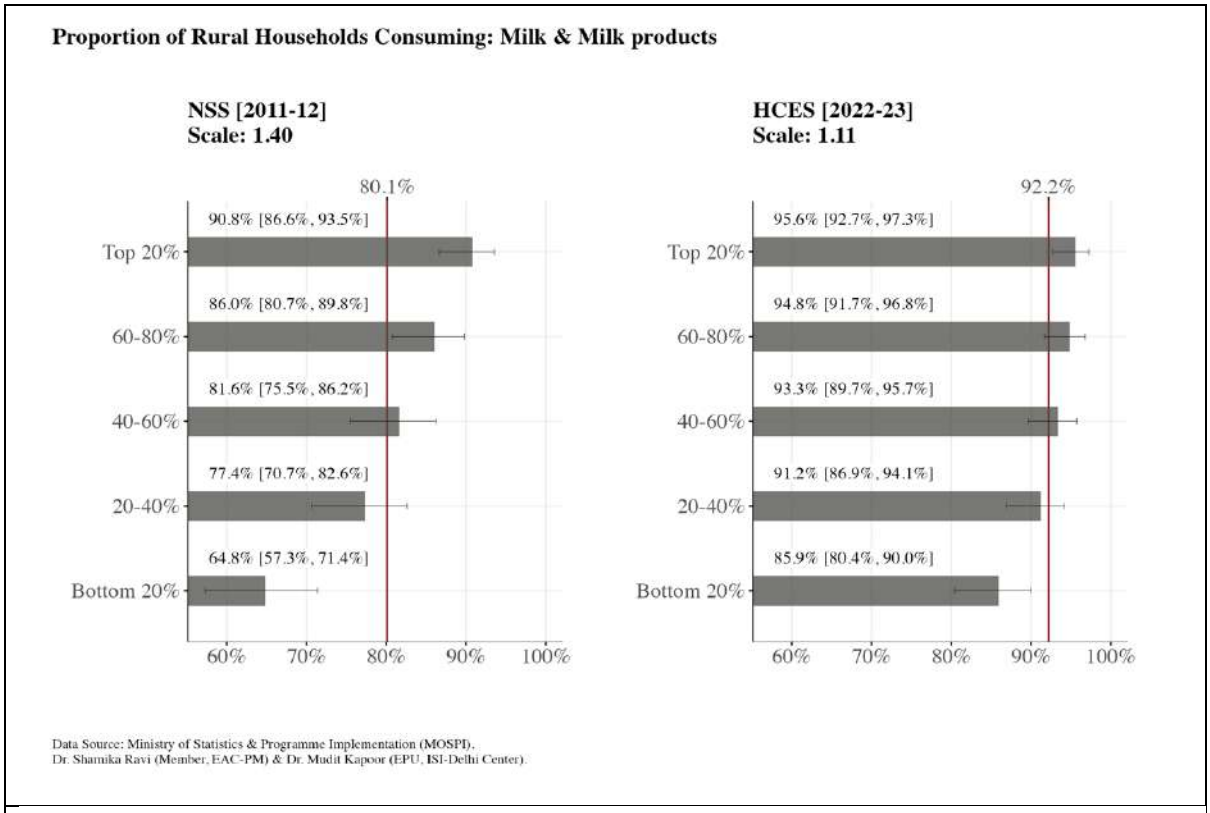
State/UT

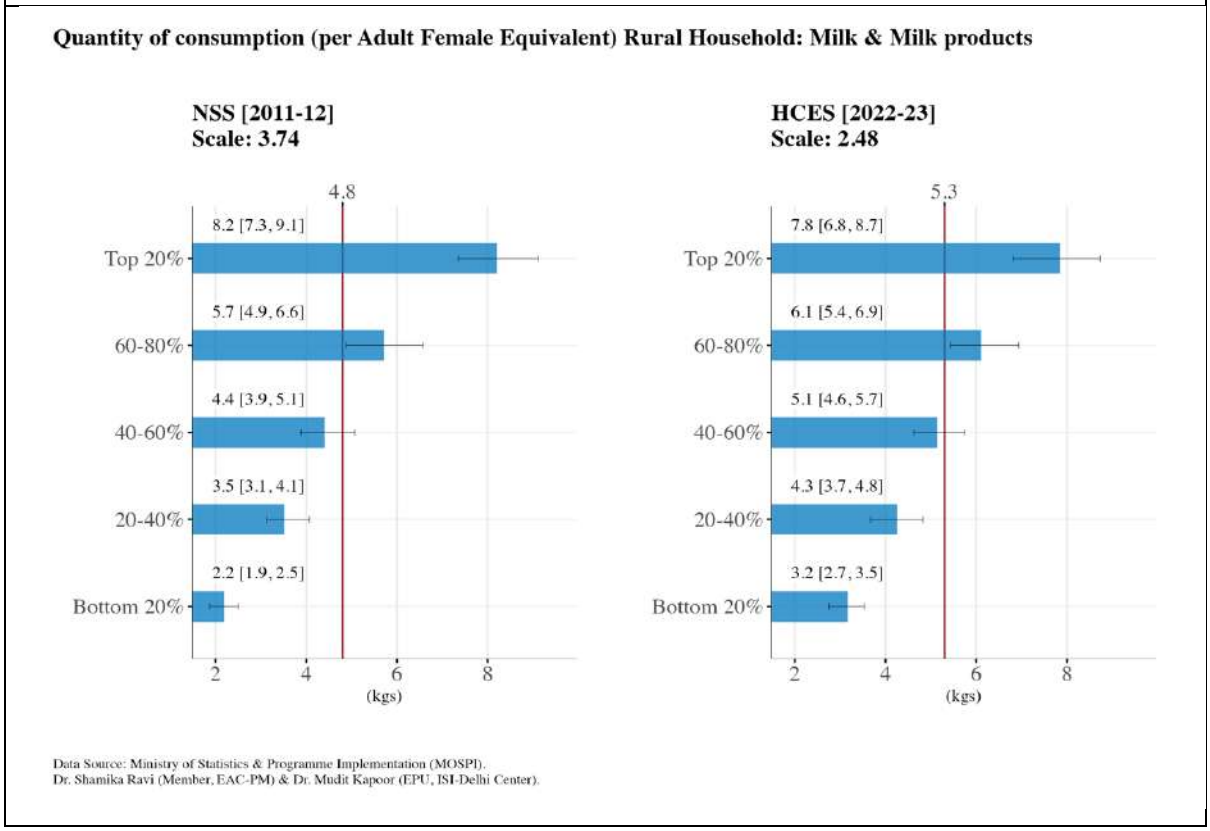
Among the states/UTs, we observed significant variations. A significantly lower proportion of rural and urban households in Chhattisgarh and Odisha consumed milk & milk products relative to northern states and central states Haryana, Punjab, and Uttar Pradesh, and this difference was more pronounced for average per capita consumption. For example, in 2022–23, the average per capita consumption in rural Haryana was 13.8, while in Odisha, it was almost 17 times lower at 0.8 kgs. Nevertheless, it is crucial to mention that in some states, such as Punjab and Haryana, there is a decline in per-capita consumption of milk & milk products from 2011–12 to 2022–23, both in rural and urban areas. These results are presented in Figures 8c to 8e.

Seasonality

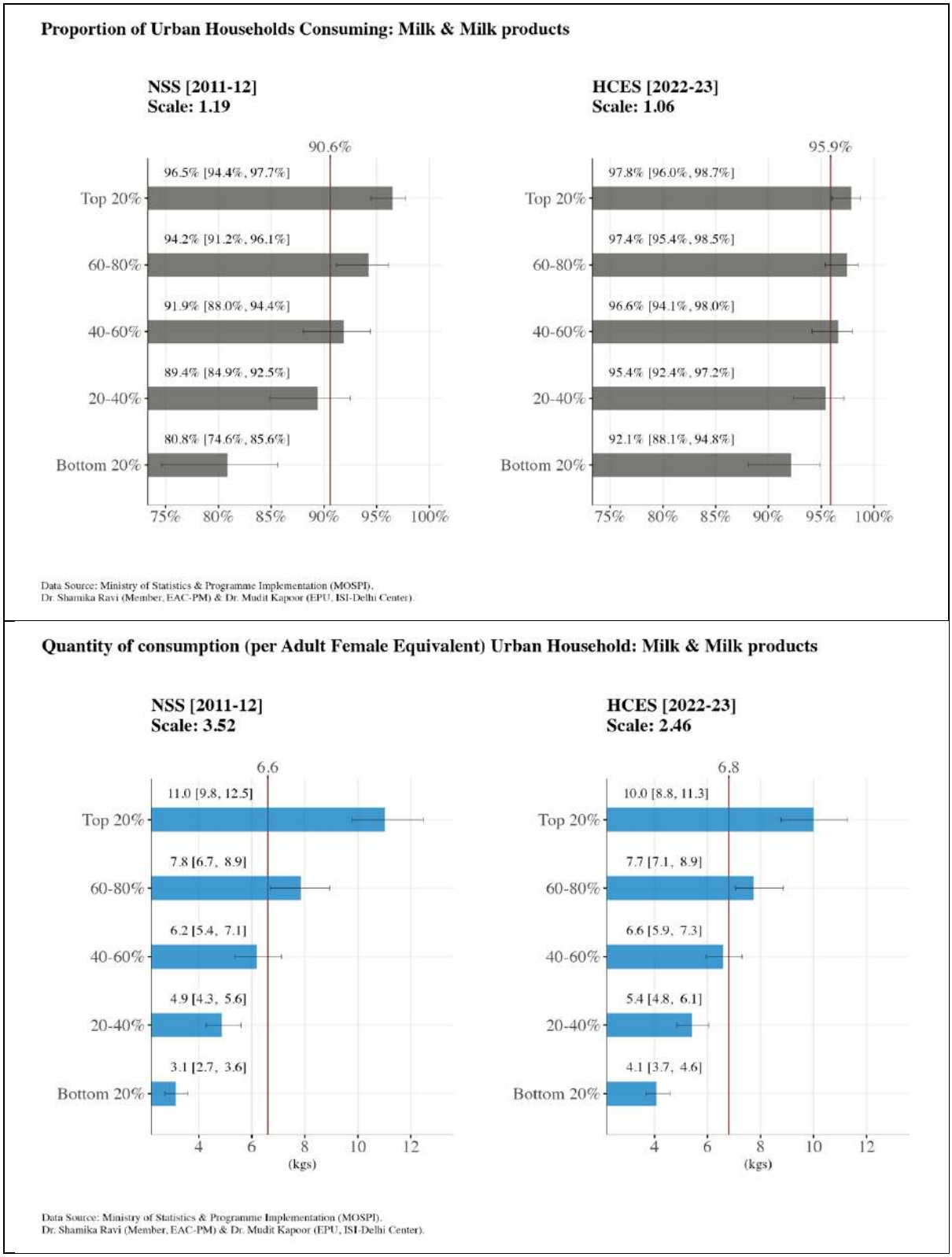
We do not observe any significant seasonality in the proportion of households consuming milk & milk products or in the average per-capita consumption, either for 2011–12 or 2022–23. These results are presented in Figures 8f and 8g.

Figures 8a:

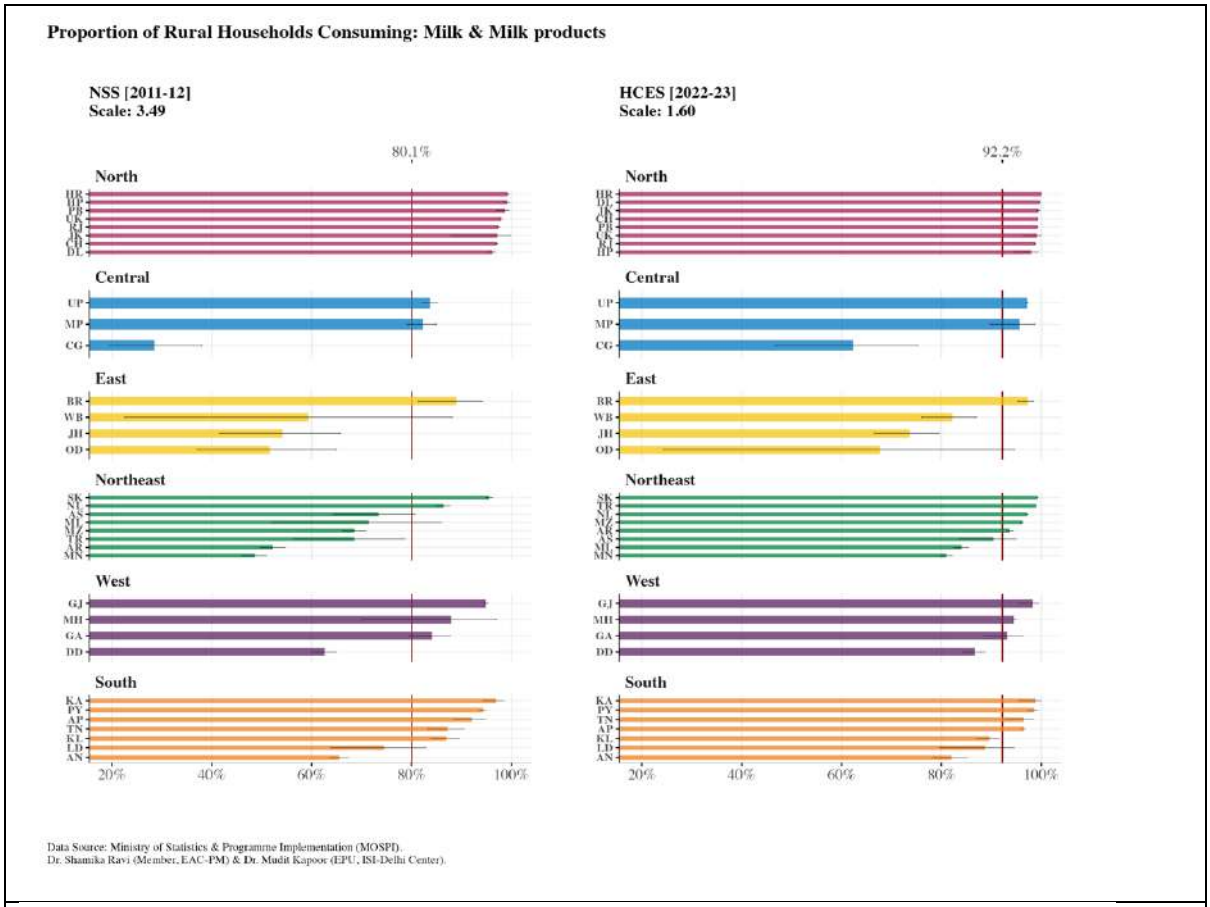

Proportion of Rural Households Consuming: Milk & Milk products
NSS [2011-12]
Scale: 1.40
80.1%
90.8% [86.6%, 93.5%]
86.0% [80.7%, 89.8%]
81.6% [75.5%, 86.2%]
77.4% [70.7%, 82.6%]
64.8% [57.3%, 71.4%]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
60%
70%
80%
90%
100%
HCES [2022-23]
Scale: 1.11
92.2%
95.6% [92.7%, 97.3%]
94.8% [91.7%, 96.8%]
93.3% [89.7%, 95.7%]
91.2% [86.9%, 94.1%]
85.9% [80.4%, 90.0%]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

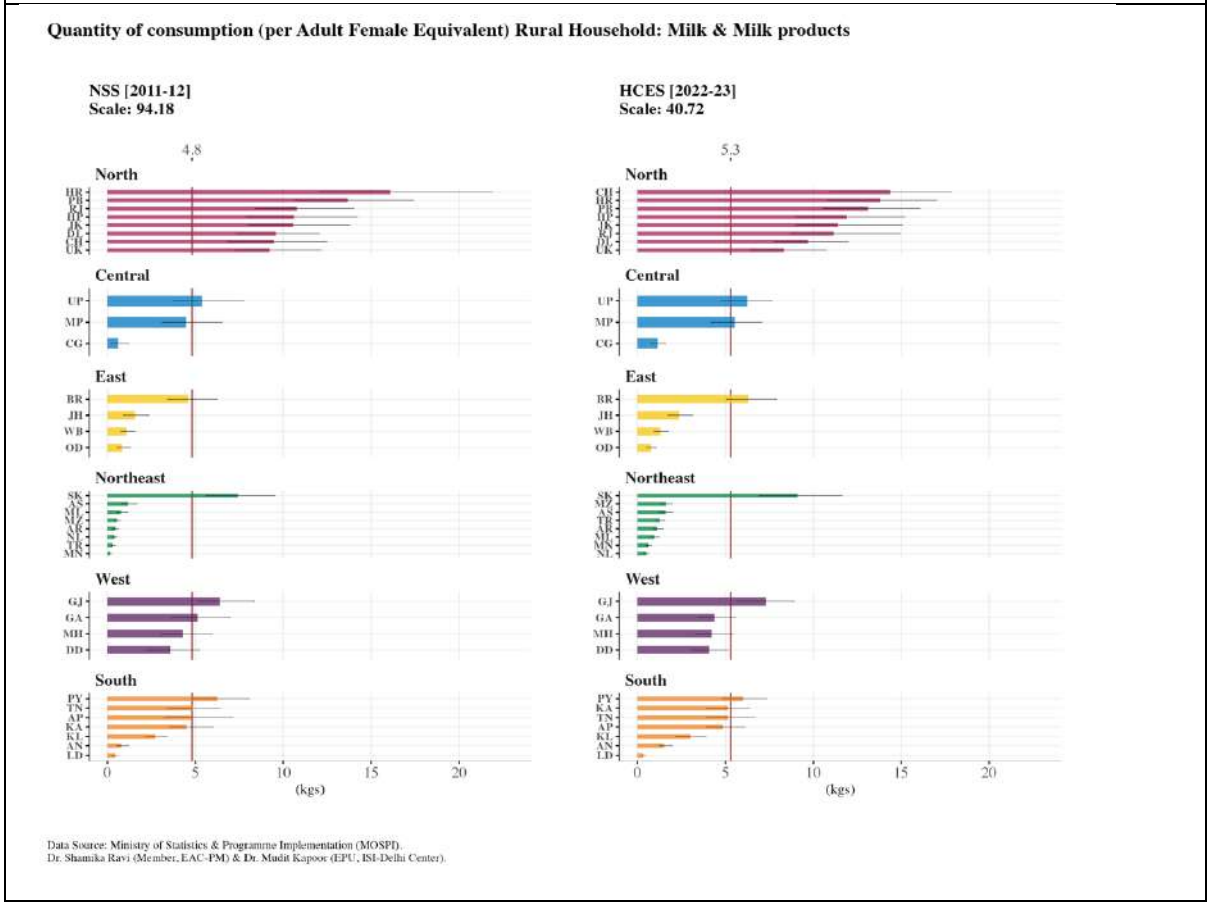

Quantity of consumption (per Adult Female Equivalent) Rural Household: Milk & Milk products
NSS [2011-12]
Scale: 3.74
4.8
8.2 [7.3, 9.1]
5.7 [4.9, 6.6]
4.4 [3.9, 5.1]
3.5 [3.1, 4.1]
2.2 [1.9, 2.5]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
2
4
6
8
(kgs)
HCES [2022-23]
Scale: 2.48
5.3
7.8 [6.8, 8.7]
6.1 [5.4, 6.9]
5.1 [4.6, 5.7]
4.3 [3.7, 4.8]
3.2 [2.7, 3.5]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figures 8b:


Proportion of Urban Households Consuming: Milk & Milk products
NSS [2011-12]
Scale: 1.19
90.6%
96.5% [94.4%, 97.7%]
94.2% [91.2%, 96.1%]
91.9% [88.0%, 94.4%]
89.4% [84.9%, 92.5%]
80.8% [74.6%, 85.6%]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
75%
80%
85%
90%
95%
100%
HCES [2022-23]
Scale: 1.06
95.9%
97.8% [96.0%, 98.7%]
97.4% [95.4%, 98.5%]
96.6% [94.1%, 98.0%]
95.4% [92.4%, 97.2%]
92.1% [88.1%, 94.8%]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Quantity of consumption (per Adult Female Equivalent) Urban Household: Milk & Milk products
NSS [2011-12]
Scale: 3.52
6.6
11.0 [9.8, 12.5]
7.8 [6.7, 8.9]
6.2 [5.4, 7.1]
4.9 [4.3, 5.6]
3.1 [2.7, 3.6]
4
6
8
10
12
(kgs)
HCES [2022-23]
Scale: 2.46
6.8
10.0 [8.8, 11.3]
7.7 [7.1, 8.9]
6.6 [5.9, 7.3]
5.4 [4.8, 6.1]
4.1 [3.7, 4.6]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figures 8b:


Proportion of Rural Households Consuming: Milk & Milk products
NSS [2011-12]
Scale: 3.49
80.1%
HCES [2022-23]
Scale: 1.60
92.2%
North
Central
East
Northeast
West
South
20%
40%
60%
80%
100%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).


Quantity of consumption (per Adult Female Equivalent) Rural Household: Milk & Milk products
NSS [2011-12]
Scale: 94.18
4.8
HCES [2022-23]
Scale: 40.72
5.3
North
Central
East
Northeast
West
South
0
5
10
15
20
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figures 8c:

Proportion of Rural Households Consuming: Milk & Milk products

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	97.2% [88.0%, 99.8%]	99.5% [99.2%, 99.8%]
Himachal Pradesh	99.2% [98.3%, 99.7%]	98.0% [94.7%, 99.5%]
Punjab	98.8% [97.0%, 99.6%]	99.3% [99.2%, 99.3%]
Chandigarh	97.1% [96.7%, 97.4%]	99.3% [99.2%, 99.4%]
Uttarakhand	98.0% [97.7%, 98.2%]	99.2% [96.4%, 100.0%]
Haryana	99.4% [98.9%, 99.7%]	99.9% [99.9%, 100.0%]
Delhi	96.2% [95.3%, 96.9%]	99.8% [99.7%, 99.8%]
Rajasthan	97.4% [97.1%, 97.7%]	98.8% [98.7%, 98.9%]
Central		
Uttar Pradesh	83.7% [82.2%, 85.1%]	97.2% [96.9%, 97.4%]
Chhattisgarh	28.5% [19.5%, 38.0%]	62.3% [46.8%, 75.3%]
Madhya Pradesh	82.2% [79.1%, 84.9%]	95.8% [89.9%, 98.7%]
East		
Bihar	89.0% [81.3%, 94.1%]	97.3% [95.4%, 98.5%]
West Bengal	59.3% [22.6%, 88.3%]	82.2% [76.1%, 87.0%]
Jharkhand	54.2% [41.6%, 65.7%]	73.6% [66.5%, 79.6%]
Odisha	51.6% [37.0%, 65.0%]	67.7% [24.2%, 94.7%]
Northeast		
Sikkim	95.6% [94.8%, 96.3%]	99.3% [99.1%, 99.4%]
Arunachal Pradesh	52.3% [49.7%, 54.7%]	93.7% [93.0%, 94.3%]
Nagaland	86.4% [84.9%, 87.8%]	97.2% [96.9%, 97.4%]
Manipur	48.6% [46.1%, 50.9%]	81.1% [79.8%, 82.2%]
Mizoram	68.7% [66.2%, 70.9%]	96.2% [95.8%, 96.5%]
Tripura	68.6% [56.3%, 78.7%]	99.0% [99.0%, 99.1%]
Meghalaya	71.5% [52.0%, 86.0%]	84.1% [82.6%, 85.4%]
Assam	73.4% [64.3%, 80.8%]	90.4% [83.5%, 95.0%]
West		
Gujarat	94.9% [94.4%, 95.3%]	98.3% [95.5%, 99.5%]
DDDH	62.6% [60.1%, 64.9%]	86.7% [84.4%, 88.6%]
Maharashtra	88.0% [70.0%, 97.0%]	94.5% [94.0%, 95.0%]
Goa	84.2% [79.7%, 87.8%]	93.2% [88.6%, 96.2%]
South		
Andhra Pradesh	92.2% [88.4%, 94.9%]	96.4% [96.0%, 96.8%]
Karnataka	96.9% [94.3%, 98.5%]	98.8% [95.5%, 99.9%]
Lakshadweep	74.5% [63.8%, 83.0%]	88.8% [79.6%, 94.6%]
Kerala	87.0% [83.9%, 89.6%]	89.6% [87.2%, 91.6%]
Tamil Nadu	87.3% [83.2%, 90.5%]	96.5% [92.7%, 98.5%]
Puducherry	94.4% [93.7%, 95.0%]	98.6% [97.3%, 99.4%]
Andaman & Nicobar	65.6% [63.6%, 67.4%]	82.0% [78.2%, 85.2%]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

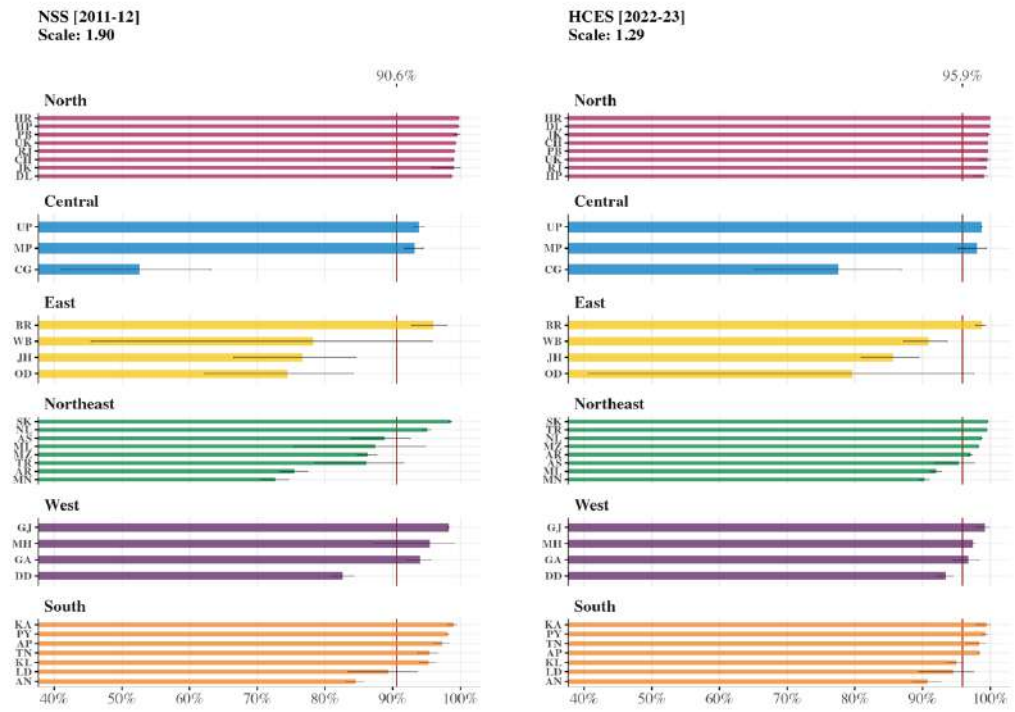
Quantity of consumption (per Adult Female Equivalent) Rural Household: Milk & Milk products

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	10.6 [8.0, 13.8]	11.4 [9.0, 15.1]
Himachal Pradesh	10.6 [7.9, 14.2]	11.9 [9.0, 15.2]
Punjab	13.7 [10.7, 17.4]	13.1 [10.5, 16.1]
Chandigarh	9.5 [6.8, 12.5]	14.4 [10.9, 17.9]
Uttarakhand	9.2 [7.3, 12.2]	8.3 [6.4, 10.7]
Haryana	16.1 [12.0, 21.9]	13.8 [10.8, 17.0]
Delhi	9.6 [7.3, 12.1]	9.7 [7.8, 12.0]
Rajasthan	10.8 [8.4, 14.0]	11.1 [8.7, 14.9]
Central		
Uttar Pradesh	5.4 [3.8, 7.7]	6.2 [4.7, 7.7]
Chhattisgarh	0.6 [0.2, 1.2]	1.2 [0.8, 1.6]
Madhya Pradesh	4.5 [3.1, 6.5]	5.5 [4.2, 7.0]
East		
Bihar	4.6 [3.5, 6.2]	6.3 [5.1, 7.9]
West Bengal	1.1 [0.8, 1.5]	1.3 [1.0, 1.7]
Jharkhand	1.6 [0.9, 2.3]	2.4 [1.7, 3.1]
Odisha	0.8 [0.5, 1.3]	0.8 [0.5, 1.0]
Northeast		
Sikkim	7.4 [5.6, 9.5]	9.1 [6.9, 11.6]
Arunachal Pradesh	0.4 [0.3, 0.6]	1.1 [0.9, 1.5]
Nagaland	0.4 [0.3, 0.5]	0.5 [0.4, 0.6]
Manipur	0.2 [0.1, 0.2]	0.6 [0.5, 0.8]
Mizoram	0.5 [0.4, 0.7]	1.6 [1.3, 2.0]
Tripura	0.3 [0.2, 0.4]	1.3 [1.1, 1.6]
Meghalaya	0.8 [0.5, 1.2]	1.0 [0.7, 1.3]
Assam	1.2 [0.8, 1.7]	1.6 [1.2, 2.0]
West		
Gujarat	6.4 [5.2, 8.3]	7.3 [5.7, 8.9]
DDDH	3.6 [2.2, 5.2]	4.1 [3.1, 5.2]
Maharashtra	4.3 [3.0, 5.9]	4.2 [3.3, 5.4]
Goa	5.1 [3.6, 7.0]	4.4 [3.5, 5.6]
South		
Andhra Pradesh	4.7 [3.2, 7.1]	4.9 [3.9, 6.1]
Karnataka	4.5 [3.6, 6.0]	5.1 [3.9, 6.4]
Lakshadweep	0.4 [0.3, 0.6]	0.4 [0.3, 0.5]
Kerala	2.7 [2.2, 3.4]	3.0 [2.2, 3.9]
Tamil Nadu	4.8 [3.4, 6.4]	5.1 [4.0, 6.7]
Puducherry	6.2 [4.8, 8.1]	6.0 [4.8, 7.4]
Andaman & Nicobar	0.8 [0.5, 1.2]	1.5 [1.2, 2.0]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

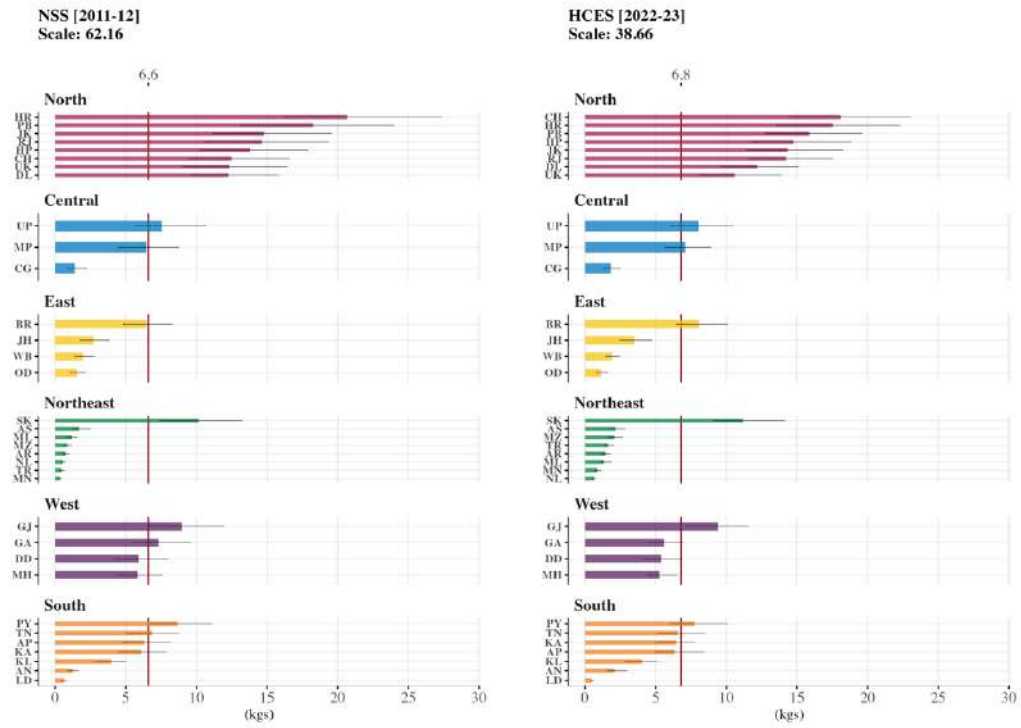
Figures 8d:

Proportion of Urban Households Consuming: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figures 8e:

Proportion of Urban Households Consuming: Milk & Milk products

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	99.1% [95.7%, 99.9%]	99.8% [99.6%, 99.9%]
Himachal Pradesh	99.7% [99.4%, 99.9%]	99.1% [97.5%, 99.8%]
Punjab	99.6% [99.0%, 99.9%]	99.7% [99.6%, 99.7%]
Chandigarh	99.1% [98.9%, 99.2%]	99.7% [99.6%, 99.7%]
Uttarakhand	99.4% [99.2%, 99.4%]	99.6% [98.3%, 100.0%]
Haryana	99.8% [99.7%, 99.9%]	100.0% [99.9%, 100.0%]
Delhi	98.8% [98.5%, 99.0%]	99.9% [99.9%, 99.9%]
Rajasthan	99.2% [99.1%, 99.3%]	99.5% [99.4%, 99.5%]
Central		
Uttar Pradesh	93.9% [93.2%, 94.5%]	98.7% [98.6%, 98.8%]
Chhattisgarh	52.6% [41.1%, 63.1%]	77.6% [65.1%, 86.8%]
Madhya Pradesh	93.3% [91.8%, 94.5%]	98.0% [95.1%, 99.4%]
East		
Bihar	96.1% [92.8%, 98.0%]	98.7% [97.9%, 99.3%]
West Bengal	78.2% [45.4%, 95.8%]	90.9% [87.2%, 93.7%]
Jharkhand	76.6% [66.5%, 84.6%]	85.7% [80.9%, 89.4%]
Odisha	74.5% [62.2%, 84.2%]	79.6% [40.6%, 97.5%]
Northeast		
Sikkim	98.6% [98.3%, 98.8%]	99.7% [99.6%, 99.7%]
Arunachal Pradesh	75.5% [73.3%, 77.4%]	97.1% [96.7%, 97.4%]
Nagaland	95.1% [94.4%, 95.7%]	98.7% [98.6%, 98.8%]
Manipur	72.6% [70.4%, 74.6%]	90.3% [89.5%, 91.0%]
Mizoram	86.3% [84.8%, 87.7%]	98.2% [98.1%, 98.4%]
Tripura	86.1% [78.4%, 91.6%]	99.6% [99.5%, 99.6%]
Meghalaya	87.5% [75.2%, 94.9%]	92.0% [91.1%, 92.8%]
Assam	88.8% [83.7%, 92.6%]	95.4% [91.7%, 97.7%]
West		
Gujarat	98.3% [98.1%, 98.5%]	99.2% [97.9%, 99.8%]
DDDH	82.7% [80.9%, 84.2%]	93.4% [92.1%, 94.5%]
Maharashtra	95.5% [87.1%, 99.0%]	97.5% [97.2%, 97.7%]
Goa	94.1% [92.1%, 95.7%]	96.8% [94.5%, 98.3%]
South		
Andhra Pradesh	97.3% [95.9%, 98.3%]	98.4% [98.2%, 98.6%]
Karnataka	99.0% [98.1%, 99.5%]	99.5% [97.9%, 99.9%]
Lakshadweep	89.4% [83.4%, 93.6%]	94.5% [89.4%, 97.5%]
Kerala	95.3% [94.0%, 96.4%]	95.0% [93.7%, 96.0%]
Tamil Nadu	95.4% [93.7%, 96.7%]	98.4% [96.6%, 99.3%]
Puducherry	98.1% [97.9%, 98.4%]	99.4% [98.8%, 99.7%]
Andaman & Nicobar	84.5% [83.2%, 85.7%]	90.8% [88.6%, 92.7%]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

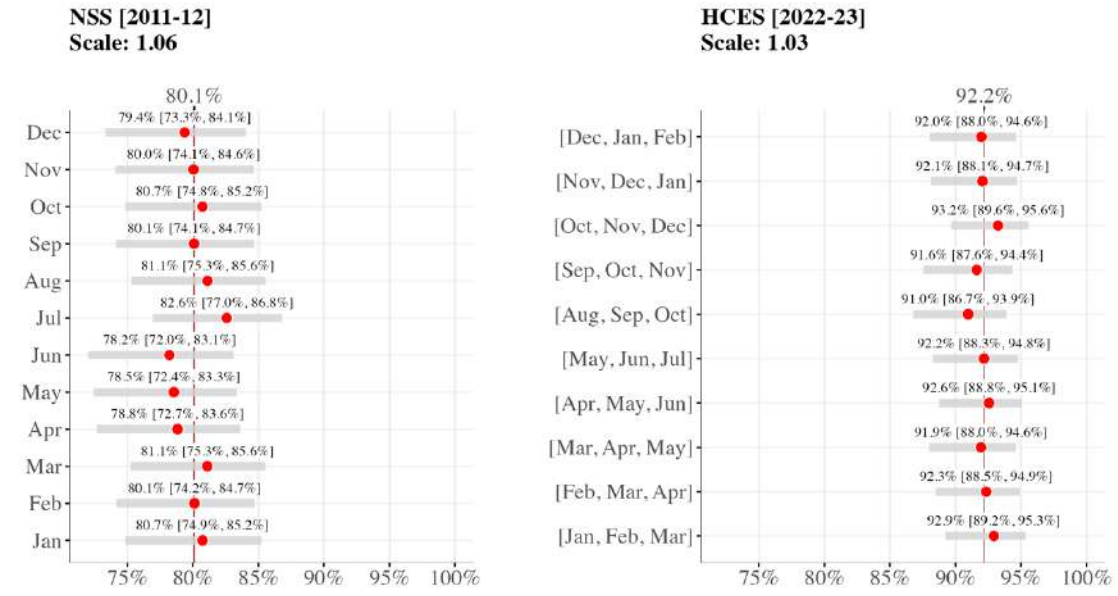
Quantity of consumption (per Adult Female Equivalent) Urban Household: Milk & Milk products

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	14.8 [11.2, 19.6]	14.3 [11.4, 18.3]
Himachal Pradesh	13.8 [10.2, 17.9]	14.8 [11.8, 18.8]
Punjab	18.3 [13.1, 24.0]	15.9 [12.7, 19.6]
Chandigarh	12.5 [9.5, 16.5]	18.1 [14.3, 23.0]
Uttarakhand	12.3 [9.0, 16.4]	10.6 [8.1, 13.9]
Haryana	20.6 [16.2, 27.3]	17.5 [13.6, 22.3]
Delhi	12.3 [9.6, 15.8]	12.2 [9.6, 15.1]
Rajasthan	14.6 [10.6, 19.3]	14.2 [11.6, 17.5]
Central		
Uttar Pradesh	7.6 [5.7, 10.6]	8.0 [6.1, 10.4]
Chhattisgarh	1.4 [0.8, 2.1]	1.8 [1.4, 2.4]
Madhya Pradesh	6.4 [4.5, 8.7]	7.1 [5.7, 8.9]
East		
Bihar	6.5 [4.8, 8.3]	8.1 [6.5, 10.0]
West Bengal	1.9 [1.4, 2.8]	1.9 [1.5, 2.4]
Jharkhand	2.7 [1.8, 3.8]	3.5 [2.5, 4.7]
Odisha	1.5 [1.1, 2.1]	1.1 [0.8, 1.5]
Northeast		
Sikkim	10.1 [7.4, 13.2]	11.2 [9.1, 14.1]
Arunachal Pradesh	0.7 [0.5, 1.0]	1.4 [1.1, 1.8]
Nagaland	0.5 [0.4, 0.7]	0.6 [0.5, 0.8]
Manipur	0.3 [0.2, 0.4]	0.8 [0.7, 1.1]
Mizoram	0.8 [0.6, 1.1]	2.1 [1.6, 2.7]
Tripura	0.5 [0.3, 0.6]	1.6 [1.3, 2.0]
Meghalaya	1.2 [0.9, 1.5]	1.3 [1.0, 1.8]
Assam	1.7 [1.2, 2.5]	2.1 [1.7, 2.8]
West		
Gujarat	9.0 [6.7, 11.9]	9.4 [7.2, 11.5]
DDDH	5.9 [4.2, 8.0]	5.4 [4.1, 6.8]
Maharashtra	5.8 [4.5, 7.6]	5.3 [4.4, 6.5]
Goa	7.3 [5.5, 9.6]	5.6 [4.4, 6.9]
South		
Andhra Pradesh	6.3 [4.8, 8.2]	6.3 [5.0, 8.5]
Karnataka	6.1 [4.5, 7.9]	6.4 [5.0, 7.7]
Lakshadweep	0.6 [0.5, 0.8]	0.5 [0.4, 0.6]
Kerala	4.0 [2.9, 5.0]	4.1 [2.9, 5.1]
Tamil Nadu	6.9 [5.0, 8.7]	6.6 [5.1, 8.5]
Puducherry	8.7 [6.8, 11.0]	7.8 [5.9, 10.1]
Andaman & Nicobar	1.2 [0.9, 1.6]	2.1 [1.6, 3.0]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

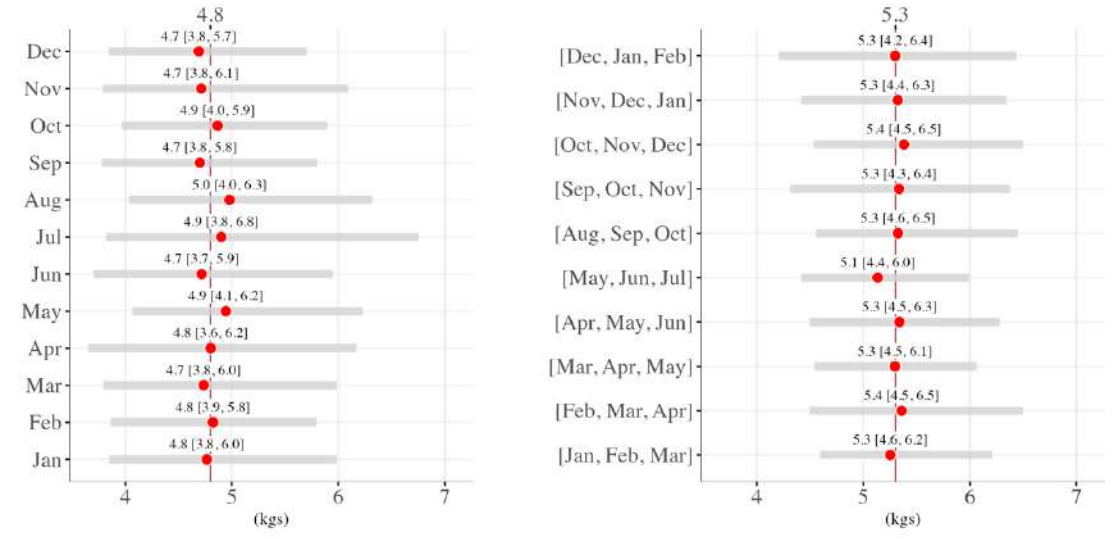
Figures 8f:

Proportion of Rural Households Consuming: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

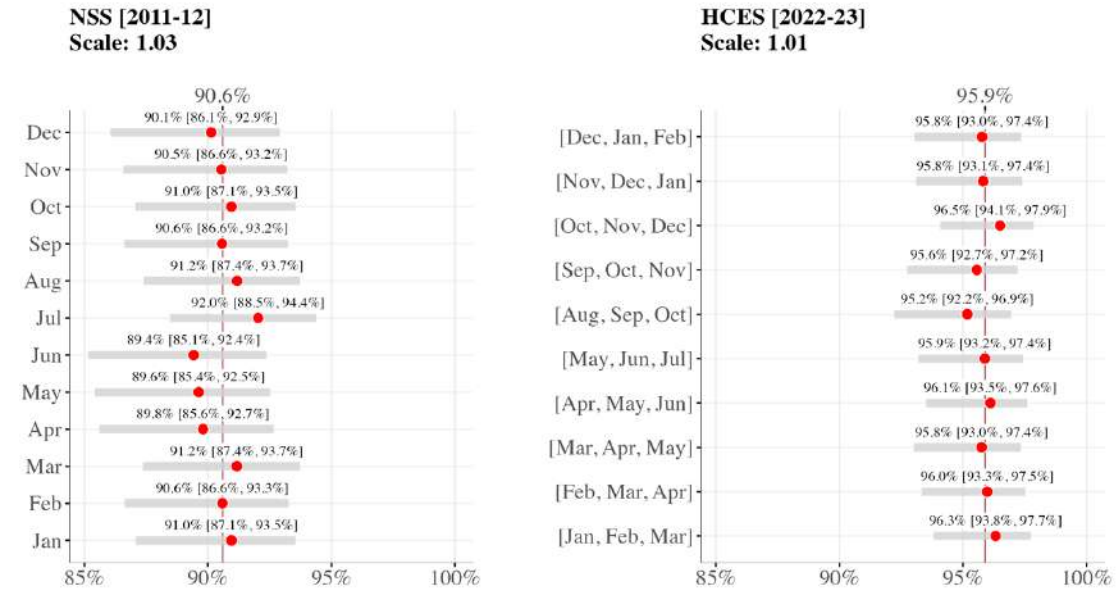
Quantity of consumption (per Adult Female Equivalent) Rural Household: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

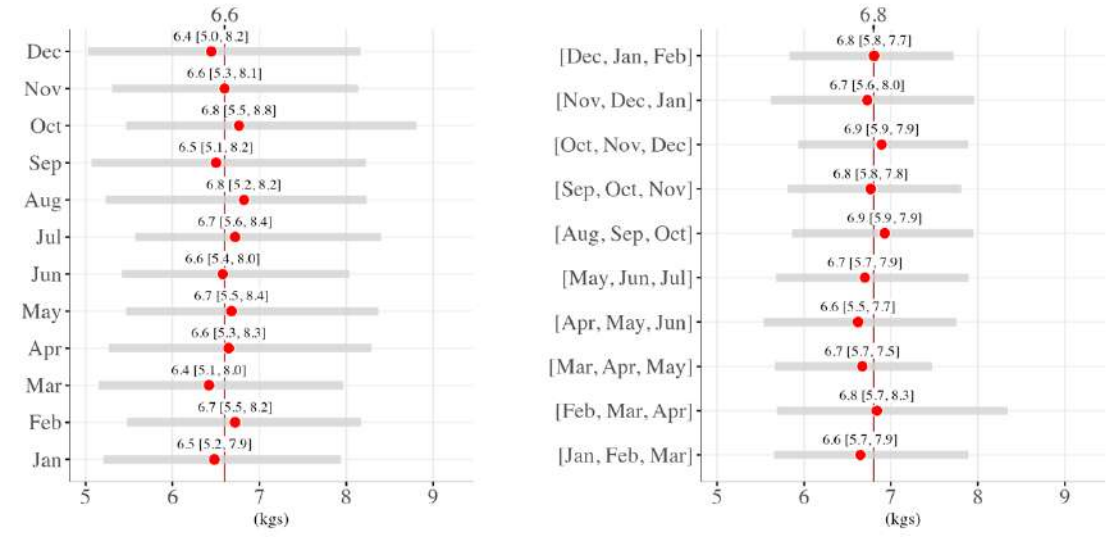
Figures 8g:

Proportion of Urban Households Consuming: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Milk & Milk products



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(iii) Eggs, Fish & Meat

Consumption Quintile Classes

For eggs, fish & meat, the overall proportion of rural households consuming this increased from 64.4% in 2011–12 to 80.2% in 2022-23. In terms of percentage points, the highest increase was for the bottom 20% of the rural households, almost a 20 percentage point increase from 58.3% in 2011-12 to 78.5% in 2022–23. In terms of the average quantity of consumption, the gap between the top 20% and the bottom 20% in terms of the consumption ratio narrowed from a scale factor of 2.61 to 1.81 during the same period. The average per capita consumption for the bottom 20% increased from 0.5 kgs to 0.9 kgs, a growth of almost 80%. For urban households, we observed a similar pattern of a declining gap between the top 20% and the bottom 20%, and the average per capita consumption increased from 0.7 kgs to 1.1 kgs from 2011–12 to 2022–23, a growth of almost 57%.

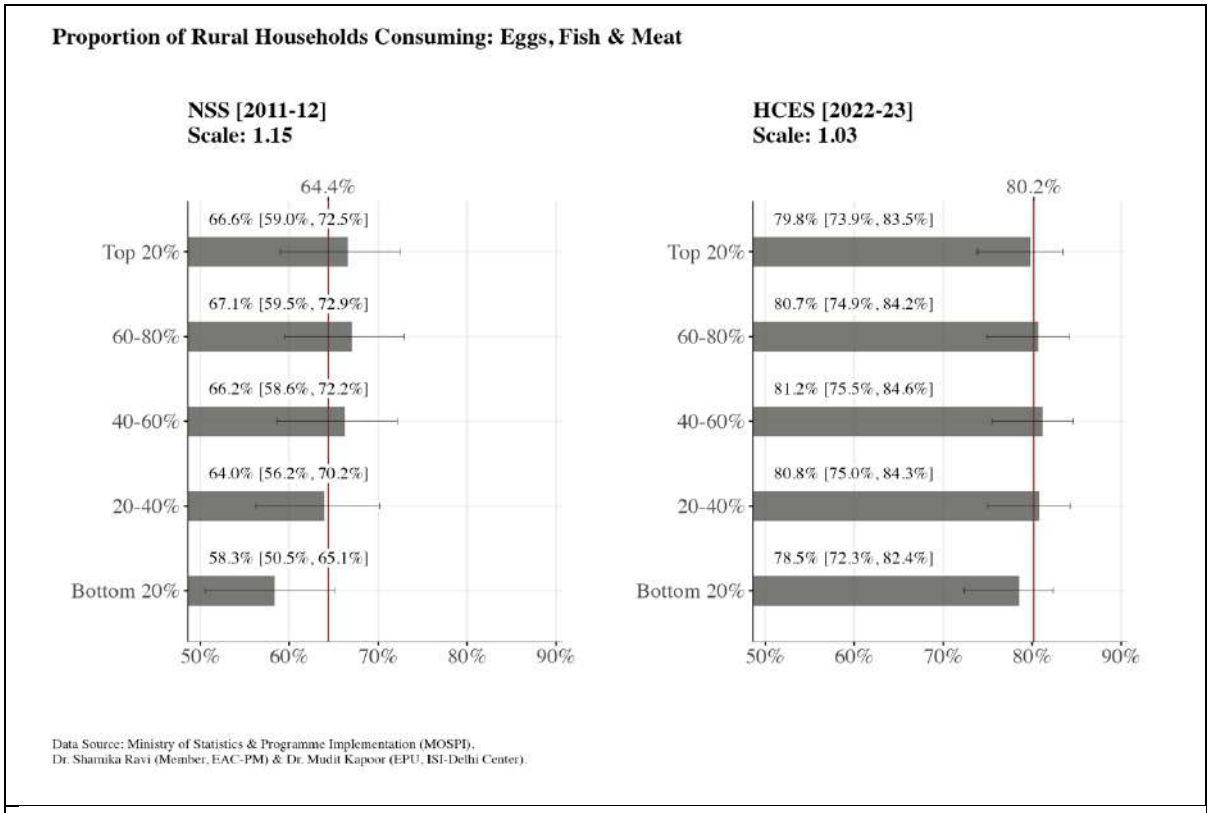
State/UT

We observed sizeable inter-state variation in consumption of eggs, fish & meat. For example, among all the states in 2022–23, the highest to the lowest average per-capita consumption ratio was 21.69 among rural households and 20.5 among urban households. In states such as Rajasthan, the proportion of rural households consuming eggs, fish & meat was 21.6%, while for Kerela, it was more than 94% in 2022–23. Regarding average per capita monthly consumption, Rajasthan was 0.1 kgs, while Kerala was 2.9 kgs for 2022–23. The proportion of households consuming eggs, fish & meat was low in northern states such as Punjab, Haryana, and Rajasthan and in western states such as Gujarat. However, for states in the eastern such as West Bengal, the northeastern region, and the southern region, the proportion of people consuming eggs, fish & meat is high.

Seasonality

We did not observe significant variations across households surveyed in different panels of months, in the proportion of households or terms of average per capita across households, either for rural or urban areas.

Figure 9a


Proportion of Rural Households Consuming: Eggs, Fish & Meat
NSS [2011-12]
Scale: 1.15
64.4%
66.6% [59.0%, 72.5%]
67.1% [59.5%, 72.9%]
66.2% [58.6%, 72.2%]
64.0% [56.2%, 70.2%]
58.3% [50.5%, 65.1%]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
50%
60%
70%
80%
90%
HCES [2022-23]
Scale: 1.03
80.2%
79.8% [73.9%, 83.5%]
80.7% [74.9%, 84.2%]
81.2% [75.5%, 84.6%]
80.8% [75.0%, 84.3%]
78.5% [72.3%, 82.4%]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
50%
60%
70%
80%
90%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

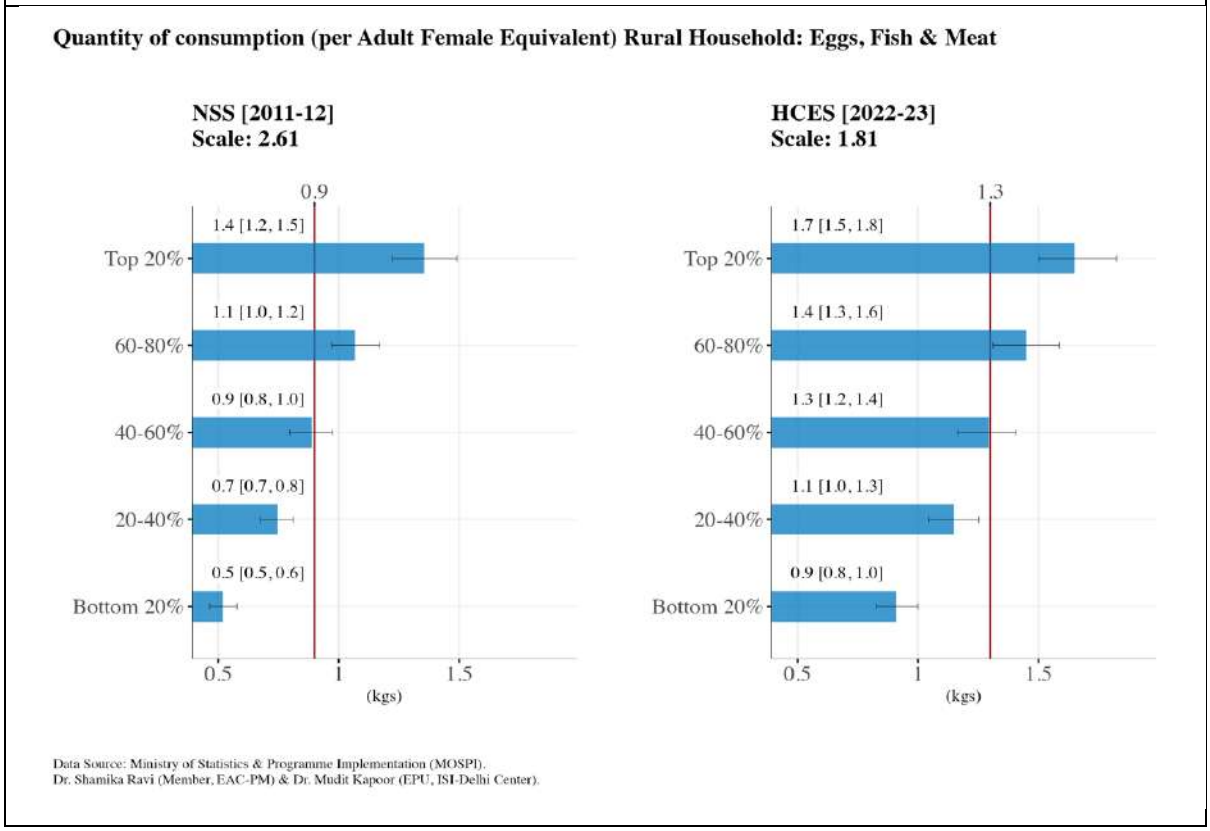
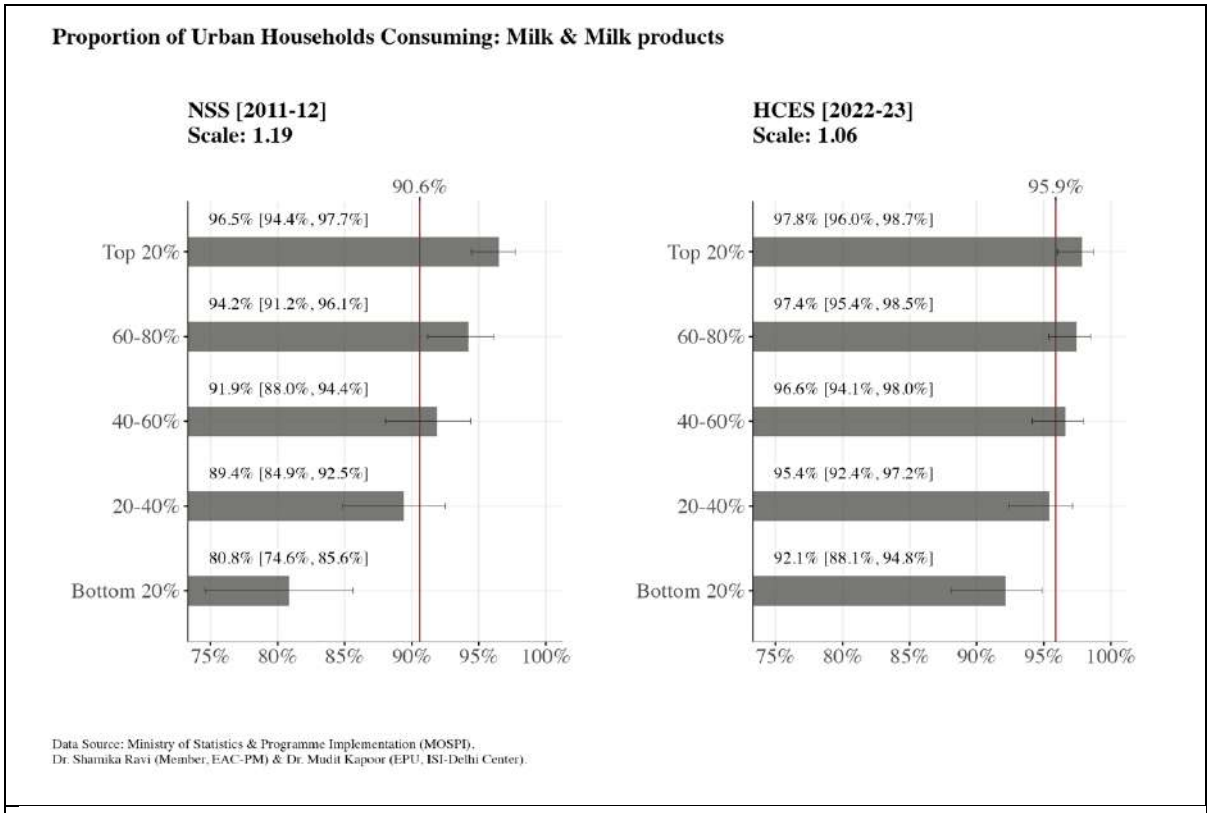

Quantity of consumption (per Adult Female Equivalent) Rural Household: Eggs, Fish & Meat
NSS [2011-12]
Scale: 2.61
0.9
1.4 [1.2, 1.5]
1.1 [1.0, 1.2]
0.9 [0.8, 1.0]
0.7 [0.7, 0.8]
0.5 [0.5, 0.6]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
0.5
1
1.5
(kgs)
HCES [2022-23]
Scale: 1.81
1.3
1.7 [1.5, 1.8]
1.4 [1.3, 1.6]
1.3 [1.2, 1.4]
1.1 [1.0, 1.3]
0.9 [0.8, 1.0]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
0.5
1
1.5
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9b


Proportion of Urban Households Consuming: Milk & Milk products
NSS [2011-12]
Scale: 1.19
90.6%
96.5% [94.4%, 97.7%]
94.2% [91.2%, 96.1%]
91.9% [88.0%, 94.4%]
89.4% [84.9%, 92.5%]
80.8% [74.6%, 85.6%]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
75%
80%
85%
90%
95%
100%
HCES [2022-23]
Scale: 1.06
95.9%
97.8% [96.0%, 98.7%]
97.4% [95.4%, 98.5%]
96.6% [94.1%, 98.0%]
95.4% [92.4%, 97.2%]
92.1% [88.1%, 94.8%]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

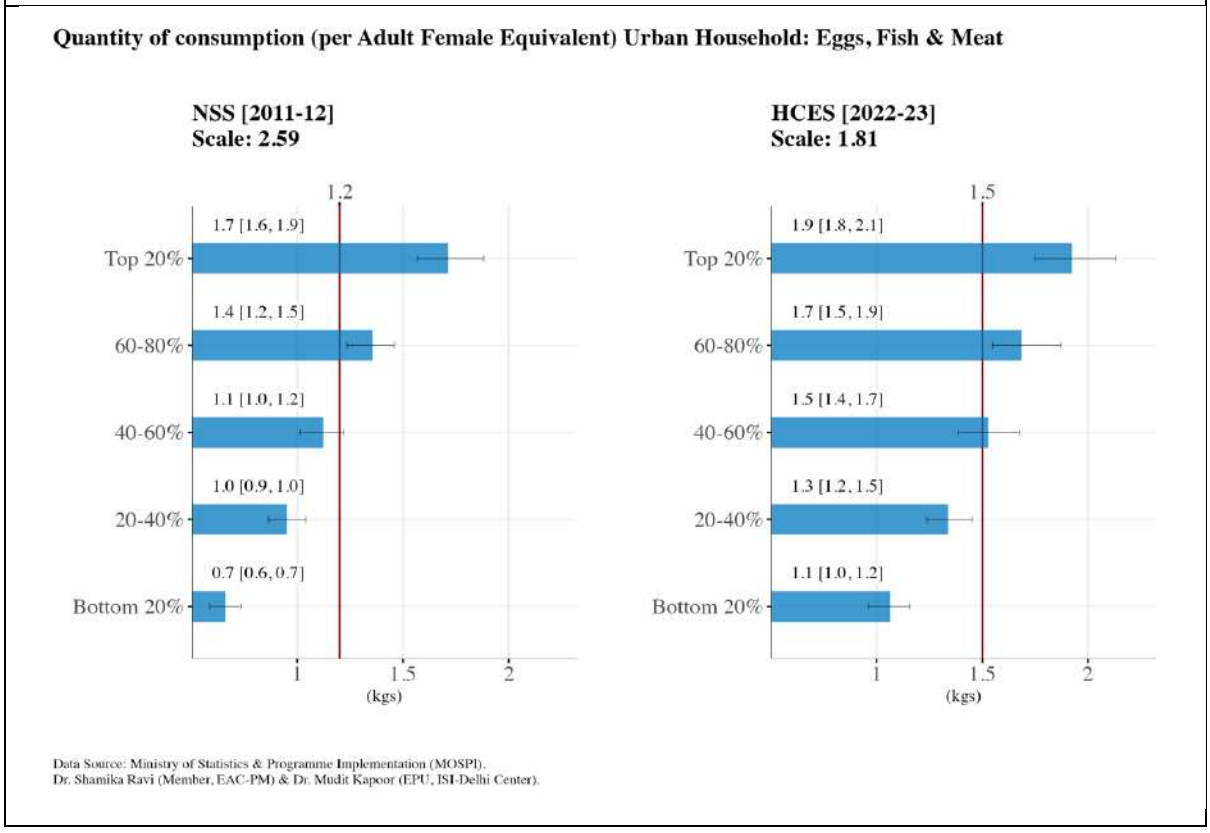
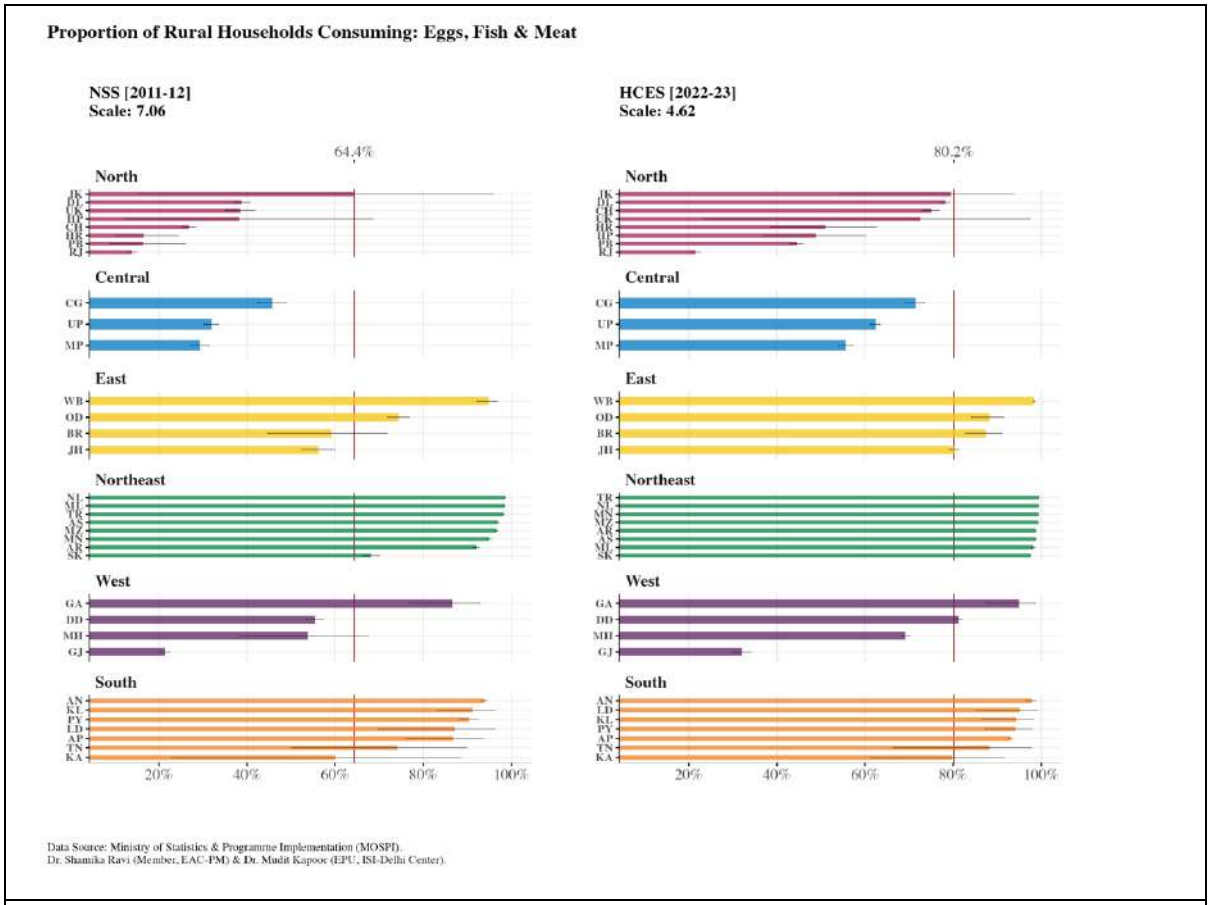

Quantity of consumption (per Adult Female Equivalent) Urban Household: Eggs, Fish & Meat
NSS [2011-12]
Scale: 2.59
1.2
1.7 [1.6, 1.9]
1.4 [1.2, 1.5]
1.1 [1.0, 1.2]
1.0 [0.9, 1.0]
0.7 [0.6, 0.7]
Top 20%
60-80%
40-60%
20-40%
Bottom 20%
1
1.5
2
(kgs)
HCES [2022-23]
Scale: 1.81
1.5
1.9 [1.8, 2.1]
1.7 [1.5, 1.9]
1.5 [1.4, 1.7]
1.3 [1.2, 1.5]
1.1 [1.0, 1.2]
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9c


Proportion of Rural Households Consuming: Eggs, Fish & Meat
NSS [2011-12]
Scale: 7.06
HCES [2022-23]
Scale: 4.62
64.4%
80.2%
North
Central
East
Northeast
West
South
20%
40%
60%
80%
100%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

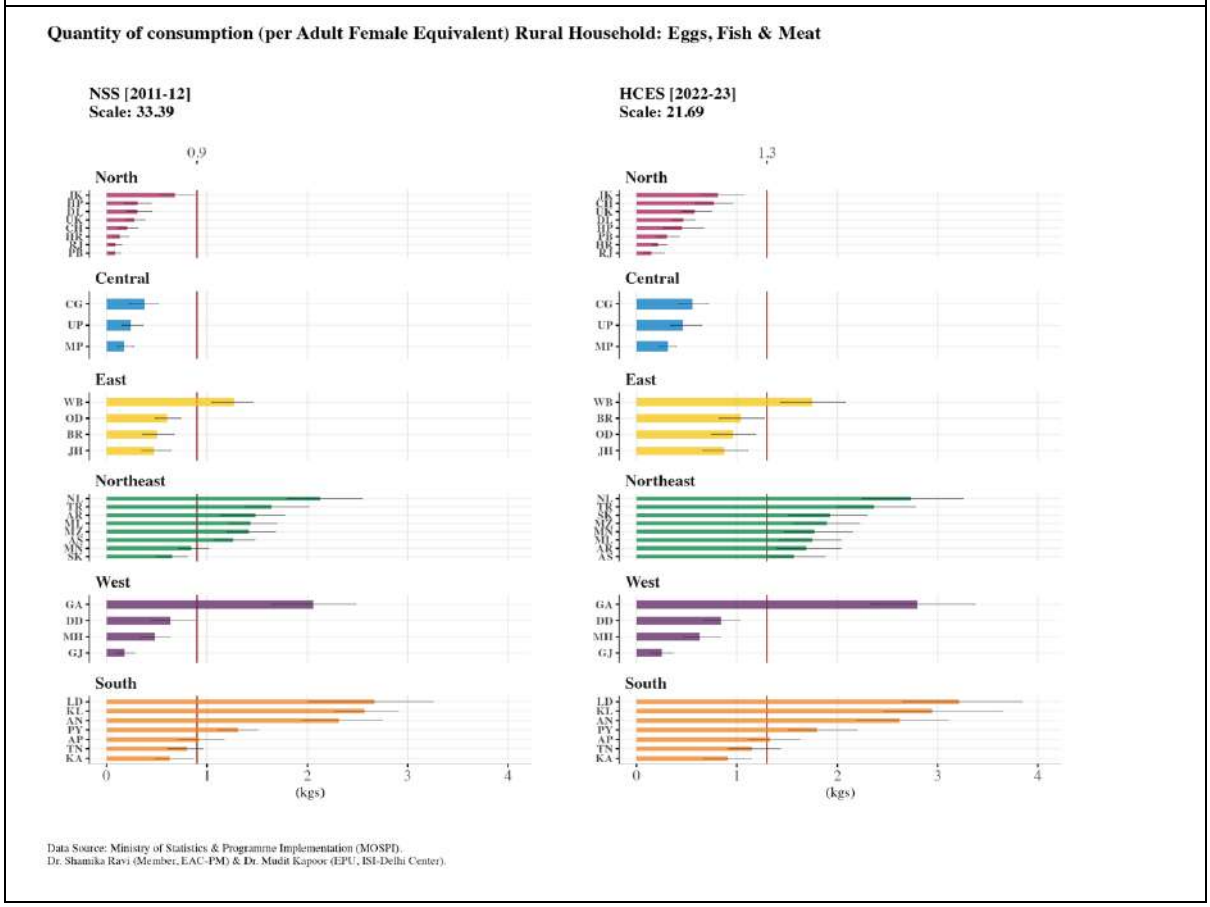

Quantity of consumption (per Adult Female Equivalent) Rural Household: Eggs, Fish & Meat
NSS [2011-12]
Scale: 33.39
HCES [2022-23]
Scale: 21.69
0.9
1.3
North
Central
East
Northeast
West
South
0
1
2
3
4
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9d

Proportion of Rural Households Consuming: Eggs, Fish & Meat

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	64.6% [15.4%, 95.9%]	79.5% [54.2%, 93.9%]
Himachal Pradesh	38.3% [12.2%, 68.7%]	48.8% [36.8%, 60.1%]
Punjab	16.4% [8.8%, 26.1%]	44.5% [43.0%, 45.9%]
Chandigarh	26.8% [25.2%, 28.3%]	75.0% [73.0%, 76.9%]
Uttarakhand	38.5% [35.1%, 41.8%]	72.5% [23.3%, 97.4%]
Haryana	16.6% [10.0%, 24.4%]	51.0% [38.5%, 62.6%]
Delhi	38.8% [36.8%, 40.7%]	78.3% [77.3%, 79.2%]
Rajasthan	14.0% [12.9%, 15.0%]	21.6% [20.4%, 22.6%]
Central		
Uttar Pradesh	31.9% [30.3%, 33.4%]	62.4% [61.3%, 63.5%]
Chhattisgarh	45.7% [42.3%, 48.9%]	71.5% [69.2%, 73.5%]
Madhya Pradesh	29.3% [27.2%, 31.3%]	55.6% [53.9%, 57.2%]
East		
Bihar	59.1% [44.7%, 71.7%]	87.4% [82.8%, 91.0%]
West Bengal	94.9% [92.3%, 96.7%]	98.4% [98.2%, 98.5%]
Jharkhand	56.4% [52.5%, 59.9%]	80.3% [79.3%, 81.3%]
Odisha	74.5% [71.9%, 76.8%]	88.2% [84.2%, 91.4%]
Northeast		
Sikkim	68.2% [66.1%, 70.0%]	97.6% [97.4%, 97.7%]
Arunachal Pradesh	92.1% [91.5%, 92.7%]	98.8% [98.8%, 98.9%]
Nagaland	98.6% [98.5%, 98.7%]	99.5% [99.5%, 99.5%]
Manipur	94.9% [94.5%, 95.4%]	99.4% [99.4%, 99.5%]
Mizoram	96.6% [96.2%, 96.9%]	99.4% [99.3%, 99.4%]
Tripura	98.2% [97.9%, 98.5%]	99.5% [99.5%, 99.6%]
Meghalaya	98.5% [98.2%, 98.7%]	98.2% [97.8%, 98.6%]
Assam	96.9% [96.5%, 97.2%]	98.8% [98.7%, 98.9%]
West		
Gujarat	21.4% [20.2%, 22.5%]	32.0% [29.8%, 34.1%]
DDDH	55.4% [53.5%, 57.2%]	81.3% [80.4%, 82.1%]
Maharashtra	53.7% [38.7%, 67.4%]	69.2% [68.2%, 70.1%]
Goa	86.6% [77.1%, 92.9%]	95.0% [87.5%, 98.6%]
South		
Andhra Pradesh	86.9% [76.1%, 93.8%]	93.0% [92.6%, 93.4%]
Karnataka	60.1% [23.0%, 88.7%]	79.8% [61.3%, 91.6%]
Lakshadweep	87.2% [69.7%, 96.3%]	95.2% [85.2%, 99.1%]
Kerala	91.3% [83.3%, 96.1%]	94.3% [86.5%, 98.2%]
Tamil Nadu	74.1% [50.2%, 90.0%]	88.3% [66.3%, 97.8%]
Puducherry	90.4% [88.0%, 92.3%]	94.2% [87.0%, 97.9%]
Andaman & Nicobar	93.9% [93.2%, 94.6%]	97.9% [96.4%, 98.9%]

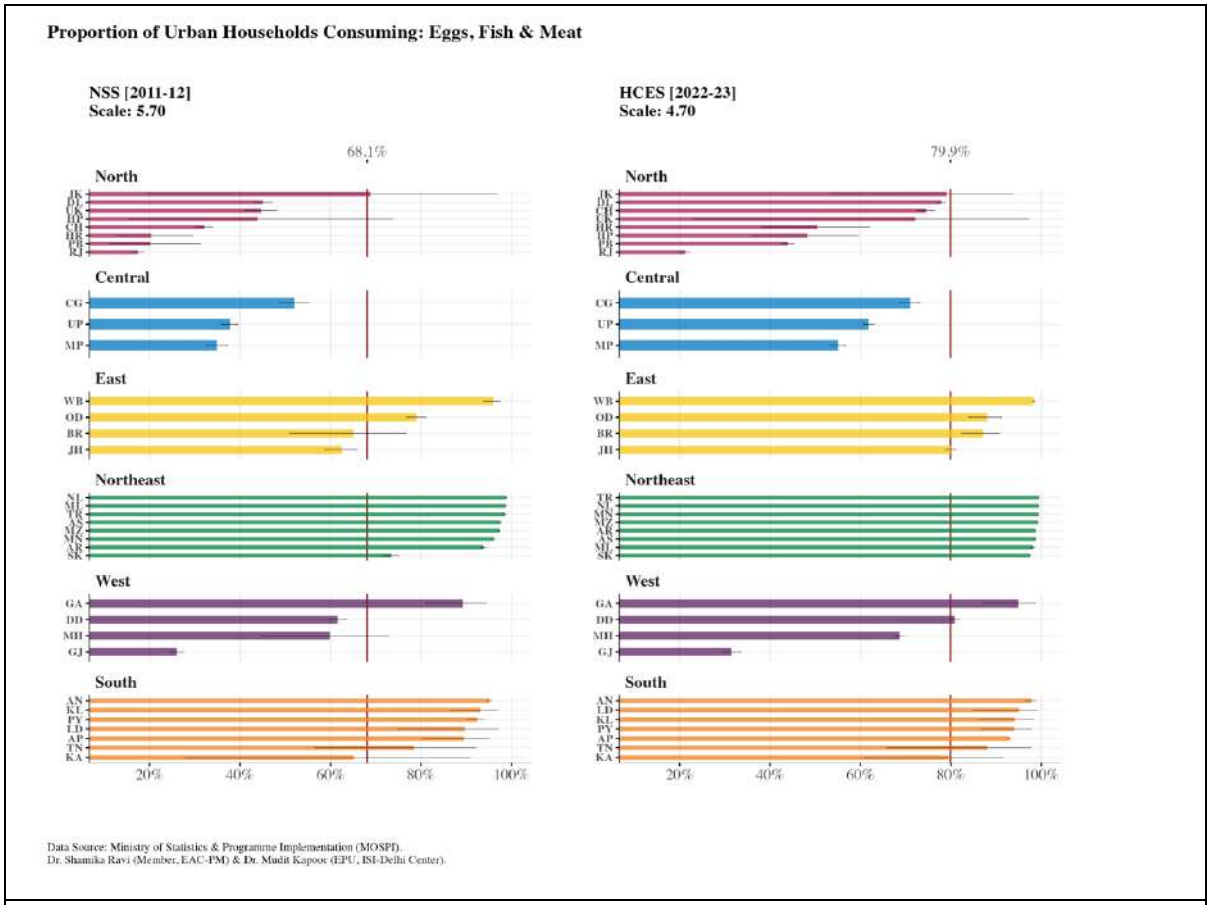
Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Rural Household: Eggs, Fish & Meat

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	0.7 [0.5, 0.9]	0.8 [0.7, 1.1]
Himachal Pradesh	0.3 [0.2, 0.4]	0.4 [0.3, 0.7]
Punjab	0.1 [0.0, 0.1]	0.3 [0.2, 0.4]
Chandigarh	0.2 [0.1, 0.3]	0.8 [0.6, 1.0]
Uttarakhand	0.3 [0.2, 0.4]	0.6 [0.4, 0.8]
Haryana	0.1 [0.1, 0.2]	0.2 [0.2, 0.3]
Delhi	0.3 [0.2, 0.5]	0.5 [0.4, 0.6]
Rajasthan	0.1 [0.0, 0.2]	0.1 [0.1, 0.3]
Central		
Uttar Pradesh	0.2 [0.2, 0.4]	0.5 [0.3, 0.6]
Chhattisgarh	0.4 [0.2, 0.5]	0.6 [0.4, 0.7]
Madhya Pradesh	0.2 [0.1, 0.3]	0.3 [0.2, 0.4]
East		
Bihar	0.5 [0.4, 0.7]	1.0 [0.8, 1.3]
West Bengal	1.3 [1.0, 1.5]	1.7 [1.4, 2.1]
Jharkhand	0.5 [0.4, 0.6]	0.9 [0.7, 1.1]
Odisha	0.6 [0.5, 0.7]	1.0 [0.8, 1.2]
Northeast		
Sikkim	0.7 [0.5, 0.8]	1.9 [1.5, 2.3]
Arunachal Pradesh	1.5 [1.1, 1.8]	1.7 [1.4, 2.0]
Nagaland	2.1 [1.8, 2.5]	2.7 [2.2, 3.3]
Manipur	0.8 [0.7, 1.0]	1.8 [1.5, 2.2]
Mizoram	1.4 [1.2, 1.7]	1.9 [1.6, 2.2]
Tripura	1.6 [1.4, 2.0]	2.4 [2.0, 2.8]
Meghalaya	1.4 [1.2, 1.7]	1.7 [1.4, 2.0]
Assam	1.3 [1.1, 1.5]	1.6 [1.3, 1.9]
West		
Gujarat	0.2 [0.1, 0.3]	0.2 [0.1, 0.4]
DDDH	0.6 [0.5, 0.9]	0.8 [0.7, 1.0]
Maharashtra	0.5 [0.3, 0.6]	0.6 [0.5, 0.8]
Goa	2.1 [1.6, 2.5]	2.8 [2.3, 3.4]
South		
Andhra Pradesh	0.9 [0.7, 1.2]	1.3 [1.1, 1.6]
Karnataka	0.6 [0.5, 0.9]	0.9 [0.7, 1.1]
Lakshadweep	2.7 [2.0, 3.3]	3.2 [2.7, 3.8]
Kerala	2.6 [2.3, 2.9]	2.9 [2.5, 3.6]
Tamil Nadu	0.8 [0.6, 1.0]	1.1 [0.9, 1.4]
Puducherry	1.3 [1.1, 1.5]	1.8 [1.5, 2.2]
Andaman & Nicobar	2.3 [2.0, 2.7]	2.6 [2.2, 3.1]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9e


Proportion of Urban Households Consuming: Eggs, Fish & Meat
NSS [2011-12]
Scale: 5.70
HCES [2022-23]
Scale: 4.70
68.1%
79.9%
North
Central
East
Northeast
West
South
20%
40%
60%
80%
100%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

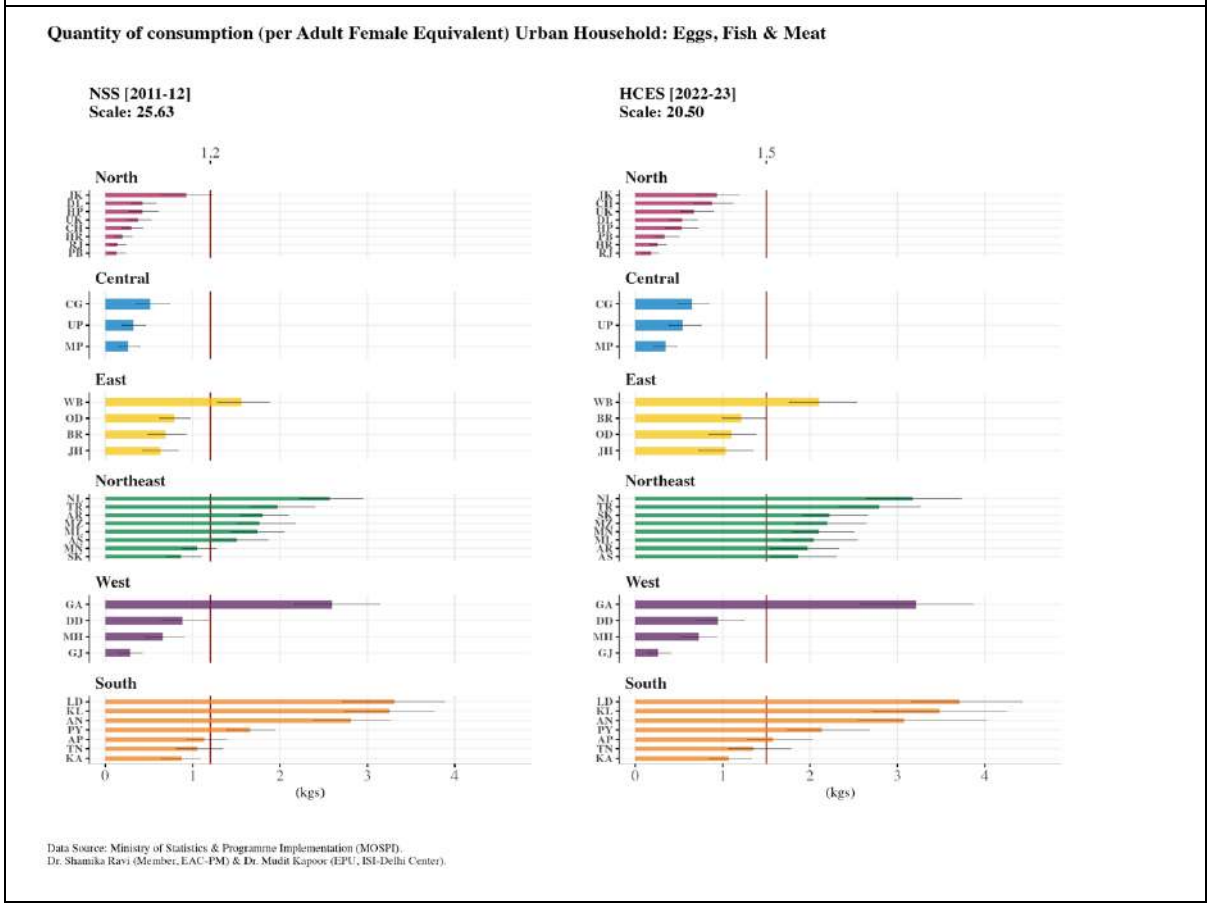

Quantity of consumption (per Adult Female Equivalent) Urban Household: Eggs, Fish & Meat
NSS [2011-12]
Scale: 25.63
HCES [2022-23]
Scale: 20.50
1.2
1.5
North
Central
East
Northeast
West
South
0
1
2
3
4
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9f

Proportion of Urban Households Consuming: Eggs, Fish & Meat

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	68.8% [19.1%, 96.8%]	79.1% [53.6%, 93.8%]
Himachal Pradesh	43.8% [15.3%, 73.9%]	48.2% [36.2%, 59.6%]
Punjab	20.2% [11.1%, 31.3%]	43.9% [42.4%, 45.4%]
Chandigarh	32.1% [30.3%, 33.8%]	74.6% [72.5%, 76.5%]
Uttarakhand	44.7% [41.0%, 48.2%]	72.2% [22.9%, 97.3%]
Haryana	20.4% [12.6%, 29.4%]	50.5% [38.0%, 62.1%]
Delhi	45.1% [42.9%, 47.1%]	77.9% [76.8%, 78.8%]
Rajasthan	17.4% [16.0%, 18.6%]	21.2% [20.1%, 22.2%]
Central		
Uttar Pradesh	37.7% [36.0%, 39.4%]	61.9% [60.7%, 62.9%]
Chhattisgarh	52.1% [48.7%, 55.1%]	71.0% [68.7%, 73.0%]
Madhya Pradesh	34.9% [32.5%, 37.1%]	55.0% [53.3%, 56.7%]
East		
Bihar	65.0% [51.1%, 76.6%]	87.1% [82.4%, 90.8%]
West Bengal	96.0% [93.9%, 97.5%]	98.3% [98.2%, 98.5%]
Jharkhand	62.5% [58.8%, 65.9%]	80.0% [78.9%, 81.0%]
Odisha	79.0% [76.7%, 81.1%]	88.0% [83.9%, 91.2%]
Northeast		
Sikkim	73.4% [71.6%, 75.1%]	97.5% [97.4%, 97.6%]
Arunachal Pradesh	93.8% [93.3%, 94.3%]	98.8% [98.7%, 98.9%]
Nagaland	98.9% [98.8%, 99.0%]	99.5% [99.5%, 99.5%]
Manipur	96.1% [95.6%, 96.4%]	99.4% [99.4%, 99.5%]
Mizoram	97.4% [97.1%, 97.6%]	99.4% [99.3%, 99.4%]
Tripura	98.6% [98.4%, 98.8%]	99.5% [99.5%, 99.6%]
Meghalaya	98.8% [98.6%, 99.0%]	98.2% [97.7%, 98.5%]
Assam	97.6% [97.2%, 97.9%]	98.8% [98.6%, 98.9%]
West		
Gujarat	26.0% [24.6%, 27.4%]	31.5% [29.3%, 33.5%]
DDDH	61.6% [59.7%, 63.5%]	80.9% [80.0%, 81.8%]
Maharashtra	59.8% [44.8%, 72.8%]	68.7% [67.7%, 69.6%]
Goa	89.3% [81.3%, 94.4%]	94.9% [87.3%, 98.6%]
South		
Andhra Pradesh	89.5% [80.4%, 95.1%]	92.9% [92.5%, 93.2%]
Karnataka	65.2% [27.8%, 91.0%]	79.5% [60.8%, 91.5%]
Lakshadweep	89.7% [74.8%, 97.1%]	95.1% [84.9%, 99.1%]
Kerala	93.1% [86.6%, 97.0%]	94.2% [86.2%, 98.2%]
Tamil Nadu	78.4% [56.5%, 92.1%]	88.0% [65.8%, 97.8%]
Puducherry	92.4% [90.5%, 94.0%]	94.0% [86.8%, 97.9%]
Andaman & Nicobar	95.2% [94.7%, 95.8%]	97.9% [96.3%, 98.8%]

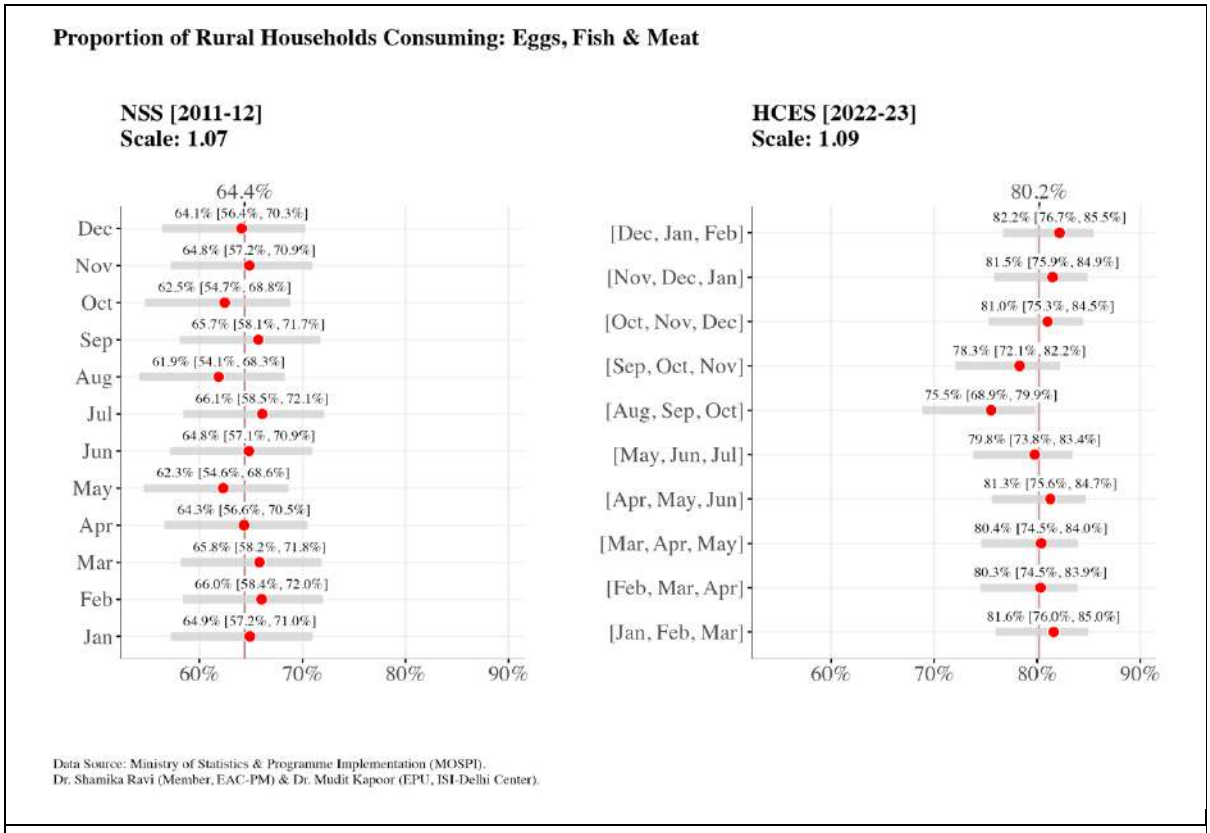
Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Eggs, Fish & Meat

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	0.9 [0.6, 1.2]	0.9 [0.7, 1.2]
Himachal Pradesh	0.4 [0.3, 0.6]	0.5 [0.3, 0.7]
Punjab	0.1 [0.0, 0.2]	0.3 [0.2, 0.5]
Chandigarh	0.3 [0.2, 0.4]	0.9 [0.7, 1.1]
Uttarakhand	0.4 [0.3, 0.5]	0.7 [0.5, 0.9]
Haryana	0.2 [0.1, 0.3]	0.3 [0.2, 0.4]
Delhi	0.4 [0.3, 0.6]	0.5 [0.4, 0.7]
Rajasthan	0.1 [0.1, 0.2]	0.2 [0.1, 0.3]
Central		
Uttar Pradesh	0.3 [0.2, 0.5]	0.5 [0.4, 0.7]
Chhattisgarh	0.5 [0.4, 0.7]	0.6 [0.5, 0.8]
Madhya Pradesh	0.3 [0.2, 0.4]	0.3 [0.2, 0.5]
East		
Bihar	0.7 [0.5, 0.9]	1.2 [1.0, 1.5]
West Bengal	1.6 [1.3, 1.9]	2.1 [1.8, 2.5]
Jharkhand	0.6 [0.4, 0.8]	1.0 [0.7, 1.3]
Odisha	0.8 [0.6, 1.0]	1.1 [0.8, 1.4]
Northeast		
Sikkim	0.9 [0.7, 1.1]	2.2 [1.9, 2.7]
Arunachal Pradesh	1.8 [1.5, 2.1]	2.0 [1.5, 2.3]
Nagaland	2.6 [2.2, 2.9]	3.2 [2.6, 3.7]
Manipur	1.1 [0.9, 1.3]	2.1 [1.8, 2.5]
Mizoram	1.8 [1.5, 2.2]	2.2 [1.8, 2.6]
Tripura	2.0 [1.7, 2.4]	2.8 [2.3, 3.3]
Meghalaya	1.7 [1.4, 2.0]	2.0 [1.7, 2.5]
Assam	1.5 [1.2, 1.9]	1.9 [1.5, 2.3]
West		
Gujarat	0.3 [0.2, 0.4]	0.3 [0.1, 0.4]
DDDH	0.9 [0.7, 1.2]	0.9 [0.7, 1.2]
Maharashtra	0.7 [0.5, 0.9]	0.7 [0.5, 0.9]
Goa	2.6 [2.2, 3.1]	3.2 [2.6, 3.9]
South		
Andhra Pradesh	1.1 [0.9, 1.4]	1.6 [1.3, 2.0]
Karnataka	0.9 [0.6, 1.1]	1.1 [0.8, 1.3]
Lakshadweep	3.3 [2.7, 3.9]	3.7 [3.2, 4.4]
Kerala	3.3 [2.7, 3.8]	3.5 [2.7, 4.2]
Tamil Nadu	1.1 [0.8, 1.3]	1.4 [1.1, 1.8]
Puducherry	1.7 [1.4, 1.9]	2.1 [1.7, 2.7]
Andaman & Nicobar	2.8 [2.4, 3.3]	3.1 [2.6, 4.0]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 9g


Proportion of Rural Households Consuming: Eggs, Fish & Meat
NSS [2011-12]
Scale: 1.07
64.4%
64.1% [56.4%, 70.3%]
64.8% [57.2%, 70.9%]
62.5% [54.7%, 68.8%]
65.7% [58.1%, 71.7%]
61.9% [54.1%, 68.3%]
66.1% [58.5%, 72.1%]
64.8% [57.1%, 70.9%]
62.3% [54.6%, 68.6%]
64.3% [56.6%, 70.5%]
65.8% [58.2%, 71.8%]
66.0% [58.4%, 72.0%]
64.9% [57.2%, 71.0%]
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
60%
70%
80%
90%
HCES [2022-23]
Scale: 1.09
80.2%
82.2% [76.7%, 85.5%]
81.5% [75.9%, 84.9%]
81.0% [75.3%, 84.5%]
78.3% [72.1%, 82.2%]
75.5% [68.9%, 79.9%]
79.8% [73.8%, 83.4%]
81.3% [75.6%, 84.7%]
80.4% [74.5%, 84.0%]
80.3% [74.5%, 83.9%]
81.6% [76.0%, 85.0%]
[Dec, Jan, Feb]
[Nov, Dec, Jan]
[Oct, Nov, Dec]
[Sep, Oct, Nov]
[Aug, Sep, Oct]
[May, Jun, Jul]
[Apr, May, Jun]
[Mar, Apr, May]
[Feb, Mar, Apr]
[Jan, Feb, Mar]
60%
70%
80%
90%
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

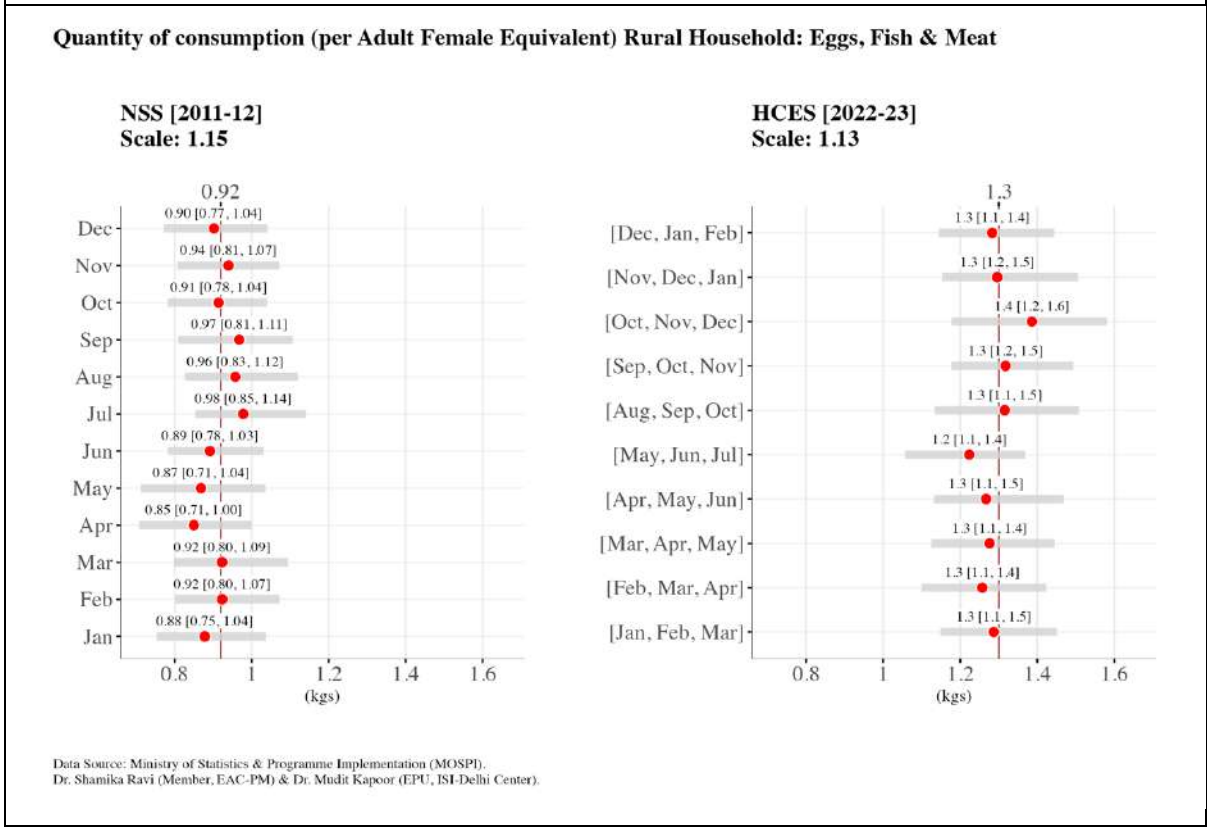
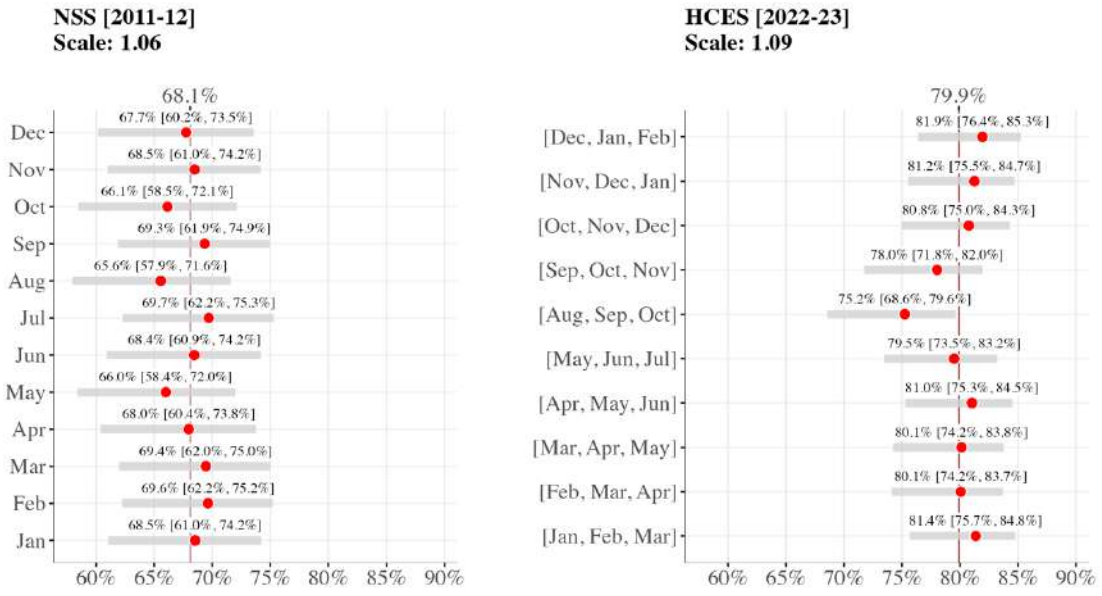

Quantity of consumption (per Adult Female Equivalent) Rural Household: Eggs, Fish & Meat
NSS [2011-12]
Scale: 1.15
0.92
0.90 [0.77, 1.04]
0.94 [0.81, 1.07]
0.91 [0.78, 1.04]
0.97 [0.81, 1.11]
0.96 [0.83, 1.12]
0.98 [0.85, 1.14]
0.89 [0.78, 1.03]
0.87 [0.71, 1.04]
0.85 [0.71, 1.00]
0.92 [0.80, 1.09]
0.92 [0.80, 1.07]
0.88 [0.75, 1.04]
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
0.8
1
1.2
1.4
1.6
(kgs)
HCES [2022-23]
Scale: 1.13
1.3
1.3 [1.1, 1.4]
1.3 [1.2, 1.5]
1.4 [1.2, 1.6]
1.3 [1.2, 1.5]
1.3 [1.1, 1.5]
1.2 [1.1, 1.4]
1.3 [1.1, 1.5]
1.3 [1.1, 1.4]
1.3 [1.1, 1.4]
1.3 [1.1, 1.5]
[Dec, Jan, Feb]
[Nov, Dec, Jan]
[Oct, Nov, Dec]
[Sep, Oct, Nov]
[Aug, Sep, Oct]
[May, Jun, Jul]
[Apr, May, Jun]
[Mar, Apr, May]
[Feb, Mar, Apr]
[Jan, Feb, Mar]
0.8
1
1.2
1.4
1.6
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

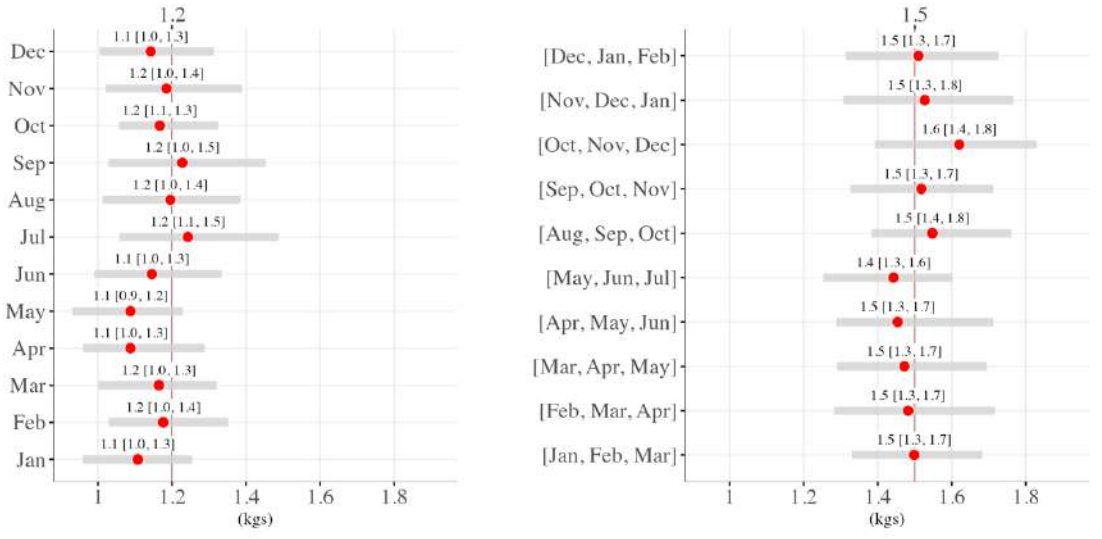
Figure 9g

Proportion of Urban Households Consuming: Eggs, Fish & Meat



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Eggs, Fish & Meat



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(iv) Vegetables

Consumption Quintile Classes

For vegetables, the data reveals that almost all households consume some form of vegetables. However, the magnitude differs across consumption classes. We also observe that average per-capita vegetable consumption has remained more or less similar across rural and urban households across all consumption classes. The top 20% consumed 1.61 times more than the bottom 20%, as reflected in the scale for 2022-23. These results are reported in Figure 10a.

State/UT

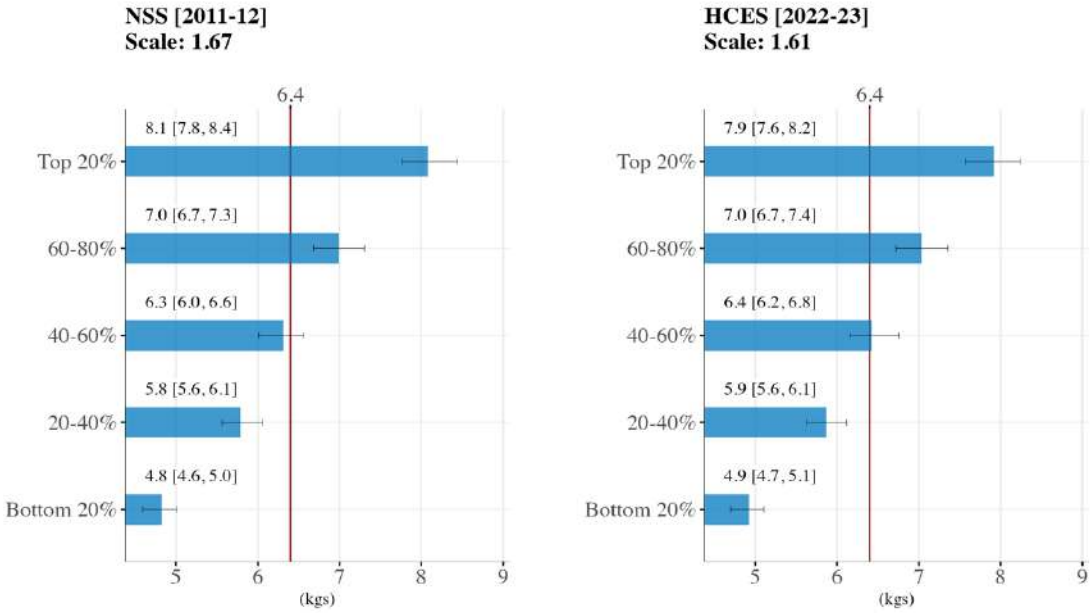
We observed significant variations in inter-state comparison. The average per-capita consumption of vegetables was higher in states in the eastern, northern, and central regions than in states in the southern region. For example, in Haryana in 2022–23, the average per-capita monthly consumption among rural households was 8 kgs, while in Tamil Nadu, it was 5.5 kgs. A similar pattern was observed among the urban households. These results are reported in Figures 10b & 10c.

Seasonality

The analysis suggests that seasonality remains in the average per-capita consumption of vegetables across months, although the scale indicates that it has reduced since 2011-12. Consumption was lower in August, September, and October and higher for winter, December, January, and February. These results are presented in 10d.

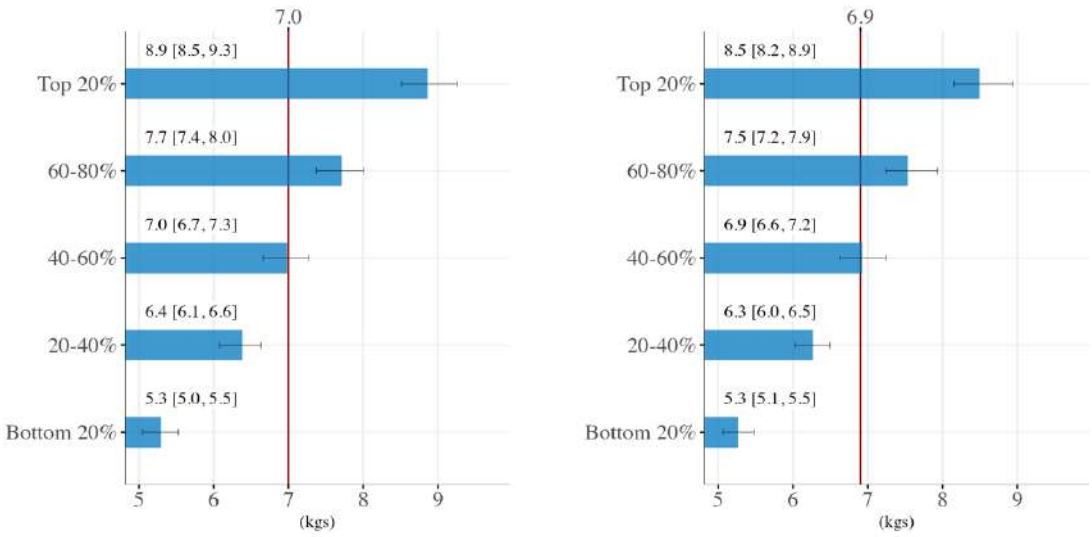
Figure 10a

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 10b

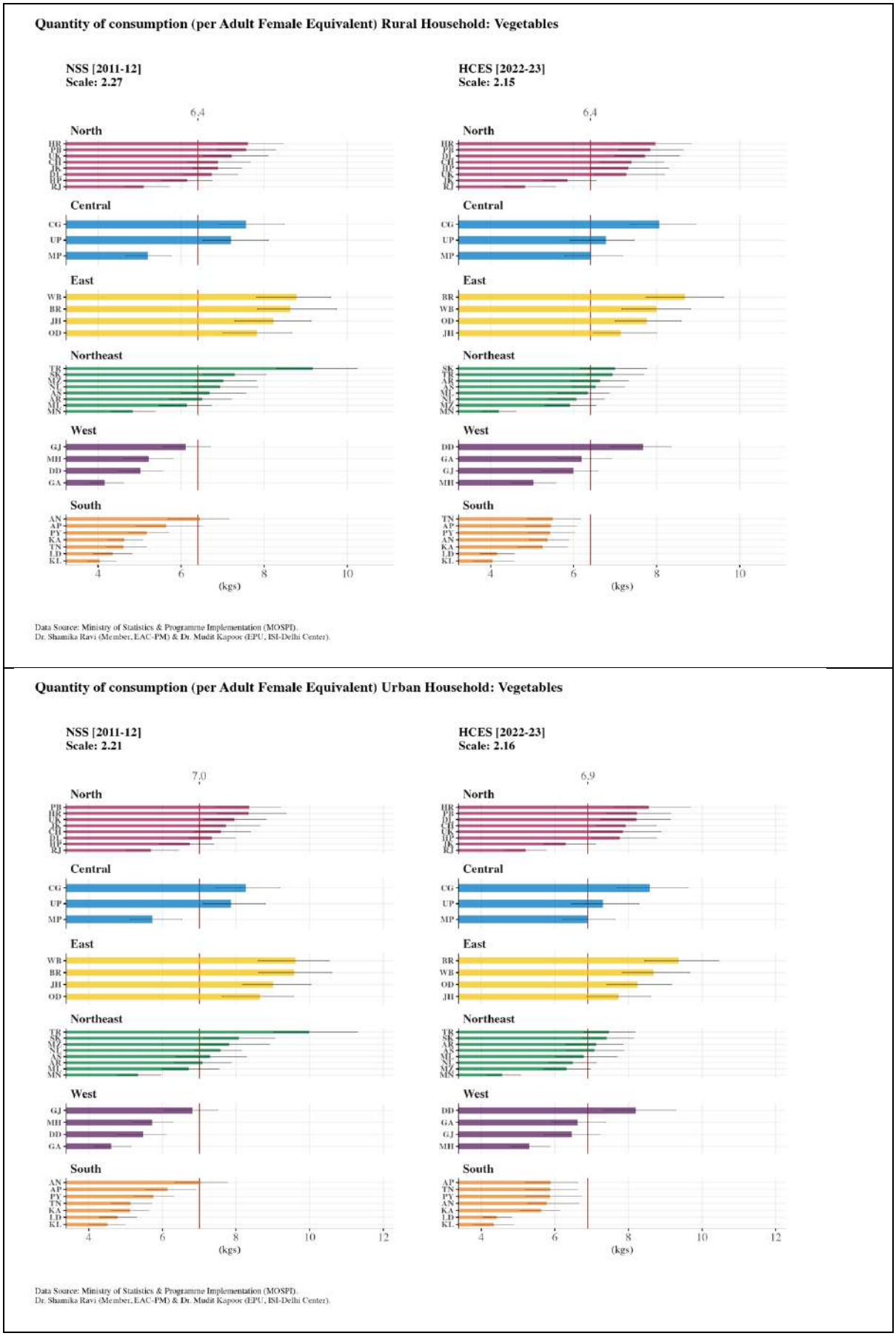

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables
NSS [2011-12]
Scale: 2.27
HCES [2022-23]
Scale: 2.15
6.4
6.4
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables
NSS [2011-12]
Scale: 2.21
HCES [2022-23]
Scale: 2.16
7.0
6.9
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 10c

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	6.9 [6.3, 7.5]	5.8 [5.3, 6.6]
Himachal Pradesh	6.1 [5.5, 6.7]	7.3 [6.4, 8.3]
Punjab	7.6 [6.9, 8.3]	7.8 [7.1, 8.6]
Chandigarh	6.9 [6.1, 7.7]	7.4 [6.6, 8.2]
Uttarakhand	7.2 [6.5, 8.1]	7.3 [6.5, 8.2]
Haryana	7.6 [6.9, 8.5]	8.0 [7.1, 8.8]
Delhi	6.7 [6.1, 7.4]	7.7 [7.0, 8.6]
Rajasthan	5.1 [4.6, 5.7]	4.8 [4.3, 5.6]
Central		
Uttar Pradesh	7.2 [6.5, 8.1]	6.8 [5.9, 7.4]
Chhattisgarh	7.6 [6.9, 8.5]	8.1 [7.4, 8.9]
Madhya Pradesh	5.2 [4.7, 5.8]	6.4 [5.8, 7.2]
East		
Bihar	8.6 [7.8, 9.7]	8.7 [7.7, 9.6]
West Bengal	8.8 [7.8, 9.6]	8.0 [7.2, 8.8]
Jharkhand	8.2 [7.3, 9.1]	7.1 [6.5, 8.0]
Odisha	7.8 [7.0, 8.7]	7.8 [7.0, 8.6]
Northeast		
Sikkim	7.3 [6.5, 8.0]	7.0 [6.1, 7.8]
Arunachal Pradesh	6.5 [5.7, 7.2]	6.6 [5.9, 7.3]
Nagaland	6.9 [6.3, 7.8]	6.1 [5.4, 6.7]
Manipur	4.8 [4.3, 5.4]	4.2 [3.8, 4.6]
Mizoram	7.0 [6.4, 7.8]	5.9 [5.3, 6.5]
Tripura	9.2 [8.3, 10.2]	6.9 [6.3, 7.7]
Meghalaya	6.1 [5.5, 6.7]	6.4 [5.6, 6.9]
Assam	6.7 [6.0, 7.6]	6.5 [6.0, 7.2]
West		
Gujarat	6.1 [5.6, 6.7]	6.0 [5.2, 6.6]
DDDH	5.0 [4.5, 5.6]	7.7 [6.9, 8.4]
Maharashtra	5.2 [4.6, 5.8]	5.0 [4.5, 5.6]
Goa	4.2 [3.8, 4.6]	6.2 [5.6, 6.9]
South		
Andhra Pradesh	5.6 [4.9, 6.5]	5.4 [4.8, 6.1]
Karnataka	4.6 [4.2, 5.1]	5.3 [4.7, 5.9]
Lakshadweep	4.4 [3.9, 4.8]	4.2 [3.7, 4.6]
Kerala	4.0 [3.7, 4.4]	4.0 [3.6, 4.6]
Tamil Nadu	4.6 [4.2, 5.2]	5.5 [4.9, 6.2]
Puducherry	5.2 [4.7, 5.7]	5.4 [4.9, 6.0]
Andaman & Nicobar	6.5 [5.7, 7.1]	5.4 [4.9, 5.9]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

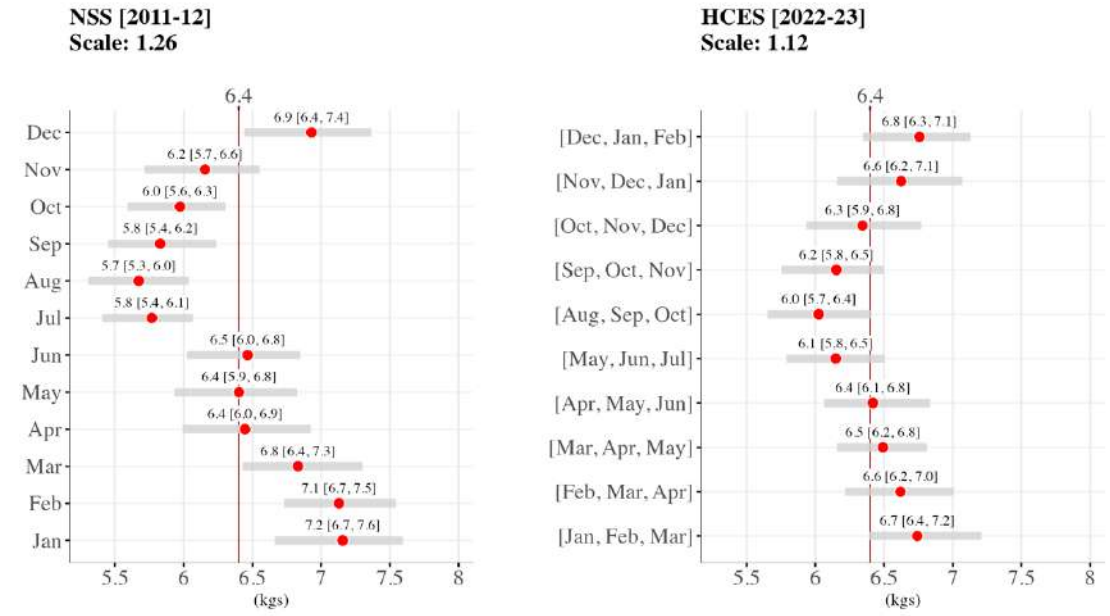
Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	7.7 [7.0, 8.7]	6.3 [5.7, 7.1]
Himachal Pradesh	6.7 [5.9, 7.4]	7.8 [7.0, 8.8]
Punjab	8.4 [7.5, 9.2]	8.2 [7.4, 9.2]
Chandigarh	7.6 [6.9, 8.4]	7.9 [7.1, 8.8]
Uttarakhand	8.0 [7.1, 8.8]	7.9 [7.0, 8.9]
Haryana	8.3 [7.5, 9.4]	8.6 [7.6, 9.7]
Delhi	7.3 [6.7, 8.0]	8.2 [7.2, 9.1]
Rajasthan	5.7 [5.0, 6.4]	5.2 [4.7, 5.8]
Central		
Uttar Pradesh	7.9 [7.1, 8.8]	7.3 [6.5, 8.3]
Chhattisgarh	8.3 [7.5, 9.2]	8.6 [7.7, 9.6]
Madhya Pradesh	5.7 [5.1, 6.5]	6.9 [6.2, 7.6]
East		
Bihar	9.6 [8.6, 10.6]	9.4 [8.4, 10.5]
West Bengal	9.6 [8.6, 10.5]	8.7 [7.8, 9.7]
Jharkhand	9.0 [8.2, 10.0]	7.7 [6.9, 8.6]
Odisha	8.6 [7.6, 9.6]	8.2 [7.4, 9.2]
Northeast		
Sikkim	8.1 [7.1, 9.1]	7.4 [6.7, 8.1]
Arunachal Pradesh	7.1 [6.3, 7.9]	7.1 [6.3, 7.9]
Nagaland	7.6 [6.9, 8.2]	6.5 [5.8, 7.1]
Manipur	5.3 [4.8, 6.0]	4.6 [4.1, 5.1]
Mizoram	7.8 [7.0, 8.9]	6.3 [5.7, 7.0]
Tripura	10.0 [9.0, 11.3]	7.5 [6.8, 8.2]
Meghalaya	6.7 [6.0, 7.5]	6.8 [6.0, 7.7]
Assam	7.3 [6.4, 8.3]	7.1 [6.3, 7.9]
West		
Gujarat	6.8 [6.1, 7.5]	6.5 [5.7, 7.2]
DDDH	5.5 [4.8, 6.1]	8.2 [7.3, 9.3]
Maharashtra	5.7 [5.2, 6.3]	5.3 [4.8, 5.9]
Goa	4.6 [4.1, 5.1]	6.6 [5.9, 7.4]
South		
Andhra Pradesh	6.1 [5.5, 6.9]	5.9 [5.2, 6.6]
Karnataka	5.1 [4.6, 5.6]	5.6 [5.1, 6.1]
Lakshadweep	4.8 [4.3, 5.3]	4.4 [4.1, 4.8]
Kerala	4.5 [4.0, 5.0]	4.3 [3.8, 4.9]
Tamil Nadu	5.1 [4.6, 5.7]	5.9 [5.2, 6.6]
Puducherry	5.8 [5.2, 6.3]	5.9 [5.2, 6.7]
Andaman & Nicobar	7.0 [6.3, 7.8]	5.8 [5.3, 6.6]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

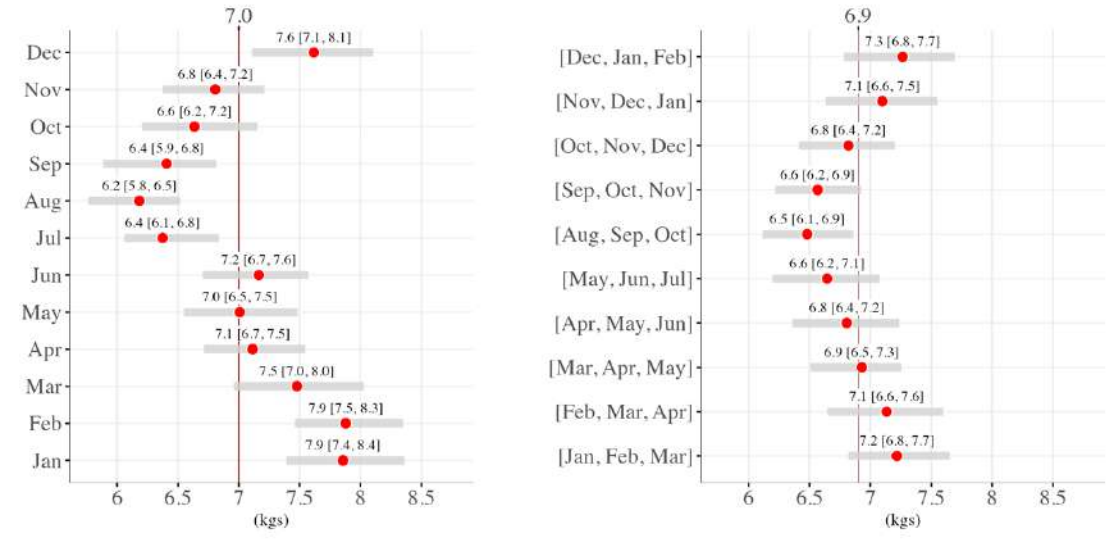
Figure 10d

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(v) Vegetables without Potatoes & Onions

Consumption Quintile Classes

The average per-capita consumption of vegetables other than potatoes and onions has marginally declined from 4.3 kgs to 4.0 kgs from 2011–12 to 2022–23, with the most significant decline for the top 20%, from 5.6 to 5.1 in rural areas and 6.4 to 5.6 in urban areas. These results are reported in Figure 11a.

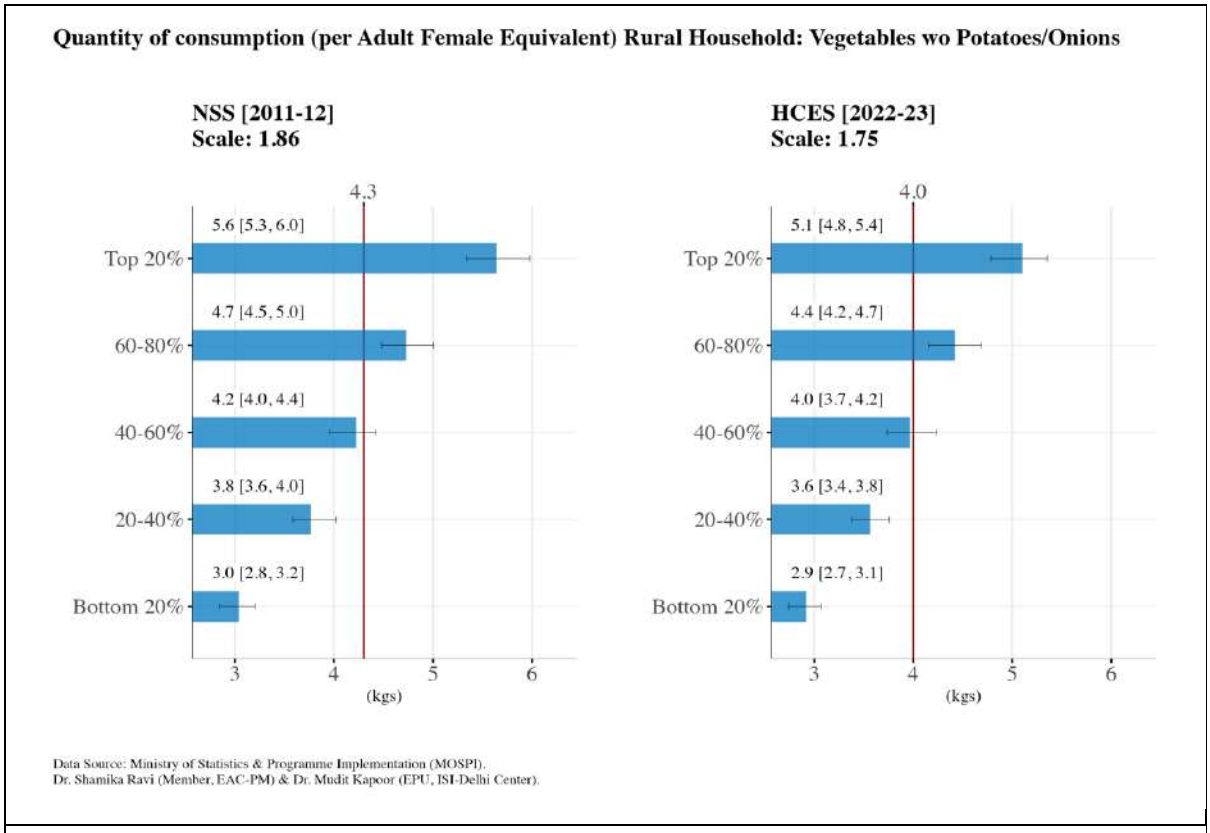
State/UT

Among the states, we observe an interesting pattern for some states, such as Uttar Pradesh and Madhya Pradesh. The results suggest that these states, including potatoes and onions, had average per-capita consumption higher than the overall average. However, with their exclusion, the average consumption of vegetables was lower than the overall average. This seems to suggest that potatoes and onions are an essential component of vegetables for these states. These results are reported in Figures 11b and 11c.

Seasonality

We observed seasonality in the consumption of vegetables without potatoes and onions. The average per capita consumption was lower for August, September, and October but higher for winter, December, January and February. These results are reported in Figure 11d.

Figure 11a


Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables wo Potatoes/Onions
NSS [2011-12]
Scale: 1.86
4.3
5.6 [5.3, 6.0]
Top 20%
4.7 [4.5, 5.0]
60-80%
4.2 [4.0, 4.4]
40-60%
3.8 [3.6, 4.0]
20-40%
3.0 [2.8, 3.2]
Bottom 20%
3
4
5
6
(kgs)
HCES [2022-23]
Scale: 1.75
4.0
5.1 [4.8, 5.4]
Top 20%
4.4 [4.2, 4.7]
60-80%
4.0 [3.7, 4.2]
40-60%
3.6 [3.4, 3.8]
20-40%
2.9 [2.7, 3.1]
Bottom 20%
3
4
5
6
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

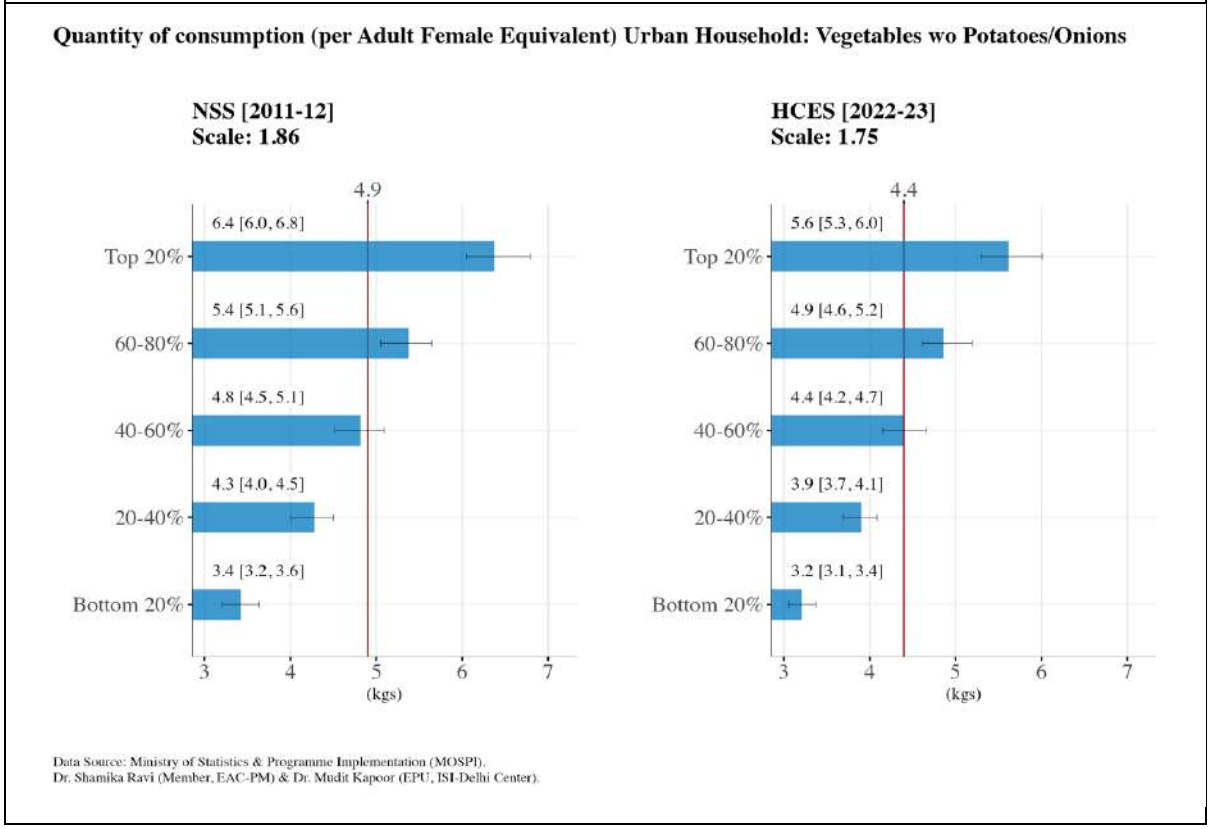

Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables wo Potatoes/Onions
NSS [2011-12]
Scale: 1.86
4.9
6.4 [6.0, 6.8]
Top 20%
5.4 [5.1, 5.6]
60-80%
4.8 [4.5, 5.1]
40-60%
4.3 [4.0, 4.5]
20-40%
3.4 [3.2, 3.6]
Bottom 20%
3
4
5
6
7
(kgs)
HCES [2022-23]
Scale: 1.75
4.4
5.6 [5.3, 6.0]
Top 20%
4.9 [4.6, 5.2]
60-80%
4.4 [4.2, 4.7]
40-60%
3.9 [3.7, 4.1]
20-40%
3.2 [3.1, 3.4]
Bottom 20%
3
4
5
6
7
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 11b

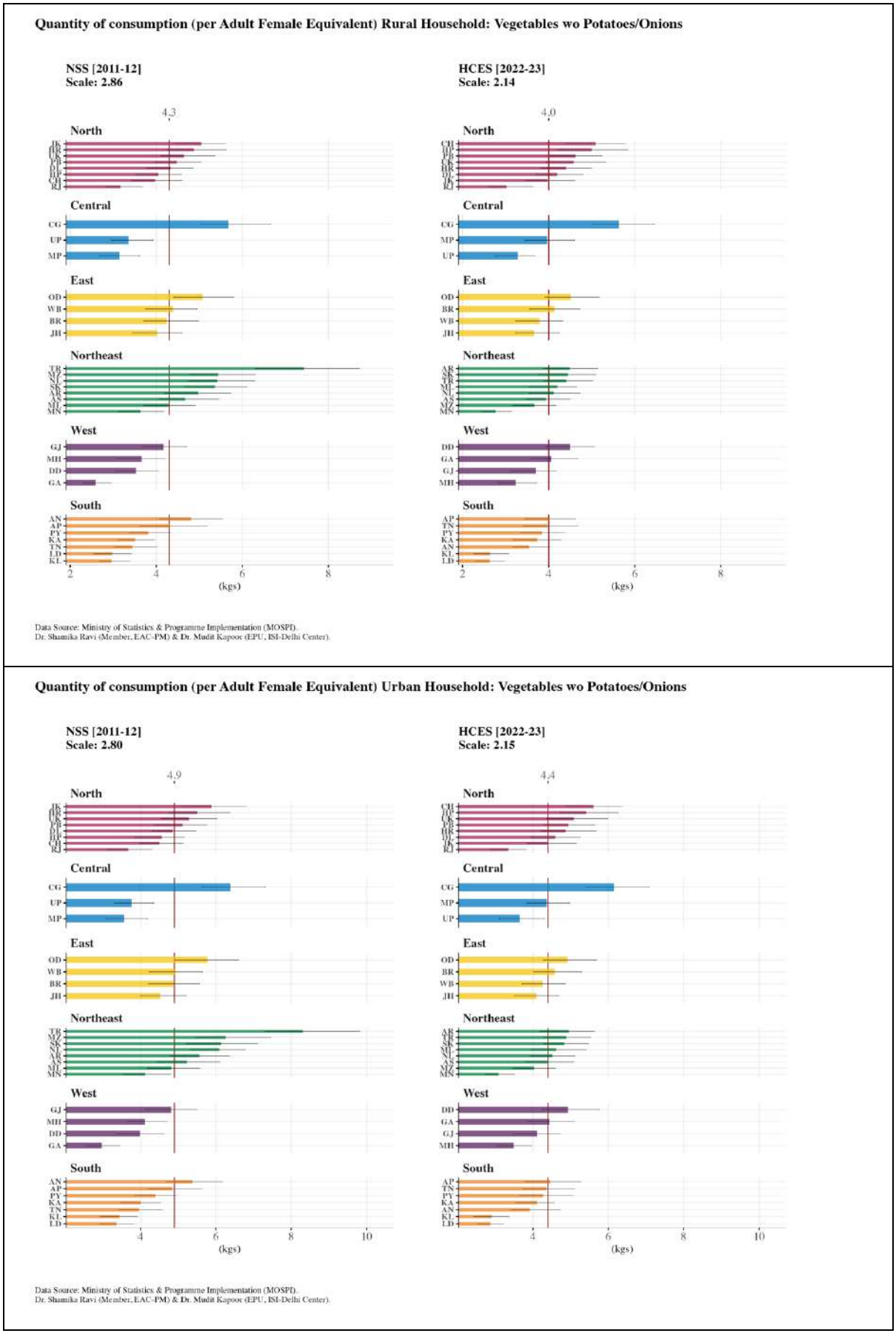

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables wo Potatoes/Onions
NSS [2011-12]
Scale: 2.86
HCES [2022-23]
Scale: 2.14
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables wo Potatoes/Onions
NSS [2011-12]
Scale: 2.80
HCES [2022-23]
Scale: 2.15
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 11c

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables wo Potatoes/Onions

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	5.0 [4.4, 5.6]	4.0 [3.5, 4.6]
Himachal Pradesh	4.0 [3.5, 4.6]	5.0 [4.2, 5.8]
Punjab	4.5 [4.0, 5.0]	4.6 [4.0, 5.2]
Chandigarh	4.0 [3.4, 4.6]	5.1 [4.4, 5.8]
Uttarakhand	4.6 [4.1, 5.4]	4.6 [3.9, 5.3]
Haryana	4.9 [4.3, 5.6]	4.4 [3.8, 5.0]
Delhi	4.3 [3.8, 4.9]	4.2 [3.7, 4.8]
Rajasthan	3.2 [2.8, 3.7]	3.0 [2.6, 3.6]
Central		
Uttar Pradesh	3.4 [3.0, 3.9]	3.3 [2.8, 3.7]
Chhattisgarh	5.7 [5.0, 6.7]	5.6 [5.0, 6.5]
Madhya Pradesh	3.1 [2.7, 3.6]	4.0 [3.5, 4.6]
East		
Bihar	4.3 [3.7, 5.0]	4.1 [3.6, 4.7]
West Bengal	4.4 [3.8, 4.9]	3.8 [3.2, 4.3]
Jharkhand	4.0 [3.5, 4.6]	3.7 [3.2, 4.3]
Odisha	5.1 [4.4, 5.8]	4.5 [3.9, 5.2]
Northeast		
Sikkim	5.4 [4.7, 6.1]	4.5 [3.8, 5.1]
Arunachal Pradesh	5.0 [4.2, 5.7]	4.5 [3.9, 5.1]
Nagaland	5.4 [4.7, 6.3]	4.1 [3.5, 4.7]
Manipur	3.6 [3.1, 4.2]	2.8 [2.4, 3.1]
Mizoram	5.4 [4.8, 6.3]	3.7 [3.2, 4.2]
Tripura	7.4 [6.3, 8.7]	4.4 [3.9, 5.0]
Meghalaya	4.3 [3.7, 4.9]	4.2 [3.6, 4.7]
Assam	4.7 [4.1, 5.5]	3.9 [3.5, 4.5]
West		
Gujarat	4.2 [3.7, 4.7]	3.7 [3.1, 4.2]
DDDH	3.5 [3.1, 4.1]	4.5 [3.9, 5.1]
Maharashtra	3.7 [3.1, 4.2]	3.2 [2.8, 3.7]
Goa	2.6 [2.3, 3.0]	4.1 [3.6, 4.7]
South		
Andhra Pradesh	4.3 [3.6, 5.2]	4.0 [3.4, 4.6]
Karnataka	3.5 [3.1, 4.0]	3.7 [3.2, 4.3]
Lakshadweep	3.0 [2.5, 3.4]	2.6 [2.3, 3.0]
Kerala	3.0 [2.7, 3.4]	2.6 [2.3, 3.1]
Tamil Nadu	3.4 [3.0, 4.0]	4.0 [3.4, 4.7]
Puducherry	3.8 [3.4, 4.3]	3.9 [3.4, 4.4]
Andaman & Nicobar	4.8 [4.1, 5.5]	3.5 [3.2, 4.0]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

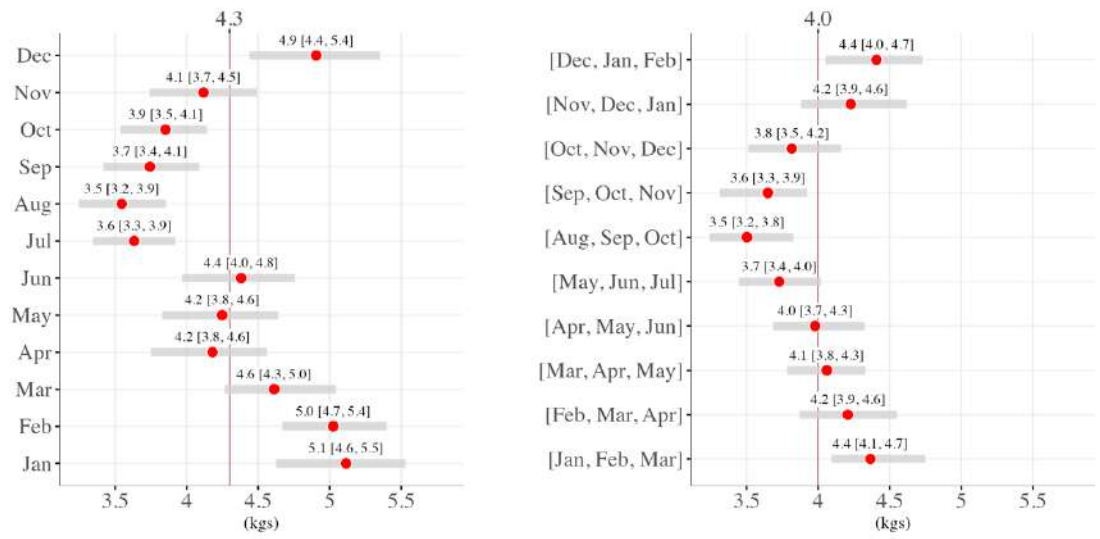
Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables wo Potatoes/Onions

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	5.9 [5.1, 6.8]	4.4 [3.8, 5.2]
Himachal Pradesh	4.6 [3.8, 5.2]	5.4 [4.7, 6.3]
Punjab	5.1 [4.4, 5.8]	4.9 [4.3, 5.7]
Chandigarh	4.5 [4.0, 5.1]	5.6 [4.9, 6.4]
Uttarakhand	5.3 [4.5, 6.0]	5.1 [4.4, 6.0]
Haryana	5.5 [4.8, 6.4]	4.9 [4.2, 5.7]
Delhi	4.8 [4.3, 5.5]	4.6 [3.9, 5.3]
Rajasthan	3.7 [3.1, 4.3]	3.3 [2.9, 3.8]
Central		
Uttar Pradesh	3.8 [3.3, 4.3]	3.6 [3.1, 4.3]
Chhattisgarh	6.4 [5.6, 7.3]	6.2 [5.4, 7.1]
Madhya Pradesh	3.6 [3.1, 4.2]	4.4 [3.8, 5.0]
East		
Bihar	4.9 [4.2, 5.6]	4.6 [4.0, 5.3]
West Bengal	4.9 [4.2, 5.6]	4.3 [3.7, 4.9]
Jharkhand	4.5 [4.0, 5.2]	4.1 [3.5, 4.7]
Odisha	5.8 [4.9, 6.6]	4.9 [4.3, 5.7]
Northeast		
Sikkim	6.1 [5.2, 7.1]	4.8 [4.3, 5.5]
Arunachal Pradesh	5.6 [4.8, 6.4]	5.0 [4.2, 5.6]
Nagaland	6.1 [5.3, 6.8]	4.5 [3.9, 5.1]
Manipur	4.1 [3.5, 4.8]	3.1 [2.7, 3.5]
Mizoram	6.3 [5.5, 7.5]	4.0 [3.5, 4.6]
Tripura	8.3 [7.3, 9.8]	4.9 [4.3, 5.5]
Meghalaya	4.8 [4.2, 5.6]	4.6 [4.0, 5.4]
Assam	5.2 [4.4, 6.1]	4.4 [3.8, 5.1]
West		
Gujarat	4.8 [4.1, 5.5]	4.1 [3.5, 4.7]
DDDH	4.0 [3.4, 4.6]	4.9 [4.2, 5.8]
Maharashtra	4.1 [3.6, 4.7]	3.5 [3.1, 4.0]
Goa	3.0 [2.6, 3.4]	4.4 [3.8, 5.1]
South		
Andhra Pradesh	4.8 [4.2, 5.6]	4.5 [3.8, 5.3]
Karnataka	4.0 [3.5, 4.5]	4.1 [3.6, 4.6]
Lakshadweep	3.4 [2.9, 3.8]	2.9 [2.5, 3.2]
Kerala	3.4 [2.9, 3.9]	2.9 [2.4, 3.4]
Tamil Nadu	4.0 [3.4, 4.6]	4.4 [3.7, 5.1]
Puducherry	4.4 [3.9, 5.0]	4.3 [3.6, 5.1]
Andaman & Nicobar	5.4 [4.7, 6.2]	3.9 [3.4, 4.7]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

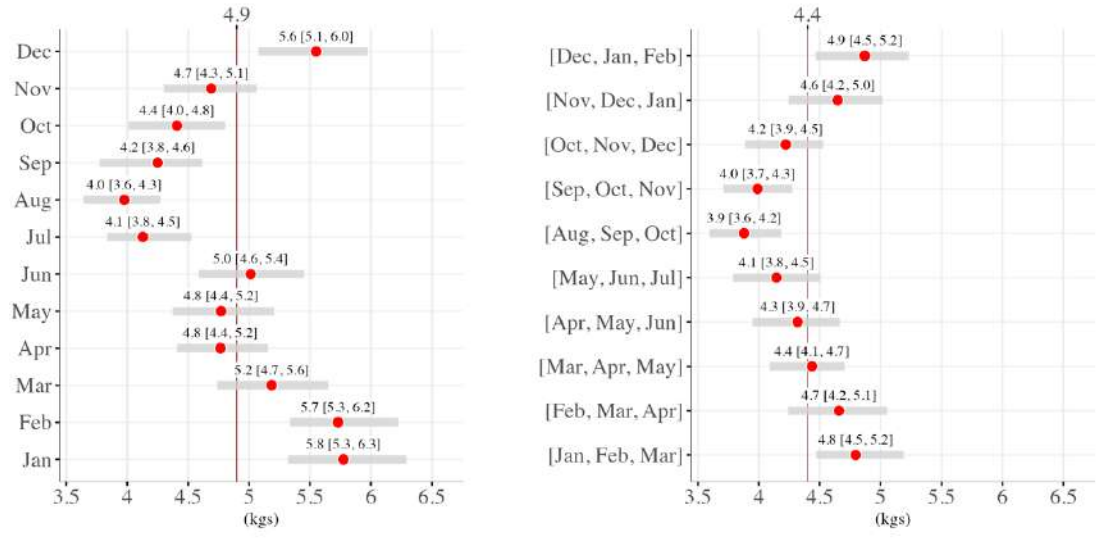
Figure 11d

Quantity of consumption (per Adult Female Equivalent) Rural Household: Vegetables wo Potatoes/Onions



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Vegetables wo Potatoes/Onions



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(vi) Cereals

Consumption Quintile Classes

For cereals, we observed that the average per-capita consumption in terms of actual amounts (Kg) has declined significantly for all consumption classes and across rural and urban areas of the country. It has declined significantly from 10.8 kgs in 2011–12 to 8.7 kgs in 2022–23 among rural households, a decrease of almost 19%. A similar pattern was observed for urban households as well. We found a decline in average per capita consumption for all consumption classes, including the bottom 20%. For example, among the rural bottom 20% of households, it declined from 10.2 kgs to 8.1 kgs during the same period. Similarly, among the urban households, it declined from 8.8 kgs to 7.2 kgs during the same period. These results are reported in Figure 12a.

State/UT

We observed a significant decline in cereal consumption across all states from 2011–12 to 2022–23, including the northeastern and central states, which typically consumed high amounts of cereals and the southern states, which typically consumed lower quantities of cereals. These results are reported in Figures 12b and 12c.

Seasonality

Average monthly per capita consumption of cereals did not vary across households surveyed in different panels of months, either in 2011–12 or 2022–23. These Figures are reported in 12d.

Figure 12a

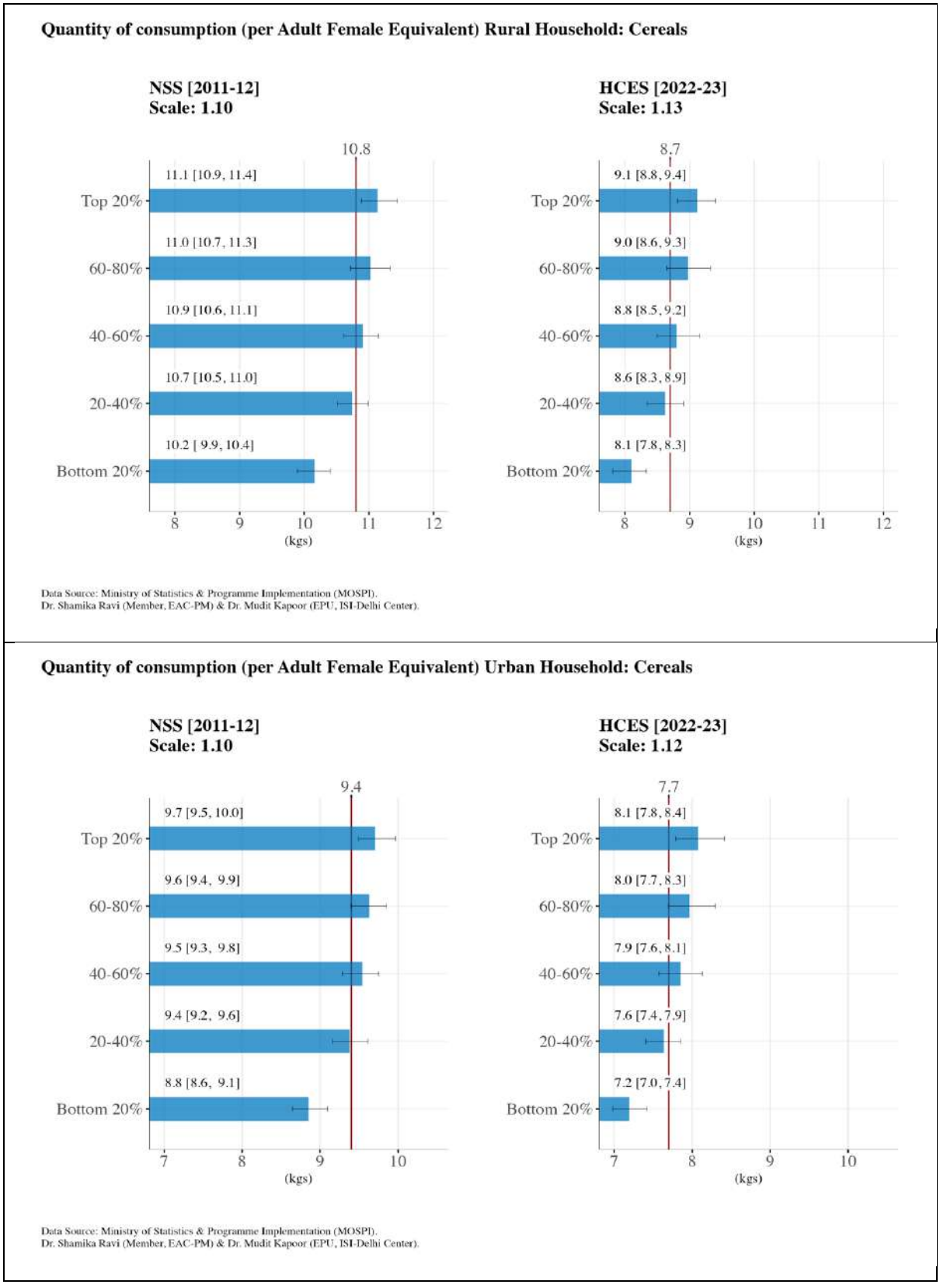


Figure 12b

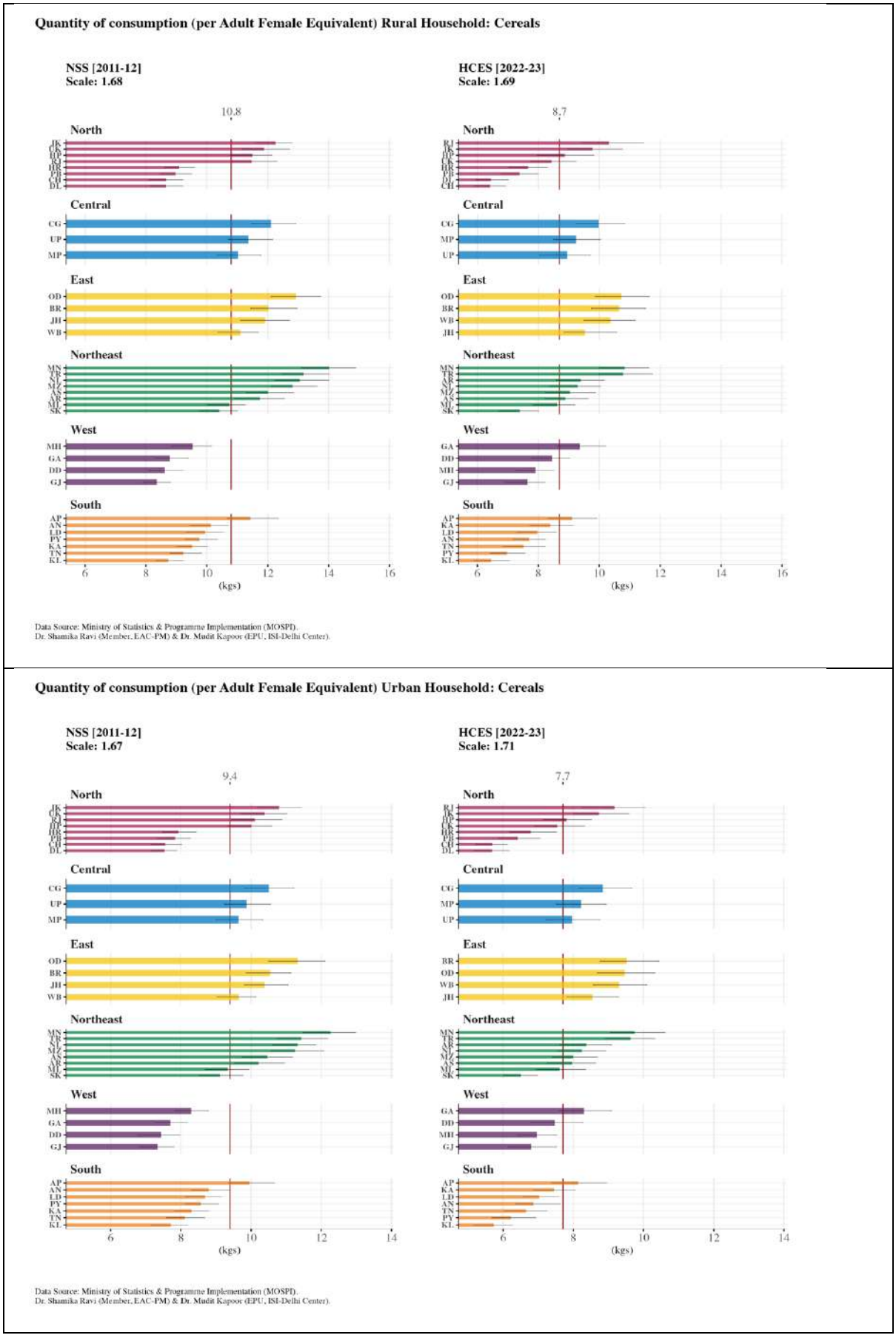

Quantity of consumption (per Adult Female Equivalent) Rural Household: Cereals
NSS [2011-12]
Scale: 1.68
HCES [2022-23]
Scale: 1.69
10.8
8.7
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).
Quantity of consumption (per Adult Female Equivalent) Urban Household: Cereals
NSS [2011-12]
Scale: 1.67
HCES [2022-23]
Scale: 1.71
9.4
7.7
North
Central
East
Northeast
West
South
(kgs)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 12c

Quantity of consumption (per Adult Female Equivalent) Rural Household: Cereals

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	12.3 [11.6, 12.8]	9.8 [9.0, 10.8]
Himachal Pradesh	11.5 [10.8, 12.1]	8.9 [8.0, 9.8]
Punjab	9.0 [8.5, 9.5]	7.4 [6.8, 8.0]
Chandigarh	8.7 [8.1, 9.2]	6.4 [5.9, 6.9]
Uttarakhand	11.9 [11.2, 12.7]	8.4 [7.7, 9.2]
Haryana	9.1 [8.6, 9.6]	7.7 [7.0, 8.3]
Delhi	8.7 [8.2, 9.2]	6.4 [5.9, 7.0]
Rajasthan	11.5 [10.8, 12.3]	10.3 [9.4, 11.5]
Central		
Uttar Pradesh	11.4 [10.7, 12.2]	8.9 [8.1, 9.7]
Chhattisgarh	12.1 [11.5, 12.9]	10.0 [9.3, 10.8]
Madhya Pradesh	11.0 [10.3, 11.8]	9.2 [8.5, 10.0]
East		
Bihar	12.0 [11.4, 13.0]	10.7 [9.7, 11.5]
West Bengal	11.1 [10.4, 11.7]	10.4 [9.5, 11.2]
Jharkhand	11.9 [11.1, 12.7]	9.5 [8.8, 10.6]
Odisha	12.9 [12.1, 13.7]	10.7 [9.9, 11.6]
Northeast		
Sikkim	10.4 [9.8, 11.0]	7.4 [6.7, 8.0]
Arunachal Pradesh	11.7 [10.9, 12.5]	9.4 [8.6, 10.2]
Nagaland	13.1 [12.2, 14.0]	9.3 [8.4, 10.1]
Manipur	14.0 [13.1, 14.9]	10.8 [10.0, 11.6]
Mizoram	12.8 [12.1, 13.6]	9.0 [8.2, 9.9]
Tripura	13.2 [12.4, 14.0]	10.8 [10.0, 11.7]
Meghalaya	10.7 [10.0, 11.3]	8.6 [7.8, 9.2]
Assam	12.0 [11.3, 12.9]	8.9 [8.2, 9.6]
West		
Gujarat	8.3 [7.9, 8.8]	7.6 [6.9, 8.2]
DDDH	8.6 [8.1, 9.2]	8.5 [7.8, 9.0]
Maharashtra	9.5 [8.8, 10.1]	7.9 [7.3, 8.5]
Goa	8.8 [8.3, 9.4]	9.4 [8.6, 10.2]
South		
Andhra Pradesh	11.4 [10.7, 12.4]	9.1 [8.3, 9.9]
Karnataka	9.5 [9.0, 10.0]	8.4 [7.7, 9.1]
Lakshadweep	9.9 [9.3, 10.6]	8.0 [7.3, 8.6]
Kerala	8.7 [8.3, 9.2]	6.4 [5.9, 7.1]
Tamil Nadu	9.2 [8.8, 9.8]	7.5 [6.9, 8.2]
Puducherry	9.7 [9.3, 10.3]	7.0 [6.4, 7.6]
Andaman & Nicobar	10.1 [9.5, 10.7]	7.7 [7.2, 8.2]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

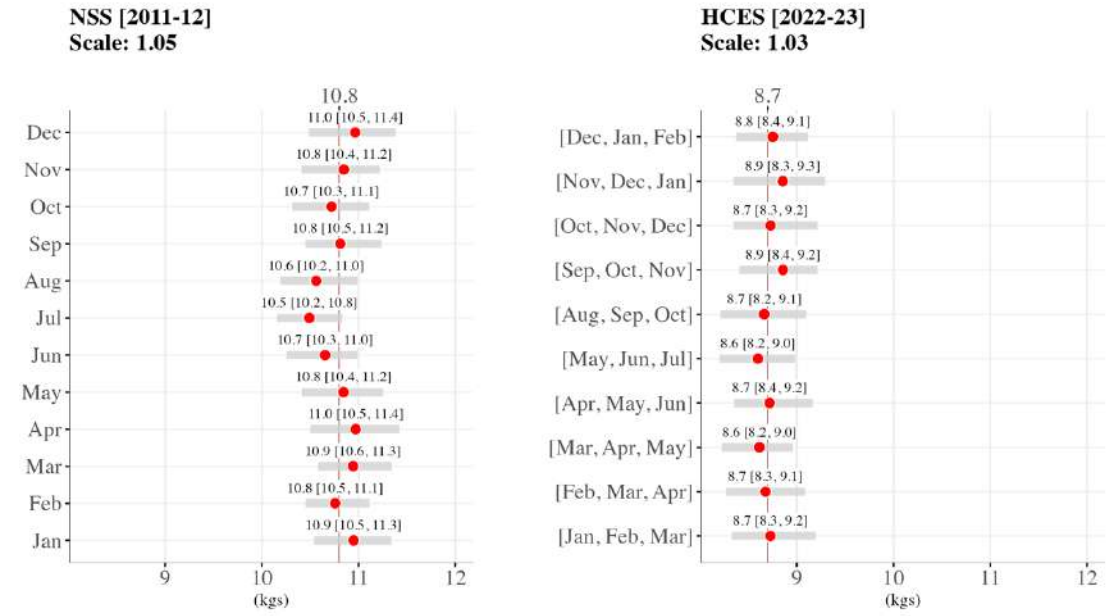
Quantity of consumption (per Adult Female Equivalent) Urban Household: Cereals

State	NSS [2011-12]	NSS [2022-23]
North		
Jammu and Kashmir	10.8 [10.2, 11.4]	8.7 [8.0, 9.6]
Himachal Pradesh	10.0 [9.3, 10.6]	7.8 [7.1, 8.5]
Punjab	7.8 [7.3, 8.3]	6.4 [5.9, 7.1]
Chandigarh	7.6 [7.1, 8.0]	5.7 [5.2, 6.1]
Uttarakhand	10.4 [9.7, 11.0]	7.5 [6.9, 8.3]
Haryana	7.9 [7.5, 8.4]	6.8 [6.2, 7.5]
Delhi	7.5 [7.2, 7.9]	5.7 [5.2, 6.2]
Rajasthan	10.1 [9.4, 10.9]	9.2 [8.2, 10.0]
Central		
Uttar Pradesh	9.9 [9.2, 10.5]	8.0 [7.2, 8.8]
Chhattisgarh	10.5 [9.8, 11.2]	8.8 [8.2, 9.7]
Madhya Pradesh	9.6 [9.0, 10.3]	8.2 [7.5, 8.9]
East		
Bihar	10.5 [9.9, 11.1]	9.5 [8.8, 10.4]
West Bengal	9.7 [9.0, 10.1]	9.3 [8.6, 10.1]
Jharkhand	10.4 [9.8, 11.0]	8.5 [7.8, 9.3]
Odisha	11.3 [10.5, 12.1]	9.5 [8.7, 10.3]
Northeast		
Sikkim	9.1 [8.5, 9.8]	6.5 [6.0, 7.0]
Arunachal Pradesh	10.2 [9.5, 11.0]	8.4 [7.6, 9.1]
Nagaland	11.3 [10.6, 11.9]	8.2 [7.6, 8.9]
Manipur	12.3 [11.5, 13.0]	9.7 [9.0, 10.6]
Mizoram	11.2 [10.6, 12.1]	8.0 [7.4, 8.7]
Tripura	11.4 [10.7, 12.2]	9.6 [8.9, 10.3]
Meghalaya	9.3 [8.7, 9.9]	7.6 [6.9, 8.4]
Assam	10.5 [9.7, 11.2]	8.0 [7.3, 8.6]
West		
Gujarat	7.3 [6.8, 7.8]	6.8 [6.1, 7.5]
DDDH	7.4 [6.8, 8.0]	7.5 [6.8, 8.3]
Maharashtra	8.3 [7.8, 8.8]	7.0 [6.4, 7.5]
Goa	7.7 [7.3, 8.2]	8.3 [7.6, 9.1]
South		
Andhra Pradesh	10.0 [9.4, 10.7]	8.1 [7.4, 8.9]
Karnataka	8.3 [7.8, 8.8]	7.5 [6.9, 8.1]
Lakshadweep	8.7 [8.1, 9.2]	7.0 [6.6, 7.6]
Kerala	7.7 [7.2, 8.2]	5.7 [5.2, 6.3]
Tamil Nadu	8.1 [7.6, 8.7]	6.6 [6.0, 7.2]
Puducherry	8.6 [8.1, 9.1]	6.2 [5.7, 6.9]
Andaman & Nicobar	8.8 [8.3, 9.4]	6.9 [6.4, 7.6]

Data Source: Ministry of Statistics & Programme Implementation (MOSPI). Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

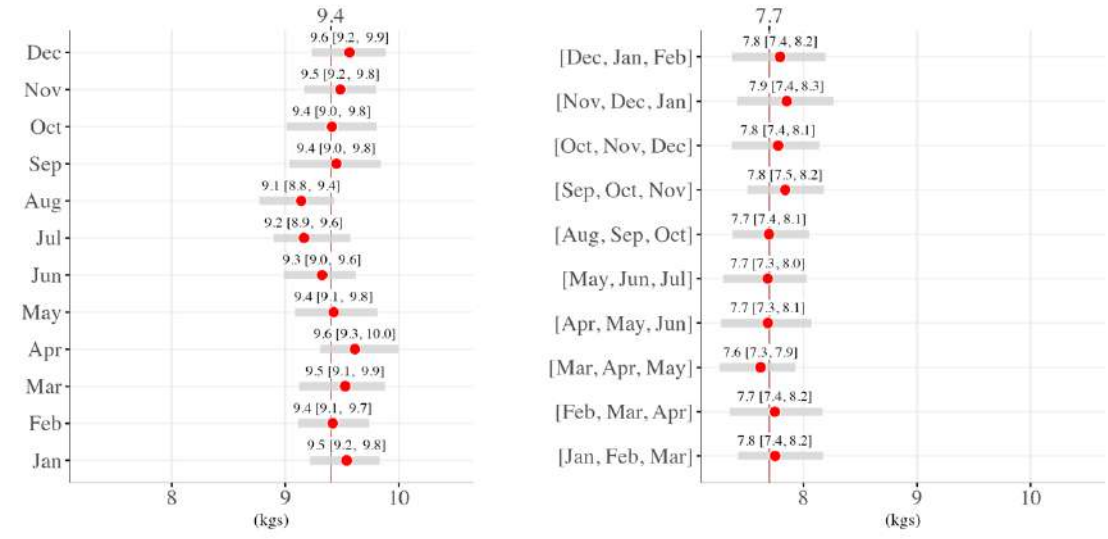
Figure 12d

Quantity of consumption (per Adult Female Equivalent) Rural Household: Cereals



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Quantity of consumption (per Adult Female Equivalent) Urban Household: Cereals



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Key Takeaways

1. We observed a significant decline in cereals' average per capita consumption (amount in Kg) across consumption classes and states/UT from 2011–12 to 2022–23 and across rural and urban areas.
2. For fresh fruits, milk & milk products, and eggs, fish & meat, a higher proportion of households consumed these products, and the average per capita consumption also increased significantly from 2011–12 to 2022–23. The most profound increase was for the Bottom 20% of the households in rural and urban areas.
3. We also observed seasonality in household consumption for specific food items such as fresh fruits. However, compared to 2011–12, the month-to-month fluctuations in household consumption in 2022–23 have reduced. This suggests significant improvements in the availability, accessibility, and affordability of fresh fruits throughout the year and across all parts of the country, including remote regions.
4. These results suggest an increase in dietary diversity of the household, which is marked by a shift away from cereal-based consumption towards a diet that includes fruits, milk & milk products, eggs, fish & meat. This is likely to have a crucial impact on health outcomes in the country. In the subsequent chapters, we explore the relationship between dietary diversity and micronutrient intake and its relationship with the prevalence of Anaemia across states of the country.
5. Increased consumption of perishable items such as fresh fruits, milk & milk products, eggs, fish & meat also reflects significant improvements in infrastructure related to transport, storage and overall advancement of the supply chain and logistics factors, which have made these products accessible and affordable to the bottom 20% of households both in rural and urban areas across the country.
6. Perhaps reduced consumption of cereals and the government food security policy of providing free foodgrains to poor households has had an impact on the ability of the bottom 20% of the households to diversify their diets.
7. The significant growth in consumption of fresh fruits, milk and milk products, fish, eggs, meat, etc., indicates shifting demand patterns of Indian households. These shifting demands will have far-reaching implications for the agricultural sector across the country, particularly regarding farmers' cropping decisions and the future support policies of the government.

Chapter 3: Micronutrient Intake

Introduction

This chapter focuses on the micronutrient intake based on food consumption from the household consumption survey. We limit our attention to households with cooking arrangements. The food categories considered in the analysis are (i) cereals, (ii) pulses, (iii) milk & milk products, (iv) eggs, fish & meat, (v) vegetables, (vi) fresh fruits, (vii) dry fruits, and (viii) edible oil. From the survey for each household, we take the quantity of the sub-item consumed (for example, for fresh fruits, it could be apple), which includes amounts produced at home and those purchased from the market. For the micronutrient intake of each sub-item, we use information on the micronutrients for the particular food item from the ICMR–National Institute of Nutrition (ICMR–NIN) report on Indian Food Composition Tables (2017)[15]. This was facilitated by a portal from Anuvaad Solutions, which provided easy access to the open-source Indian Nutrient Databank, where information on micronutrient values was available per 100 grams of each sub-item in the broad food category.[16]

The micronutrients we consider in our analysis are (a) Iron, (b) Zinc, (c) Folate (Vitamin B_9), (d) Vitamin A, (e) Thiamin (Vitamin B_1), (f) Riboflavin (Vitamin B_2), (g) Niacin (Vitamin B_3), (h) Vitamin B_6, (i) Vitamin B_{12}, (j) Vitamin C, and (k) Calcium.

We present the analysis of micronutrient intake for different consumption classes and highlight inter-state variations. The statistical model used is the same as the one described in Chapter 2 (to avoid repetition, we do not discuss the Statistical model in this chapter; kindly refer to Chapter 2 for details).

It is essential to mention that cereals are an important source of micronutrients such as Iron and Zinc; therefore, we present results with and without cereals for each micronutrient. Since cereal consumption varies across states, these variations will be reflected in inter-state variations.

---

[15] Longvah, T., Ananthan, R., Bhaskarachary, K. and Venkaiah, K. (2017). Indian Food Composition Tables 2017, National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, Telangana, India. https://www.nin.res.in/ebooks/IFCT2017.pdf

[16] Vijayakumar A, Dubasi HB, Awasthi A, Jaacks LM. Development of an Indian Food Composition Database. ***Current Developments in Nutrition***. 2024 Jun 13:103790. https://www.anuvaad.org.in/indian-nutrient-databank/

We present results in terms of average daily intake and use information on the household composition to compute the adult female equivalent. Therefore, the results presented are the average daily intake for adult female equivalent.

In addition to the average intake, we also compute the dietary diversity of the micronutrient source. In particular, for each micronutrient, we compute the share of the micronutrient coming from the eight food categories considered above and use this information to calculate the Shannon diversity index. In particular,

$$Shannon\ Diversity\ Index_{micronutrient} = -1 \times \sum_{f\ is\ the\ food\ item} share\ of\ micronutrient\ coming\ from\ food\ item_f \times log\left(share\ of\ micronutrient\ coming\ from\ food\ item_f\right).$$

(i) Micronutrient Intake across Consumption Class

Overall, the average daily iron intake in terms of adult female equivalent for a rural household was 9.9; however, approximately 50% of the intake came from cereals, as the iron intake reduced to 4.5 if we excluded cereals. The difference between the top 20% and the bottom 20% in terms of the ratio of the average intake was a scale factor of 1.43; however, this ratio increased to 1.85 if we excluded cereals. This suggests that compared to the top 20%, the bottom 20% relied heavily on cereals for their iron intake; in particular, for the top 20% of rural households, 49% of the average iron intake came from cereals, whereas for the bottom 20%, 61% of average iron intake came from cereals. In terms of dietary diversity of the source of Iron, as measured by the Shannon diversity index, we found the top 20% had more diverse sources as compared to the bottom 20%, 1.27 [95% CI: 1.25, 1.28] for the top 20% versus 1.09 [1.07, 1.10] for the bottom 20%. We observed a similar pattern for urban households. We observed similar effects for Zinc as well.

We also observed that the gap between the bottom 20% and the top 20% was higher for micronutrients that did not come from cereals. For example, for Vitamin A, the average daily intake for the bottom 20% of the rural household was 117 [95% CI: 107, 127], while for the top 20%, it was almost twice at 232 [95% CI: 213, 253]. We also observed rural and urban differences across all consumption classes for micronutrients that do not come from cereals.

For example, for Vitamin A, the average daily intake for rural households was 172, while for urban households, it was approximately 14% higher at 200.
The results are presented in Figures 13a to 13k.

Figure 13a: Iron

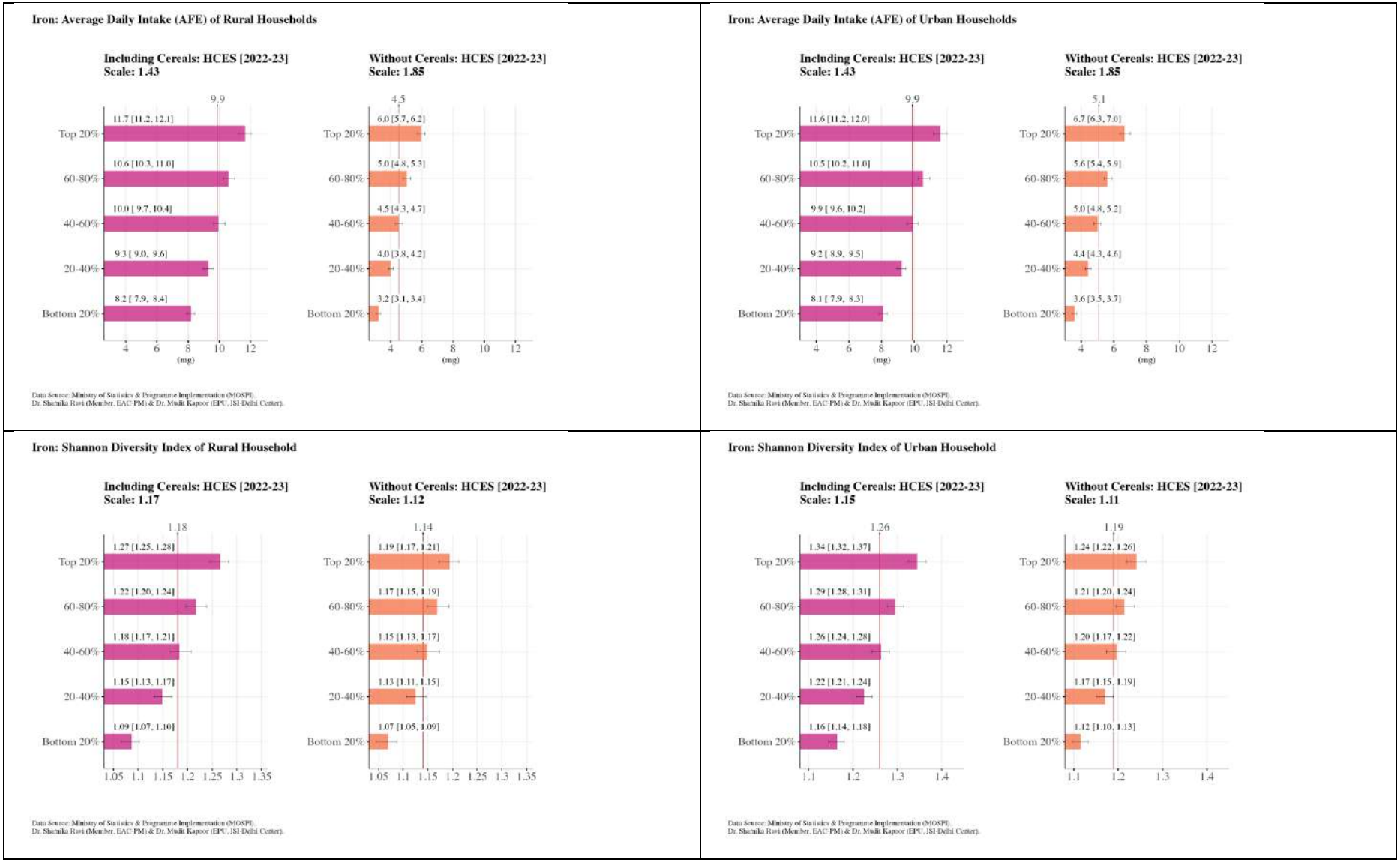


Figure 13b: Zinc

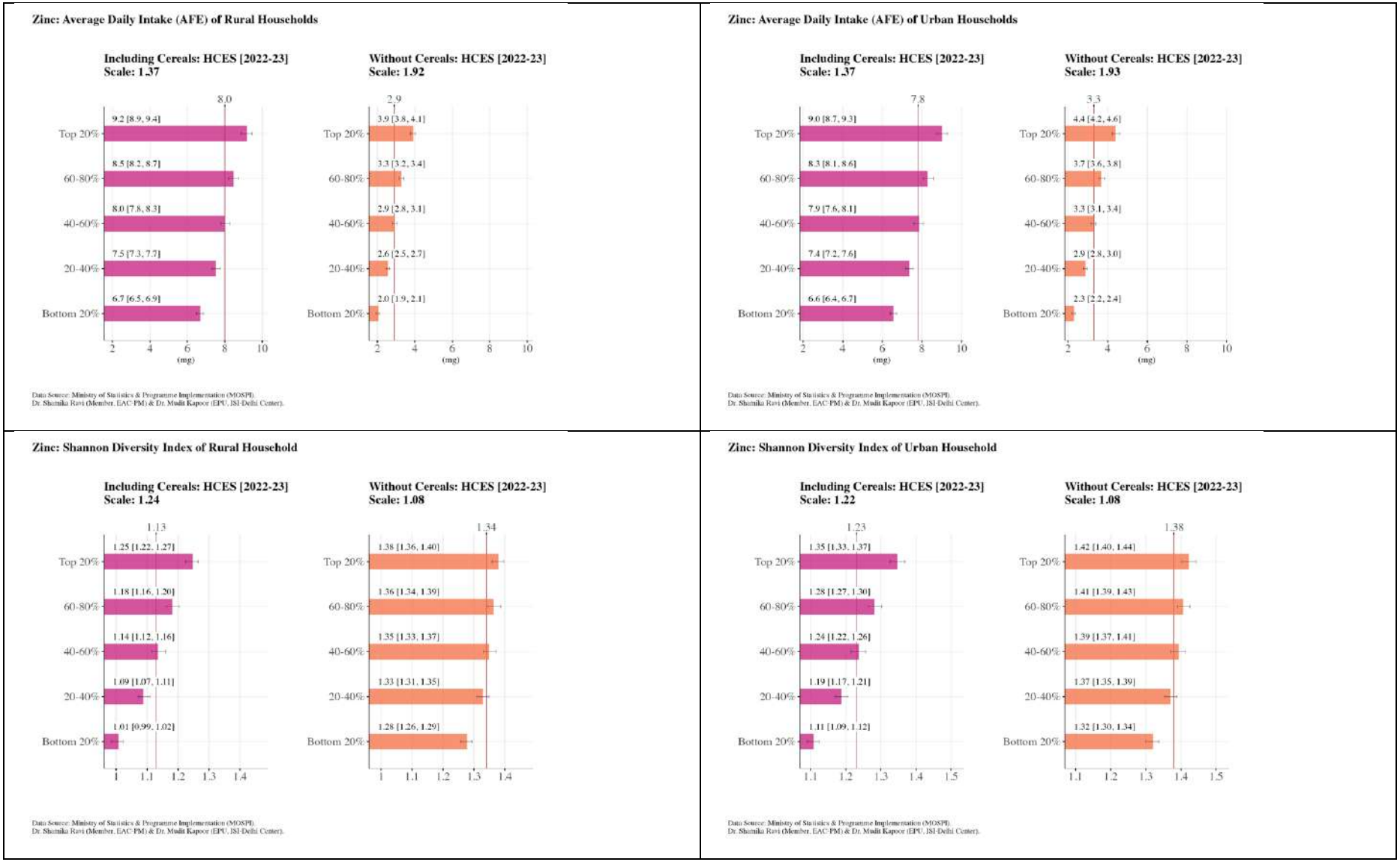


Figure 13c: Folate

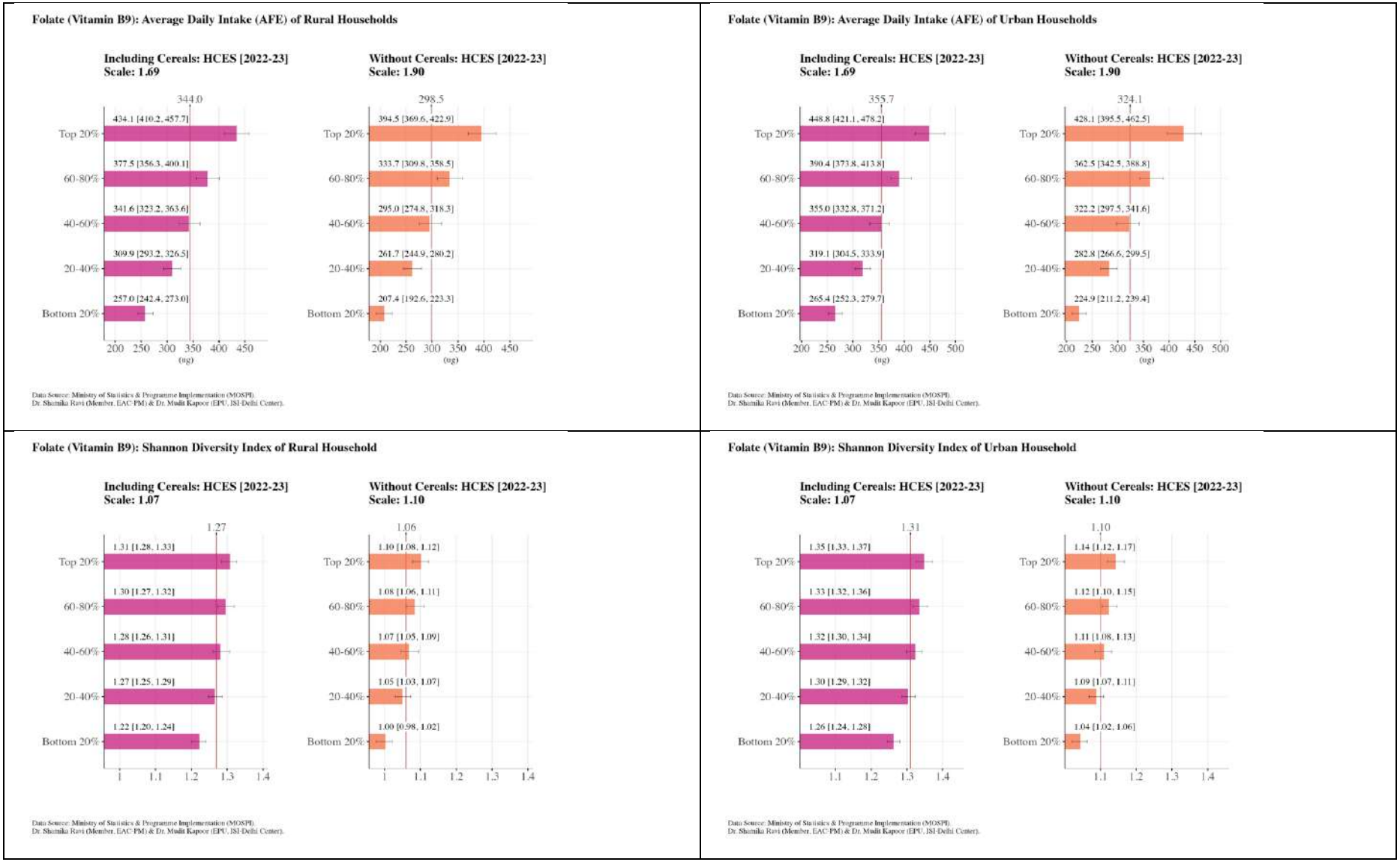


Figure 13d: Vitamin A

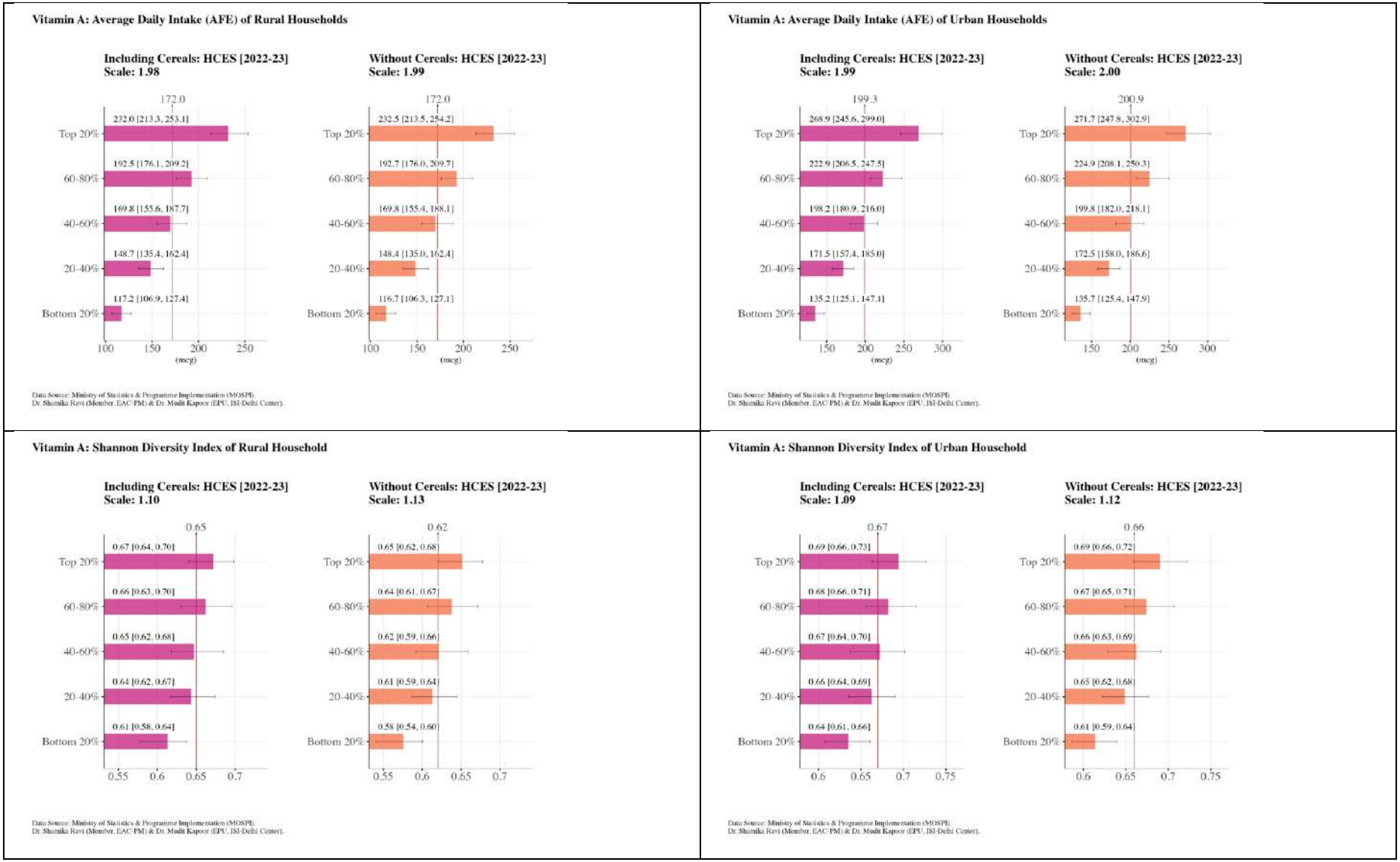


Figure 13e: Thiamin (Vitamin B_1)

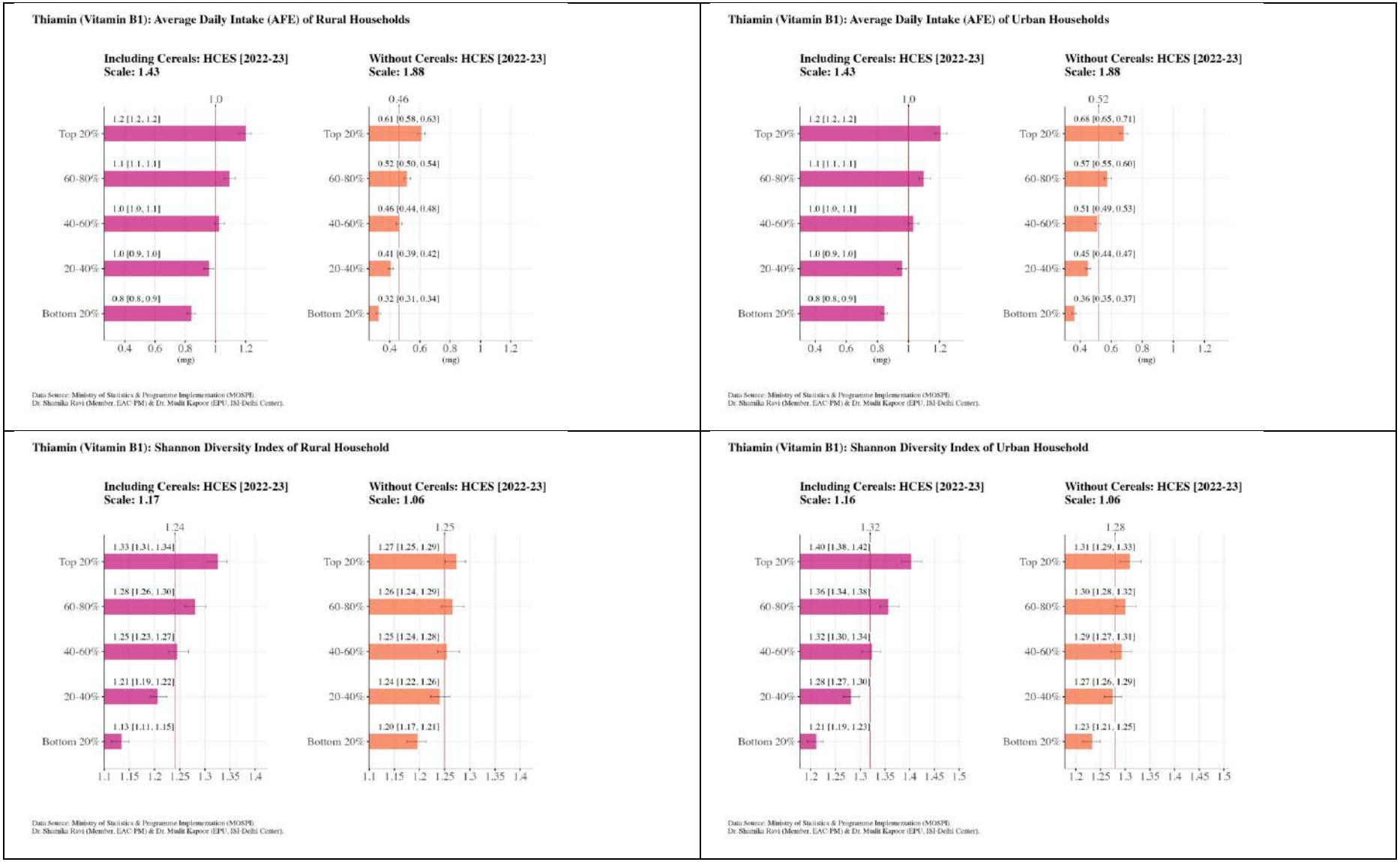


Figure 13f: Riboflavin (Vitamin B_2)

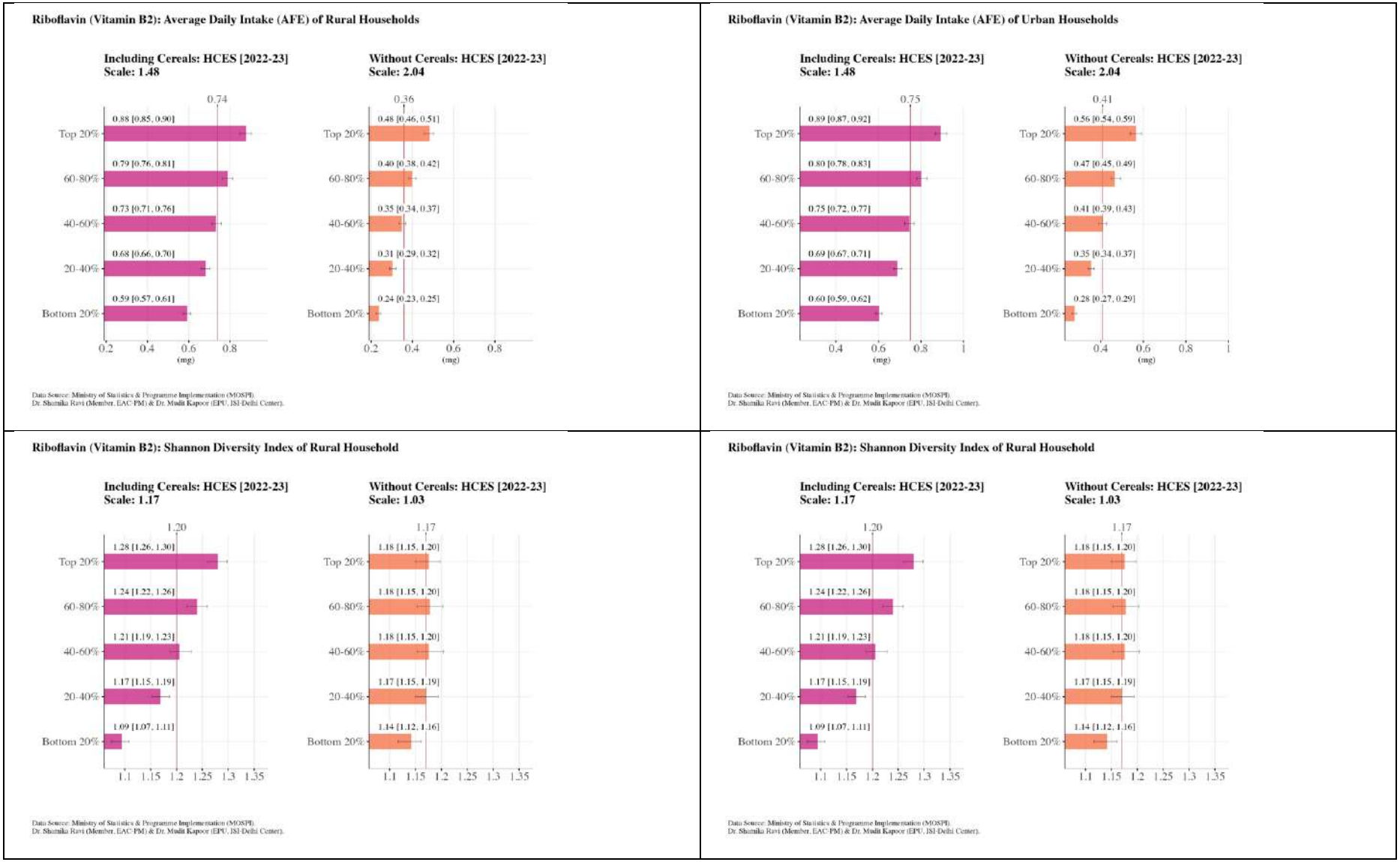


Figure 13g: Niacin (Vitamin B_3)

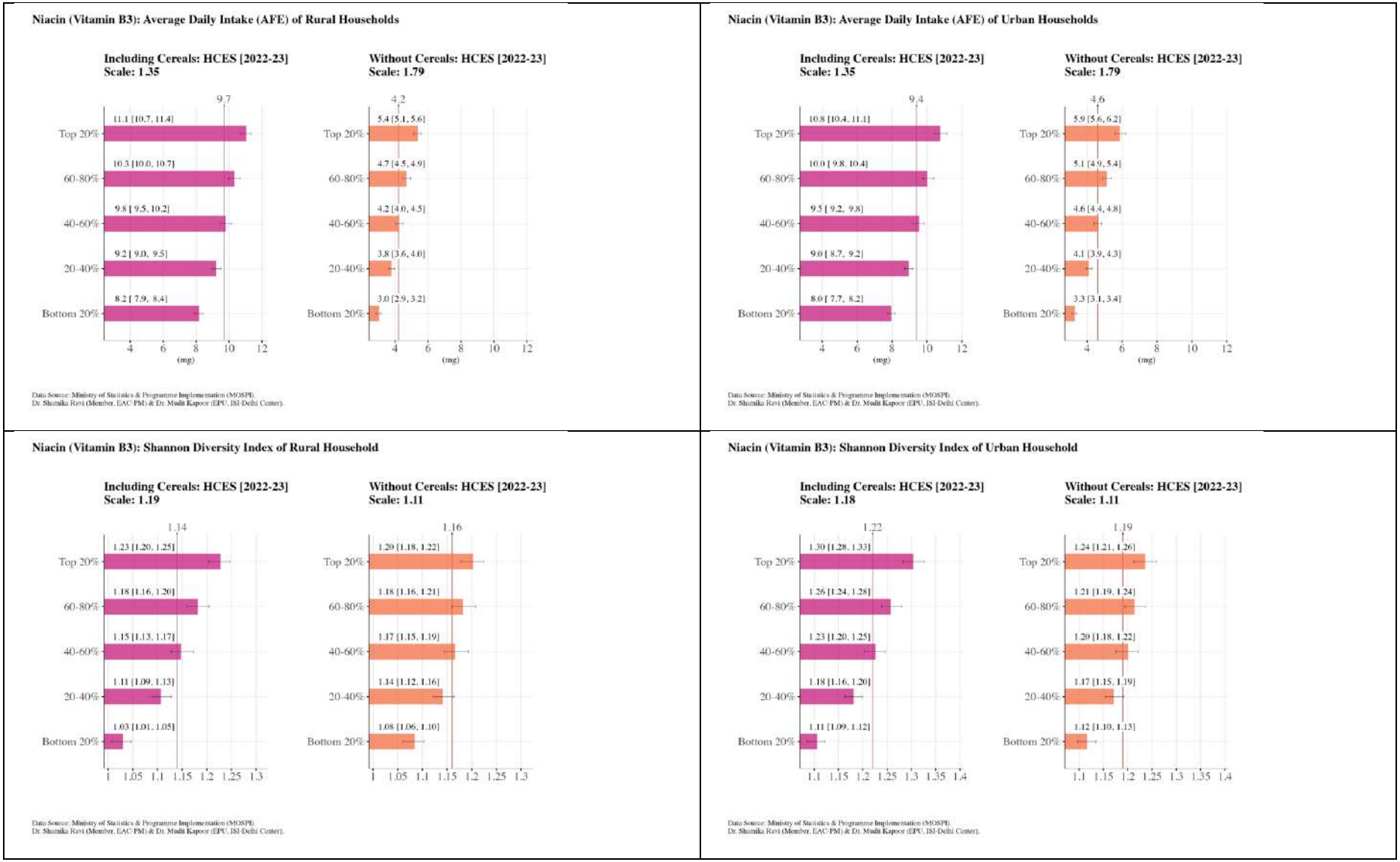


Figure 13h: Vitamin B_6

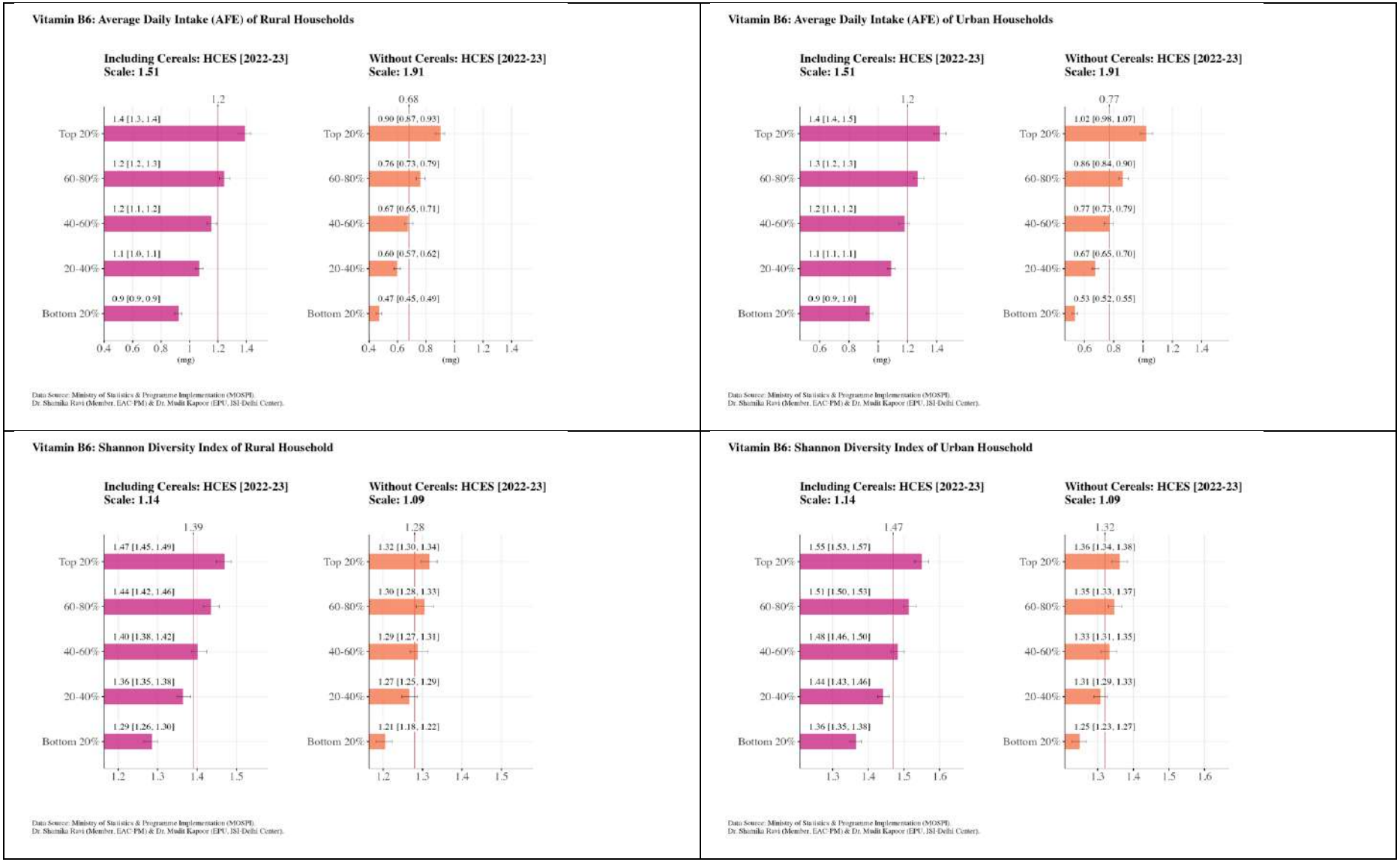


Figure 13i: Vitamin B_{12}

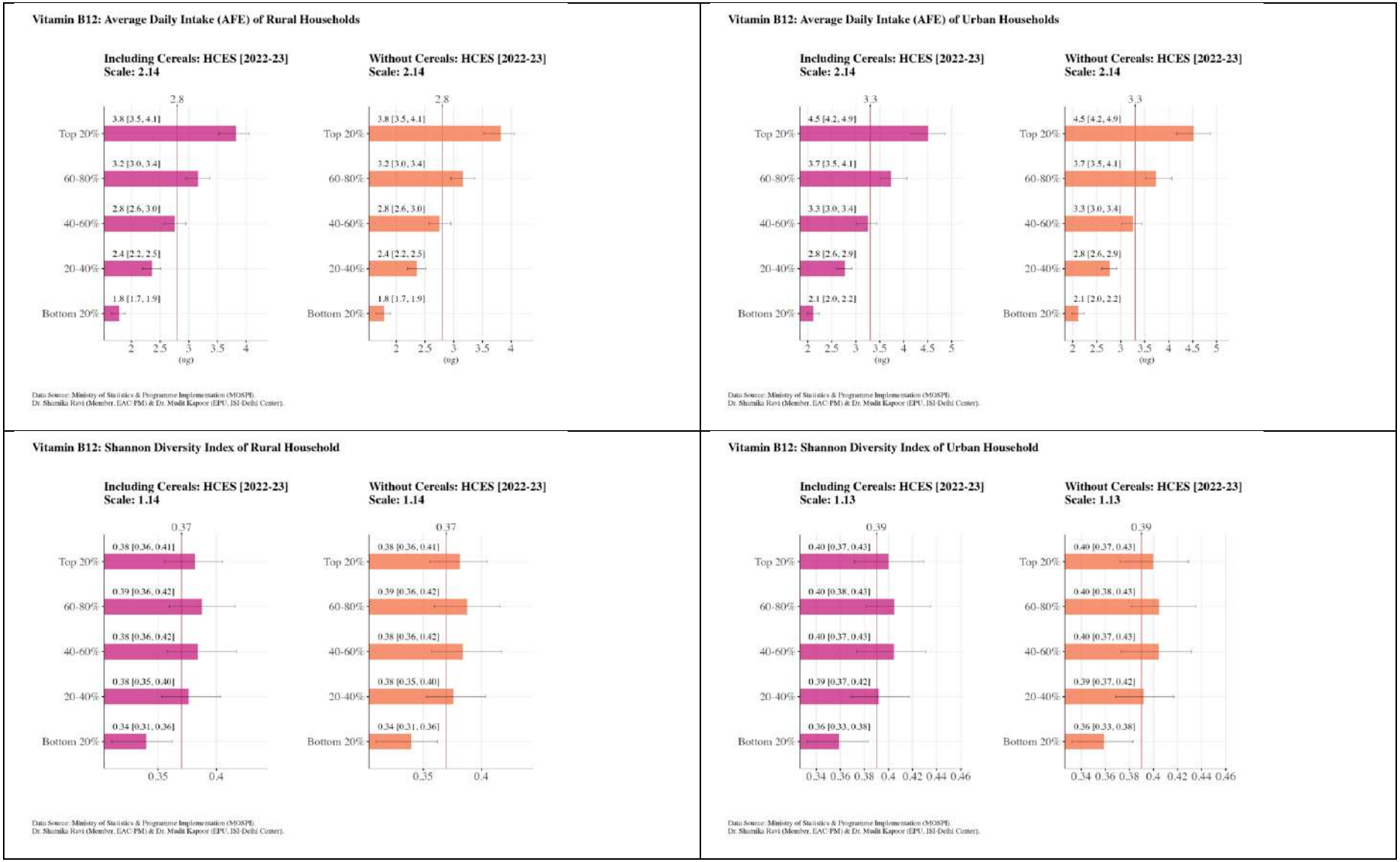


Figure 13j: Vitamin C

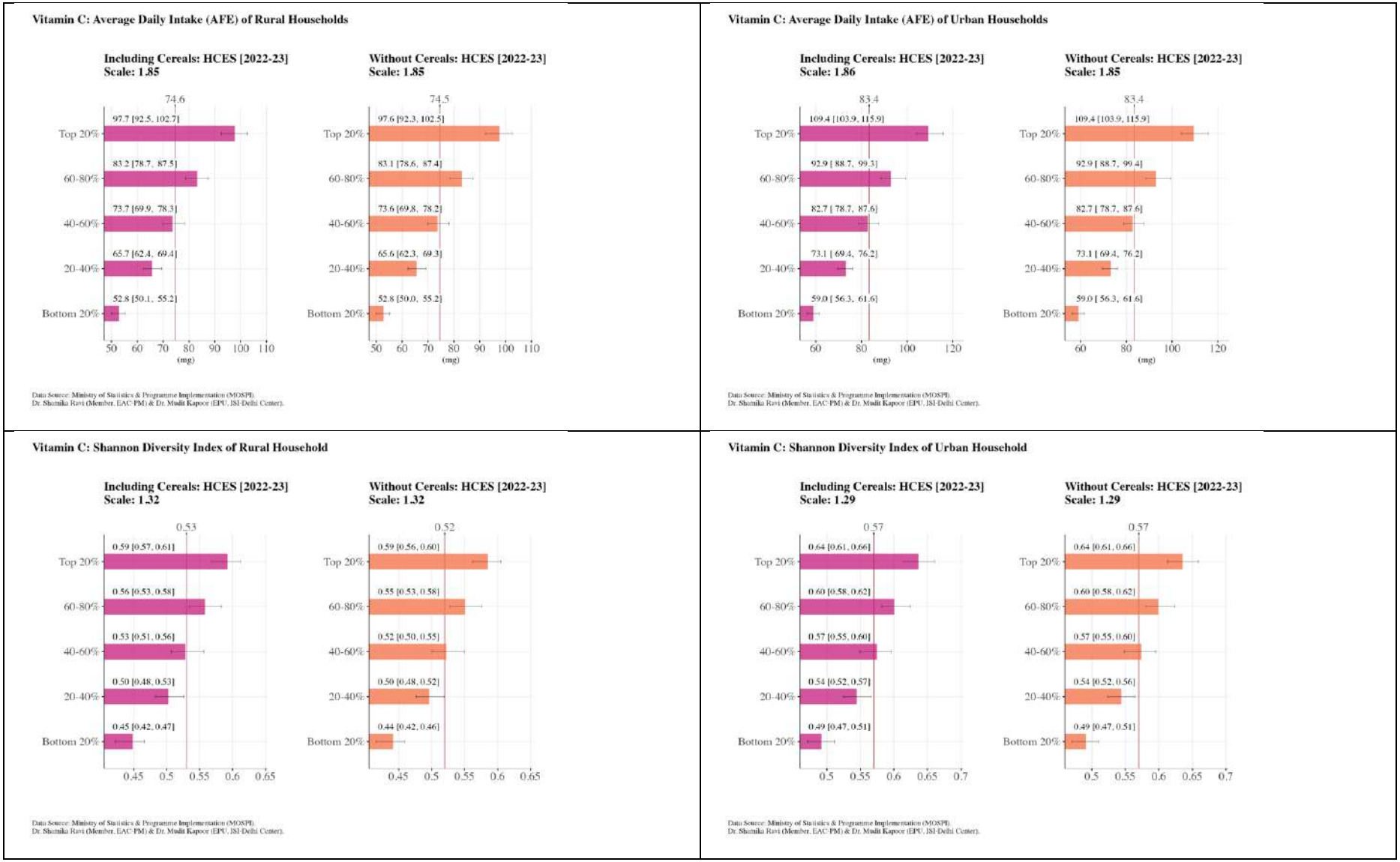
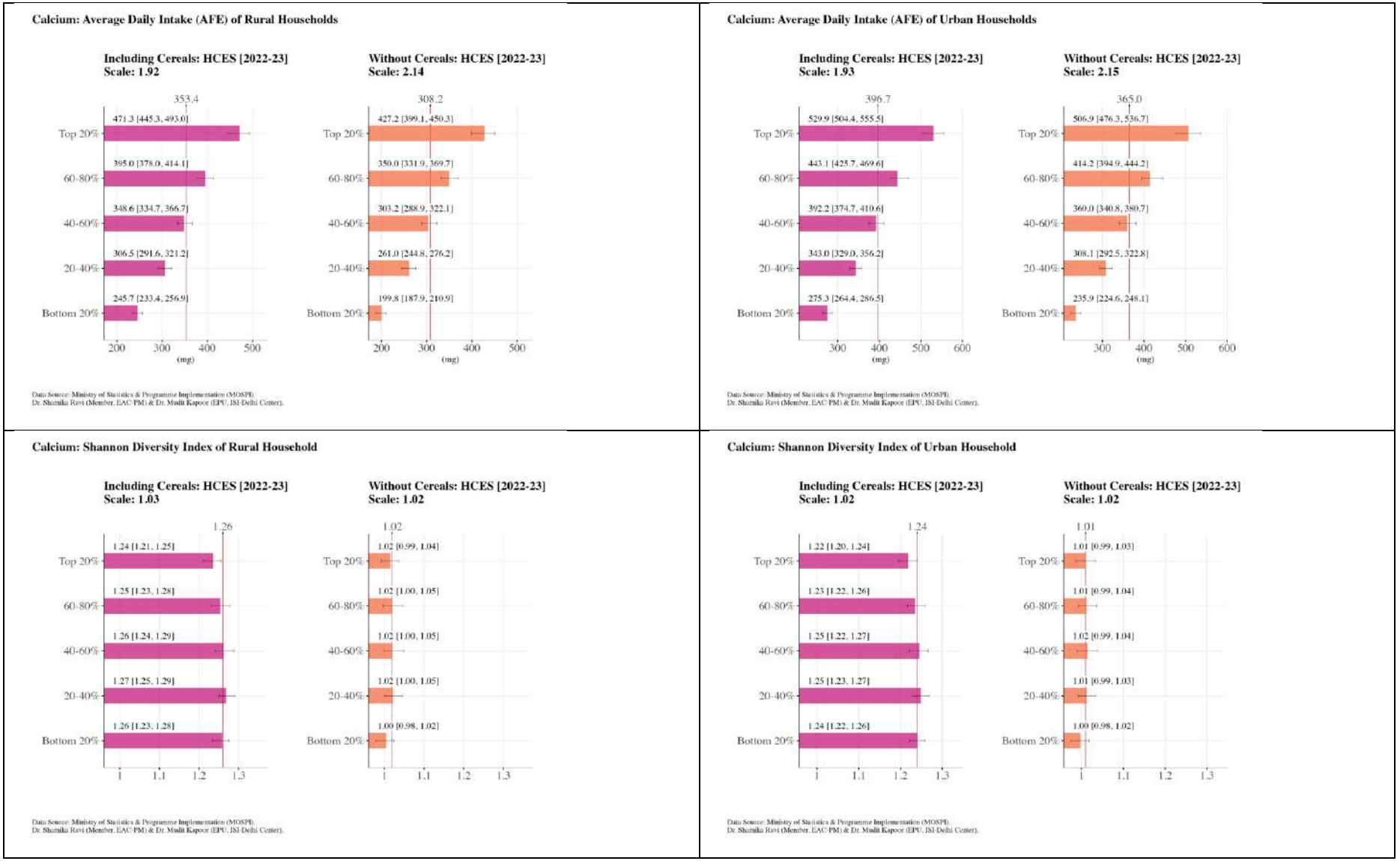


Figure 13k: Calcium



(ii) Inter-State Variations

We observed significant inter-state variation in the average daily intake of micronutrients, which perhaps reflects differences in eating habits across states. We present results with and without cereals.

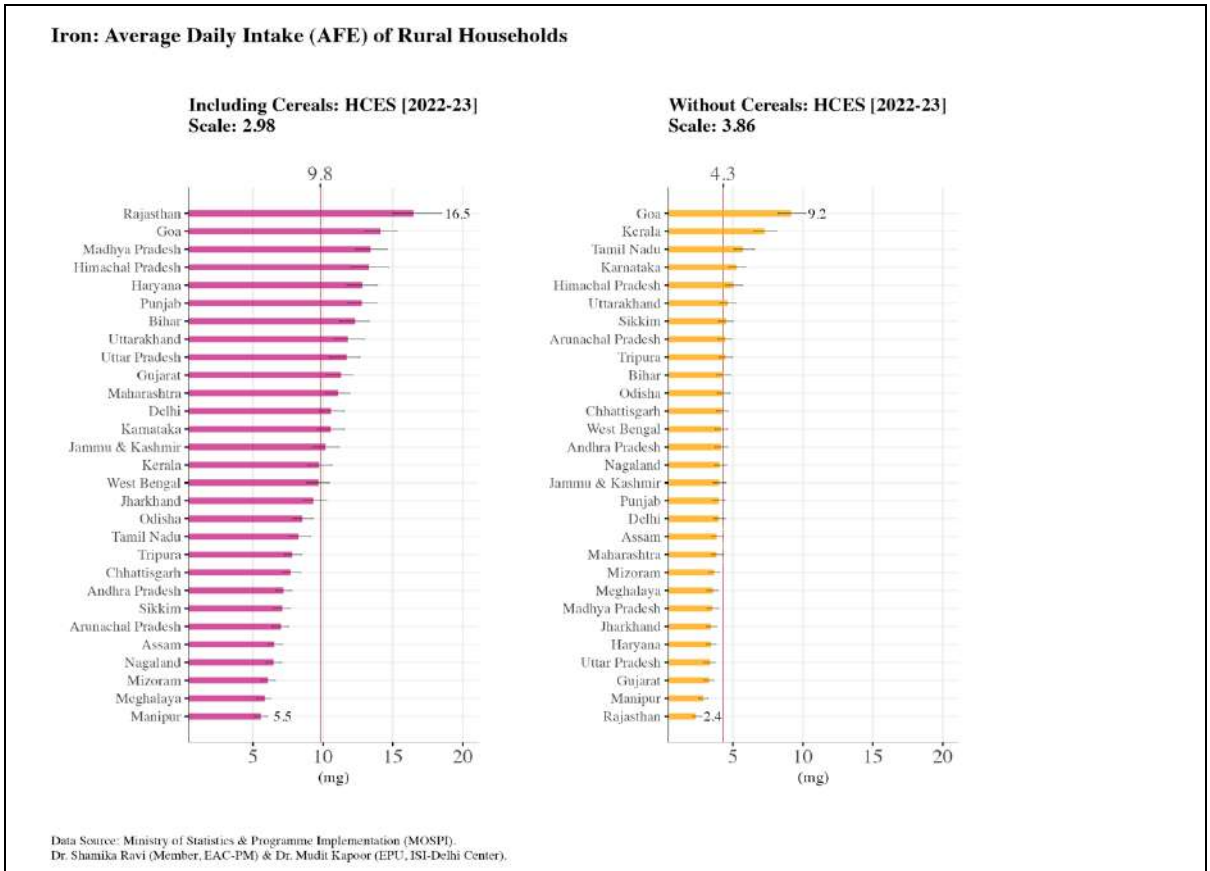
The average iron intake (adult female equivalent) among rural households (with cereals) was the highest in Rajasthan at 16.5 mg and the lowest in Manipur at 5.5. However, excluding cereals, the highest average iron intake was in Goa at 9.2, but the lowest was in Rajasthan at 2.4. A similar result was observed for urban households.

When we looked at Zinc, we found that the average intake among rural households (including cereals) was the highest in Rajasthan at 11.8 and the lowest in Meghalaya at 5.6. Excluding cereals, the highest average intake was in Goa at 5.1, and the lowest was in Manipur at 1.8 mg. The results are similar for urban households.

In the case of Folate (Vitamin B_9), we observed a very significant difference across states. Among the rural households (excluding cereals), the average intake was the highest in Kerala at 736 ug. At the same time, it was the lowest in Rajasthan at 139.2, almost five times lower than that of Kerala. The results were similar among the urban households.

For Vitamin C, we observed the highest average daily intake among the rural households was for Haryana at 96, and the lowest was for Kerala at 50. We report these results in Figures 14a to 14k.

Figure 14: Iron



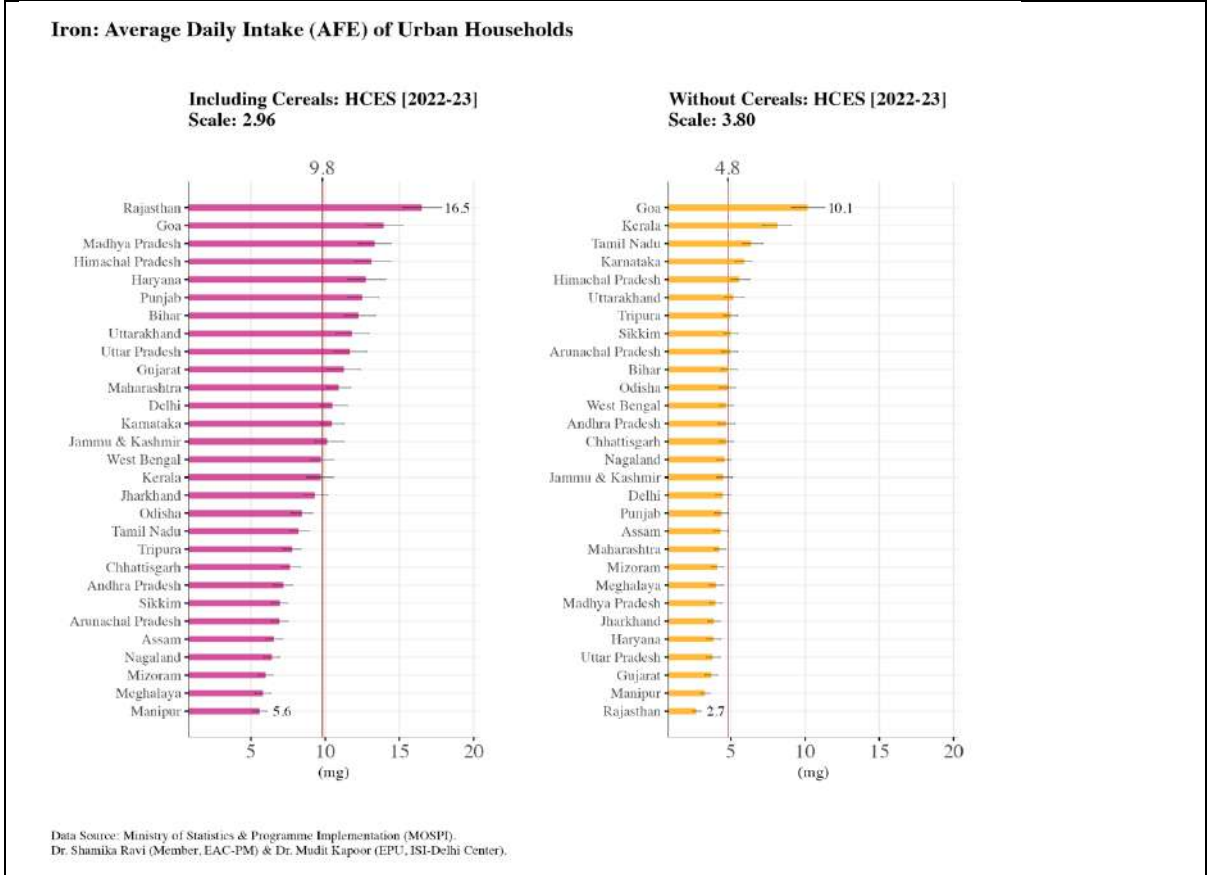
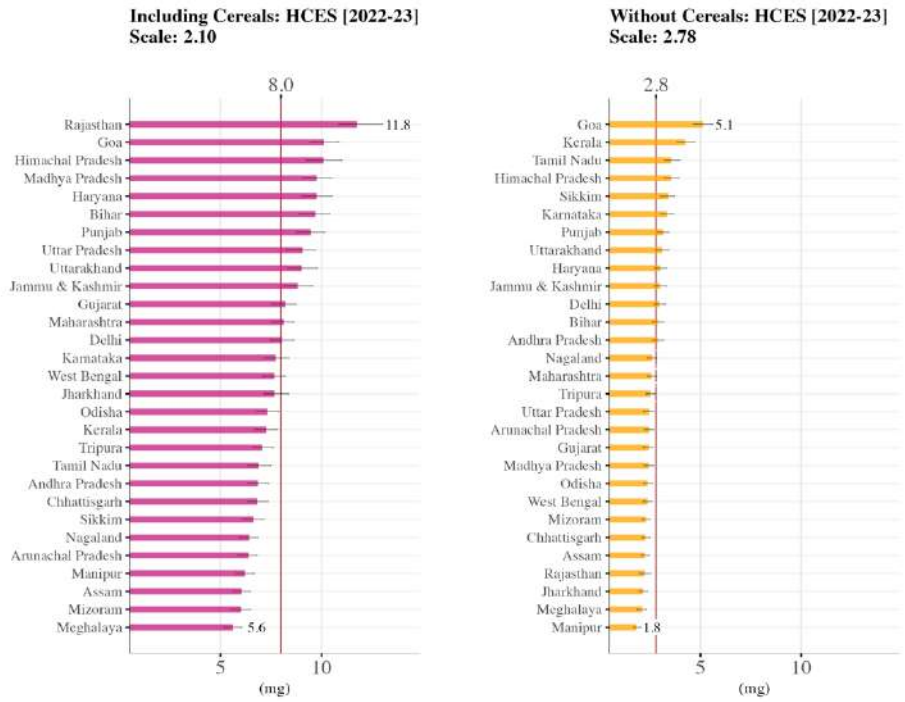


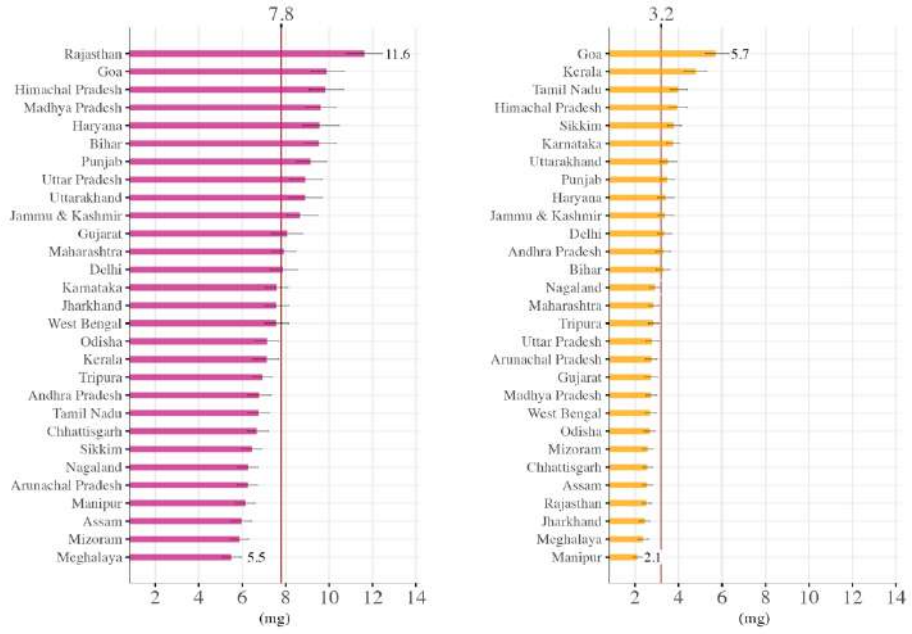
Figure 14b: **Zinc**

Zinc: Average Daily Intake (AFE) of Rural Households



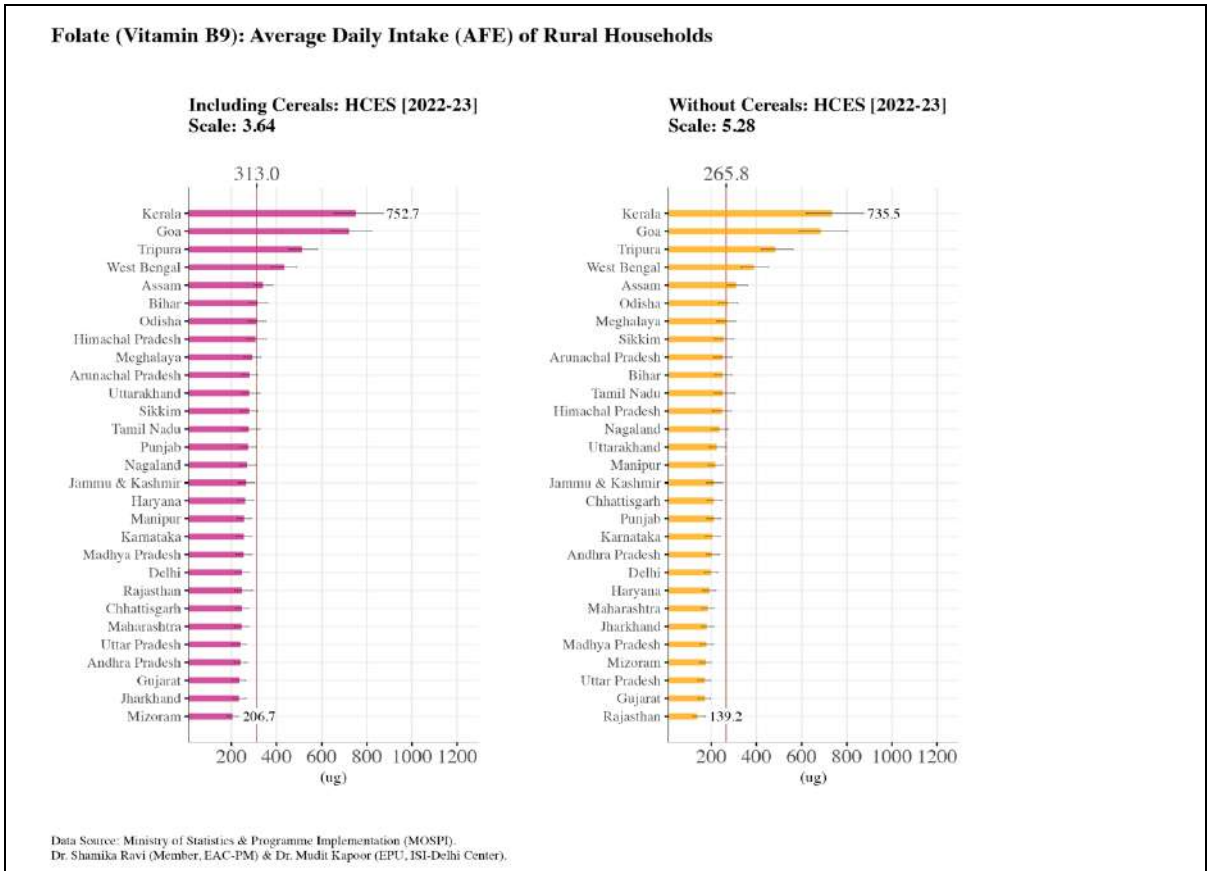
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Zinc: Average Daily Intake (AFE) of Urban Households



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 14c: Folate (Vitamin B_9)



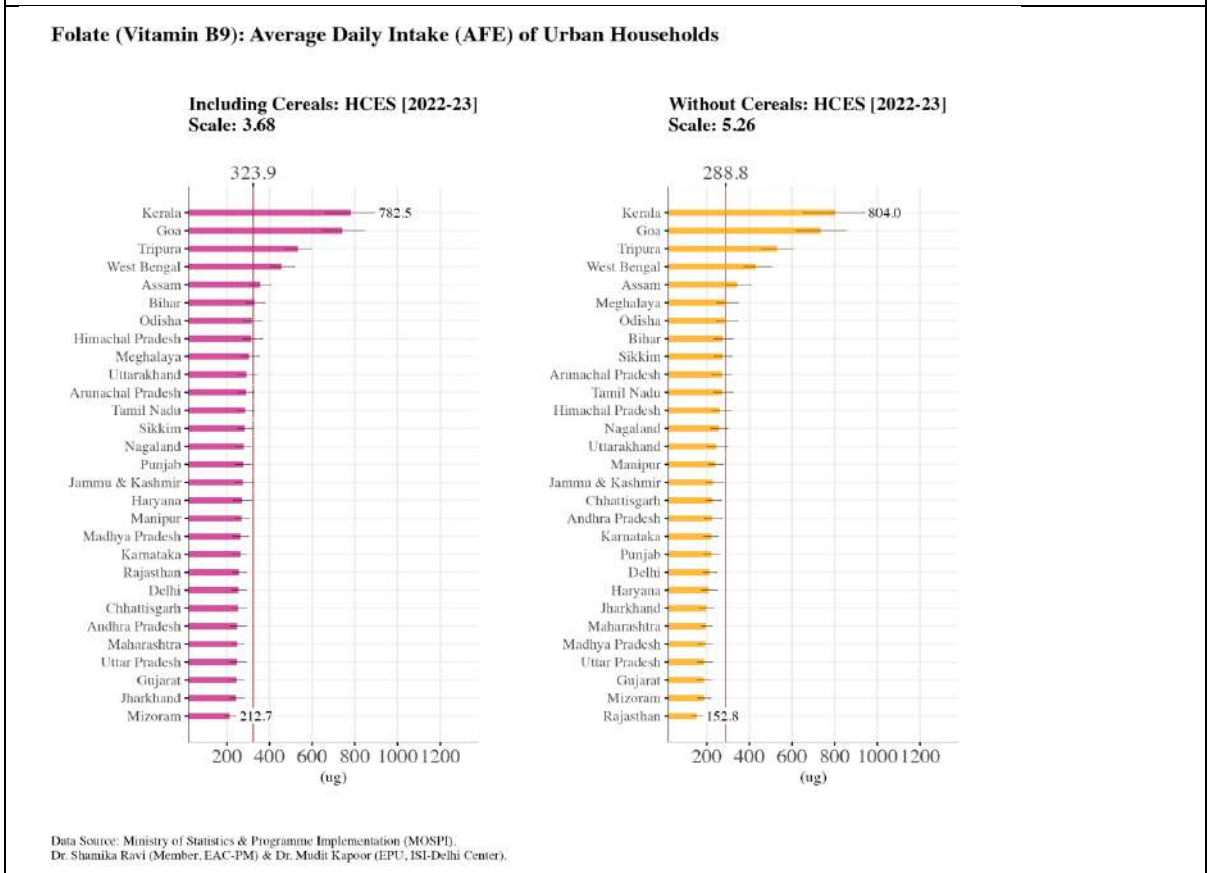
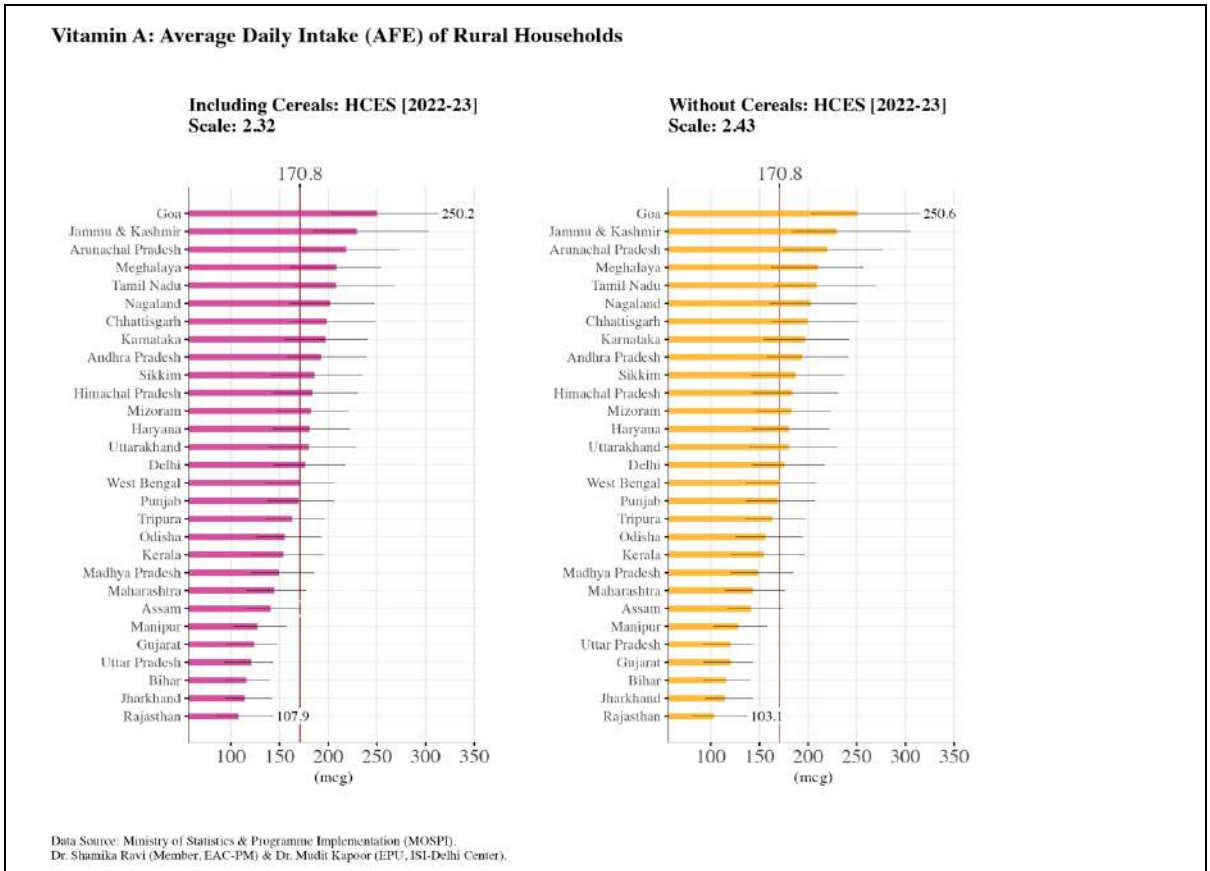


Figure 14d: Vitamin A



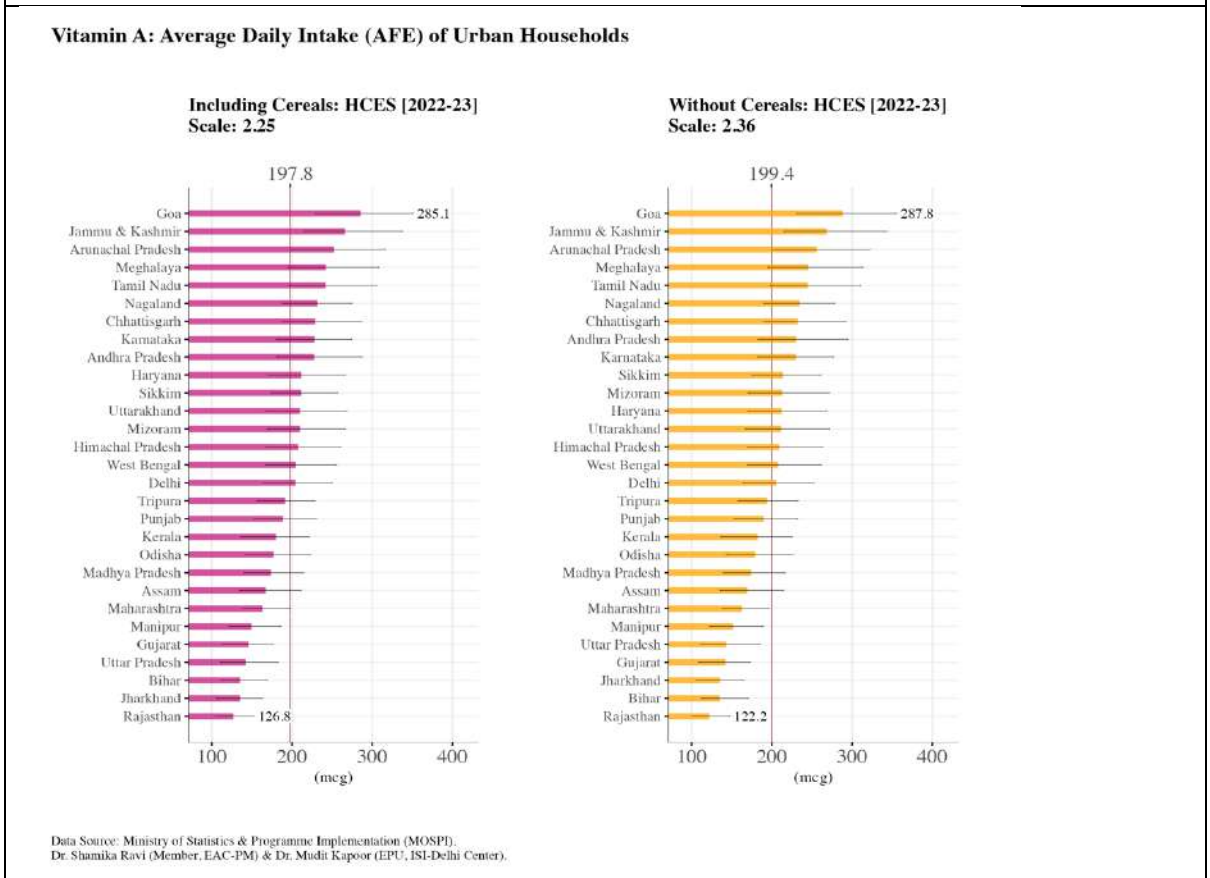
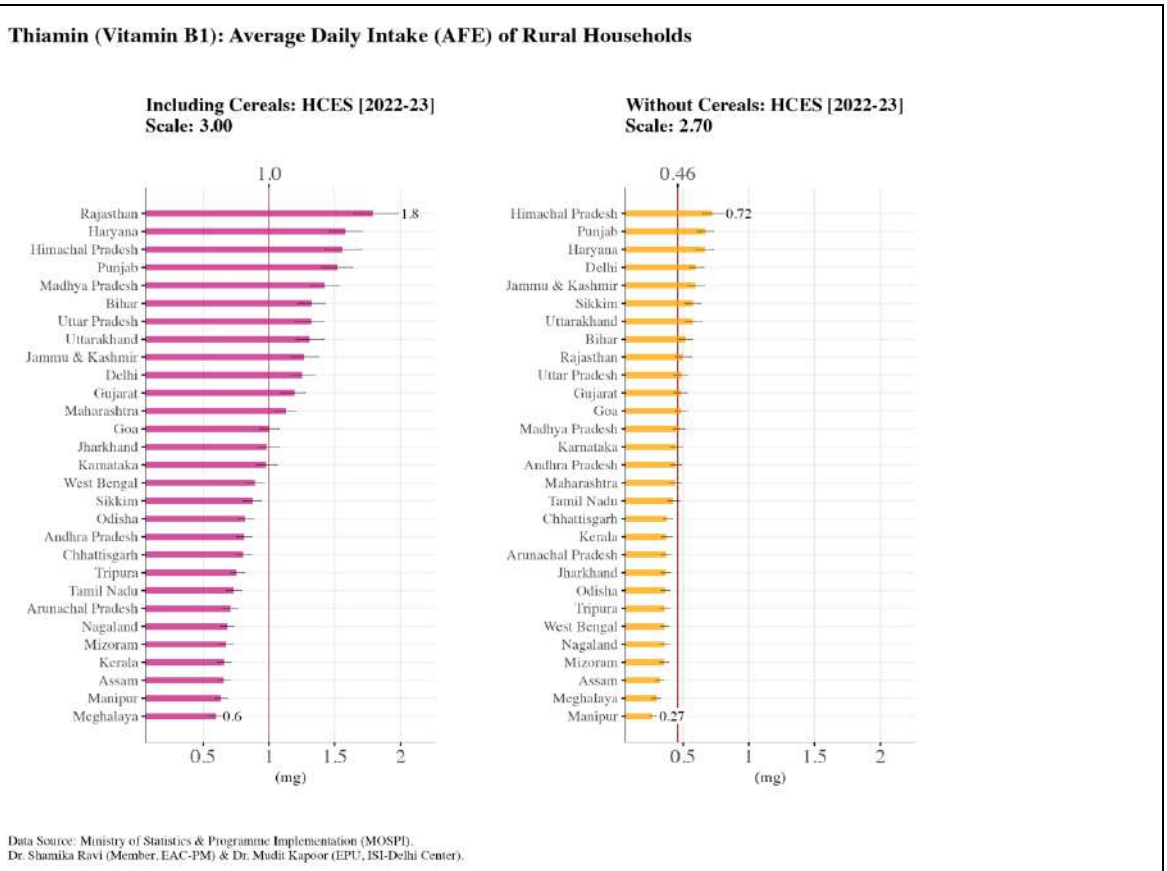


Figure 14e: Thiamin (Vitamin B_1)



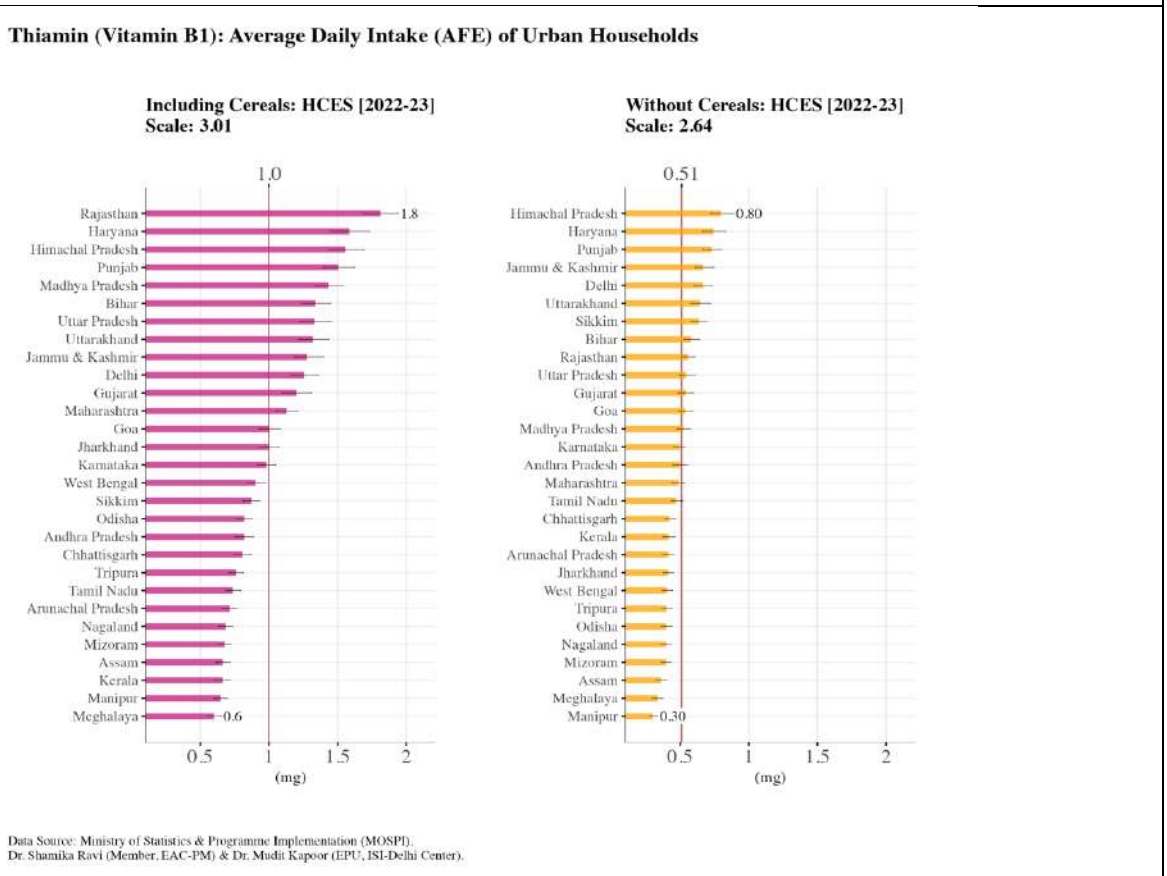
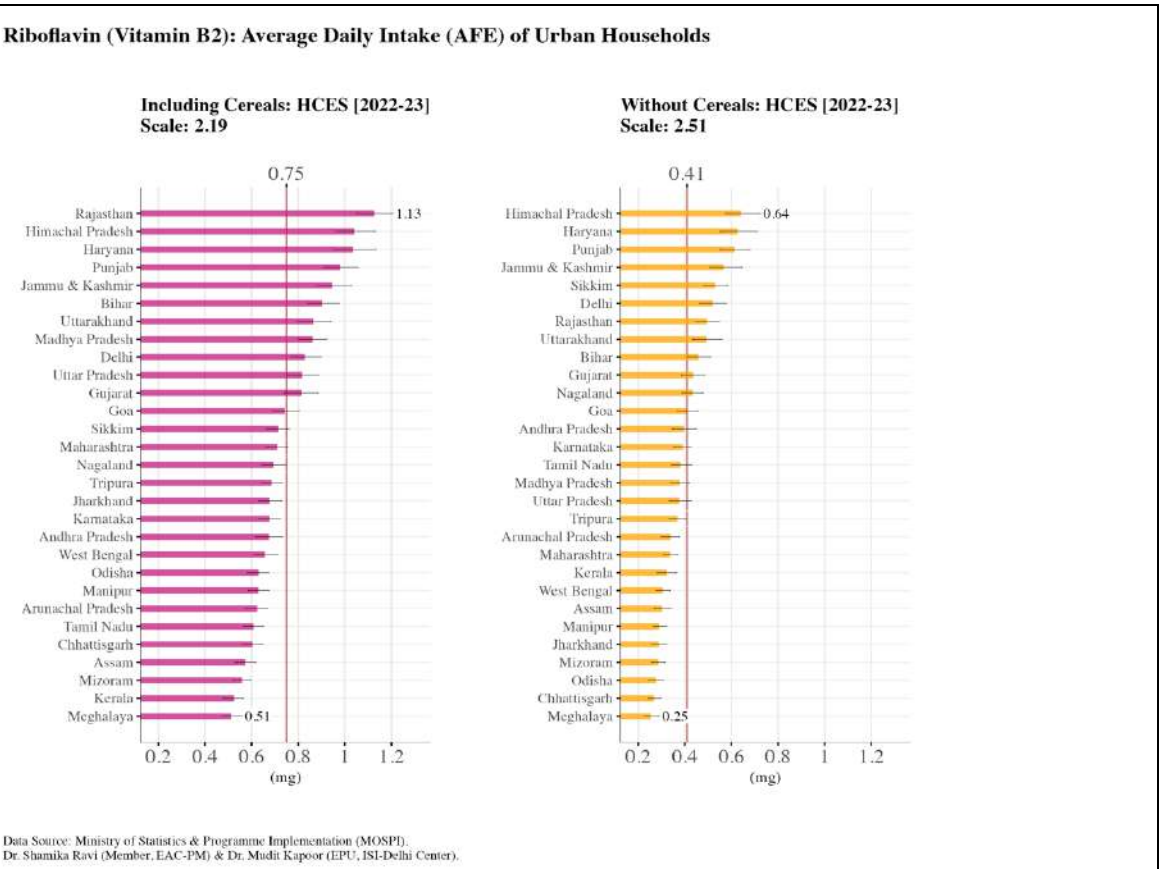


Figure 14f: Riboflavin (Vitamin B_2)



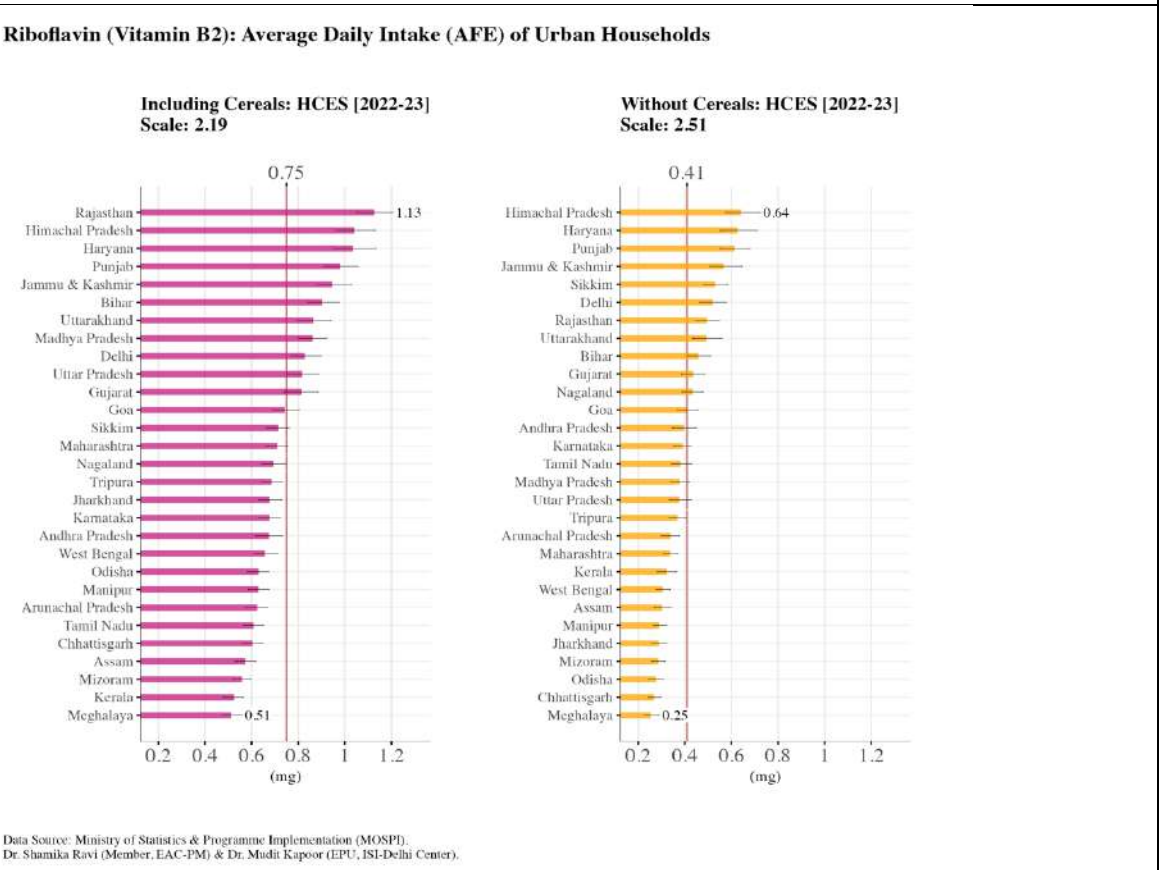
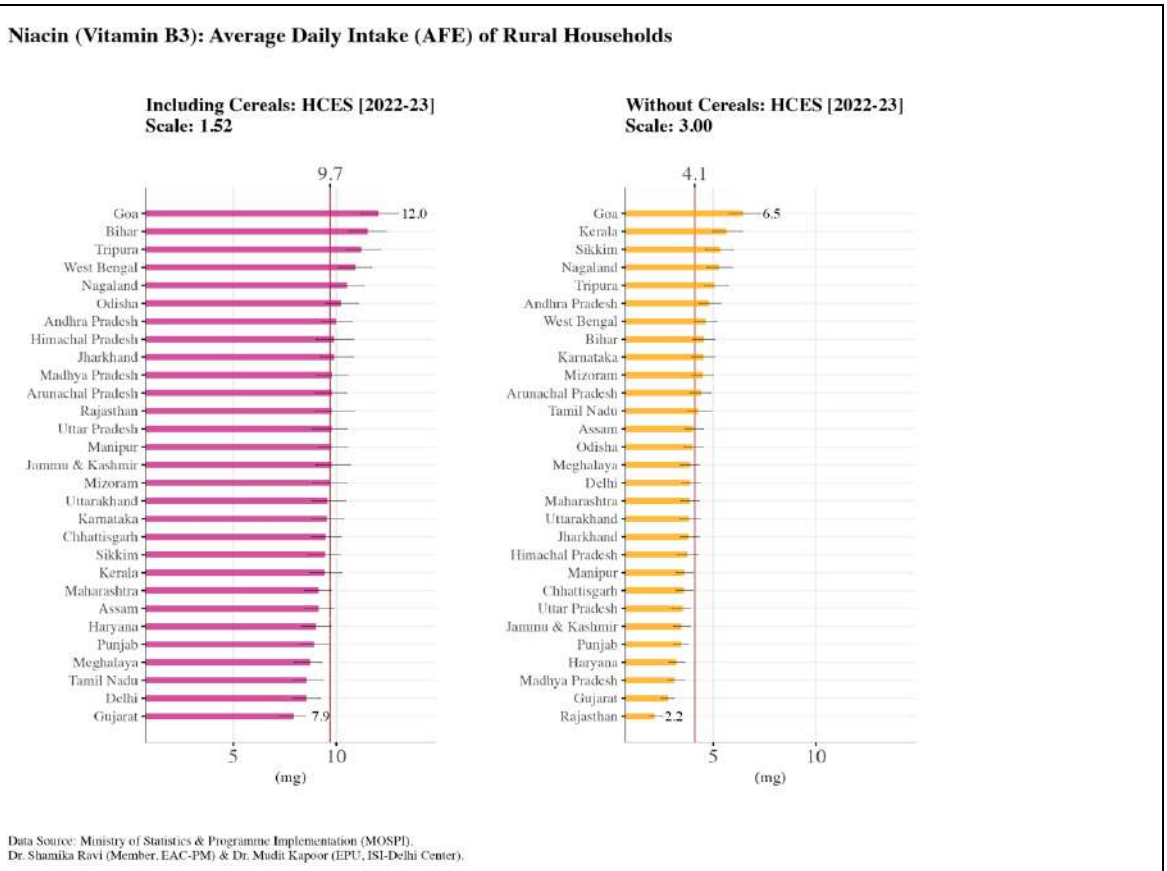


Figure 14g: Niacin (Vitamin B_3)



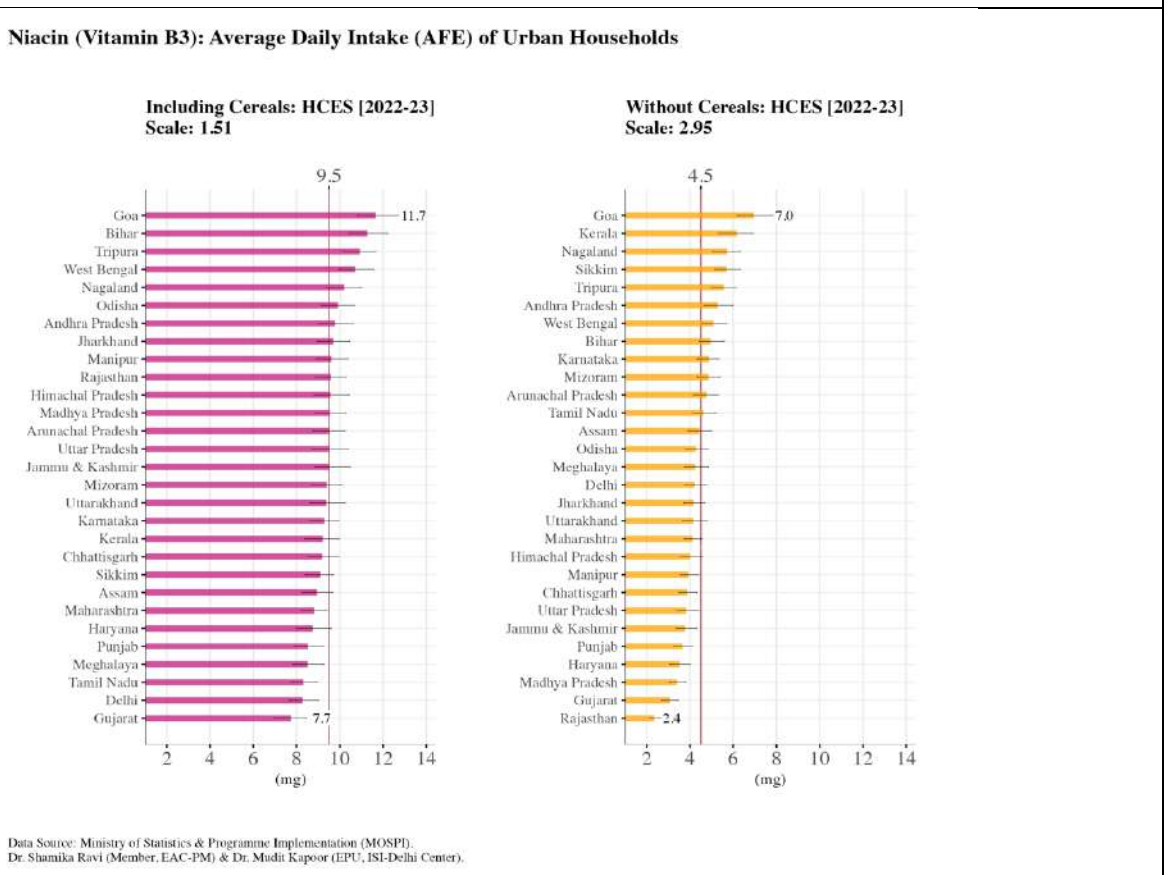


Figure 14h: Vitamin B_6

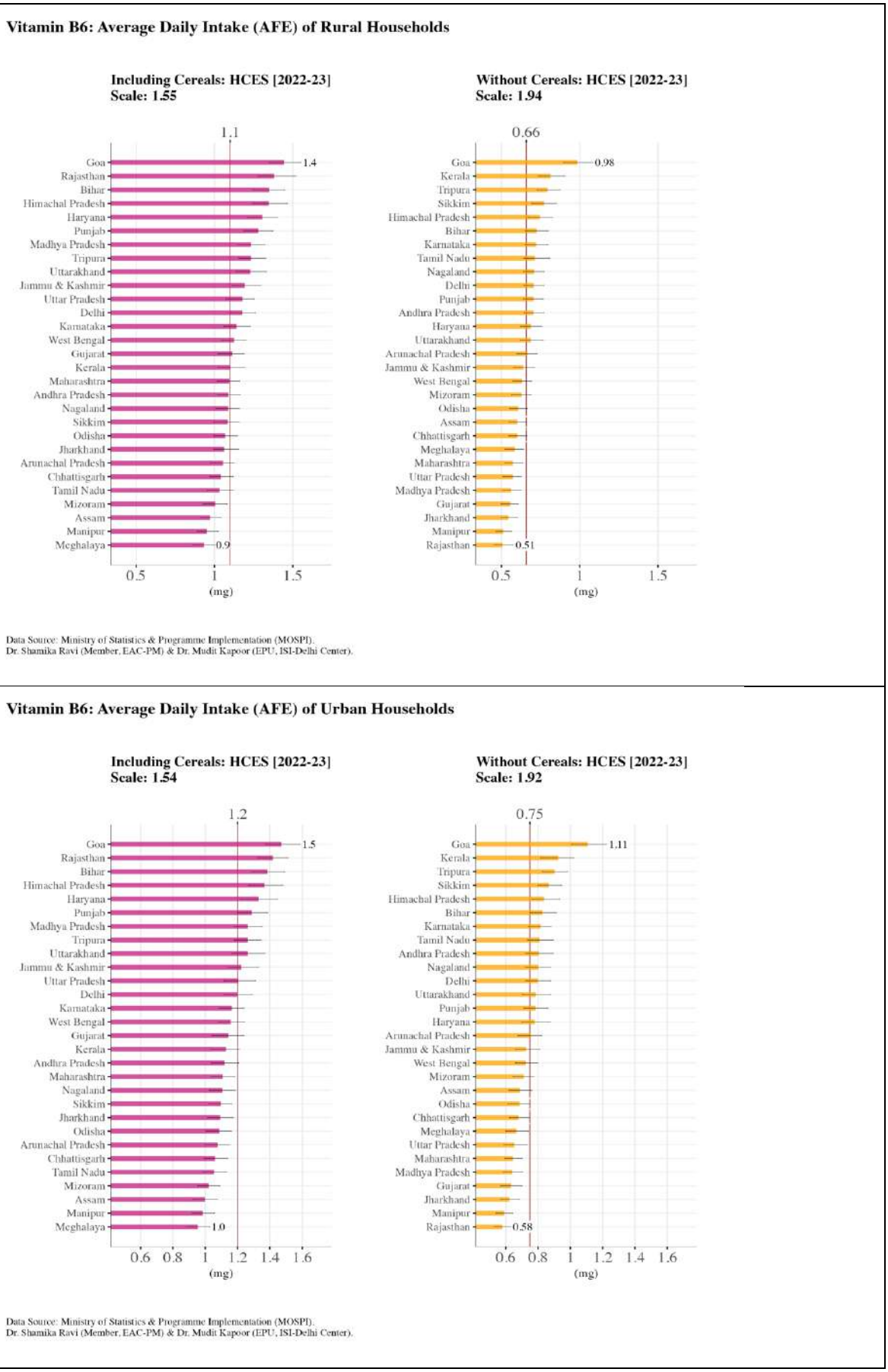


Figure 14i: Vitamin B_{12}

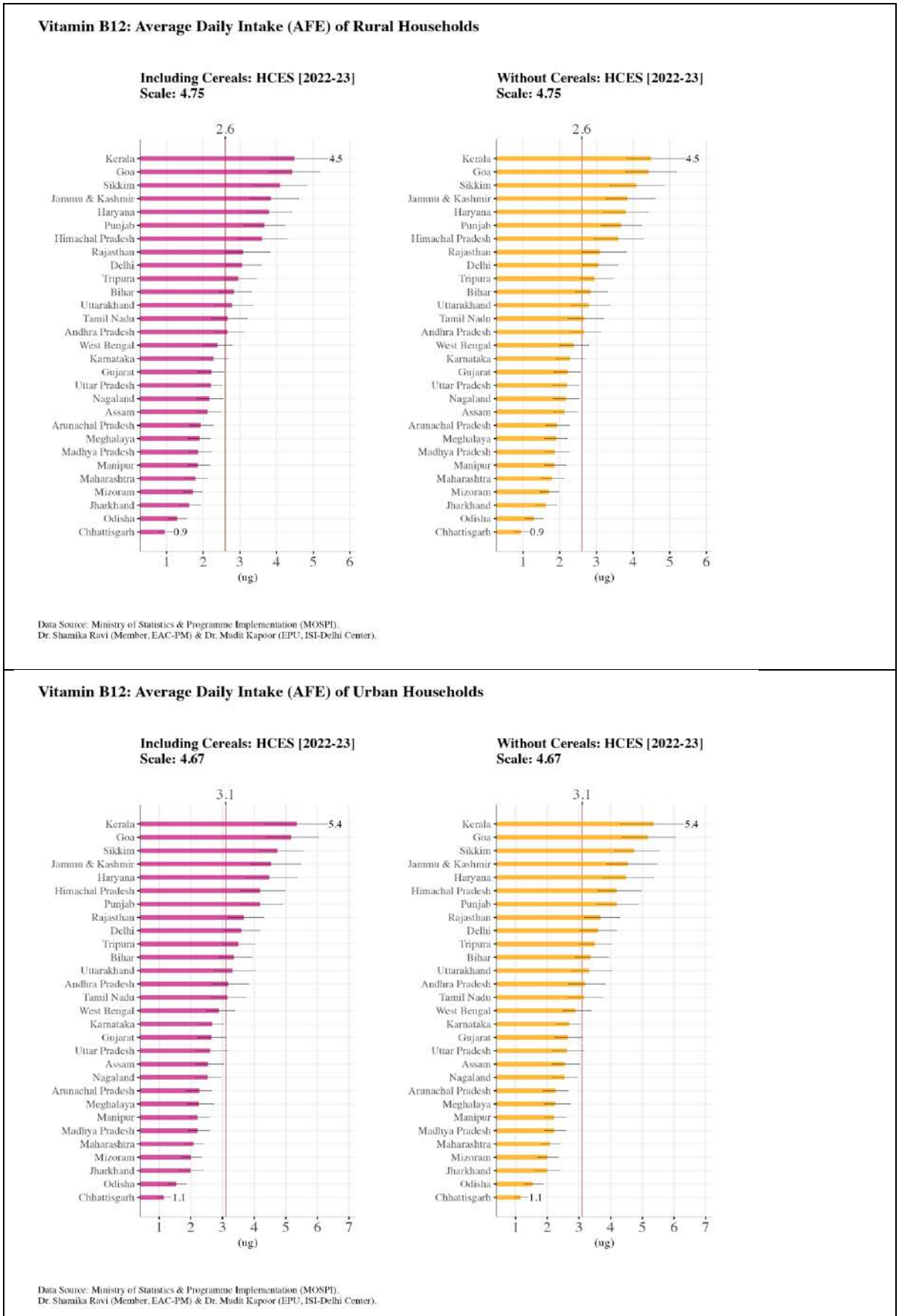
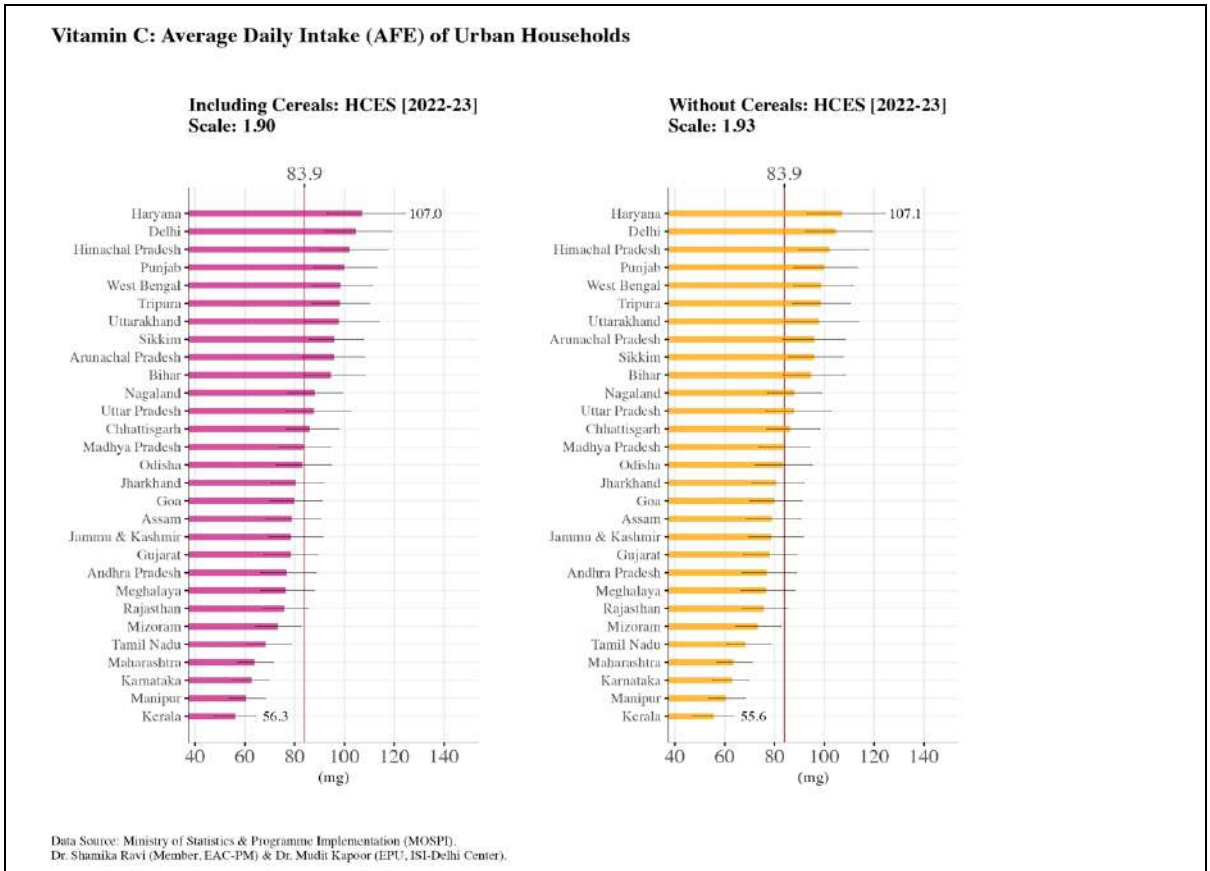
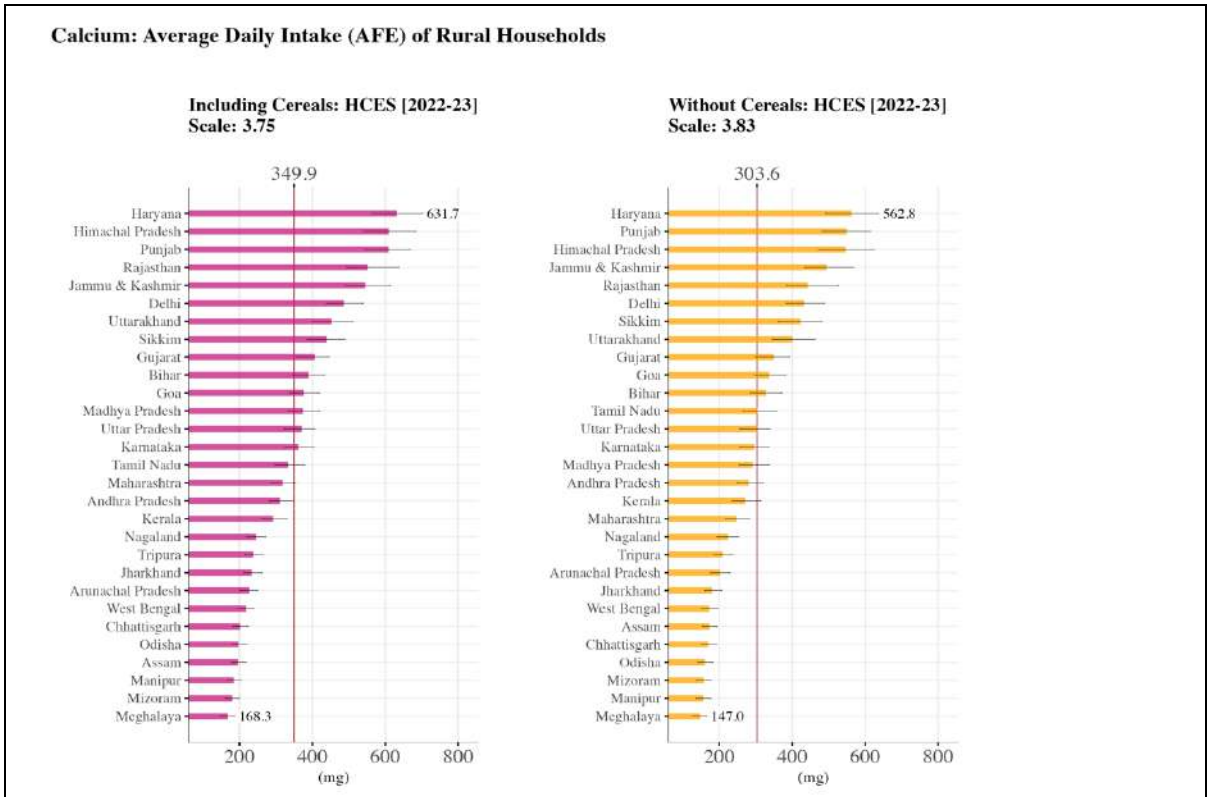


Figure 14j: Vitamin C

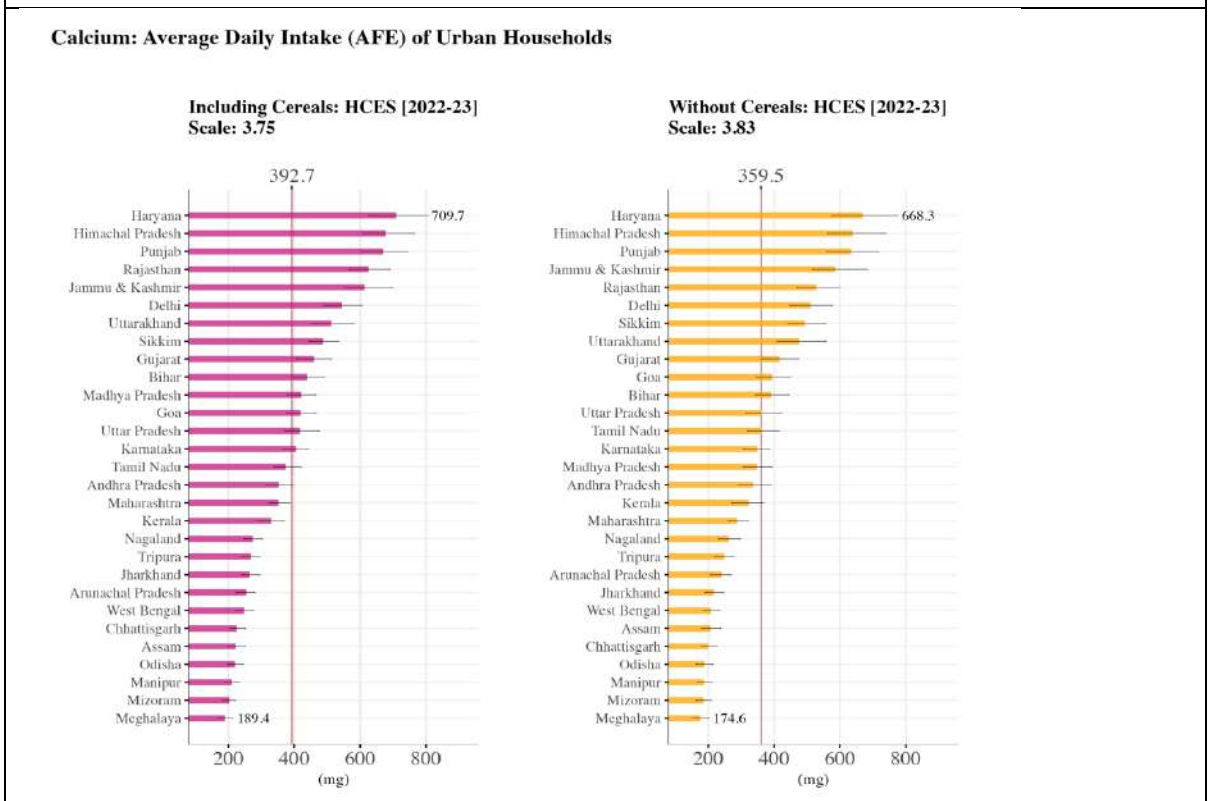


Vitamin C: Average Daily Intake (AFE) of Urban Households
Including Cereals: HCES [2022-23]
Scale: 1.90
Without Cereals: HCES [2022-23]
Scale: 1.93
83.9
107.0
107.1
56.3
55.6
Haryana
Delhi
Himachal Pradesh
Punjab
West Bengal
Tripura
Uttarakhand
Sikkim
Arunachal Pradesh
Bihar
Nagaland
Uttar Pradesh
Chhattisgarh
Madhya Pradesh
Odisha
Jharkhand
Goa
Assam
Jammu & Kashmir
Gujarat
Andhra Pradesh
Meghalaya
Rajasthan
Mizoram
Tamil Nadu
Maharashtra
Karnataka
Manipur
Kerala
40
60
80
100
120
140
(mg)
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Figure 14k: Calcium



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(iii) Inter-State Comparisons over Time: NSS [2011–12] & HCES [2022–23]

Our next set of results looks at NSS [2011–12] and HCES [2022–23]. Before we proceed with the results, it is essential to highlight that across all consumption classes and states/UTs, rural and urban, we observed a significant decline in the consumption of cereals in terms of cooked food by approximately 20%, and this would be reflected in the average daily intake of micronutrients, because cereals are an essential dietary source for many micronutrients. However, it is also important to mention that there has been a significant increase from 2011–12 to 2022–23 in the consumption of packaged processed food (such as biscuits, breads, etc.). Unfortunately, their micronutrient content has not been analyzed in this report. This is a critical issue with implications for health and nutrition and will be examined in detail separately. To make comparisons across periods more meaningful, we present results with and without cereals because the previous section on food intake has indicated a significant increase in household consumption of fresh fruits, eggs, fish & meat, and milk & milk products.

First, we note inter–state/UT variations in changes in the average daily micronutrient intake across the states/UTs. For example, average daily iron intake (with cereals) has reduced in almost all states, with a significant decline in Punjab, Rajasthan, and Kerala. However, if we were to exclude cereals, we found that the average daily iron intake either increased or remained more or less the same for most states. However, for some large states such as Kerala, the average daily intake reduced from 8.4 in 2022-12 to 7.3 in 2022–23 among rural households, with a similar pattern observed for urban households.

Next, we look at micronutrients such as vitamin B_{12}, which does not depend on cereals. We found that almost for all states, the average daily intake increased or remained the same from 2011–12 to 2022–23. However, among urban households in Kerala, Andaman and Nicobar Islands, we observed a marginal decline which was not statistically significant.

These results are reported in Tables 2a–2k.

Table 2a:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Iron

State	NSS [2011-12] Including Cereals	NSS [2011-12] Without Cereals	HCES [2022-23] Including Cereals	HCES [2022-23] Without Cereals
North				
Jammu and Kashmir	11.4 [10.8, 12.0]	4.6 [4.2, 4.9]	10.2 [9.3, 11.2]	4.0 [3.6, 4.5]
Himachal Pradesh	14.9 [13.8, 15.9]	4.7 [4.2, 5.1]	13.3 [12.0, 14.7]	5.1 [4.5, 5.7]
Punjab	14.6 [13.6, 15.5]	3.7 [3.4, 4.1]	12.8 [11.7, 13.8]	4.0 [3.6, 4.4]
Chandigarh	12.8 [12.0, 13.8]	4.0 [3.6, 4.4]	12.7 [11.7, 13.8]	5.1 [4.5, 5.6]
Uttarakhand	14.9 [14.0, 15.8]	4.3 [3.9, 4.6]	11.8 [10.8, 13.0]	4.6 [4.1, 5.2]
Haryana	15.2 [14.0, 16.4]	3.6 [3.3, 4.0]	12.8 [11.7, 13.9]	3.4 [3.1, 3.8]
Delhi	12.4 [11.5, 13.2]	3.8 [3.4, 4.1]	10.6 [9.8, 11.5]	4.0 [3.6, 4.4]
Rajasthan	18.4 [16.9, 19.9]	2.4 [2.2, 2.7]	16.5 [15.0, 18.5]	2.4 [2.1, 2.7]
Central				
Uttar Pradesh	14.5 [13.5, 15.7]	3.5 [3.2, 3.9]	11.7 [10.5, 12.6]	3.4 [2.9, 3.7]
Chhattisgarh	8.4 [7.8, 9.0]	4.2 [3.8, 4.6]	7.7 [7.1, 8.4]	4.2 [3.8, 4.7]
Madhya Pradesh	15.3 [14.5, 16.3]	3.2 [2.9, 3.4]	13.4 [12.3, 14.6]	3.6 [3.2, 4.0]
East				
Bihar	13.6 [12.7, 14.7]	4.0 [3.6, 4.4]	12.3 [11.2, 13.3]	4.3 [3.9, 4.8]
West Bengal	9.3 [8.6, 10.0]	4.2 [3.8, 4.6]	9.7 [8.9, 10.4]	4.2 [3.7, 4.6]
Jharkhand	10.0 [9.2, 10.8]	3.6 [3.2, 4.0]	9.3 [8.6, 10.3]	3.4 [3.1, 3.8]
Odisha	8.4 [7.8, 8.9]	3.8 [3.5, 4.2]	8.5 [7.9, 9.3]	4.3 [3.9, 4.8]
Northeast				
Sikkim	7.6 [7.0, 8.1]	4.2 [3.8, 4.5]	7.1 [6.4, 7.7]	4.5 [4.0, 5.0]
Arunachal Pradesh	8.2 [7.6, 8.7]	4.5 [4.0, 4.9]	7.0 [6.4, 7.5]	4.4 [4.0, 4.9]
Nagaland	8.0 [7.4, 8.5]	4.7 [4.3, 5.1]	6.5 [5.9, 7.0]	4.1 [3.7, 4.5]
Manipur	6.5 [6.1, 7.0]	3.1 [2.8, 3.4]	5.5 [5.1, 6.0]	2.9 [2.6, 3.2]
Mizoram	8.3 [7.8, 8.9]	4.9 [4.5, 5.4]	6.1 [5.5, 6.6]	3.7 [3.3, 4.1]
Tripura	8.5 [7.9, 9.1]	4.8 [4.3, 5.3]	7.8 [7.2, 8.5]	4.4 [4.0, 4.9]
Meghalaya	6.4 [5.9, 6.9]	3.4 [3.1, 3.8]	5.8 [5.2, 6.2]	3.6 [3.1, 3.9]
Assam	7.7 [7.2, 8.2]	4.0 [3.7, 4.4]	6.5 [6.1, 7.1]	3.8 [3.5, 4.3]
West				
Gujarat	12.4 [11.7, 13.2]	3.1 [2.8, 3.3]	11.3 [10.2, 12.1]	3.3 [2.9, 3.6]
DDDH	8.5 [7.9, 9.2]	3.5 [3.1, 3.8]	10.4 [9.5, 11.1]	4.1 [3.7, 4.5]
Maharashtra	13.3 [12.3, 14.4]	4.2 [3.8, 4.7]	11.1 [10.1, 11.9]	3.8 [3.4, 4.3]
Goa	13.1 [12.4, 13.9]	8.2 [7.7, 8.9]	14.1 [13.0, 15.3]	9.2 [8.3, 10.2]
South				
Andhra Pradesh	7.7 [7.0, 8.3]	4.0 [3.5, 4.5]	7.2 [6.6, 7.8]	4.2 [3.8, 4.6]
Karnataka	12.0 [11.2, 13.0]	5.3 [4.8, 5.8]	10.5 [9.6, 11.5]	5.3 [4.7, 5.9]
Lakshadweep	16.7 [15.3, 17.8]	10.6 [9.4, 11.6]	12.4 [11.5, 13.5]	8.6 [7.8, 9.5]
Kerala	11.5 [10.8, 12.4]	8.4 [7.7, 9.2]	9.7 [8.9, 10.6]	7.3 [6.5, 8.2]
Tamil Nadu	8.3 [7.8, 8.9]	5.1 [4.7, 5.7]	8.3 [7.6, 9.1]	5.7 [5.1, 6.5]
Puducherry	8.7 [8.1, 9.3]	5.0 [4.6, 5.5]	8.5 [7.9, 9.2]	5.9 [5.3, 6.5]
A & N Islands	10.1 [9.4, 10.7]	5.6 [5.0, 6.0]	9.1 [8.5, 9.8]	5.7 [5.2, 6.2]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Iron

State	NSS [2011-12] Including Cereals	NSS [2011-12] Without Cereals	HCES [2022-23] Including Cereals	HCES [2022-23] Without Cereals
North				
Jammu and Kashmir	11.3 [10.6, 12.3]	5.1 [4.7, 5.8]	10.1 [9.3, 11.2]	4.5 [4.1, 5.1]
Himachal Pradesh	14.6 [13.4, 15.6]	5.2 [4.6, 5.6]	13.1 [12.0, 14.4]	5.6 [5.0, 6.3]
Punjab	14.4 [13.3, 15.5]	4.2 [3.7, 4.6]	12.5 [11.5, 13.6]	4.4 [3.9, 4.8]
Chandigarh	12.7 [11.8, 13.6]	4.4 [4.0, 4.9]	12.7 [11.6, 13.7]	5.7 [5.1, 6.3]
Uttarakhand	14.8 [13.7, 15.7]	4.8 [4.4, 5.3]	11.8 [10.7, 13.0]	5.2 [4.6, 5.9]
Haryana	15.0 [14.1, 16.2]	4.0 [3.7, 4.4]	12.7 [11.5, 14.1]	3.8 [3.4, 4.3]
Delhi	12.1 [11.3, 12.9]	4.1 [3.7, 4.5]	10.5 [9.6, 11.5]	4.4 [4.0, 5.0]
Rajasthan	18.3 [16.8, 20.0]	2.8 [2.5, 3.1]	16.5 [15.2, 17.8]	2.7 [2.4, 2.9]
Central				
Uttar Pradesh	14.1 [13.3, 15.1]	3.8 [3.5, 4.2]	11.6 [10.6, 12.8]	3.8 [3.4, 4.3]
Chhattisgarh	8.2 [7.6, 8.8]	4.6 [4.2, 5.1]	7.6 [7.1, 8.3]	4.7 [4.2, 5.2]
Madhya Pradesh	15.1 [14.0, 16.1]	3.5 [3.2, 3.8]	13.3 [12.3, 14.4]	4.0 [3.6, 4.4]
East				
Bihar	13.4 [12.6, 14.3]	4.5 [4.1, 4.9]	12.3 [11.3, 13.4]	4.9 [4.4, 5.4]
West Bengal	9.2 [8.5, 9.9]	4.7 [4.2, 5.2]	9.7 [9.0, 10.6]	4.7 [4.2, 5.2]
Jharkhand	9.8 [9.1, 10.5]	3.9 [3.6, 4.3]	9.3 [8.5, 10.1]	3.9 [3.5, 4.3]
Odisha	8.3 [7.7, 8.9]	4.2 [3.9, 4.7]	8.4 [7.7, 9.2]	4.8 [4.3, 5.3]
Northeast				
Sikkim	7.5 [7.0, 8.1]	4.7 [4.2, 5.2]	7.0 [6.4, 7.5]	5.0 [4.5, 5.5]
Arunachal Pradesh	8.0 [7.5, 8.5]	5.0 [4.5, 5.4]	6.9 [6.3, 7.5]	5.0 [4.4, 5.5]
Nagaland	7.8 [7.3, 8.3]	5.2 [4.8, 5.7]	6.4 [5.9, 6.9]	4.5 [4.1, 5.0]
Manipur	6.4 [5.9, 6.8]	3.4 [3.1, 3.7]	5.6 [5.1, 6.1]	3.2 [2.9, 3.6]
Mizoram	8.2 [7.6, 8.8]	5.5 [4.9, 6.0]	6.0 [5.5, 6.5]	4.1 [3.7, 4.5]
Tripura	8.4 [7.8, 9.0]	5.3 [4.8, 5.9]	7.8 [7.2, 8.4]	5.0 [4.5, 5.5]
Meghalaya	6.2 [5.8, 6.6]	3.8 [3.4, 4.1]	5.8 [5.3, 6.3]	4.0 [3.5, 4.5]
Assam	7.6 [7.0, 8.2]	4.5 [4.0, 4.9]	6.6 [6.0, 7.1]	4.3 [3.9, 4.8]
West				
Gujarat	12.3 [11.4, 13.2]	3.4 [3.1, 3.8]	11.2 [10.1, 12.3]	3.7 [3.3, 4.1]
DDDH	8.3 [7.5, 8.9]	3.8 [3.4, 4.1]	10.3 [9.4, 11.4]	4.6 [4.1, 5.1]
Maharashtra	13.1 [12.3, 14.1]	4.7 [4.3, 5.2]	10.9 [10.1, 11.7]	4.2 [3.9, 4.6]
Goa	12.9 [12.2, 14.0]	9.2 [8.5, 10.2]	13.9 [12.8, 15.2]	10.1 [9.1, 11.3]
South				
Andhra Pradesh	7.5 [7.0, 8.1]	4.4 [4.0, 4.9]	7.2 [6.5, 7.8]	4.7 [4.2, 5.3]
Karnataka	11.9 [11.1, 12.7]	5.9 [5.4, 6.4]	10.5 [9.6, 11.2]	5.9 [5.3, 6.4]
Lakshadweep	16.5 [15.0, 17.6]	11.8 [10.5, 12.9]	12.3 [11.4, 13.2]	9.5 [8.7, 10.4]
Kerala	11.5 [10.9, 12.3]	9.5 [8.8, 10.4]	9.7 [8.7, 10.6]	8.1 [7.1, 9.1]
Tamil Nadu	8.2 [7.6, 8.7]	5.7 [5.2, 6.2]	8.2 [7.6, 8.9]	6.4 [5.8, 7.1]
Puducherry	8.6 [8.1, 9.2]	5.6 [5.2, 6.1]	8.4 [7.7, 9.4]	6.6 [5.9, 7.5]
A & N Islands	9.9 [9.3, 10.6]	6.2 [5.6, 6.7]	9.1 [8.4, 10.2]	6.4 [5.8, 7.4]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2b

Average Daily Intake (Adult Female Equivalent) of Rural Households: Zinc

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	9.5 [9.0, 10.0]	2.9 [2.7, 3.1]	8.8 [8.2, 9.6]	3.0 [2.7, 3.3]
Himachal Pradesh	11.4 [10.8, 12.1]	3.3 [3.0, 3.6]	10.1 [9.3, 11.0]	3.5 [3.2, 3.9]
Punjab	10.8 [10.2, 11.4]	3.0 [2.7, 3.2]	9.5 [8.8, 10.2]	3.1 [2.9, 3.4]
Chandigarh	9.6 [9.0, 10.2]	2.8 [2.6, 3.1]	9.6 [8.9, 10.4]	4.0 [3.6, 4.4]
Uttarakhand	11.3 [10.7, 12.0]	2.8 [2.6, 3.0]	9.0 [8.3, 9.8]	3.1 [2.8, 3.5]
Haryana	11.4 [10.7, 12.1]	3.1 [2.9, 3.5]	9.8 [9.0, 10.5]	3.0 [2.7, 3.3]
Delhi	9.2 [8.7, 9.7]	2.6 [2.4, 2.9]	8.0 [7.5, 8.7]	3.0 [2.7, 3.3]
Rajasthan	12.7 [11.9, 13.6]	2.1 [1.9, 2.4]	11.8 [10.9, 13.0]	2.2 [2.0, 2.5]
Central				
Uttar Pradesh	11.0 [10.4, 11.8]	2.4 [2.2, 2.7]	9.1 [8.2, 9.7]	2.5 [2.2, 2.7]
Chhattisgarh	7.4 [6.9, 7.8]	1.9 [1.7, 2.0]	6.8 [6.4, 7.3]	2.3 [2.1, 2.5]
Madhya Pradesh	11.0 [10.5, 11.6]	2.0 [1.9, 2.2]	9.8 [9.1, 10.5]	2.4 [2.2, 2.7]
East				
Bihar	10.4 [9.8, 11.1]	2.4 [2.2, 2.7]	9.7 [8.9, 10.4]	2.9 [2.6, 3.2]
West Bengal	7.6 [7.0, 8.0]	2.2 [2.0, 2.4]	7.7 [7.1, 8.2]	2.4 [2.2, 2.6]
Jharkhand	8.4 [7.9, 9.0]	2.0 [1.8, 2.2]	7.7 [7.2, 8.4]	2.2 [2.0, 2.4]
Odisha	7.6 [7.2, 8.0]	1.9 [1.7, 2.1]	7.3 [6.8, 7.9]	2.4 [2.2, 2.6]
Northeast				
Sikkim	6.9 [6.5, 7.3]	2.4 [2.2, 2.6]	6.6 [6.1, 7.1]	3.4 [3.0, 3.7]
Arunachal Pradesh	7.3 [6.9, 7.7]	2.2 [2.0, 2.4]	6.4 [5.9, 6.8]	2.5 [2.2, 2.7]
Nagaland	7.7 [7.3, 8.1]	2.5 [2.3, 2.7]	6.4 [5.9, 6.9]	2.6 [2.4, 2.8]
Manipur	7.1 [6.6, 7.5]	1.5 [1.4, 1.6]	6.2 [5.8, 6.7]	1.8 [1.7, 2.0]
Mizoram	7.5 [7.1, 7.9]	2.3 [2.1, 2.5]	6.0 [5.5, 6.5]	2.3 [2.1, 2.5]
Tripura	7.5 [7.1, 7.9]	2.1 [1.9, 2.3]	7.1 [6.6, 7.6]	2.5 [2.3, 2.8]
Meghalaya	6.4 [6.1, 6.8]	2.0 [1.9, 2.3]	5.6 [5.2, 6.0]	2.1 [1.9, 2.3]
Assam	7.2 [6.8, 7.6]	2.1 [1.9, 2.3]	6.0 [5.6, 6.5]	2.2 [2.1, 2.5]
West				
Gujarat	8.5 [8.1, 9.0]	2.2 [2.0, 2.4]	8.2 [7.5, 8.8]	2.4 [2.2, 2.6]
DDDH	6.9 [6.5, 7.4]	2.2 [2.0, 2.4]	8.1 [7.5, 8.6]	2.7 [2.5, 2.9]
Maharashtra	9.2 [8.6, 9.9]	2.7 [2.4, 2.9]	8.1 [7.5, 8.7]	2.6 [2.3, 2.8]
Goa	9.2 [8.8, 9.7]	4.6 [4.3, 4.9]	10.1 [9.4, 10.9]	5.1 [4.7, 5.6]
South				
Andhra Pradesh	7.6 [7.0, 8.2]	2.6 [2.4, 2.9]	6.9 [6.4, 7.4]	2.9 [2.6, 3.2]
Karnataka	8.3 [7.9, 8.9]	3.1 [2.8, 3.4]	7.8 [7.2, 8.4]	3.3 [3.0, 3.7]
Lakshadweep	11.1 [10.3, 11.7]	6.1 [5.4, 6.6]	8.6 [8.0, 9.2]	4.7 [4.3, 5.1]
Kerala	8.4 [7.9, 8.9]	4.6 [4.2, 5.0]	7.3 [6.7, 7.8]	4.2 [3.9, 4.7]
Tamil Nadu	7.3 [6.9, 7.7]	3.1 [2.9, 3.4]	6.9 [6.4, 7.5]	3.5 [3.2, 4.0]
Puducherry	7.8 [7.4, 8.3]	3.3 [3.0, 3.6]	7.0 [6.6, 7.5]	3.8 [3.5, 4.1]
A & N Islands	8.0 [7.5, 8.3]	3.0 [2.7, 3.2]	7.2 [6.8, 7.7]	3.4 [3.1, 3.6]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Zinc

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	9.3 [8.8, 10.0]	3.4 [3.2, 3.8]	8.7 [8.1, 9.5]	3.4 [3.1, 3.8]
Himachal Pradesh	11.1 [10.3, 11.7]	3.8 [3.4, 4.1]	9.8 [9.1, 10.7]	3.9 [3.6, 4.4]
Punjab	10.6 [9.9, 11.3]	3.5 [3.1, 3.8]	9.1 [8.5, 9.9]	3.5 [3.2, 3.8]
Chandigarh	9.3 [8.8, 9.9]	3.3 [3.0, 3.5]	9.4 [8.7, 10.1]	4.5 [4.1, 4.9]
Uttarakhand	11.1 [10.5, 11.7]	3.3 [3.0, 3.6]	8.9 [8.2, 9.7]	3.5 [3.1, 3.9]
Haryana	11.1 [10.5, 11.9]	3.7 [3.4, 4.0]	9.6 [8.8, 10.5]	3.4 [3.0, 3.8]
Delhi	8.9 [8.4, 9.4]	3.0 [2.8, 3.3]	7.9 [7.3, 8.5]	3.3 [3.0, 3.7]
Rajasthan	12.5 [11.6, 13.5]	2.5 [2.3, 2.8]	11.6 [10.8, 12.4]	2.5 [2.3, 2.7]
Central				
Uttar Pradesh	10.6 [10.1, 11.3]	2.8 [2.6, 3.0]	8.9 [8.2, 9.7]	2.8 [2.5, 3.1]
Chhattisgarh	7.1 [6.7, 7.6]	2.1 [2.0, 2.3]	6.7 [6.2, 7.2]	2.6 [2.4, 2.8]
Madhya Pradesh	10.7 [10.1, 11.3]	2.4 [2.2, 2.6]	9.6 [8.9, 10.3]	2.7 [2.5, 3.0]
East				
Bihar	10.1 [9.6, 10.7]	2.8 [2.6, 3.1]	9.6 [8.9, 10.3]	3.3 [3.0, 3.6]
West Bengal	7.3 [6.9, 7.8]	2.5 [2.3, 2.8]	7.6 [7.1, 8.1]	2.7 [2.5, 3.0]
Jharkhand	8.2 [7.7, 8.7]	2.3 [2.1, 2.5]	7.6 [7.0, 8.1]	2.4 [2.2, 2.7]
Odisha	7.4 [7.0, 7.9]	2.2 [2.0, 2.4]	7.1 [6.6, 7.7]	2.7 [2.4, 2.9]
Northeast				
Sikkim	6.8 [6.3, 7.3]	2.8 [2.6, 3.1]	6.4 [6.0, 6.9]	3.8 [3.5, 4.1]
Arunachal Pradesh	7.1 [6.6, 7.5]	2.5 [2.3, 2.7]	6.3 [5.8, 6.7]	2.8 [2.5, 3.0]
Nagaland	7.5 [7.1, 7.9]	2.9 [2.7, 3.1]	6.3 [5.8, 6.7]	2.9 [2.7, 3.2]
Manipur	6.9 [6.4, 7.2]	1.7 [1.6, 1.9]	6.1 [5.7, 6.6]	2.1 [1.9, 2.3]
Mizoram	7.3 [6.8, 7.7]	2.7 [2.4, 2.9]	5.9 [5.5, 6.3]	2.6 [2.3, 2.8]
Tripura	7.3 [6.9, 7.7]	2.4 [2.2, 2.7]	6.9 [6.5, 7.4]	2.8 [2.6, 3.1]
Meghalaya	6.2 [5.8, 6.5]	2.4 [2.1, 2.5]	5.5 [5.1, 5.9]	2.4 [2.1, 2.6]
Assam	7.0 [6.5, 7.5]	2.4 [2.2, 2.7]	6.0 [5.5, 6.4]	2.5 [2.3, 2.8]
West				
Gujarat	8.3 [7.9, 8.8]	2.6 [2.4, 2.8]	8.1 [7.3, 8.8]	2.7 [2.5, 3.0]
DDDH	6.8 [6.3, 7.2]	2.5 [2.3, 2.8]	7.9 [7.3, 8.6]	3.0 [2.7, 3.4]
Maharashtra	9.0 [8.5, 9.6]	3.1 [2.9, 3.3]	7.9 [7.4, 8.5]	2.9 [2.6, 3.1]
Goa	9.0 [8.5, 9.6]	5.3 [5.0, 5.9]	9.9 [9.2, 10.7]	5.7 [5.2, 6.3]
South				
Andhra Pradesh	7.4 [6.9, 7.9]	3.1 [2.8, 3.4]	6.8 [6.2, 7.3]	3.3 [2.9, 3.6]
Karnataka	8.1 [7.7, 8.6]	3.6 [3.3, 3.9]	7.6 [7.1, 8.1]	3.8 [3.4, 4.1]
Lakshadweep	10.8 [10.0, 11.5]	7.1 [6.3, 7.7]	8.4 [7.9, 8.9]	5.2 [4.8, 5.7]
Kerala	8.3 [7.8, 8.7]	5.4 [5.0, 5.9]	7.1 [6.5, 7.7]	4.8 [4.3, 5.3]
Tamil Nadu	7.1 [6.7, 7.5]	3.7 [3.3, 4.0]	6.8 [6.3, 7.3]	4.0 [3.6, 4.4]
Puducherry	7.7 [7.3, 8.1]	3.9 [3.6, 4.2]	6.9 [6.4, 7.6]	4.3 [3.9, 4.8]
A & N Islands	7.7 [7.3, 8.1]	3.5 [3.2, 3.7]	7.1 [6.6, 7.8]	3.8 [3.5, 4.3]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2c:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Folate (Vitamin B9)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	294 [269, 319]	230 [207, 255]	264 [231, 304]	211 [180, 251]
Himachal Pradesh	313 [279, 345]	227 [196, 256]	308 [266, 354]	246 [207, 289]
Punjab	279 [250, 308]	199 [173, 228]	274 [241, 307]	210 [180, 242]
Chandigarh	267 [239, 302]	198 [173, 232]	307 [266, 350]	251 [210, 295]
Uttarakhand	303 [273, 329]	219 [192, 244]	280 [243, 324]	225 [188, 267]
Haryana	293 [261, 330]	207 [180, 240]	261 [227, 296]	192 [162, 221]
Delhi	258 [231, 285]	192 [167, 218]	247 [217, 280]	198 [170, 230]
Rajasthan	260 [229, 294]	138 [118, 162]	246 [214, 295]	139 [117, 173]
Central				
Uttar Pradesh	256 [229, 292]	168 [146, 200]	239 [201, 267]	172 [141, 196]
Chhattisgarh	248 [224, 274]	203 [178, 230]	246 [219, 279]	210 [183, 245]
Madhya Pradesh	244 [223, 268]	145 [129, 162]	253 [222, 292]	177 [151, 209]
East				
Bihar	310 [281, 350]	230 [202, 268]	317 [277, 360]	250 [213, 291]
West Bengal	458 [403, 508]	419 [359, 478]	433 [379, 490]	390 [331, 454]
Jharkhand	249 [219, 279]	186 [159, 214]	234 [208, 268]	180 [156, 211]
Odisha	337 [302, 376]	294 [258, 339]	311 [275, 353]	271 [233, 317]
Northeast				
Sikkim	244 [215, 267]	209 [179, 236]	280 [239, 318]	257 [212, 301]
Arunachal Pradesh	400 [355, 443]	352 [300, 402]	280 [242, 317]	251 [210, 291]
Nagaland	301 [269, 331]	256 [220, 287]	271 [236, 308]	238 [202, 277]
Manipur	324 [291, 365]	280 [247, 326]	257 [226, 290]	218 [187, 252]
Mizoram	291 [262, 323]	247 [218, 283]	207 [181, 232]	174 [149, 199]
Tripura	626 [558, 695]	607 [522, 688]	513 [455, 583]	484 [420, 562]
Meghalaya	281 [255, 320]	245 [214, 291]	293 [253, 331]	268 [224, 309]
Assam	400 [359, 440]	366 [318, 412]	338 [301, 383]	312 [271, 362]
West				
Gujarat	238 [219, 266]	163 [146, 188]	235 [202, 262]	172 [143, 196]
DDDH	260 [230, 292]	213 [182, 247]	274 [240, 304]	220 [188, 250]
Maharashtra	278 [244, 313]	202 [172, 236]	245 [213, 279]	183 [156, 215]
Goa	660 [612, 722]	620 [565, 693]	722 [639, 824]	683 [590, 803]
South				
Andhra Pradesh	233 [202, 267]	192 [160, 228]	239 [213, 270]	205 [179, 239]
Karnataka	262 [236, 293]	201 [176, 232]	255 [223, 290]	206 [174, 240]
Lakshadweep	886 [773, 977]	861 [722, 968]	1006 [888, 1130]	983 [849, 1131]
Kerala	838 [760, 927]	822 [727, 926]	753 [655, 869]	736 [621, 874]
Tamil Nadu	252 [227, 284]	217 [189, 253]	276 [241, 324]	250 [212, 304]
Puducherry	393 [352, 439]	355 [309, 407]	459 [408, 517]	436 [379, 499]
A & N Islands	678 [601, 733]	648 [555, 722]	573 [513, 641]	551 [481, 630]

Units: (ug).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Folate (Vitamin B9)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	311 [279, 356]	263 [228, 311]	274 [243, 320]	230 [197, 275]
Himachal Pradesh	325 [284, 359]	253 [213, 287]	314 [276, 365]	263 [226, 314]
Punjab	292 [258, 330]	224 [190, 263]	276 [242, 314]	221 [188, 257]
Chandigarh	278 [249, 308]	221 [193, 250]	318 [277, 359]	273 [232, 318]
Uttarakhand	317 [286, 351]	246 [215, 281]	292 [250, 340]	246 [204, 295]
Haryana	305 [279, 345]	231 [206, 269]	271 [232, 315]	208 [174, 249]
Delhi	266 [239, 296]	211 [184, 244]	255 [224, 290]	214 [183, 249]
Rajasthan	275 [241, 316]	157 [133, 187]	257 [229, 290]	153 [133, 177]
Central				
Uttar Pradesh	263 [239, 292]	184 [163, 210]	248 [215, 289]	188 [158, 227]
Chhattisgarh	257 [229, 286]	225 [195, 259]	254 [227, 289]	228 [199, 267]
Madhya Pradesh	254 [225, 282]	162 [139, 184]	262 [231, 297]	193 [165, 225]
East				
Bihar	326 [296, 358]	259 [229, 294]	330 [289, 378]	273 [234, 322]
West Bengal	473 [422, 536]	463 [402, 544]	455 [404, 515]	432 [375, 503]
Jharkhand	257 [229, 285]	206 [177, 233]	245 [214, 278]	198 [168, 230]
Odisha	352 [318, 391]	330 [290, 377]	318 [277, 363]	291 [247, 343]
Northeast				
Sikkim	256 [227, 286]	236 [204, 270]	284 [254, 319]	273 [239, 317]
Arunachal Pradesh	412 [368, 451]	387 [336, 433]	290 [250, 328]	271 [227, 315]
Nagaland	309 [282, 342]	282 [251, 319]	279 [243, 313]	257 [219, 297]
Manipur	338 [300, 373]	313 [269, 356]	269 [239, 304]	240 [208, 278]
Mizoram	305 [270, 338]	279 [239, 318]	213 [187, 240]	188 [162, 218]
Tripura	648 [579, 732]	672 [581, 784]	533 [472, 595]	530 [456, 605]
Meghalaya	291 [259, 320]	271 [235, 305]	304 [264, 350]	292 [247, 348]
Assam	414 [364, 468]	405 [344, 473]	355 [308, 406]	344 [290, 406]
West				
Gujarat	252 [226, 282]	186 [162, 216]	245 [210, 280]	188 [157, 220]
DDDH	270 [233, 301]	237 [196, 271]	283 [245, 327]	237 [200, 282]
Maharashtra	289 [261, 320]	226 [198, 256]	249 [223, 279]	195 [173, 224]
Goa	690 [632, 780]	695 [620, 806]	740 [648, 842]	733 [624, 851]
South				
Andhra Pradesh	242 [214, 270]	213 [182, 244]	250 [217, 289]	226 [191, 271]
Karnataka	274 [248, 301]	225 [199, 255]	262 [229, 290]	223 [188, 252]
Lakshadweep	921 [804, 1022]	956 [809, 1080]	1029 [912, 1153]	1056 [907, 1206]
Kerala	894 [813, 985]	941 [838, 1062]	782 [662, 892]	804 [654, 938]
Tamil Nadu	265 [236, 293]	246 [213, 279]	286 [252, 328]	271 [232, 322]
Puducherry	415 [377, 456]	403 [358, 455]	478 [413, 562]	477 [398, 577]
A & N Islands	701 [633, 771]	715 [630, 808]	594 [524, 711]	601 [516, 749]

Units: (ug).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2d:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Vitamin A

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	311 [261, 367]	311 [259, 371]	229 [185, 302]	230 [184, 304]
Himachal Pradesh	154 [121, 188]	148 [115, 183]	184 [144, 230]	184 [143, 231]
Punjab	148 [118, 183]	148 [117, 185]	170 [138, 206]	170 [137, 206]
Chandigarh	140 [112, 182]	140 [111, 184]	202 [158, 245]	201 [156, 245]
Uttarakhand	160 [129, 195]	161 [129, 199]	180 [140, 228]	180 [139, 229]
Haryana	193 [151, 242]	195 [151, 245]	181 [145, 221]	180 [144, 221]
Delhi	170 [137, 211]	171 [136, 214]	176 [144, 216]	176 [143, 216]
Rajasthan	116 [91, 151]	107 [82, 141]	108 [85, 142]	103 [81, 137]
Central				
Uttar Pradesh	102 [80, 135]	102 [79, 136]	121 [94, 143]	120 [93, 142]
Chhattisgarh	219 [175, 269]	223 [176, 276]	198 [163, 248]	199 [163, 250]
Madhya Pradesh	112 [90, 138]	108 [86, 135]	150 [122, 184]	149 [121, 184]
East				
Bihar	100 [82, 128]	99 [80, 128]	116 [94, 139]	116 [94, 139]
West Bengal	172 [136, 207]	174 [137, 212]	170 [136, 205]	171 [137, 207]
Jharkhand	122 [95, 154]	123 [94, 155]	114 [95, 142]	114 [95, 142]
Odisha	171 [138, 217]	174 [139, 223]	155 [127, 192]	156 [126, 194]
Northeast				
Sikkim	248 [190, 304]	252 [191, 311]	186 [142, 233]	187 [142, 235]
Arunachal Pradesh	260 [201, 323]	262 [201, 330]	219 [174, 272]	220 [174, 276]
Nagaland	298 [233, 362]	302 [234, 372]	202 [161, 247]	203 [162, 249]
Manipur	164 [135, 208]	167 [136, 214]	128 [103, 156]	128 [104, 158]
Mizoram	338 [266, 431]	342 [266, 444]	182 [148, 220]	183 [148, 222]
Tripura	278 [215, 352]	284 [217, 365]	163 [135, 196]	164 [135, 197]
Meghalaya	195 [157, 261]	199 [159, 269]	208 [162, 254]	210 [163, 256]
Assam	174 [137, 209]	178 [139, 215]	141 [118, 171]	142 [118, 173]
West				
Gujarat	117 [99, 147]	112 [94, 141]	124 [96, 147]	120 [93, 143]
DDDH	114 [88, 146]	115 [88, 149]	141 [117, 169]	140 [116, 169]
Maharashtra	164 [128, 212]	165 [127, 216]	145 [117, 176]	143 [115, 175]
Goa	137 [116, 168]	139 [116, 172]	250 [204, 312]	251 [204, 314]
South				
Andhra Pradesh	189 [142, 252]	192 [142, 259]	193 [158, 238]	193 [158, 240]
Karnataka	189 [154, 236]	190 [155, 241]	197 [155, 240]	197 [155, 241]
Lakshadweep	161 [118, 196]	163 [118, 200]	144 [119, 175]	144 [118, 176]
Kerala	141 [117, 171]	143 [117, 175]	154 [122, 194]	154 [121, 196]
Tamil Nadu	182 [141, 233]	184 [141, 238]	208 [167, 267]	209 [167, 269]
Puducherry	199 [159, 244]	201 [159, 248]	255 [209, 307]	255 [208, 309]
A & N Islands	228 [174, 280]	231 [175, 287]	154 [128, 191]	155 [129, 193]

Units: (mcg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Vitamin A

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	388 [307, 503]	395 [310, 517]	266 [215, 338]	268 [216, 342]
Himachal Pradesh	183 [138, 229]	179 [133, 226]	208 [168, 260]	209 [169, 263]
Punjab	179 [134, 233]	182 [135, 240]	189 [153, 231]	190 [153, 232]
Chandigarh	168 [134, 206]	171 [135, 212]	234 [187, 290]	235 [187, 292]
Uttarakhand	193 [155, 246]	198 [158, 256]	210 [166, 268]	212 [167, 272]
Haryana	230 [188, 289]	235 [191, 299]	211 [170, 267]	212 [171, 269]
Delhi	198 [156, 259]	201 [158, 266]	204 [164, 250]	205 [164, 252]
Rajasthan	143 [109, 189]	134 [101, 179]	127 [105, 153]	122 [101, 147]
Central				
Uttar Pradesh	118 [96, 148]	120 [97, 152]	142 [111, 183]	143 [111, 185]
Chhattisgarh	257 [204, 321]	266 [209, 336]	229 [188, 286]	232 [190, 292]
Madhya Pradesh	134 [105, 166]	132 [103, 165]	174 [140, 215]	174 [140, 216]
East				
Bihar	122 [99, 150]	122 [99, 152]	135 [111, 169]	136 [112, 171]
West Bengal	202 [159, 259]	209 [162, 269]	205 [167, 256]	208 [169, 261]
Jharkhand	144 [113, 176]	147 [115, 181]	135 [106, 163]	136 [106, 165]
Odisha	207 [164, 252]	214 [169, 262]	177 [142, 223]	179 [143, 226]
Northeast				
Sikkim	301 [240, 370]	311 [245, 385]	211 [174, 257]	213 [175, 261]
Arunachal Pradesh	300 [237, 367]	308 [241, 380]	253 [198, 316]	256 [200, 322]
Nagaland	352 [287, 429]	363 [293, 446]	232 [188, 274]	235 [190, 279]
Manipur	197 [156, 244]	205 [160, 255]	149 [121, 186]	151 [122, 189]
Mizoram	408 [323, 493]	420 [331, 511]	210 [169, 266]	212 [171, 271]
Tripura	329 [264, 424]	342 [271, 444]	191 [156, 229]	194 [158, 233]
Meghalaya	231 [187, 283]	239 [192, 296]	242 [195, 308]	245 [195, 314]
Assam	204 [158, 265]	212 [162, 278]	167 [135, 211]	169 [136, 215]
West				
Gujarat	146 [114, 190]	141 [110, 187]	145 [112, 177]	142 [109, 173]
DDDH	133 [101, 161]	136 [102, 166]	162 [128, 206]	162 [127, 207]
Maharashtra	195 [158, 238]	199 [159, 245]	163 [139, 197]	162 [138, 197]
Goa	166 [136, 205]	170 [139, 212]	285 [230, 351]	288 [231, 355]
South				
Andhra Pradesh	225 [178, 280]	232 [183, 292]	228 [182, 287]	231 [183, 294]
Karnataka	229 [188, 282]	235 [192, 292]	228 [181, 274]	230 [182, 277]
Lakshadweep	190 [152, 234]	196 [155, 243]	165 [134, 200]	166 [134, 202]
Kerala	174 [143, 209]	180 [147, 218]	180 [136, 222]	182 [137, 225]
Tamil Nadu	222 [179, 275]	229 [183, 286]	242 [196, 306]	245 [198, 310]
Puducherry	244 [200, 303]	251 [204, 314]	298 [231, 378]	301 [232, 383]
A & N Islands	268 [212, 331]	276 [217, 348]	180 [147, 239]	183 [148, 245]

Units: (mcg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2e:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Thiamin (Vitamin B1)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.29 [1.22, 1.35]	0.58 [0.54, 0.62]	1.27 [1.17, 1.38]	0.60 [0.54, 0.66]
Himachal Pradesh	1.61 [1.51, 1.71]	0.61 [0.56, 0.66]	1.56 [1.43, 1.70]	0.72 [0.65, 0.80]
Punjab	1.70 [1.59, 1.80]	0.64 [0.59, 0.69]	1.52 [1.41, 1.63]	0.67 [0.61, 0.73]
Chandigarh	1.43 [1.34, 1.53]	0.56 [0.51, 0.61]	1.53 [1.41, 1.64]	0.78 [0.70, 0.85]
Uttarakhand	1.63 [1.53, 1.73]	0.56 [0.51, 0.60]	1.31 [1.21, 1.42]	0.58 [0.52, 0.64]
Haryana	1.83 [1.70, 1.96]	0.70 [0.64, 0.77]	1.58 [1.46, 1.70]	0.67 [0.60, 0.73]
Delhi	1.39 [1.31, 1.48]	0.54 [0.50, 0.59]	1.25 [1.17, 1.35]	0.60 [0.55, 0.66]
Rajasthan	1.86 [1.73, 2.00]	0.46 [0.42, 0.51]	1.79 [1.65, 1.98]	0.50 [0.45, 0.56]
Central				
Uttar Pradesh	1.59 [1.49, 1.71]	0.48 [0.44, 0.54]	1.32 [1.20, 1.42]	0.49 [0.43, 0.53]
Chhattisgarh	0.84 [0.79, 0.89]	0.33 [0.30, 0.36]	0.80 [0.75, 0.87]	0.38 [0.35, 0.42]
Madhya Pradesh	1.53 [1.46, 1.63]	0.38 [0.35, 0.41]	1.42 [1.32, 1.53]	0.47 [0.43, 0.52]
East				
Bihar	1.40 [1.32, 1.51]	0.45 [0.41, 0.49]	1.33 [1.22, 1.42]	0.52 [0.47, 0.57]
West Bengal	0.89 [0.82, 0.95]	0.37 [0.33, 0.40]	0.90 [0.83, 0.96]	0.36 [0.33, 0.39]
Jharkhand	1.05 [0.97, 1.13]	0.36 [0.32, 0.39]	0.98 [0.92, 1.07]	0.37 [0.34, 0.41]
Odisha	0.84 [0.79, 0.90]	0.32 [0.30, 0.35]	0.82 [0.76, 0.88]	0.36 [0.33, 0.40]
Northeast				
Sikkim	0.91 [0.84, 0.97]	0.50 [0.46, 0.54]	0.88 [0.80, 0.94]	0.58 [0.51, 0.63]
Arunachal Pradesh	0.80 [0.75, 0.85]	0.35 [0.32, 0.38]	0.71 [0.65, 0.76]	0.37 [0.34, 0.41]
Nagaland	0.83 [0.77, 0.87]	0.39 [0.35, 0.42]	0.68 [0.63, 0.73]	0.36 [0.33, 0.39]
Manipur	0.71 [0.66, 0.76]	0.24 [0.22, 0.26]	0.64 [0.59, 0.68]	0.27 [0.24, 0.29]
Mizoram	0.85 [0.80, 0.91]	0.40 [0.37, 0.44]	0.67 [0.62, 0.73]	0.36 [0.32, 0.39]
Tripura	0.84 [0.79, 0.90]	0.38 [0.34, 0.41]	0.76 [0.71, 0.82]	0.36 [0.33, 0.40]
Meghalaya	0.66 [0.62, 0.70]	0.27 [0.25, 0.30]	0.60 [0.54, 0.63]	0.30 [0.27, 0.32]
Assam	0.78 [0.73, 0.82]	0.32 [0.29, 0.35]	0.66 [0.61, 0.71]	0.32 [0.30, 0.35]
West				
Gujarat	1.18 [1.12, 1.25]	0.44 [0.41, 0.48]	1.19 [1.09, 1.28]	0.48 [0.43, 0.53]
DDDH	0.89 [0.83, 0.95]	0.37 [0.34, 0.41]	1.11 [1.03, 1.18]	0.48 [0.43, 0.51]
Maharashtra	1.30 [1.20, 1.40]	0.45 [0.41, 0.50]	1.13 [1.05, 1.21]	0.44 [0.40, 0.48]
Goa	0.87 [0.83, 0.92]	0.39 [0.37, 0.42]	1.00 [0.93, 1.07]	0.48 [0.44, 0.53]
South				
Andhra Pradesh	0.87 [0.79, 0.94]	0.41 [0.36, 0.46]	0.81 [0.75, 0.87]	0.44 [0.41, 0.49]
Karnataka	1.06 [0.99, 1.13]	0.41 [0.38, 0.45]	0.98 [0.91, 1.06]	0.45 [0.41, 0.49]
Lakshadweep	0.74 [0.69, 0.79]	0.32 [0.28, 0.34]	0.64 [0.60, 0.69]	0.32 [0.29, 0.35]
Kerala	0.72 [0.67, 0.77]	0.34 [0.31, 0.36]	0.66 [0.61, 0.71]	0.37 [0.34, 0.42]
Tamil Nadu	0.76 [0.72, 0.82]	0.38 [0.35, 0.42]	0.73 [0.68, 0.79]	0.42 [0.38, 0.47]
Puducherry	0.86 [0.81, 0.92]	0.44 [0.40, 0.48]	0.78 [0.73, 0.84]	0.49 [0.45, 0.53]
A & N Islands	0.92 [0.86, 0.96]	0.42 [0.38, 0.44]	0.77 [0.72, 0.82]	0.39 [0.36, 0.42]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Thiamin (Vitamin B1)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.32 [1.23, 1.42]	0.67 [0.62, 0.75]	1.27 [1.19, 1.40]	0.67 [0.61, 0.75]
Himachal Pradesh	1.63 [1.50, 1.72]	0.70 [0.63, 0.76]	1.55 [1.44, 1.69]	0.80 [0.72, 0.89]
Punjab	1.73 [1.60, 1.85]	0.73 [0.66, 0.81]	1.50 [1.40, 1.62]	0.73 [0.67, 0.80]
Chandigarh	1.45 [1.36, 1.54]	0.64 [0.59, 0.69]	1.53 [1.42, 1.64]	0.87 [0.79, 0.95]
Uttarakhand	1.66 [1.56, 1.76]	0.64 [0.59, 0.70]	1.32 [1.22, 1.44]	0.64 [0.58, 0.72]
Haryana	1.85 [1.75, 2.00]	0.80 [0.74, 0.88]	1.59 [1.45, 1.74]	0.74 [0.66, 0.83]
Delhi	1.40 [1.32, 1.49]	0.62 [0.57, 0.67]	1.26 [1.17, 1.36]	0.67 [0.60, 0.73]
Rajasthan	1.91 [1.76, 2.07]	0.54 [0.49, 0.60]	1.81 [1.69, 1.94]	0.56 [0.51, 0.61]
Central				
Uttar Pradesh	1.59 [1.51, 1.70]	0.55 [0.51, 0.60]	1.33 [1.23, 1.45]	0.54 [0.49, 0.61]
Chhattisgarh	0.84 [0.79, 0.90]	0.37 [0.34, 0.41]	0.81 [0.75, 0.87]	0.42 [0.39, 0.46]
Madhya Pradesh	1.55 [1.45, 1.65]	0.43 [0.39, 0.47]	1.43 [1.33, 1.54]	0.52 [0.48, 0.57]
East				
Bihar	1.43 [1.35, 1.51]	0.51 [0.47, 0.56]	1.34 [1.24, 1.45]	0.58 [0.53, 0.64]
West Bengal	0.90 [0.84, 0.97]	0.42 [0.38, 0.46]	0.91 [0.84, 0.98]	0.40 [0.37, 0.44]
Jharkhand	1.06 [0.99, 1.13]	0.41 [0.37, 0.44]	1.00 [0.92, 1.07]	0.41 [0.38, 0.45]
Odisha	0.86 [0.81, 0.91]	0.37 [0.34, 0.40]	0.82 [0.76, 0.88]	0.40 [0.36, 0.44]
Northeast				
Sikkim	0.93 [0.86, 1.00]	0.58 [0.52, 0.64]	0.87 [0.81, 0.93]	0.63 [0.58, 0.69]
Arunachal Pradesh	0.80 [0.75, 0.85]	0.40 [0.36, 0.43]	0.71 [0.66, 0.76]	0.41 [0.37, 0.45]
Nagaland	0.83 [0.78, 0.88]	0.44 [0.41, 0.48]	0.69 [0.63, 0.74]	0.40 [0.36, 0.44]
Manipur	0.72 [0.67, 0.76]	0.27 [0.25, 0.30]	0.65 [0.60, 0.70]	0.30 [0.28, 0.33]
Mizoram	0.87 [0.80, 0.92]	0.47 [0.42, 0.51]	0.68 [0.63, 0.72]	0.40 [0.36, 0.43]
Tripura	0.85 [0.80, 0.91]	0.43 [0.39, 0.47]	0.76 [0.71, 0.81]	0.40 [0.37, 0.44]
Meghalaya	0.66 [0.62, 0.70]	0.31 [0.28, 0.33]	0.60 [0.55, 0.65]	0.33 [0.30, 0.37]
Assam	0.78 [0.72, 0.84]	0.36 [0.33, 0.40]	0.66 [0.61, 0.72]	0.36 [0.33, 0.40]
West				
Gujarat	1.21 [1.13, 1.28]	0.51 [0.46, 0.55]	1.20 [1.09, 1.31]	0.54 [0.49, 0.60]
DDDH	0.90 [0.83, 0.96]	0.42 [0.38, 0.46]	1.12 [1.03, 1.22]	0.53 [0.48, 0.59]
Maharashtra	1.32 [1.24, 1.40]	0.52 [0.48, 0.56]	1.13 [1.05, 1.21]	0.49 [0.44, 0.53]
Goa	0.89 [0.84, 0.96]	0.45 [0.42, 0.50]	1.00 [0.93, 1.08]	0.54 [0.49, 0.59]
South				
Andhra Pradesh	0.87 [0.81, 0.94]	0.47 [0.42, 0.51]	0.82 [0.76, 0.89]	0.50 [0.45, 0.55]
Karnataka	1.07 [1.00, 1.13]	0.47 [0.43, 0.51]	0.98 [0.92, 1.05]	0.50 [0.46, 0.54]
Lakshadweep	0.75 [0.69, 0.80]	0.36 [0.32, 0.39]	0.64 [0.60, 0.68]	0.35 [0.32, 0.38]
Kerala	0.74 [0.70, 0.78]	0.39 [0.36, 0.42]	0.66 [0.60, 0.71]	0.42 [0.37, 0.46]
Tamil Nadu	0.78 [0.73, 0.82]	0.44 [0.40, 0.48]	0.74 [0.69, 0.79]	0.47 [0.43, 0.52]
Puducherry	0.88 [0.83, 0.94]	0.51 [0.47, 0.55]	0.79 [0.73, 0.87]	0.54 [0.49, 0.62]
A & N Islands	0.93 [0.87, 0.98]	0.47 [0.44, 0.51]	0.78 [0.72, 0.86]	0.44 [0.40, 0.50]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2f:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Riboflavin (Vitamin B2)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.16 [1.04, 1.28]	0.59 [0.50, 0.69]	0.93 [0.86, 1.01]	0.48 [0.43, 0.55]
Himachal Pradesh	1.29 [1.11, 1.47]	0.63 [0.50, 0.76]	1.03 [0.94, 1.12]	0.56 [0.49, 0.62]
Punjab	1.21 [1.06, 1.38]	0.63 [0.52, 0.76]	0.98 [0.91, 1.05]	0.54 [0.48, 0.59]
Chandigarh	1.11 [0.97, 1.30]	0.56 [0.45, 0.71]	1.07 [1.00, 1.15]	0.66 [0.59, 0.74]
Uttarakhand	1.18 [1.04, 1.32]	0.52 [0.43, 0.62]	0.85 [0.78, 0.92]	0.42 [0.37, 0.47]
Haryana	1.33 [1.15, 1.54]	0.72 [0.57, 0.87]	1.02 [0.94, 1.10]	0.54 [0.48, 0.60]
Delhi	1.17 [1.02, 1.33]	0.59 [0.48, 0.73]	0.82 [0.76, 0.88]	0.45 [0.40, 0.50]
Rajasthan	1.29 [1.10, 1.51]	0.46 [0.37, 0.60]	1.10 [1.01, 1.22]	0.42 [0.37, 0.49]
Central				
Uttar Pradesh	1.07 [0.93, 1.27]	0.37 [0.29, 0.48]	0.80 [0.73, 0.86]	0.32 [0.28, 0.35]
Chhattisgarh	0.74 [0.64, 0.84]	0.24 [0.20, 0.29]	0.59 [0.55, 0.64]	0.23 [0.21, 0.26]
Madhya Pradesh	1.03 [0.91, 1.15]	0.31 [0.26, 0.37]	0.85 [0.79, 0.91]	0.32 [0.29, 0.36]
East				
Bihar	1.05 [0.92, 1.22]	0.41 [0.34, 0.51]	0.89 [0.82, 0.95]	0.39 [0.35, 0.43]
West Bengal	0.84 [0.72, 0.96]	0.35 [0.28, 0.42]	0.64 [0.60, 0.69]	0.26 [0.23, 0.29]
Jharkhand	0.86 [0.73, 0.99]	0.29 [0.23, 0.36]	0.66 [0.62, 0.72]	0.25 [0.22, 0.27]
Odisha	0.84 [0.73, 0.97]	0.29 [0.24, 0.36]	0.62 [0.58, 0.67]	0.24 [0.22, 0.27]
Northeast				
Sikkim	0.91 [0.77, 1.03]	0.51 [0.40, 0.62]	0.71 [0.65, 0.76]	0.46 [0.40, 0.51]
Arunachal Pradesh	0.82 [0.71, 0.94]	0.33 [0.26, 0.41]	0.61 [0.57, 0.66]	0.29 [0.26, 0.32]
Nagaland	0.98 [0.85, 1.10]	0.47 [0.37, 0.57]	0.68 [0.63, 0.73]	0.37 [0.33, 0.41]
Manipur	0.76 [0.66, 0.89]	0.22 [0.18, 0.28]	0.61 [0.57, 0.66]	0.25 [0.22, 0.27]
Mizoram	0.85 [0.74, 0.97]	0.37 [0.30, 0.45]	0.55 [0.51, 0.59]	0.25 [0.22, 0.27]
Tripura	0.88 [0.76, 1.00]	0.38 [0.30, 0.46]	0.67 [0.63, 0.72]	0.31 [0.28, 0.35]
Meghalaya	0.77 [0.68, 0.92]	0.30 [0.25, 0.41]	0.50 [0.46, 0.54]	0.22 [0.19, 0.24]
Assam	0.86 [0.74, 0.97]	0.36 [0.29, 0.44]	0.56 [0.52, 0.60]	0.26 [0.23, 0.28]
West				
Gujarat	0.93 [0.83, 1.07]	0.41 [0.35, 0.52]	0.80 [0.73, 0.85]	0.37 [0.33, 0.41]
DDDH	0.82 [0.70, 0.96]	0.36 [0.29, 0.46]	0.74 [0.68, 0.78]	0.33 [0.30, 0.36]
Maharashtra	0.89 [0.76, 1.04]	0.38 [0.30, 0.48]	0.70 [0.65, 0.75]	0.29 [0.26, 0.33]
Goa	0.92 [0.84, 1.03]	0.46 [0.40, 0.55]	0.73 [0.69, 0.79]	0.35 [0.32, 0.39]
South				
Andhra Pradesh	0.83 [0.69, 0.98]	0.39 [0.30, 0.51]	0.66 [0.62, 0.71]	0.34 [0.30, 0.38]
Karnataka	0.78 [0.68, 0.90]	0.36 [0.30, 0.45]	0.67 [0.62, 0.72]	0.34 [0.30, 0.38]
Lakshadweep	0.84 [0.70, 0.95]	0.36 [0.27, 0.44]	0.55 [0.51, 0.59]	0.26 [0.23, 0.28]
Kerala	0.69 [0.61, 0.78]	0.34 [0.28, 0.40]	0.51 [0.48, 0.56]	0.28 [0.25, 0.31]
Tamil Nadu	0.75 [0.65, 0.87]	0.37 [0.30, 0.47]	0.60 [0.55, 0.65]	0.33 [0.29, 0.37]
Puducherry	0.79 [0.68, 0.91]	0.41 [0.33, 0.49]	0.62 [0.58, 0.67]	0.36 [0.33, 0.40]
A & N Islands	0.90 [0.78, 1.00]	0.45 [0.36, 0.54]	0.64 [0.61, 0.69]	0.35 [0.32, 0.38]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Riboflavin (Vitamin B2)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.27 [1.10, 1.50]	0.79 [0.64, 1.02]	0.94 [0.88, 1.03]	0.57 [0.51, 0.64]
Himachal Pradesh	1.38 [1.16, 1.57]	0.81 [0.63, 0.99]	1.04 [0.96, 1.13]	0.64 [0.58, 0.72]
Punjab	1.31 [1.11, 1.52]	0.83 [0.64, 1.06]	0.98 [0.91, 1.06]	0.61 [0.55, 0.68]
Chandigarh	1.19 [1.04, 1.35]	0.73 [0.59, 0.87]	1.09 [1.01, 1.17]	0.78 [0.70, 0.86]
Uttarakhand	1.27 [1.11, 1.44]	0.68 [0.55, 0.84]	0.86 [0.80, 0.94]	0.49 [0.43, 0.56]
Haryana	1.42 [1.26, 1.66]	0.92 [0.78, 1.15]	1.04 [0.95, 1.13]	0.63 [0.55, 0.71]
Delhi	1.23 [1.07, 1.42]	0.74 [0.61, 0.96]	0.83 [0.77, 0.90]	0.52 [0.46, 0.58]
Rajasthan	1.41 [1.18, 1.67]	0.62 [0.48, 0.80]	1.13 [1.05, 1.20]	0.50 [0.45, 0.55]
Central				
Uttar Pradesh	1.12 [0.99, 1.28]	0.46 [0.38, 0.59]	0.82 [0.75, 0.89]	0.38 [0.33, 0.43]
Chhattisgarh	0.78 [0.67, 0.90]	0.31 [0.25, 0.39]	0.69 [0.56, 0.65]	0.27 [0.24, 0.30]
Madhya Pradesh	1.10 [0.94, 1.24]	0.40 [0.32, 0.49]	0.86 [0.80, 0.92]	0.38 [0.34, 0.42]
East				
Bihar	1.13 [1.01, 1.27]	0.54 [0.45, 0.65]	0.90 [0.84, 0.97]	0.46 [0.41, 0.51]
West Bengal	0.89 [0.77, 1.04]	0.45 [0.37, 0.57]	0.66 [0.61, 0.71]	0.30 [0.27, 0.34]
Jharkhand	0.91 [0.78, 1.03]	0.37 [0.30, 0.45]	0.68 [0.63, 0.73]	0.29 [0.26, 0.32]
Odisha	0.90 [0.78, 1.03]	0.38 [0.31, 0.46]	0.63 [0.58, 0.67]	0.28 [0.25, 0.31]
Northeast				
Sikkim	0.99 [0.85, 1.13]	0.67 [0.54, 0.81]	0.71 [0.66, 0.76]	0.53 [0.48, 0.58]
Arunachal Pradesh	0.87 [0.76, 0.97]	0.42 [0.34, 0.50]	0.62 [0.58, 0.67]	0.34 [0.30, 0.38]
Nagaland	1.04 [0.92, 1.18]	0.60 [0.51, 0.74]	0.69 [0.64, 0.74]	0.43 [0.39, 0.48]
Manipur	0.82 [0.70, 0.93]	0.28 [0.23, 0.35]	0.63 [0.59, 0.68]	0.29 [0.26, 0.32]
Mizoram	0.91 [0.78, 1.04]	0.49 [0.39, 0.59]	0.56 [0.52, 0.60]	0.29 [0.26, 0.32]
Tripura	0.93 [0.81, 1.09]	0.49 [0.39, 0.62]	0.69 [0.64, 0.73]	0.37 [0.33, 0.41]
Meghalaya	0.82 [0.70, 0.92]	0.39 [0.32, 0.46]	0.51 [0.47, 0.56]	0.25 [0.23, 0.29]
Assam	0.91 [0.77, 1.07]	0.46 [0.36, 0.59]	0.57 [0.53, 0.62]	0.30 [0.27, 0.34]
West				
Gujarat	1.01 [0.87, 1.17]	0.56 [0.44, 0.71]	0.81 [0.74, 0.88]	0.44 [0.38, 0.49]
DDDH	0.87 [0.72, 1.00]	0.47 [0.35, 0.57]	0.75 [0.69, 0.82]	0.39 [0.34, 0.44]
Maharashtra	0.95 [0.83, 1.08]	0.48 [0.40, 0.58]	0.71 [0.66, 0.76]	0.34 [0.31, 0.37]
Goa	0.98 [0.88, 1.15]	0.60 [0.50, 0.74]	0.74 [0.69, 0.80]	0.41 [0.37, 0.46]
South				
Andhra Pradesh	0.88 [0.76, 1.01]	0.50 [0.40, 0.62]	0.68 [0.62, 0.73]	0.40 [0.35, 0.45]
Karnataka	0.84 [0.74, 0.95]	0.47 [0.39, 0.57]	0.68 [0.63, 0.72]	0.39 [0.35, 0.43]
Lakshadweep	0.89 [0.75, 1.01]	0.47 [0.38, 0.56]	0.55 [0.52, 0.59]	0.30 [0.27, 0.33]
Kerala	0.76 [0.67, 0.86]	0.45 [0.38, 0.54]	0.52 [0.48, 0.56]	0.32 [0.28, 0.36]
Tamil Nadu	0.81 [0.69, 0.91]	0.49 [0.39, 0.59]	0.61 [0.57, 0.65]	0.38 [0.34, 0.43]
Puducherry	0.86 [0.76, 0.97]	0.54 [0.45, 0.66]	0.63 [0.59, 0.70]	0.43 [0.38, 0.49]
A & N Islands	0.96 [0.84, 1.08]	0.58 [0.47, 0.69]	0.66 [0.61, 0.72]	0.40 [0.37, 0.47]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2g:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Niacin (Vitamin B3)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	10.9 [10.4, 11.5]	3.2 [3.0, 3.5]	9.8 [9.0, 10.7]	3.4 [3.1, 3.9]
Himachal Pradesh	11.1 [10.5, 11.8]	3.2 [2.9, 3.5]	9.9 [9.0, 10.9]	3.7 [3.3, 4.2]
Punjab	9.8 [9.2, 10.3]	2.9 [2.7, 3.2]	8.9 [8.2, 9.6]	3.4 [3.1, 3.8]
Chandigarh	9.3 [8.7, 9.9]	3.0 [2.7, 3.3]	9.5 [8.7, 10.2]	4.5 [4.0, 5.1]
Uttarakhand	11.3 [10.6, 11.9]	3.1 [2.8, 3.4]	9.6 [8.8, 10.4]	3.8 [3.4, 4.3]
Haryana	10.2 [9.5, 10.8]	3.1 [2.8, 3.5]	9.0 [8.3, 9.8]	3.2 [2.8, 3.6]
Delhi	9.2 [8.7, 9.7]	3.1 [2.8, 3.4]	8.5 [7.9, 9.2]	3.9 [3.5, 4.3]
Rajasthan	10.2 [9.5, 10.9]	2.1 [1.8, 2.3]	9.8 [9.0, 10.9]	2.2 [1.9, 2.5]
Central				
Uttar Pradesh	11.4 [10.7, 12.2]	3.4 [3.1, 3.8]	9.8 [8.8, 10.5]	3.5 [3.0, 3.9]
Chhattisgarh	10.1 [9.5, 10.7]	3.0 [2.7, 3.3]	9.5 [8.8, 10.2]	3.6 [3.2, 4.0]
Madhya Pradesh	10.4 [10.0, 11.1]	2.4 [2.2, 2.6]	9.8 [9.1, 10.6]	3.1 [2.8, 3.6]
East				
Bihar	11.6 [11.0, 12.4]	3.6 [3.3, 4.0]	11.5 [10.6, 12.4]	4.5 [4.0, 5.1]
West Bengal	10.8 [10.0, 11.4]	4.1 [3.6, 4.5]	10.9 [10.1, 11.7]	4.6 [4.1, 5.1]
Jharkhand	10.8 [10.0, 11.5]	3.3 [3.0, 3.7]	9.9 [9.2, 10.8]	3.8 [3.4, 4.3]
Odisha	10.5 [9.8, 11.1]	3.0 [2.7, 3.3]	10.2 [9.5, 11.1]	4.0 [3.6, 4.5]
Northeast				
Sikkim	9.1 [8.5, 9.6]	3.1 [2.8, 3.4]	9.5 [8.6, 10.2]	5.3 [4.6, 5.9]
Arunachal Pradesh	10.2 [9.6, 10.8]	3.4 [3.0, 3.7]	9.8 [9.0, 10.5]	4.4 [3.9, 4.9]
Nagaland	11.9 [11.1, 12.5]	4.5 [4.1, 4.9]	10.5 [9.7, 11.3]	5.3 [4.7, 5.9]
Manipur	10.2 [9.6, 10.9]	2.3 [2.0, 2.5]	9.8 [9.1, 10.6]	3.6 [3.2, 4.0]
Mizoram	10.8 [10.1, 11.4]	3.5 [3.1, 3.8]	9.7 [8.9, 10.5]	4.5 [4.0, 5.0]
Tripura	11.3 [10.6, 11.9]	3.8 [3.5, 4.2]	11.2 [10.4, 12.1]	5.1 [4.6, 5.7]
Meghalaya	9.4 [8.9, 10.1]	3.4 [3.1, 3.8]	8.7 [7.9, 9.3]	3.9 [3.4, 4.3]
Assam	10.2 [9.6, 10.8]	3.3 [3.0, 3.6]	9.1 [8.5, 9.9]	4.0 [3.6, 4.5]
West				
Gujarat	7.9 [7.5, 8.3]	2.5 [2.3, 2.8]	7.9 [7.2, 8.5]	2.8 [2.4, 3.1]
DDDH	8.1 [7.6, 8.6]	2.8 [2.5, 3.1]	9.5 [8.8, 10.1]	4.0 [3.5, 4.4]
Maharashtra	9.9 [9.2, 10.6]	3.6 [3.2, 4.1]	9.1 [8.4, 9.8]	3.8 [3.4, 4.3]
Goa	10.0 [9.6, 10.6]	4.6 [4.3, 5.0]	12.0 [11.2, 13.0]	6.5 [5.8, 7.3]
South				
Andhra Pradesh	10.1 [9.4, 10.9]	3.6 [3.2, 4.1]	10.0 [9.3, 10.8]	4.8 [4.3, 5.4]
Karnataka	9.1 [8.5, 9.7]	3.5 [3.1, 3.8]	9.6 [8.8, 10.4]	4.5 [4.0, 5.1]
Lakshadweep	11.6 [10.7, 12.2]	5.8 [5.1, 6.4]	10.2 [9.4, 11.0]	5.7 [5.1, 6.3]
Kerala	10.0 [9.4, 10.6]	5.0 [4.6, 5.5]	9.4 [8.7, 10.3]	5.6 [5.0, 6.4]
Tamil Nadu	8.5 [8.1, 9.1]	3.2 [2.9, 3.6]	8.6 [7.9, 9.3]	4.2 [3.8, 4.9]
Puducherry	9.3 [8.8, 9.9]	3.7 [3.3, 4.1]	9.1 [8.5, 9.8]	5.0 [4.5, 5.6]
A & N Islands	10.6 [10.0, 11.1]	4.6 [4.1, 4.9]	9.8 [9.2, 10.5]	5.3 [4.8, 5.8]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Niacin (Vitamin B3)

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	10.7 [10.0, 11.4]	3.7 [3.3, 4.2]	9.5 [8.8, 10.5]	3.8 [3.4, 4.3]
Himachal Pradesh	10.8 [10.0, 11.4]	3.6 [3.2, 3.9]	9.6 [8.8, 10.4]	4.0 [3.6, 4.6]
Punjab	9.5 [8.8, 10.1]	3.3 [3.0, 3.7]	8.5 [7.9, 9.2]	3.6 [3.2, 4.1]
Chandigarh	9.0 [8.4, 9.5]	3.4 [3.0, 3.7]	9.2 [8.5, 9.9]	5.0 [4.4, 5.5]
Uttarakhand	10.9 [10.3, 11.6]	3.5 [3.2, 3.9]	9.4 [8.6, 10.2]	4.2 [3.6, 4.8]
Haryana	9.9 [9.4, 10.5]	3.5 [3.2, 3.9]	8.8 [8.0, 9.6]	3.5 [3.1, 4.0]
Delhi	8.9 [8.3, 9.3]	3.4 [3.1, 3.8]	8.3 [7.7, 9.0]	4.2 [3.8, 4.7]
Rajasthan	10.0 [9.3, 10.8]	2.4 [2.1, 2.7]	9.6 [8.9, 10.3]	2.4 [2.1, 2.6]
Central				
Uttar Pradesh	11.0 [10.4, 11.6]	3.8 [3.4, 4.1]	9.5 [8.7, 10.4]	3.8 [3.4, 4.4]
Chhattisgarh	9.7 [9.1, 10.3]	3.4 [3.0, 3.7]	9.2 [8.5, 9.9]	3.9 [3.5, 4.3]
Madhya Pradesh	10.1 [9.5, 10.7]	2.7 [2.4, 3.0]	9.6 [8.8, 10.3]	3.4 [3.1, 3.8]
East				
Bihar	11.3 [10.7, 11.9]	4.1 [3.7, 4.5]	11.3 [10.4, 12.2]	5.0 [4.4, 5.6]
West Bengal	10.4 [9.7, 11.1]	4.5 [4.1, 5.1]	10.7 [10.0, 11.6]	5.1 [4.6, 5.7]
Jharkhand	10.4 [9.7, 11.0]	3.7 [3.3, 4.1]	9.7 [8.9, 10.5]	4.2 [3.7, 4.7]
Odisha	10.2 [9.6, 10.8]	3.4 [3.1, 3.7]	9.9 [9.1, 10.7]	4.3 [3.8, 4.8]
Northeast				
Sikkim	8.9 [8.3, 9.5]	3.5 [3.1, 3.9]	9.1 [8.4, 9.7]	5.7 [5.1, 6.3]
Arunachal Pradesh	9.8 [9.2, 10.4]	3.7 [3.4, 4.1]	9.5 [8.8, 10.2]	4.8 [4.2, 5.3]
Nagaland	11.4 [10.8, 12.1]	5.0 [4.6, 5.5]	10.2 [9.4, 11.0]	5.7 [5.1, 6.3]
Manipur	9.9 [9.2, 10.4]	2.5 [2.3, 2.8]	9.6 [8.9, 10.4]	3.9 [3.6, 4.4]
Mizoram	10.5 [9.7, 11.0]	3.9 [3.5, 4.3]	9.4 [8.7, 10.1]	4.9 [4.3, 5.4]
Tripura	10.9 [10.2, 11.6]	4.3 [3.9, 4.8]	10.9 [10.1, 11.7]	5.6 [5.0, 6.1]
Meghalaya	9.1 [8.5, 9.6]	3.8 [3.4, 4.1]	8.5 [7.8, 9.3]	4.2 [3.7, 4.9]
Assam	9.9 [9.2, 10.5]	3.7 [3.2, 4.1]	8.9 [8.2, 9.7]	4.4 [3.9, 5.0]
West				
Gujarat	7.7 [7.2, 8.1]	2.9 [2.6, 3.2]	7.7 [7.0, 8.4]	3.1 [2.7, 3.5]
DDDH	7.8 [7.2, 8.4]	3.1 [2.7, 3.4]	9.3 [8.5, 10.1]	4.3 [3.8, 4.9]
Maharashtra	9.6 [9.1, 10.2]	4.1 [3.7, 4.5]	8.8 [8.2, 9.4]	4.1 [3.7, 4.6]
Goa	9.7 [9.3, 10.5]	5.2 [4.8, 5.8]	11.7 [10.8, 12.7]	7.0 [6.2, 7.8]
South				
Andhra Pradesh	9.8 [9.2, 10.4]	4.0 [3.6, 4.5]	9.8 [9.0, 10.6]	5.3 [4.6, 6.0]
Karnataka	8.8 [8.3, 9.3]	3.9 [3.6, 4.3]	9.3 [8.6, 9.9]	4.9 [4.3, 5.3]
Lakshadweep	11.2 [10.3, 11.8]	6.5 [5.8, 7.2]	9.8 [9.2, 10.5]	6.2 [5.5, 6.8]
Kerala	9.8 [9.3, 10.3]	5.8 [5.3, 6.3]	9.2 [8.4, 9.9]	6.2 [5.3, 6.9]
Tamil Nadu	8.3 [7.8, 8.8]	3.7 [3.3, 4.0]	8.3 [7.7, 8.9]	4.6 [4.1, 5.2]
Puducherry	9.1 [8.6, 9.6]	4.2 [3.8, 4.6]	8.8 [8.2, 9.8]	5.5 [4.9, 6.4]
A & N Islands	10.3 [9.7, 10.8]	5.1 [4.7, 5.6]	9.6 [8.9, 10.6]	5.8 [5.2, 6.8]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2h:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Vitamin B6

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.29 [1.23, 1.36]	0.62 [0.57, 0.66]	1.19 [1.11, 1.30]	0.64 [0.58, 0.71]
Himachal Pradesh	1.44 [1.35, 1.52]	0.62 [0.57, 0.67]	1.35 [1.24, 1.46]	0.75 [0.67, 0.83]
Punjab	1.33 [1.25, 1.40]	0.61 [0.55, 0.66]	1.28 [1.19, 1.37]	0.71 [0.64, 0.77]
Chandigarh	1.24 [1.16, 1.31]	0.60 [0.54, 0.66]	1.40 [1.30, 1.50]	0.89 [0.80, 0.98]
Uttarakhand	1.37 [1.29, 1.45]	0.59 [0.54, 0.64]	1.23 [1.14, 1.33]	0.69 [0.62, 0.77]
Haryana	1.44 [1.35, 1.53]	0.68 [0.62, 0.75]	1.30 [1.21, 1.40]	0.69 [0.62, 0.76]
Delhi	1.19 [1.13, 1.26]	0.58 [0.53, 0.63]	1.18 [1.10, 1.26]	0.71 [0.64, 0.77]
Rajasthan	1.47 [1.37, 1.57]	0.47 [0.42, 0.52]	1.38 [1.28, 1.52]	0.51 [0.46, 0.58]
Central				
Uttar Pradesh	1.31 [1.23, 1.41]	0.52 [0.48, 0.59]	1.18 [1.07, 1.26]	0.57 [0.51, 0.63]
Chhattisgarh	1.03 [0.97, 1.09]	0.50 [0.45, 0.54]	1.04 [0.97, 1.12]	0.60 [0.55, 0.66]
Madhya Pradesh	1.28 [1.22, 1.36]	0.43 [0.40, 0.47]	1.23 [1.15, 1.32]	0.56 [0.51, 0.62]
East				
Bihar	1.33 [1.25, 1.42]	0.59 [0.54, 0.65]	1.35 [1.25, 1.45]	0.73 [0.66, 0.80]
West Bengal	1.08 [1.00, 1.14]	0.57 [0.51, 0.62]	1.13 [1.04, 1.20]	0.63 [0.58, 0.69]
Jharkhand	1.12 [1.04, 1.20]	0.50 [0.45, 0.56]	1.06 [0.99, 1.15]	0.55 [0.50, 0.60]
Odisha	1.04 [0.97, 1.10]	0.49 [0.45, 0.54]	1.07 [1.00, 1.15]	0.61 [0.55, 0.67]
Northeast				
Sikkim	1.01 [0.94, 1.07]	0.57 [0.51, 0.61]	1.08 [1.00, 1.16]	0.78 [0.69, 0.85]
Arunachal Pradesh	1.06 [0.99, 1.12]	0.53 [0.48, 0.58]	1.06 [0.97, 1.12]	0.67 [0.60, 0.73]
Nagaland	1.14 [1.07, 1.20]	0.61 [0.55, 0.66]	1.09 [1.01, 1.16]	0.71 [0.64, 0.77]
Manipur	0.93 [0.87, 0.99]	0.36 [0.33, 0.40]	0.95 [0.89, 1.02]	0.51 [0.47, 0.56]
Mizoram	1.10 [1.04, 1.17]	0.56 [0.52, 0.62]	1.00 [0.93, 1.08]	0.63 [0.57, 0.69]
Tripura	1.23 [1.16, 1.30]	0.70 [0.64, 0.76]	1.23 [1.16, 1.33]	0.80 [0.73, 0.88]
Meghalaya	0.92 [0.87, 0.98]	0.48 [0.44, 0.53]	0.93 [0.86, 1.00]	0.59 [0.52, 0.64]
Assam	1.02 [0.96, 1.08]	0.52 [0.47, 0.56]	0.97 [0.91, 1.04]	0.60 [0.55, 0.66]
West				
Gujarat	1.15 [1.10, 1.22]	0.51 [0.47, 0.55]	1.11 [1.02, 1.19]	0.56 [0.50, 0.61]
DDDH	0.97 [0.91, 1.04]	0.51 [0.46, 0.56]	1.19 [1.10, 1.25]	0.68 [0.61, 0.73]
Maharashtra	1.21 [1.12, 1.29]	0.57 [0.51, 0.63]	1.09 [1.02, 1.16]	0.58 [0.52, 0.63]
Goa	1.25 [1.20, 1.32]	0.82 [0.77, 0.89]	1.44 [1.35, 1.55]	0.98 [0.89, 1.08]
South				
Andhra Pradesh	1.13 [1.04, 1.21]	0.64 [0.57, 0.72]	1.09 [1.02, 1.17]	0.70 [0.65, 0.77]
Karnataka	1.10 [1.04, 1.17]	0.63 [0.58, 0.69]	1.14 [1.06, 1.23]	0.72 [0.65, 0.80]
Lakshadweep	1.39 [1.29, 1.47]	0.88 [0.79, 0.96]	1.18 [1.10, 1.26]	0.79 [0.72, 0.87]
Kerala	1.22 [1.15, 1.30]	0.85 [0.78, 0.92]	1.10 [1.02, 1.19]	0.81 [0.74, 0.91]
Tamil Nadu	1.03 [0.97, 1.09]	0.63 [0.57, 0.69]	1.03 [0.96, 1.12]	0.71 [0.64, 0.81]
Puducherry	1.12 [1.05, 1.19]	0.68 [0.62, 0.75]	1.07 [1.00, 1.15]	0.76 [0.70, 0.83]
A & N Islands	1.25 [1.17, 1.31]	0.76 [0.68, 0.81]	1.14 [1.07, 1.22]	0.77 [0.71, 0.84]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Vitamin B6

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	1.32 [1.24, 1.42]	0.74 [0.67, 0.82]	1.22 [1.14, 1.33]	0.73 [0.66, 0.81]
Himachal Pradesh	1.46 [1.35, 1.53]	0.73 [0.66, 0.79]	1.37 [1.26, 1.48]	0.84 [0.76, 0.93]
Punjab	1.35 [1.26, 1.44]	0.72 [0.65, 0.80]	1.29 [1.20, 1.39]	0.78 [0.71, 0.86]
Chandigarh	1.25 [1.18, 1.33]	0.71 [0.64, 0.77]	1.43 [1.33, 1.53]	1.01 [0.92, 1.11]
Uttarakhand	1.39 [1.32, 1.48]	0.70 [0.64, 0.77]	1.26 [1.17, 1.37]	0.79 [0.70, 0.88]
Haryana	1.46 [1.38, 1.56]	0.80 [0.75, 0.89]	1.33 [1.22, 1.45]	0.78 [0.70, 0.87]
Delhi	1.20 [1.13, 1.27]	0.68 [0.62, 0.75]	1.20 [1.11, 1.29]	0.80 [0.72, 0.88]
Rajasthan	1.50 [1.40, 1.62]	0.56 [0.50, 0.63]	1.42 [1.32, 1.51]	0.58 [0.53, 0.63]
Central				
Uttar Pradesh	1.32 [1.25, 1.40]	0.61 [0.56, 0.67]	1.21 [1.11, 1.31]	0.65 [0.59, 0.73]
Chhattisgarh	1.04 [0.97, 1.10]	0.58 [0.53, 0.64]	1.06 [0.99, 1.14]	0.68 [0.62, 0.74]
Madhya Pradesh	1.30 [1.22, 1.38]	0.51 [0.46, 0.56]	1.26 [1.18, 1.35]	0.64 [0.58, 0.70]
East				
Bihar	1.35 [1.28, 1.42]	0.70 [0.64, 0.76]	1.39 [1.29, 1.49]	0.83 [0.75, 0.91]
West Bengal	1.09 [1.02, 1.17]	0.67 [0.61, 0.74]	1.16 [1.08, 1.24]	0.72 [0.66, 0.80]
Jharkhand	1.13 [1.06, 1.20]	0.59 [0.54, 0.65]	1.09 [1.02, 1.17]	0.62 [0.57, 0.69]
Odisha	1.05 [0.99, 1.11]	0.58 [0.53, 0.63]	1.09 [1.00, 1.16]	0.69 [0.61, 0.75]
Northeast				
Sikkim	1.03 [0.96, 1.10]	0.67 [0.61, 0.74]	1.10 [1.02, 1.16]	0.87 [0.80, 0.95]
Arunachal Pradesh	1.07 [1.00, 1.13]	0.62 [0.57, 0.68]	1.08 [1.00, 1.15]	0.75 [0.68, 0.82]
Nagaland	1.14 [1.08, 1.21]	0.71 [0.65, 0.77]	1.11 [1.03, 1.19]	0.80 [0.73, 0.88]
Manipur	0.95 [0.88, 0.99]	0.43 [0.39, 0.46]	0.98 [0.92, 1.06]	0.59 [0.54, 0.64]
Mizoram	1.12 [1.04, 1.18]	0.67 [0.60, 0.73]	1.02 [0.95, 1.09]	0.71 [0.65, 0.77]
Tripura	1.24 [1.17, 1.33]	0.82 [0.75, 0.91]	1.26 [1.18, 1.34]	0.90 [0.83, 0.98]
Meghalaya	0.93 [0.87, 0.98]	0.56 [0.51, 0.61]	0.95 [0.88, 1.03]	0.67 [0.60, 0.74]
Assam	1.03 [0.96, 1.10]	0.61 [0.54, 0.67]	1.00 [0.92, 1.08]	0.69 [0.62, 0.76]
West				
Gujarat	1.18 [1.11, 1.25]	0.61 [0.55, 0.66]	1.14 [1.04, 1.24]	0.63 [0.57, 0.70]
DDDH	0.99 [0.91, 1.05]	0.60 [0.54, 0.66]	1.21 [1.12, 1.31]	0.76 [0.69, 0.85]
Maharashtra	1.23 [1.16, 1.30]	0.67 [0.62, 0.73]	1.11 [1.04, 1.18]	0.65 [0.59, 0.70]
Goa	1.27 [1.21, 1.37]	0.97 [0.90, 1.08]	1.47 [1.37, 1.59]	1.11 [1.01, 1.22]
South				
Andhra Pradesh	1.14 [1.07, 1.21]	0.76 [0.68, 0.83]	1.12 [1.04, 1.21]	0.81 [0.72, 0.89]
Karnataka	1.12 [1.05, 1.18]	0.75 [0.68, 0.81]	1.16 [1.09, 1.24]	0.82 [0.74, 0.88]
Lakshadweep	1.41 [1.30, 1.50]	1.04 [0.93, 1.13]	1.20 [1.13, 1.27]	0.89 [0.82, 0.96]
Kerala	1.25 [1.19, 1.32]	1.02 [0.94, 1.11]	1.13 [1.03, 1.21]	0.92 [0.82, 1.02]
Tamil Nadu	1.05 [0.98, 1.10]	0.75 [0.68, 0.81]	1.06 [0.98, 1.13]	0.81 [0.73, 0.89]
Puducherry	1.14 [1.08, 1.21]	0.81 [0.75, 0.88]	1.09 [1.02, 1.20]	0.86 [0.78, 0.98]
A & N Islands	1.26 [1.19, 1.33]	0.89 [0.82, 0.96]	1.17 [1.09, 1.28]	0.88 [0.80, 1.00]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2i:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Vitamin B12

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	3.6 [3.1, 4.2]	3.6 [3.1, 4.2]	3.8 [3.3, 4.6]	3.8 [3.3, 4.6]
Himachal Pradesh	3.1 [2.5, 3.7]	3.1 [2.5, 3.7]	3.6 [3.0, 4.3]	3.6 [3.0, 4.3]
Punjab	3.6 [3.0, 4.3]	3.6 [3.0, 4.3]	3.7 [3.1, 4.2]	3.7 [3.1, 4.2]
Chandigarh	2.7 [2.2, 3.3]	2.7 [2.2, 3.3]	4.6 [3.8, 5.4]	4.6 [3.8, 5.4]
Uttarakhand	2.7 [2.3, 3.2]	2.7 [2.3, 3.2]	2.8 [2.3, 3.3]	2.8 [2.3, 3.3]
Haryana	4.2 [3.4, 5.0]	4.2 [3.4, 5.0]	3.8 [3.2, 4.4]	3.8 [3.2, 4.4]
Delhi	2.8 [2.3, 3.5]	2.8 [2.3, 3.5]	3.1 [2.6, 3.6]	3.1 [2.6, 3.6]
Rajasthan	2.8 [2.3, 3.5]	2.8 [2.3, 3.5]	3.1 [2.6, 3.8]	3.1 [2.6, 3.8]
Central				
Uttar Pradesh	1.7 [1.3, 2.3]	1.7 [1.3, 2.3]	2.2 [1.8, 2.5]	2.2 [1.8, 2.5]
Chhattisgarh	0.6 [0.4, 0.8]	0.6 [0.4, 0.8]	0.9 [0.8, 1.2]	0.9 [0.8, 1.2]
Madhya Pradesh	1.4 [1.1, 1.7]	1.4 [1.1, 1.7]	1.9 [1.6, 2.2]	1.9 [1.6, 2.2]
East				
Bihar	1.9 [1.5, 2.3]	1.9 [1.5, 2.3]	2.8 [2.4, 3.3]	2.8 [2.4, 3.3]
West Bengal	2.1 [1.7, 2.5]	2.1 [1.7, 2.5]	2.4 [2.0, 2.8]	2.4 [2.0, 2.8]
Jharkhand	1.0 [0.7, 1.3]	1.0 [0.7, 1.3]	1.6 [1.4, 1.9]	1.6 [1.4, 1.9]
Odisha	1.1 [0.8, 1.3]	1.1 [0.8, 1.3]	1.3 [1.1, 1.6]	1.3 [1.1, 1.6]
Northeast				
Sikkim	2.7 [2.2, 3.3]	2.7 [2.2, 3.3]	4.1 [3.4, 4.8]	4.1 [3.4, 4.8]
Arunachal Pradesh	1.8 [1.5, 2.2]	1.8 [1.5, 2.2]	1.9 [1.6, 2.3]	1.9 [1.6, 2.3]
Nagaland	1.6 [1.3, 1.9]	1.6 [1.3, 1.9]	2.2 [1.8, 2.5]	2.2 [1.8, 2.5]
Manipur	1.1 [0.9, 1.4]	1.1 [0.9, 1.4]	1.9 [1.6, 2.2]	1.9 [1.6, 2.2]
Mizoram	1.2 [0.9, 1.4]	1.2 [0.9, 1.4]	1.7 [1.5, 2.0]	1.7 [1.5, 2.0]
Tripura	2.3 [1.8, 2.7]	2.3 [1.8, 2.7]	3.0 [2.6, 3.4]	3.0 [2.6, 3.4]
Meghalaya	1.8 [1.5, 2.3]	1.8 [1.5, 2.3]	1.9 [1.6, 2.2]	1.9 [1.6, 2.2]
Assam	2.0 [1.6, 2.3]	2.0 [1.6, 2.3]	2.1 [1.8, 2.5]	2.1 [1.8, 2.5]
West				
Gujarat	1.9 [1.6, 2.3]	1.9 [1.6, 2.3]	2.2 [1.8, 2.6]	2.2 [1.8, 2.6]
DDDH	1.7 [1.3, 2.1]	1.7 [1.3, 2.1]	2.1 [1.8, 2.4]	2.1 [1.8, 2.4]
Maharashtra	1.7 [1.3, 2.2]	1.7 [1.3, 2.2]	1.8 [1.5, 2.1]	1.8 [1.5, 2.1]
Goa	4.1 [3.4, 4.8]	4.1 [3.4, 4.8]	4.4 [3.8, 5.2]	4.4 [3.8, 5.2]
South				
Andhra Pradesh	2.3 [1.8, 3.0]	2.3 [1.8, 3.0]	2.7 [2.3, 3.1]	2.7 [2.3, 3.1]
Karnataka	1.9 [1.6, 2.4]	1.9 [1.6, 2.4]	2.3 [1.9, 2.7]	2.3 [1.9, 2.7]
Lakshadweep	4.1 [3.2, 4.9]	4.1 [3.2, 4.9]	4.3 [3.7, 5.0]	4.3 [3.7, 5.0]
Kerala	4.5 [3.7, 5.2]	4.5 [3.7, 5.2]	4.5 [3.8, 5.4]	4.5 [3.8, 5.4]
Tamil Nadu	2.3 [1.8, 2.8]	2.3 [1.8, 2.8]	2.7 [2.2, 3.2]	2.7 [2.2, 3.2]
Puducherry	3.3 [2.8, 4.0]	3.3 [2.8, 4.0]	3.7 [3.1, 4.3]	3.7 [3.1, 4.3]
A & N Islands	3.5 [2.8, 4.2]	3.5 [2.8, 4.2]	3.4 [3.0, 3.9]	3.4 [3.0, 3.9]

Units: (ug).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Vitamin B12

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	4.8 [4.0, 6.1]	4.8 [4.0, 6.1]	4.5 [3.9, 5.5]	4.5 [3.9, 5.5]
Himachal Pradesh	4.0 [3.2, 4.8]	4.0 [3.2, 4.8]	4.2 [3.6, 5.0]	4.2 [3.6, 5.0]
Punjab	4.7 [3.7, 5.9]	4.7 [3.7, 5.9]	4.2 [3.6, 4.9]	4.2 [3.6, 4.9]
Chandigarh	3.5 [2.9, 4.1]	3.5 [2.9, 4.1]	5.4 [4.6, 6.3]	5.4 [4.6, 6.3]
Uttarakhand	3.6 [3.0, 4.4]	3.6 [3.0, 4.4]	3.3 [2.8, 4.0]	3.3 [2.8, 4.0]
Haryana	5.4 [4.6, 6.6]	5.4 [4.6, 6.6]	4.5 [3.7, 5.4]	4.5 [3.7, 5.4]
Delhi	3.6 [3.0, 4.5]	3.6 [3.0, 4.5]	3.6 [3.0, 4.2]	3.6 [3.0, 4.2]
Rajasthan	3.8 [3.0, 4.7]	3.8 [3.0, 4.7]	3.7 [3.2, 4.3]	3.7 [3.2, 4.3]
Central				
Uttar Pradesh	2.3 [2.0, 2.9]	2.3 [2.0, 2.9]	2.6 [2.2, 3.2]	2.6 [2.2, 3.2]
Chhattisgarh	1.0 [0.8, 1.3]	1.0 [0.8, 1.3]	1.1 [1.0, 1.4]	1.1 [1.0, 1.4]
Madhya Pradesh	1.9 [1.5, 2.3]	1.9 [1.5, 2.3]	2.2 [1.9, 2.6]	2.2 [1.9, 2.6]
East				
Bihar	2.5 [2.1, 3.1]	2.5 [2.1, 3.1]	3.4 [2.9, 3.9]	3.4 [2.9, 3.9]
West Bengal	2.7 [2.3, 3.4]	2.7 [2.3, 3.4]	2.9 [2.5, 3.4]	2.9 [2.5, 3.4]
Jharkhand	1.4 [1.1, 1.7]	1.4 [1.1, 1.7]	2.0 [1.6, 2.4]	2.0 [1.6, 2.4]
Odisha	1.5 [1.2, 1.8]	1.5 [1.2, 1.8]	1.5 [1.3, 1.9]	1.5 [1.3, 1.9]
Northeast				
Sikkim	3.6 [2.9, 4.3]	3.6 [2.9, 4.3]	4.7 [4.1, 5.5]	4.7 [4.1, 5.5]
Arunachal Pradesh	2.4 [1.9, 2.8]	2.4 [1.9, 2.8]	2.3 [1.9, 2.6]	2.3 [1.9, 2.6]
Nagaland	2.1 [1.8, 2.5]	2.1 [1.8, 2.5]	2.5 [2.2, 2.9]	2.5 [2.2, 2.9]
Manipur	1.5 [1.2, 1.7]	1.5 [1.2, 1.7]	2.2 [1.9, 2.6]	2.2 [1.9, 2.6]
Mizoram	1.5 [1.2, 1.8]	1.5 [1.2, 1.8]	2.0 [1.7, 2.3]	2.0 [1.7, 2.3]
Tripura	2.9 [2.4, 3.6]	2.9 [2.4, 3.6]	3.5 [3.0, 4.0]	3.5 [3.0, 4.0]
Meghalaya	2.3 [1.9, 2.7]	2.3 [1.9, 2.7]	2.3 [1.9, 2.7]	2.3 [1.9, 2.7]
Assam	2.5 [2.0, 3.1]	2.5 [2.0, 3.1]	2.5 [2.2, 3.0]	2.5 [2.2, 3.0]
West				
Gujarat	2.5 [2.0, 3.1]	2.5 [2.0, 3.1]	2.6 [2.2, 3.1]	2.6 [2.2, 3.1]
DDDH	2.3 [1.8, 2.8]	2.3 [1.8, 2.8]	2.4 [2.1, 2.9]	2.4 [2.1, 2.9]
Maharashtra	2.2 [1.8, 2.6]	2.2 [1.8, 2.6]	2.1 [1.8, 2.4]	2.1 [1.8, 2.4]
Goa	5.3 [4.4, 6.4]	5.3 [4.4, 6.4]	5.2 [4.4, 6.0]	5.2 [4.4, 6.0]
South				
Andhra Pradesh	3.0 [2.4, 3.6]	3.0 [2.4, 3.6]	3.2 [2.7, 3.8]	3.2 [2.7, 3.8]
Karnataka	2.5 [2.1, 3.0]	2.5 [2.1, 3.0]	2.7 [2.3, 3.0]	2.7 [2.3, 3.0]
Lakshadweep	5.3 [4.4, 6.3]	5.3 [4.4, 6.3]	5.0 [4.3, 5.8]	5.0 [4.3, 5.8]
Kerala	6.0 [5.1, 7.1]	6.0 [5.1, 7.1]	5.4 [4.3, 6.3]	5.4 [4.3, 6.3]
Tamil Nadu	3.0 [2.5, 3.7]	3.0 [2.5, 3.7]	3.2 [2.6, 3.7]	3.2 [2.6, 3.7]
Puducherry	4.4 [3.7, 5.2]	4.4 [3.7, 5.2]	4.4 [3.7, 5.4]	4.4 [3.7, 5.4]
A & N Islands	4.5 [3.7, 5.3]	4.5 [3.7, 5.3]	4.0 [3.5, 5.1]	4.0 [3.5, 5.1]

Units: (ug).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2j:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Vitamin C

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	74.1 [67.6, 81.2]	73.3 [66.8, 80.3]	70.1 [61.4, 80.6]	70.1 [61.4, 80.5]
Himachal Pradesh	71.9 [63.2, 79.8]	71.0 [62.3, 78.8]	92.6 [79.7, 106.4]	92.5 [79.7, 106.3]
Punjab	80.6 [71.2, 90.7]	80.5 [71.1, 90.7]	91.9 [80.8, 103.1]	91.8 [80.7, 103.0]
Chandigarh	71.3 [62.8, 81.5]	71.1 [62.6, 81.3]	108.0 [93.7, 122.9]	107.9 [93.6, 122.7]
Uttarakhand	83.2 [74.3, 91.1]	83.2 [74.3, 91.2]	86.9 [75.5, 100.5]	86.9 [75.5, 100.5]
Haryana	95.0 [84.0, 108.4]	95.0 [83.9, 108.4]	95.7 [83.6, 108.2]	95.6 [83.5, 108.1]
Delhi	77.9 [69.3, 87.3]	77.8 [69.1, 87.2]	93.8 [83.4, 106.4]	93.7 [83.2, 106.2]
Rajasthan	65.2 [56.9, 74.3]	64.7 [56.4, 73.8]	67.1 [58.0, 79.8]	67.0 [57.9, 79.7]
Central				
Uttar Pradesh	80.7 [71.6, 93.5]	80.7 [71.6, 93.6]	78.1 [66.2, 87.2]	78.1 [66.2, 87.1]
Chhattisgarh	71.5 [63.5, 79.4]	71.4 [63.4, 79.3]	77.2 [69.2, 87.6]	77.2 [69.2, 87.6]
Madhya Pradesh	56.6 [51.1, 62.7]	55.9 [50.4, 61.9]	74.6 [65.3, 85.8]	74.5 [65.2, 85.7]
East				
Bihar	84.9 [75.8, 96.9]	84.7 [75.5, 96.8]	84.2 [73.3, 95.3]	84.2 [73.3, 95.3]
West Bengal	89.3 [78.1, 99.6]	89.3 [78.0, 99.6]	86.7 [75.8, 98.0]	86.6 [75.8, 98.0]
Jharkhand	76.5 [66.6, 86.9]	76.4 [66.5, 86.9]	71.2 [63.3, 81.5]	71.2 [63.3, 81.5]
Odisha	72.6 [64.9, 82.2]	72.6 [64.9, 82.3]	75.0 [66.4, 85.2]	75.0 [66.4, 85.0]
Northeast				
Sikkim	83.4 [72.6, 92.6]	83.2 [72.4, 92.4]	87.3 [74.3, 99.0]	87.1 [74.2, 98.9]
Arunachal Pradesh	77.7 [67.9, 86.8]	76.8 [67.1, 85.8]	86.0 [74.9, 96.9]	85.9 [74.8, 96.9]
Nagaland	80.9 [71.4, 89.6]	80.7 [71.2, 89.5]	79.2 [69.3, 90.1]	79.0 [69.1, 89.9]
Manipur	52.8 [47.2, 60.1]	52.8 [47.2, 60.1]	53.3 [47.2, 60.3]	53.2 [47.1, 60.3]
Mizoram	68.8 [61.2, 77.5]	68.4 [60.8, 77.0]	65.8 [57.7, 73.8]	65.8 [57.7, 73.8]
Tripura	91.9 [80.7, 103.1]	91.9 [80.7, 103.2]	87.4 [77.6, 98.6]	87.3 [77.6, 98.6]
Meghalaya	65.9 [58.8, 76.2]	65.4 [58.2, 75.6]	68.3 [58.7, 77.0]	68.3 [58.7, 77.0]
Assam	67.9 [60.3, 75.5]	67.9 [60.3, 75.6]	69.7 [62.4, 78.7]	69.7 [62.4, 78.7]
West				
Gujarat	68.7 [62.5, 77.2]	67.8 [61.7, 76.3]	69.8 [59.8, 78.1]	69.4 [59.3, 77.6]
DDDH	53.0 [46.2, 59.9]	52.9 [46.1, 59.8]	78.9 [69.2, 87.8]	78.7 [69.0, 87.6]
Maharashtra	59.7 [52.0, 68.0]	59.0 [51.4, 67.3]	58.2 [51.0, 65.9]	57.7 [50.6, 65.4]
Goa	47.8 [44.2, 52.7]	47.8 [44.1, 52.7]	72.1 [64.1, 82.5]	72.0 [64.0, 82.4]
South				
Andhra Pradesh	62.2 [53.3, 72.0]	62.2 [53.2, 72.1]	67.7 [59.6, 77.0]	67.6 [59.5, 77.0]
Karnataka	48.2 [43.0, 54.3]	48.1 [42.9, 54.2]	56.3 [49.0, 64.0]	56.3 [48.9, 63.9]
Lakshadweep	49.5 [42.5, 55.1]	48.8 [41.9, 54.3]	49.5 [43.6, 55.5]	49.3 [43.5, 55.4]
Kerala	48.6 [43.6, 54.0]	45.8 [41.0, 50.9]	50.1 [43.8, 57.5]	49.3 [43.1, 56.7]
Tamil Nadu	45.3 [40.3, 52.0]	45.2 [40.2, 51.9]	61.2 [53.5, 71.3]	61.1 [53.4, 71.2]
Puducherry	52.4 [46.3, 59.2]	52.2 [46.2, 59.1]	69.8 [61.8, 78.3]	69.7 [61.7, 78.2]
A & N Islands	63.7 [55.6, 69.3]	63.3 [55.2, 68.9]	53.5 [48.0, 59.8]	53.4 [48.0, 59.8]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Vitamin C

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	86.8 [77.6, 100.4]	86.2 [77.0, 99.8]	78.6 [69.6, 91.4]	78.7 [69.7, 91.4]
Himachal Pradesh	82.2 [70.9, 92.1]	81.5 [70.2, 91.3]	102.0 [90.0, 117.6]	102.1 [90.1, 117.7]
Punjab	93.3 [80.7, 106.2]	93.6 [80.8, 106.6]	99.9 [87.7, 113.1]	100.0 [87.7, 113.2]
Chandigarh	82.1 [72.9, 91.6]	82.2 [72.9, 91.8]	120.9 [106.0, 137.3]	121.0 [106.0, 137.3]
Uttarakhand	96.0 [85.6, 107.8]	96.4 [85.9, 108.3]	97.8 [84.1, 113.7]	98.0 [84.3, 113.9]
Haryana	109.1 [98.8, 124.3]	109.6 [99.1, 124.9]	107.0 [93.0, 124.3]	107.1 [93.1, 124.4]
Delhi	88.5 [79.0, 99.6]	88.6 [79.0, 99.9]	104.6 [92.2, 119.0]	104.7 [92.2, 119.1]
Rajasthan	76.2 [66.4, 89.0]	75.9 [66.2, 88.8]	75.7 [67.3, 85.3]	75.7 [67.3, 85.3]
Central				
Uttar Pradesh	91.1 [82.3, 102.3]	91.5 [82.6, 102.8]	87.8 [76.3, 102.4]	87.9 [76.4, 102.5]
Chhattisgarh	81.4 [71.8, 91.6]	81.6 [71.9, 91.9]	86.1 [76.7, 97.9]	86.2 [76.9, 98.1]
Madhya Pradesh	65.1 [57.0, 72.6]	64.5 [56.4, 72.0]	83.5 [73.8, 94.3]	83.5 [73.8, 94.3]
East				
Bihar	98.3 [88.4, 109.3]	98.5 [88.5, 109.6]	94.6 [83.4, 108.1]	94.7 [83.5, 108.3]
West Bengal	101.8 [89.6, 117.3]	102.2 [89.9, 117.9]	98.4 [87.5, 111.3]	98.5 [87.6, 111.5]
Jharkhand	87.0 [76.5, 97.1]	87.2 [76.7, 97.4]	80.6 [70.9, 91.5]	80.7 [71.0, 91.6]
Odisha	83.7 [75.0, 93.7]	84.0 [75.3, 94.2]	83.1 [72.4, 94.8]	83.3 [72.5, 95.0]
Northeast				
Sikkim	96.6 [84.5, 109.0]	96.8 [84.6, 109.2]	96.0 [85.8, 107.6]	96.0 [85.8, 107.6]
Arunachal Pradesh	88.0 [77.7, 97.2]	87.4 [77.1, 96.5]	95.9 [83.1, 108.0]	96.1 [83.2, 108.1]
Nagaland	91.8 [83.2, 102.1]	91.9 [83.3, 102.3]	88.2 [77.3, 99.1]	88.1 [77.2, 99.0]
Manipur	60.8 [53.2, 67.7]	61.0 [53.3, 68.0]	60.4 [53.6, 68.2]	60.5 [53.7, 68.3]
Mizoram	79.6 [69.7, 88.7]	79.4 [69.5, 88.6]	73.4 [64.5, 82.5]	73.4 [64.6, 82.6]
Tripura	104.7 [92.5, 119.1]	105.1 [92.8, 119.7]	98.3 [87.2, 110.0]	98.4 [87.3, 110.2]
Meghalaya	75.3 [66.4, 83.3]	75.0 [66.0, 82.9]	76.5 [66.4, 87.9]	76.6 [66.5, 88.1]
Assam	77.4 [67.0, 88.3]	77.7 [67.3, 88.9]	78.9 [68.6, 90.3]	79.0 [68.7, 90.4]
West				
Gujarat	80.3 [71.5, 90.2]	79.7 [70.9, 89.6]	78.5 [67.8, 89.3]	78.1 [67.5, 88.9]
DDDH	60.7 [51.7, 68.2]	60.8 [51.7, 68.4]	87.8 [76.2, 101.5]	87.8 [76.2, 101.5]
Maharashtra	68.5 [61.1, 76.2]	68.0 [60.6, 75.7]	64.0 [57.4, 71.5]	63.5 [57.0, 71.0]
Goa	55.2 [50.1, 62.7]	55.3 [50.3, 62.9]	79.9 [70.0, 90.8]	80.0 [70.1, 90.9]
South				
Andhra Pradesh	71.1 [62.0, 80.7]	71.4 [62.2, 81.1]	76.7 [66.0, 88.7]	76.8 [66.9, 88.8]
Karnataka	55.5 [49.7, 61.6]	55.7 [49.9, 61.8]	62.8 [55.1, 69.5]	62.9 [55.2, 69.5]
Lakshadweep	56.7 [49.0, 63.0]	56.1 [48.4, 62.4]	54.8 [48.7, 61.2]	54.7 [48.6, 61.2]
Kerala	57.2 [51.7, 63.3]	54.1 [48.9, 59.9]	56.3 [47.7, 64.2]	55.6 [47.0, 63.4]
Tamil Nadu	52.7 [46.3, 58.9]	52.7 [46.3, 59.0]	68.4 [60.7, 78.6]	68.4 [60.7, 78.6]
Puducherry	61.0 [55.2, 67.7]	61.1 [55.2, 67.9]	78.5 [68.1, 91.9]	78.5 [68.1, 92.0]
A & N Islands	72.5 [64.9, 80.4]	72.3 [64.8, 80.2]	60.0 [53.2, 71.2]	60.1 [53.3, 71.2]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 2k:

Average Daily Intake (Adult Female Equivalent) of Rural Households: Calcium

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	514 [474, 556]	471 [425, 525]	545 [489, 613]	494 [433, 568]
Himachal Pradesh	551 [493, 602]	484 [419, 545]	610 [540, 685]	546 [473, 624]
Punjab	609 [551, 674]	538 [473, 616]	609 [545, 670]	549 [482, 614]
Chandigarh	473 [426, 532]	406 [356, 473]	677 [601, 752]	616 [531, 700]
Uttarakhand	494 [446, 536]	408 [361, 454]	453 [403, 512]	400 [346, 462]
Haryana	682 [614, 763]	605 [530, 696]	632 [564, 702]	563 [491, 637]
Delhi	464 [418, 510]	399 [348, 454]	485 [438, 538]	432 [382, 489]
Rajasthan	518 [460, 584]	399 [343, 466]	552 [494, 638]	442 [384, 527]
Central				
Uttar Pradesh	358 [323, 409]	264 [230, 316]	370 [322, 407]	303 [257, 339]
Chhattisgarh	183 [166, 201]	145 [128, 163]	201 [182, 224]	169 [150, 192]
Madhya Pradesh	319 [292, 349]	221 [197, 246]	373 [334, 419]	292 [255, 338]
East				
Bihar	338 [306, 380]	263 [233, 305]	389 [346, 432]	327 [285, 371]
West Bengal	212 [189, 235]	171 [148, 195]	218 [195, 240]	173 [152, 196]
Jharkhand	227 [201, 253]	169 [145, 193]	234 [211, 261]	181 [160, 206]
Odisha	197 [178, 219]	153 [135, 176]	198 [179, 220]	160 [141, 182]
Northeast				
Sikkim	406 [360, 444]	388 [332, 437]	439 [386, 488]	423 [361, 481]
Arunachal Pradesh	215 [189, 236]	179 [151, 203]	227 [201, 250]	203 [176, 229]
Nagaland	244 [218, 267]	217 [186, 242]	245 [219, 272]	223 [194, 253]
Manipur	154 [140, 173]	119 [106, 138]	184 [166, 205]	156 [137, 177]
Mizoram	220 [200, 244]	187 [166, 215]	180 [161, 199]	157 [138, 176]
Tripura	228 [204, 252]	197 [170, 223]	237 [215, 264]	208 [186, 236]
Meghalaya	168 [153, 191]	139 [123, 165]	168 [148, 186]	147 [126, 166]
Assam	199 [180, 219]	168 [146, 189]	197 [179, 218]	172 [154, 195]
West				
Gujarat	364 [334, 404]	303 [270, 349]	407 [358, 446]	349 [299, 392]
DDDH	248 [222, 277]	191 [164, 220]	326 [290, 355]	270 [235, 299]
Maharashtra	316 [280, 356]	246 [210, 286]	318 [285, 355]	247 [217, 282]
Goa	373 [347, 407]	338 [306, 379]	375 [337, 418]	336 [297, 383]
South				
Andhra Pradesh	297 [258, 339]	258 [216, 307]	311 [282, 346]	281 [249, 319]
Karnataka	395 [356, 438]	268 [236, 306]	363 [325, 404]	296 [257, 336]
Lakshadweep	316 [277, 346]	284 [238, 318]	264 [238, 292]	238 [212, 269]
Kerala	311 [282, 341]	287 [253, 320]	292 [261, 330]	271 [236, 313]
Tamil Nadu	302 [273, 341]	269 [235, 315]	333 [297, 379]	304 [265, 358]
Puducherry	360 [324, 400]	325 [284, 371]	367 [333, 406]	345 [306, 387]
A & N Islands	282 [250, 304]	246 [211, 274]	234 [214, 257]	206 [184, 230]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Average Daily Intake (Adult Female Equivalent) of Urban Households: Calcium

State	NSS [2011-12]		HCES [2022-23]	
	Including Cereals	Without Cereals	Including Cereals	Without Cereals
North				
Jammu and Kashmir	607 [549, 690]	605 [529, 714]	614 [553, 698]	586 [516, 682]
Himachal Pradesh	638 [564, 700]	606 [516, 686]	677 [608, 765]	638 [564, 738]
Punjab	714 [631, 806]	683 [576, 803]	669 [602, 743]	634 [558, 718]
Chandigarh	552 [498, 606]	513 [448, 576]	762 [683, 844]	731 [642, 830]
Uttarakhand	577 [522, 639]	517 [450, 590]	512 [452, 582]	478 [410, 557]
Haryana	793 [727, 889]	760 [679, 876]	710 [625, 805]	668 [575, 775]
Delhi	534 [483, 593]	494 [434, 572]	544 [489, 606]	510 [448, 577]
Rajasthan	612 [543, 699]	511 [438, 605]	625 [567, 690]	529 [471, 598]
Central				
Uttar Pradesh	411 [375, 454]	326 [289, 372]	417 [372, 475]	361 [314, 422]
Chhattisgarh	211 [189, 234]	180 [157, 207]	225 [205, 250]	200 [179, 226]
Madhya Pradesh	372 [331, 410]	278 [239, 315]	420 [378, 466]	348 [306, 395]
East				
Bihar	396 [358, 434]	333 [293, 380]	439 [394, 491]	390 [343, 445]
West Bengal	245 [220, 277]	213 [187, 250]	247 [223, 274]	208 [185, 235]
Jharkhand	262 [235, 289]	210 [183, 237]	265 [238, 295]	217 [190, 246]
Odisha	230 [210, 253]	194 [172, 219]	221 [196, 245]	188 [163, 214]
Northeast				
Sikkim	476 [423, 530]	493 [425, 562]	487 [444, 536]	493 [441, 556]
Arunachal Pradesh	247 [221, 270]	221 [191, 248]	254 [225, 281]	240 [207, 271]
Nagaland	280 [257, 309]	269 [241, 305]	275 [246, 303]	263 [231, 297]
Manipur	179 [160, 196]	150 [129, 169]	210 [190, 232]	187 [167, 211]
Mizoram	257 [229, 285]	238 [205, 272]	202 [182, 222]	186 [163, 209]
Tripura	264 [236, 296]	246 [213, 286]	268 [243, 294]	248 [220, 278]
Meghalaya	195 [174, 213]	174 [151, 195]	189 [169, 213]	175 [152, 202]
Assam	231 [203, 258]	209 [177, 242]	223 [199, 250]	207 [180, 238]
West				
Gujarat	431 [388, 476]	390 [340, 447]	460 [406, 514]	417 [361, 475]
DDDH	289 [252, 320]	240 [200, 272]	365 [324, 411]	318 [276, 366]
Maharashtra	368 [335, 405]	309 [272, 347]	353 [322, 387]	288 [260, 321]
Goa	435 [400, 489]	428 [383, 493]	418 [376, 467]	395 [347, 448]
South				
Andhra Pradesh	345 [305, 383]	323 [276, 371]	353 [315, 396]	337 [292, 388]
Karnataka	460 [418, 505]	338 [299, 381]	407 [364, 442]	350 [306, 387]
Lakshadweep	367 [323, 404]	355 [303, 400]	294 [267, 323]	280 [248, 313]
Kerala	370 [338, 406]	370 [329, 415]	330 [287, 368]	323 [272, 368]
Tamil Nadu	355 [319, 391]	343 [297, 388]	374 [337, 420]	361 [317, 416]
Puducherry	423 [385, 466]	415 [365, 470]	415 [370, 476]	411 [357, 484]
A & N Islands	325 [296, 356]	307 [270, 345]	263 [238, 305]	245 [217, 293]

Units: (mg).
Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

(iv) Dietary Diversity: Shannon Diversity Index

This section explores the Shannon diversity index for the average micronutrient intake, reflecting dietary diversity. We explore this for consumption classes, states/UTs across rural and urban regions and compare 2011–12 to 2022–23.

A higher Shannon Diversity Index reflects an increase in the dietary diversity of the micronutrient source. We analyzed the results for the Shannon Diversity Index for 11 micronutrients: (a) Iron, (b) Zinc, (c) Folate (Vitamin B_9), (d) Vitamin A, (e) Thiamin (Vitamin B_1), (f) Riboflavin (Vitamin B_2), (g) Niacin (Vitamin B_3), (h) Vitamin B_6, (i) Vitamin B_{12}, (j) Vitamin C, and (k) Calcium.

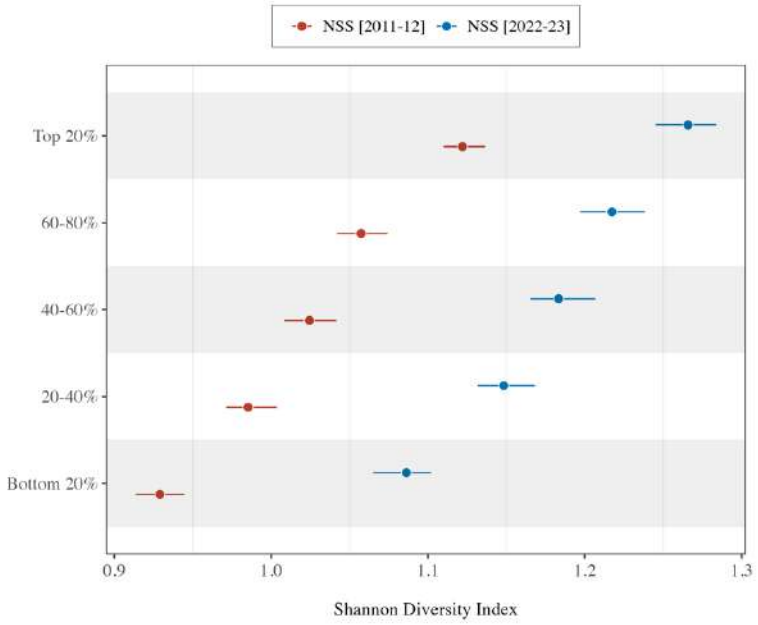
We found that the dietary source has increased across all the consumption classes for Iron. For example, for the Bottom 20% of the rural households, the Shannon diversity index was 0.93 [95% Uncertainty Interval (UI): 0.91, 0.94] in 2011–12; it increased by approximately 17% to 1.09 [95% UI: 1.07, 1.10] in 2022–23.

We observed improvements in dietary diversity sources for iron across all the states. However, the improvements varied from state to state. For example, Rajasthan, which had the lowest levels of dietary diversity at 0.50 [95% UI: 0.45, 0.54] in 2011–12, it improved marginally to 0.56 [95% UI: 0.51, 0.63]; however, in Bihar, it improved from 0.84 [95% UI: 0.80, 0.88] to 1.02 [95% UI: 0.97, 1.07] during the same period. A similar pattern was observed for urban households. Some states, such as Sikkim, Arunachal Pradesh, Tripura, Manipur, Uttarakhand, and Bihar, have significantly improved dietary diversity for Iron intake among rural and urban households.

Our results reveal a similar pattern for Zinc and other micronutrients. The results are presented in Tables 3a and 3k.

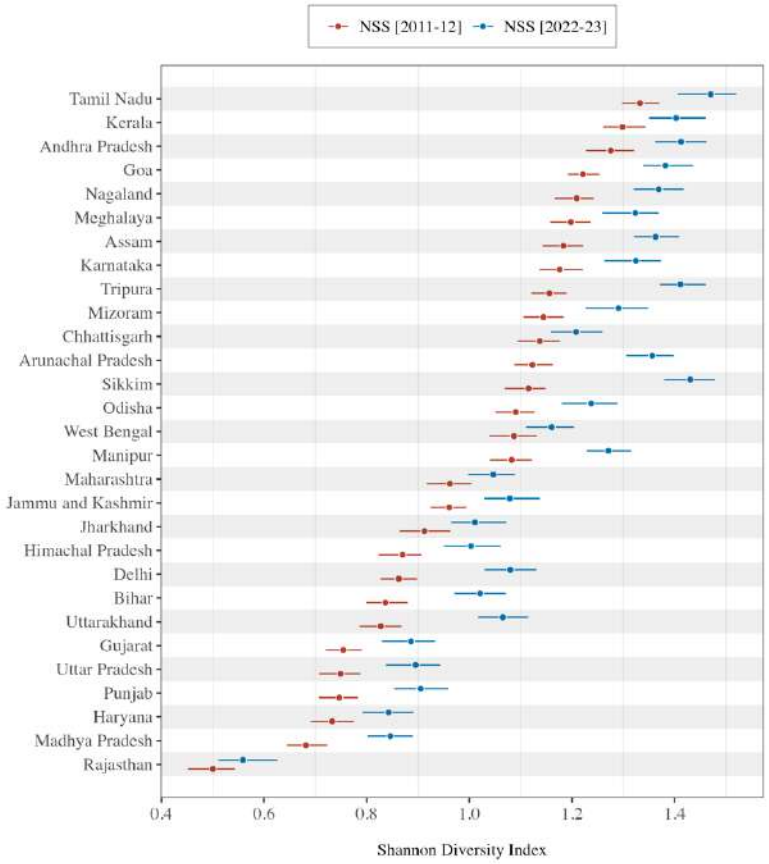
Table 3a Part1:

Shannon Diversity Index of Rural Households: Iron



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.12 [1.11, 1.14]	1.27 [1.25, 1.28]
60-80%	1.06 [1.04, 1.07]	1.22 [1.20, 1.24]
40-60%	1.02 [1.01, 1.04]	1.18 [1.17, 1.21]
20-40%	0.99 [0.97, 1.00]	1.15 [1.13, 1.17]
Bottom 20%	0.93 [0.91, 0.94]	1.09 [1.07, 1.10]

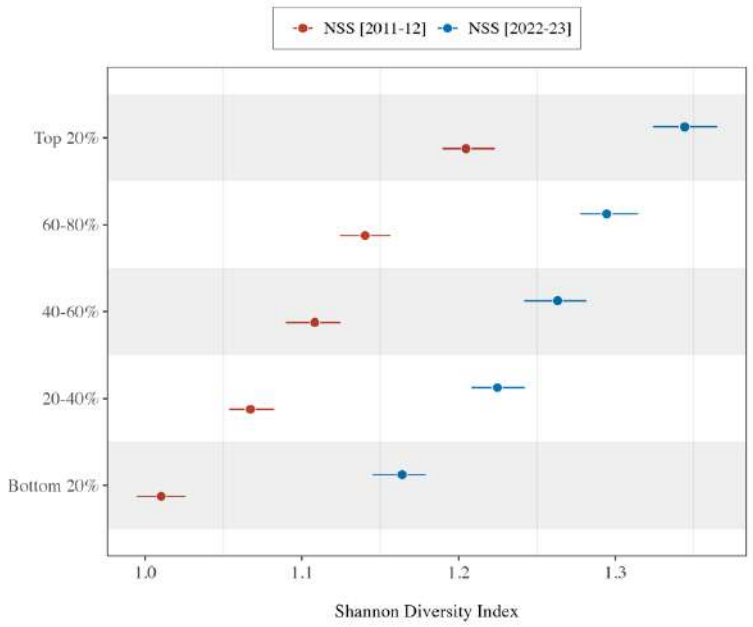
Shannon Diversity Index of Rural Households: Iron



	NSS [2011-12]	HCES [2022-23]
Tamil Nadu	1.33 [1.30, 1.37]	1.47 [1.41, 1.52]
Kerala	1.30 [1.26, 1.34]	1.40 [1.35, 1.46]
Andhra Pradesh	1.28 [1.23, 1.32]	1.41 [1.36, 1.46]
Goa	1.22 [1.19, 1.25]	1.38 [1.34, 1.44]
Nagaland	1.21 [1.17, 1.24]	1.37 [1.32, 1.42]
Meghalaya	1.20 [1.16, 1.24]	1.32 [1.26, 1.37]
Assam	1.18 [1.14, 1.22]	1.36 [1.32, 1.41]
Karnataka	1.18 [1.14, 1.22]	1.32 [1.26, 1.37]
Tripura	1.16 [1.12, 1.19]	1.41 [1.37, 1.46]
Mizoram	1.14 [1.11, 1.18]	1.29 [1.23, 1.35]
Chhattisgarh	1.14 [1.09, 1.18]	1.21 [1.16, 1.26]
Arunachal Pradesh	1.12 [1.09, 1.16]	1.36 [1.31, 1.40]
Sikkim	1.12 [1.07, 1.15]	1.43 [1.38, 1.48]
Odisha	1.09 [1.05, 1.13]	1.24 [1.18, 1.29]
West Bengal	1.09 [1.04, 1.13]	1.16 [1.11, 1.20]
Manipur	1.08 [1.04, 1.12]	1.27 [1.23, 1.32]
Maharashtra	0.96 [0.92, 1.00]	1.05 [1.00, 1.09]
Jammu and Kashmir	0.96 [0.92, 0.99]	1.08 [1.03, 1.14]
Jharkhand	0.91 [0.86, 0.96]	1.01 [0.96, 1.07]
Himachal Pradesh	0.87 [0.82, 0.91]	1.00 [0.95, 1.06]
Delhi	0.86 [0.83, 0.90]	1.08 [1.03, 1.13]
Bihar	0.84 [0.80, 0.88]	1.02 [0.97, 1.07]
Uttarakhand	0.83 [0.79, 0.87]	1.07 [1.02, 1.12]
Gujarat	0.75 [0.72, 0.79]	0.89 [0.83, 0.93]
Uttar Pradesh	0.75 [0.71, 0.79]	0.90 [0.84, 0.94]
Punjab	0.75 [0.71, 0.78]	0.90 [0.85, 0.96]
Haryana	0.73 [0.69, 0.78]	0.84 [0.79, 0.89]
Madhya Pradesh	0.68 [0.64, 0.72]	0.85 [0.80, 0.89]
Rajasthan	0.50 [0.45, 0.54]	0.56 [0.51, 0.63]

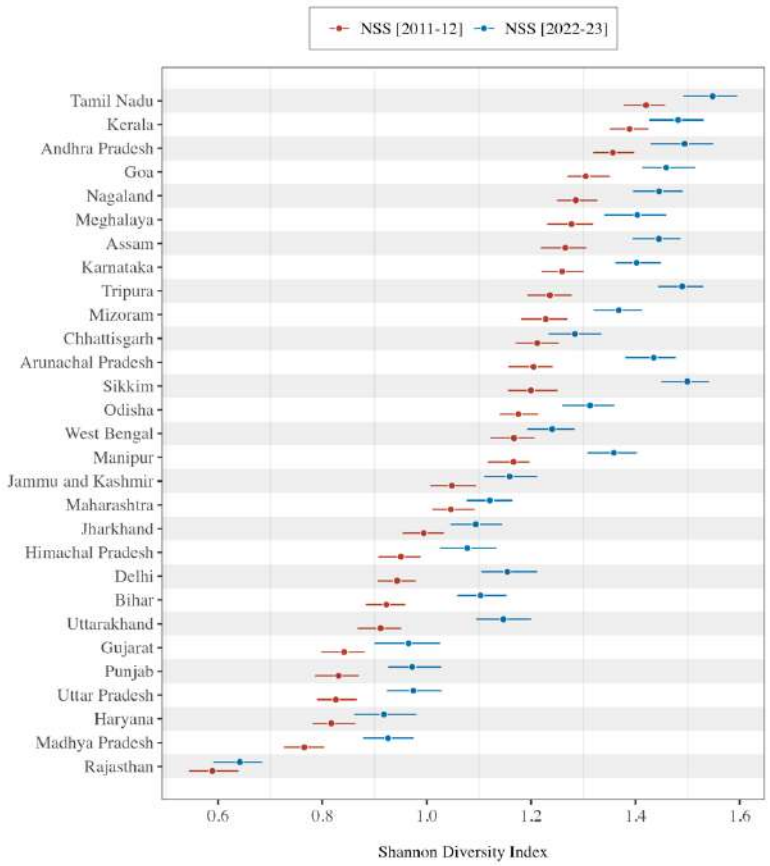
Table 3a Part 2:

Shannon Diversity Index of Urban Households: Iron



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.20 [1.19, 1.22]	1.34 [1.32, 1.37]
60-80%	1.14 [1.12, 1.16]	1.29 [1.28, 1.31]
40-60%	1.11 [1.09, 1.12]	1.26 [1.24, 1.28]
20-40%	1.07 [1.05, 1.08]	1.22 [1.21, 1.24]
Bottom 20%	1.01 [0.99, 1.03]	1.16 [1.14, 1.18]

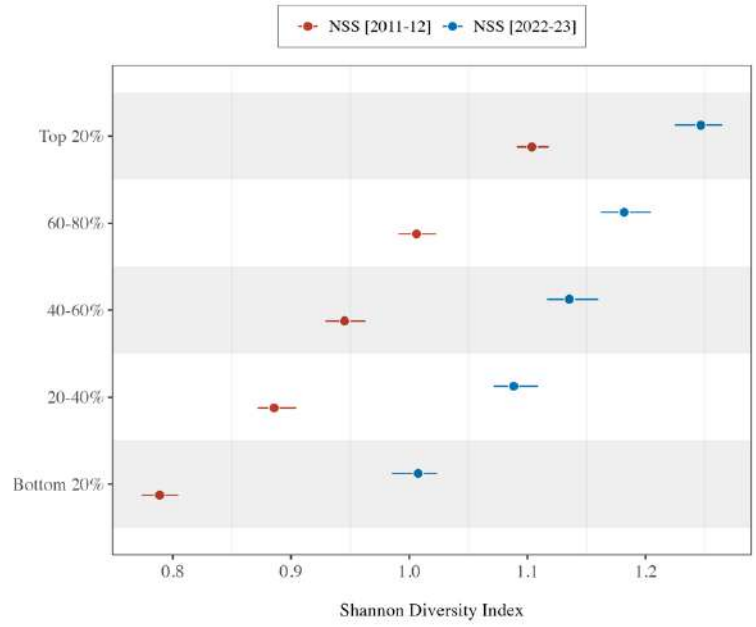
Shannon Diversity Index of Urban Households: Iron



	NSS [2011-12]	HCES [2022-23]
Tamil Nadu	1.42 [1.38, 1.46]	1.55 [1.49, 1.60]
Kerala	1.39 [1.35, 1.42]	1.48 [1.43, 1.53]
Andhra Pradesh	1.36 [1.32, 1.40]	1.49 [1.43, 1.55]
Goa	1.31 [1.27, 1.35]	1.46 [1.41, 1.52]
Nagaland	1.29 [1.25, 1.33]	1.45 [1.40, 1.49]
Meghalaya	1.28 [1.23, 1.32]	1.40 [1.34, 1.46]
Assam	1.27 [1.22, 1.31]	1.45 [1.39, 1.49]
Karnataka	1.26 [1.22, 1.30]	1.40 [1.36, 1.45]
Tripura	1.24 [1.19, 1.28]	1.49 [1.44, 1.53]
Mizoram	1.23 [1.18, 1.27]	1.37 [1.32, 1.41]
Chhattisgarh	1.21 [1.17, 1.25]	1.28 [1.23, 1.33]
Arunachal Pradesh	1.20 [1.16, 1.24]	1.44 [1.38, 1.48]
Sikkim	1.20 [1.16, 1.25]	1.50 [1.45, 1.54]
Odisha	1.18 [1.14, 1.21]	1.31 [1.26, 1.36]
West Bengal	1.17 [1.12, 1.21]	1.24 [1.19, 1.28]
Manipur	1.17 [1.12, 1.20]	1.36 [1.31, 1.40]
Jammu and Kashmir	1.05 [1.01, 1.09]	1.16 [1.11, 1.21]
Maharashtra	1.05 [1.01, 1.09]	1.12 [1.08, 1.16]
Jharkhand	0.99 [0.95, 1.03]	1.09 [1.05, 1.14]
Himachal Pradesh	0.95 [0.91, 0.99]	1.08 [1.03, 1.13]
Delhi	0.94 [0.91, 0.98]	1.15 [1.10, 1.21]
Bihar	0.92 [0.88, 0.96]	1.10 [1.06, 1.15]
Uttarakhand	0.91 [0.87, 0.95]	1.15 [1.09, 1.20]
Gujarat	0.84 [0.80, 0.88]	0.97 [0.90, 1.03]
Punjab	0.83 [0.79, 0.87]	0.97 [0.93, 1.03]
Uttar Pradesh	0.83 [0.79, 0.87]	0.97 [0.92, 1.03]
Haryana	0.82 [0.78, 0.86]	0.92 [0.86, 0.98]
Madhya Pradesh	0.77 [0.73, 0.80]	0.93 [0.88, 0.98]
Rajasthan	0.59 [0.54, 0.64]	0.64 [0.59, 0.68]

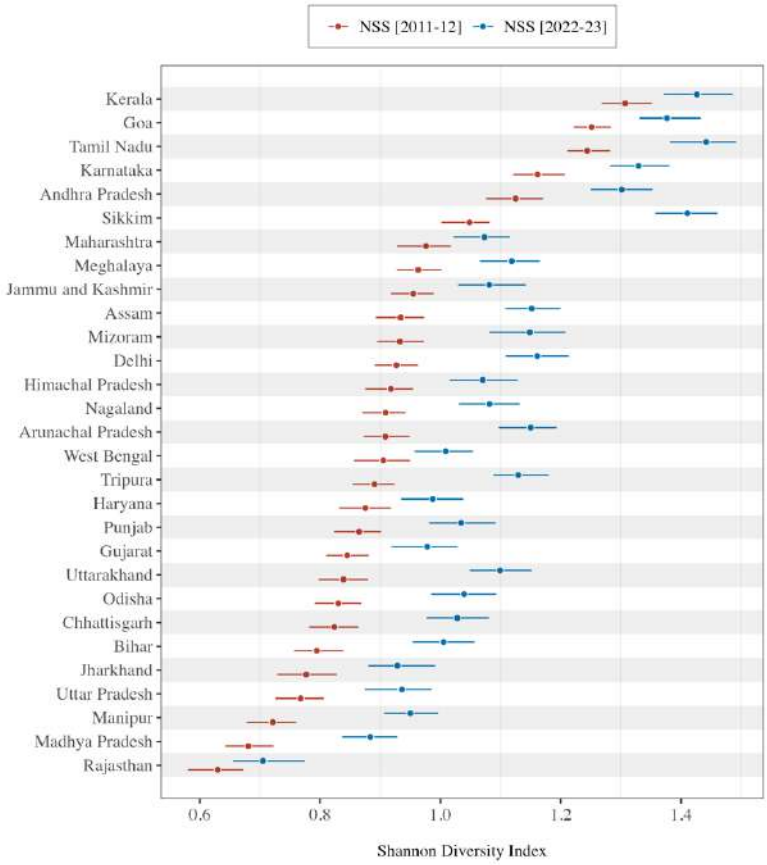
Table 3b Part1:

Shannon Diversity Index of Rural Households: Zinc



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.10 [1.09, 1.12]	1.25 [1.22, 1.27]
60-80%	1.01 [0.99, 1.02]	1.18 [1.16, 1.20]
40-60%	0.95 [0.93, 0.96]	1.14 [1.12, 1.16]
20-40%	0.89 [0.87, 0.90]	1.09 [1.07, 1.11]
Bottom 20%	0.79 [0.77, 0.80]	1.01 [0.99, 1.02]

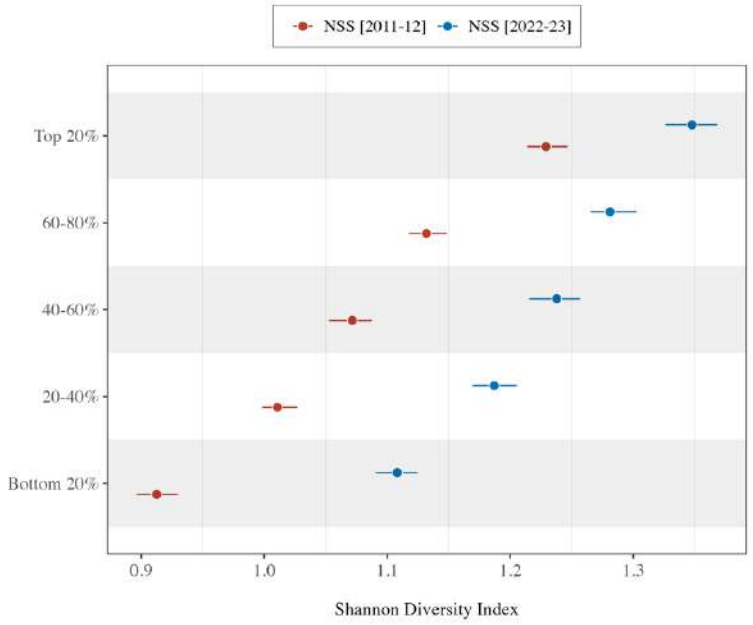
Shannon Diversity Index of Rural Households: Zinc



	NSS [2011-12]	HCES [2022-23]
Kerala	1.31 [1.27, 1.35]	1.43 [1.37, 1.49]
Goa	1.25 [1.22, 1.28]	1.38 [1.33, 1.43]
Tamil Nadu	1.24 [1.21, 1.28]	1.44 [1.38, 1.49]
Karnataka	1.16 [1.12, 1.21]	1.33 [1.28, 1.38]
Andhra Pradesh	1.12 [1.08, 1.17]	1.30 [1.25, 1.35]
Sikkim	1.05 [1.00, 1.08]	1.41 [1.36, 1.46]
Maharashtra	0.98 [0.93, 1.02]	1.07 [1.02, 1.12]
Meghalaya	0.96 [0.93, 1.00]	1.12 [1.07, 1.17]
Jammu and Kashmir	0.96 [0.92, 0.99]	1.08 [1.03, 1.14]
Assam	0.93 [0.89, 0.97]	1.15 [1.11, 1.20]
Mizoram	0.93 [0.90, 0.97]	1.15 [1.08, 1.21]
Delhi	0.93 [0.89, 0.96]	1.16 [1.11, 1.21]
Himachal Pradesh	0.92 [0.88, 0.95]	1.07 [1.02, 1.13]
Nagaland	0.91 [0.87, 0.94]	1.08 [1.03, 1.13]
Arunachal Pradesh	0.91 [0.87, 0.95]	1.15 [1.10, 1.19]
West Bengal	0.90 [0.86, 0.95]	1.01 [0.96, 1.05]
Tripura	0.89 [0.85, 0.92]	1.13 [1.09, 1.18]
Haryana	0.88 [0.83, 0.92]	0.99 [0.93, 1.04]
Punjab	0.86 [0.82, 0.90]	1.03 [0.98, 1.09]
Gujarat	0.84 [0.81, 0.88]	0.98 [0.92, 1.03]
Uttarakhand	0.84 [0.80, 0.88]	1.10 [1.05, 1.15]
Odisha	0.83 [0.79, 0.87]	1.04 [0.98, 1.09]
Chhattisgarh	0.82 [0.78, 0.86]	1.03 [0.98, 1.08]
Bihar	0.79 [0.76, 0.84]	1.01 [0.95, 1.06]
Jharkhand	0.78 [0.73, 0.83]	0.93 [0.88, 0.99]
Uttar Pradesh	0.77 [0.73, 0.81]	0.94 [0.87, 0.99]
Manipur	0.72 [0.68, 0.76]	0.95 [0.91, 1.00]
Madhya Pradesh	0.68 [0.64, 0.72]	0.88 [0.84, 0.93]
Rajasthan	0.63 [0.58, 0.67]	0.71 [0.66, 0.77]

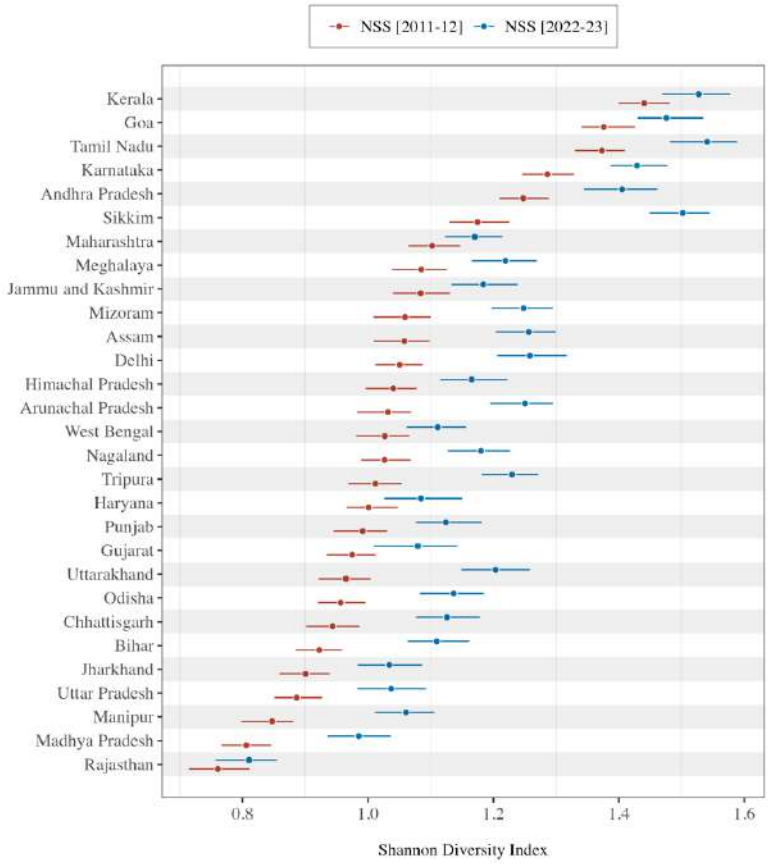
Table 3b Part 2:

Shannon Diversity Index of Urban Households: Zinc



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.23 [1.21, 1.25]	1.35 [1.33, 1.37]
60-80%	1.13 [1.12, 1.15]	1.28 [1.27, 1.30]
40-60%	1.07 [1.05, 1.09]	1.24 [1.22, 1.26]
20-40%	1.01 [1.00, 1.03]	1.19 [1.17, 1.21]
Bottom 20%	0.91 [0.90, 0.93]	1.11 [1.09, 1.12]

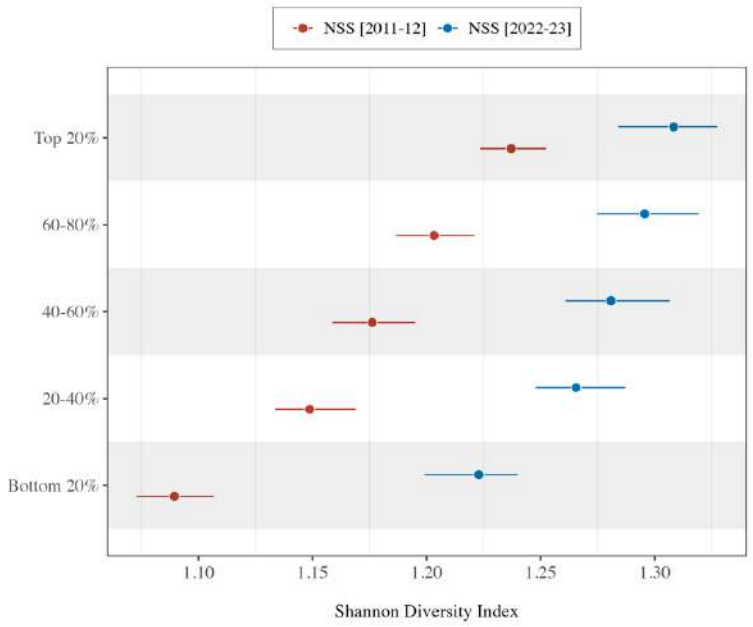
Shannon Diversity Index of Urban Households: Zinc



	NSS [2011-12]	HCES [2022-23]
Kerala	1.44 [1.40, 1.48]	1.53 [1.47, 1.58]
Goa	1.38 [1.34, 1.43]	1.48 [1.43, 1.53]
Tamil Nadu	1.37 [1.33, 1.41]	1.54 [1.48, 1.59]
Karnataka	1.29 [1.25, 1.33]	1.43 [1.39, 1.48]
Andhra Pradesh	1.25 [1.21, 1.29]	1.41 [1.34, 1.46]
Sikkim	1.17 [1.13, 1.23]	1.50 [1.45, 1.55]
Maharashtra	1.10 [1.06, 1.15]	1.17 [1.12, 1.21]
Meghalaya	1.08 [1.04, 1.13]	1.22 [1.17, 1.27]
Jammu and Kashmir	1.08 [1.04, 1.13]	1.18 [1.13, 1.24]
Mizoram	1.06 [1.01, 1.10]	1.25 [1.20, 1.29]
Assam	1.06 [1.01, 1.10]	1.26 [1.20, 1.30]
Delhi	1.05 [1.01, 1.09]	1.26 [1.21, 1.32]
Himachal Pradesh	1.04 [1.00, 1.08]	1.17 [1.12, 1.22]
Arunachal Pradesh	1.03 [0.98, 1.07]	1.25 [1.19, 1.29]
West Bengal	1.03 [0.98, 1.07]	1.11 [1.06, 1.16]
Nagaland	1.03 [0.99, 1.07]	1.18 [1.13, 1.23]
Tripura	1.01 [0.97, 1.05]	1.23 [1.18, 1.27]
Haryana	1.00 [0.97, 1.05]	1.08 [1.03, 1.15]
Punjab	0.99 [0.95, 1.03]	1.12 [1.08, 1.18]
Gujarat	0.98 [0.93, 1.01]	1.08 [1.01, 1.14]
Uttarakhand	0.96 [0.92, 1.00]	1.20 [1.15, 1.26]
Odisha	0.96 [0.92, 1.00]	1.14 [1.08, 1.18]
Chhattisgarh	0.94 [0.90, 0.99]	1.13 [1.08, 1.18]
Bihar	0.92 [0.88, 0.96]	1.11 [1.06, 1.16]
Jharkhand	0.90 [0.86, 0.94]	1.03 [0.98, 1.09]
Uttar Pradesh	0.89 [0.85, 0.93]	1.04 [0.98, 1.09]
Manipur	0.85 [0.80, 0.88]	1.06 [1.01, 1.11]
Madhya Pradesh	0.81 [0.77, 0.85]	0.99 [0.94, 1.04]
Rajasthan	0.76 [0.72, 0.81]	0.81 [0.76, 0.86]

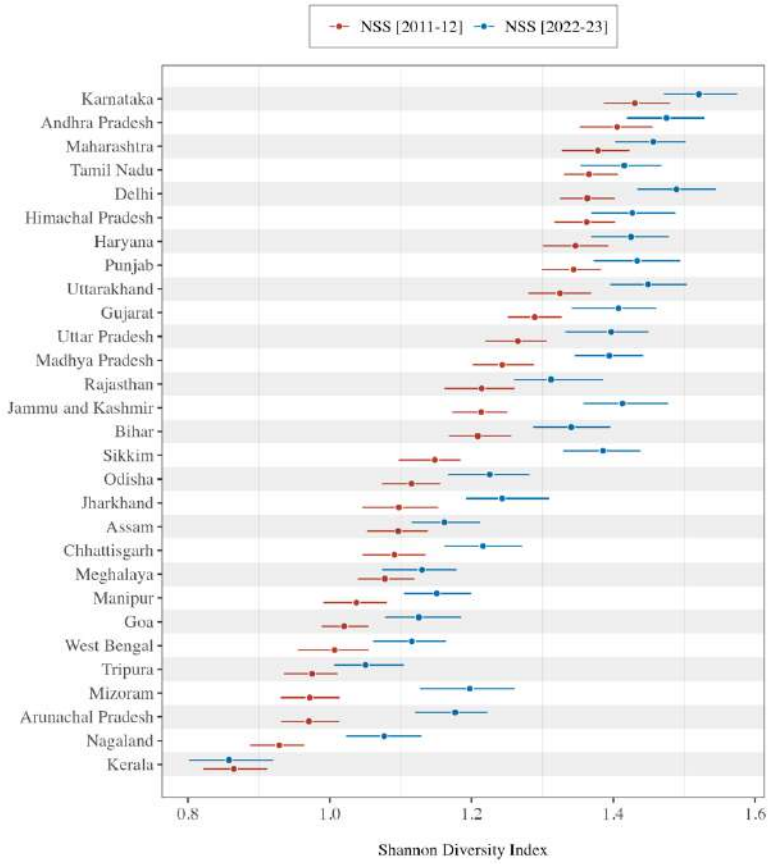
Table 3c Part 1:

Shannon Diversity Index of Rural Households: Folate (Vitamin B9)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.24 [1.22, 1.25]	1.31 [1.28, 1.33]
60-80%	1.20 [1.19, 1.22]	1.30 [1.27, 1.32]
40-60%	1.18 [1.16, 1.20]	1.28 [1.26, 1.31]
20-40%	1.15 [1.13, 1.17]	1.27 [1.25, 1.29]
Bottom 20%	1.09 [1.07, 1.11]	1.22 [1.20, 1.24]

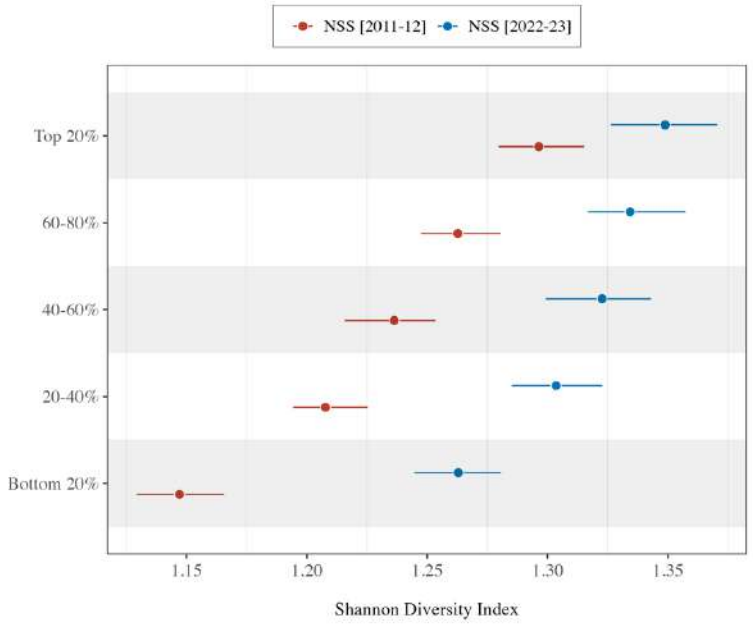
Shannon Diversity Index of Rural Households: Folate (Vitamin B9)



	NSS [2011-12]	HCES [2022-23]
Karnataka	1.43 [1.39, 1.48]	1.52 [1.47, 1.58]
Andhra Pradesh	1.41 [1.35, 1.46]	1.47 [1.42, 1.53]
Maharashtra	1.38 [1.33, 1.42]	1.46 [1.40, 1.50]
Tamil Nadu	1.37 [1.33, 1.41]	1.42 [1.35, 1.47]
Delhi	1.36 [1.32, 1.40]	1.49 [1.43, 1.54]
Himachal Pradesh	1.36 [1.32, 1.40]	1.43 [1.37, 1.49]
Haryana	1.35 [1.30, 1.39]	1.42 [1.37, 1.48]
Punjab	1.34 [1.30, 1.38]	1.43 [1.37, 1.49]
Uttarakhand	1.32 [1.28, 1.37]	1.45 [1.40, 1.50]
Gujarat	1.29 [1.25, 1.33]	1.41 [1.34, 1.46]
Uttar Pradesh	1.27 [1.22, 1.31]	1.40 [1.33, 1.45]
Madhya Pradesh	1.24 [1.20, 1.29]	1.39 [1.35, 1.44]
Rajasthan	1.21 [1.16, 1.26]	1.31 [1.26, 1.39]
Jammu and Kashmir	1.21 [1.17, 1.25]	1.41 [1.36, 1.48]
Bihar	1.21 [1.17, 1.26]	1.34 [1.29, 1.40]
Sikkim	1.15 [1.10, 1.18]	1.39 [1.33, 1.44]
Odisha	1.12 [1.07, 1.16]	1.23 [1.17, 1.28]
Jharkhand	1.10 [1.05, 1.15]	1.24 [1.19, 1.31]
Assam	1.10 [1.05, 1.14]	1.16 [1.12, 1.21]
Chhattisgarh	1.09 [1.05, 1.14]	1.22 [1.16, 1.27]
Meghalaya	1.08 [1.04, 1.12]	1.13 [1.07, 1.18]
Manipur	1.04 [0.99, 1.08]	1.15 [1.10, 1.20]
Goa	1.02 [0.99, 1.05]	1.13 [1.08, 1.19]
West Bengal	1.01 [0.95, 1.05]	1.12 [1.06, 1.16]
Tripura	0.97 [0.94, 1.01]	1.05 [1.01, 1.10]
Mizoram	0.97 [0.93, 1.01]	1.20 [1.13, 1.26]
Arunachal Pradesh	0.97 [0.93, 1.01]	1.18 [1.12, 1.22]
Nagaland	0.93 [0.89, 0.96]	1.08 [1.02, 1.13]
Kerala	0.86 [0.82, 0.91]	0.86 [0.80, 0.92]

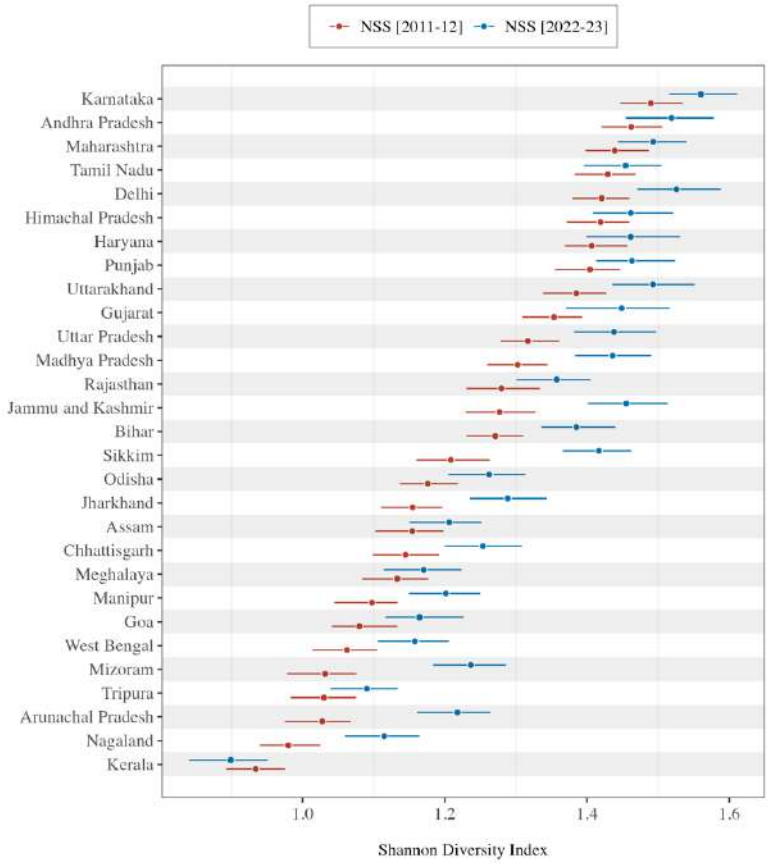
Table 3c Part 2:

Shannon Diversity Index of Urban Households: Folate (Vitamin B9)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.30 [1.28, 1.32]	1.35 [1.33, 1.37]
60-80%	1.26 [1.25, 1.28]	1.33 [1.32, 1.36]
40-60%	1.24 [1.22, 1.25]	1.32 [1.30, 1.34]
20-40%	1.21 [1.19, 1.23]	1.30 [1.29, 1.32]
Bottom 20%	1.15 [1.13, 1.17]	1.26 [1.24, 1.28]

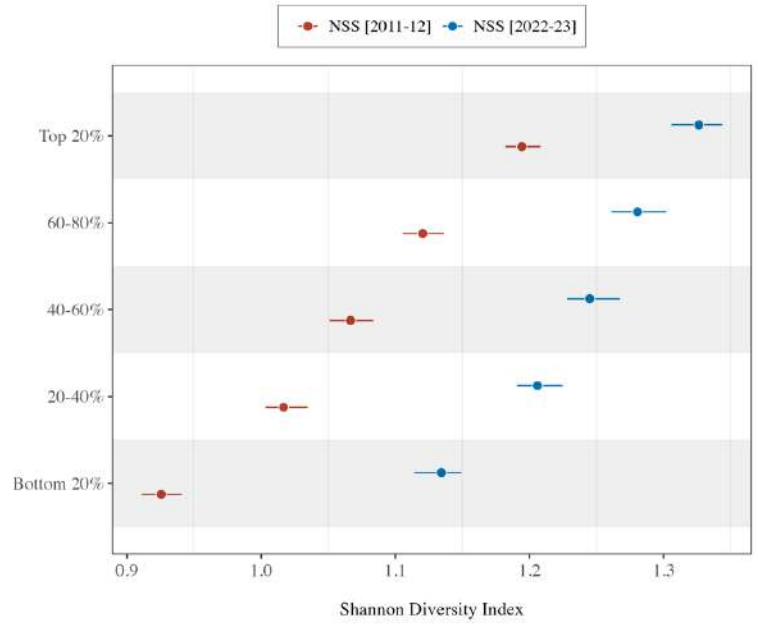
Shannon Diversity Index of Urban Households: Folate (Vitamin B9)



	NSS [2011-12]	HCES [2022-23]
Karnataka	1.49 [1.45, 1.53]	1.56 [1.52, 1.61]
Andhra Pradesh	1.46 [1.42, 1.51]	1.52 [1.45, 1.58]
Maharashtra	1.44 [1.40, 1.49]	1.49 [1.44, 1.54]
Tamil Nadu	1.43 [1.38, 1.47]	1.45 [1.40, 1.50]
Delhi	1.42 [1.38, 1.46]	1.53 [1.47, 1.59]
Himachal Pradesh	1.42 [1.37, 1.46]	1.46 [1.41, 1.52]
Haryana	1.41 [1.37, 1.46]	1.46 [1.40, 1.53]
Punjab	1.40 [1.35, 1.45]	1.46 [1.41, 1.52]
Uttarakhand	1.38 [1.34, 1.43]	1.49 [1.44, 1.55]
Gujarat	1.35 [1.31, 1.39]	1.45 [1.37, 1.52]
Uttar Pradesh	1.32 [1.28, 1.36]	1.44 [1.38, 1.50]
Madhya Pradesh	1.30 [1.26, 1.34]	1.44 [1.38, 1.49]
Rajasthan	1.28 [1.23, 1.33]	1.36 [1.30, 1.40]
Jammu and Kashmir	1.28 [1.23, 1.33]	1.46 [1.40, 1.51]
Bihar	1.27 [1.23, 1.31]	1.38 [1.34, 1.44]
Sikkim	1.21 [1.16, 1.26]	1.42 [1.37, 1.46]
Odisha	1.18 [1.14, 1.22]	1.26 [1.21, 1.31]
Jharkhand	1.15 [1.11, 1.20]	1.29 [1.24, 1.34]
Assam	1.15 [1.10, 1.20]	1.21 [1.15, 1.25]
Chhattisgarh	1.14 [1.10, 1.19]	1.25 [1.20, 1.31]
Meghalaya	1.13 [1.08, 1.18]	1.17 [1.11, 1.22]
Manipur	1.10 [1.04, 1.13]	1.20 [1.15, 1.25]
Goa	1.08 [1.04, 1.13]	1.16 [1.12, 1.23]
West Bengal	1.06 [1.01, 1.11]	1.16 [1.11, 1.21]
Mizoram	1.03 [0.98, 1.08]	1.24 [1.18, 1.29]
Tripura	1.03 [0.98, 1.08]	1.09 [1.04, 1.13]
Arunachal Pradesh	1.03 [0.98, 1.07]	1.22 [1.16, 1.26]
Nagaland	0.98 [0.94, 1.02]	1.11 [1.06, 1.16]
Kerala	0.93 [0.89, 0.98]	0.90 [0.84, 0.95]

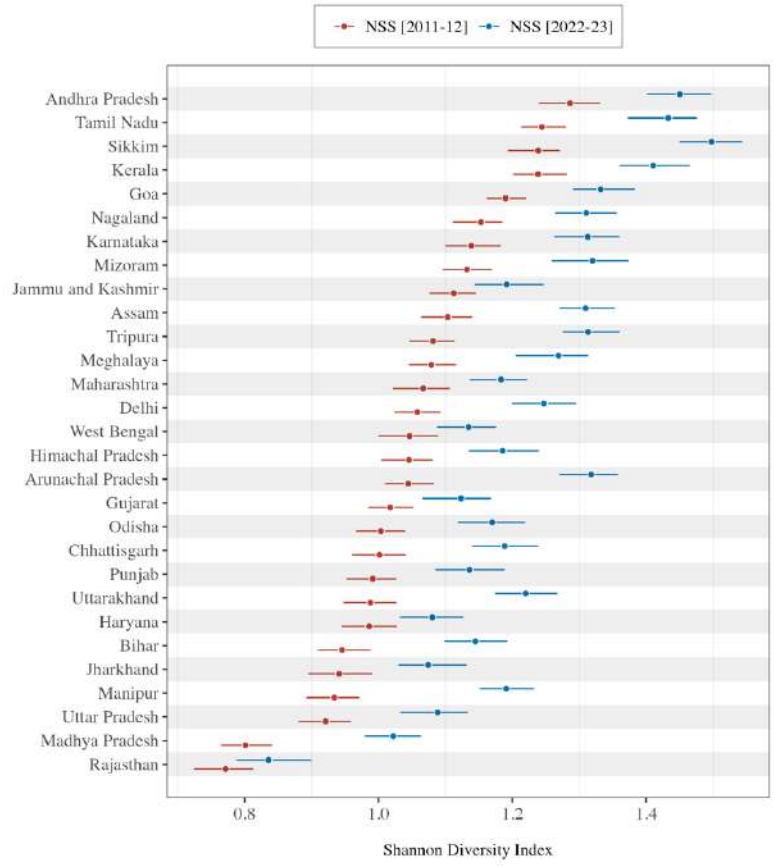
Table 3d Part 1:

Shannon Diversity Index of Rural Households: Thiamin (Vitamin B1)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.19 [1.18, 1.21]	1.33 [1.31, 1.34]
60-80%	1.12 [1.11, 1.14]	1.28 [1.26, 1.30]
40-60%	1.07 [1.05, 1.08]	1.25 [1.23, 1.27]
20-40%	1.02 [1.00, 1.03]	1.21 [1.19, 1.22]
Bottom 20%	0.93 [0.91, 0.94]	1.13 [1.11, 1.15]

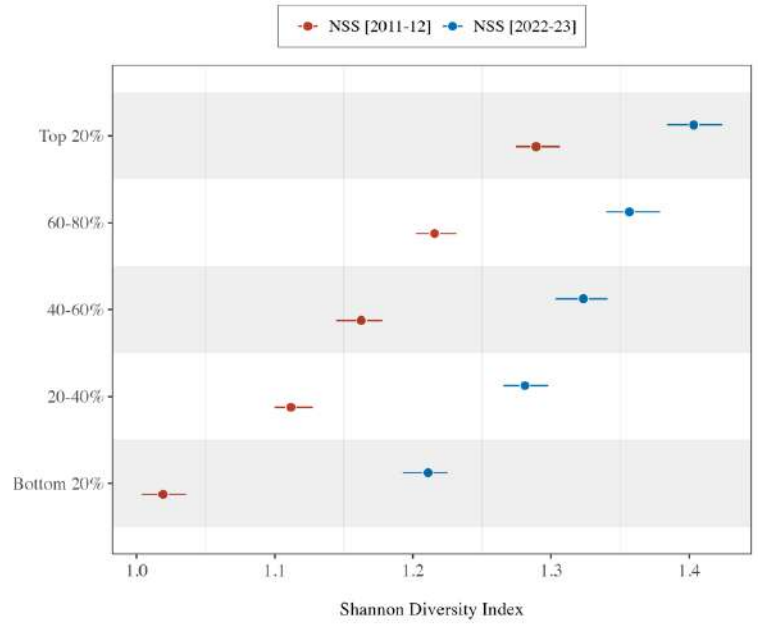
Shannon Diversity Index of Rural Households: Thiamin (Vitamin B1)



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	1.29 [1.24, 1.33]	1.45 [1.40, 1.50]
Tamil Nadu	1.24 [1.21, 1.28]	1.43 [1.37, 1.48]
Sikkim	1.24 [1.19, 1.27]	1.50 [1.45, 1.54]
Kerala	1.24 [1.20, 1.28]	1.41 [1.36, 1.46]
Goa	1.19 [1.16, 1.22]	1.33 [1.29, 1.38]
Nagaland	1.15 [1.11, 1.19]	1.31 [1.26, 1.36]
Karnataka	1.14 [1.10, 1.18]	1.31 [1.26, 1.36]
Mizoram	1.13 [1.10, 1.17]	1.32 [1.26, 1.37]
Jammu and Kashmir	1.11 [1.08, 1.15]	1.19 [1.14, 1.25]
Assam	1.10 [1.06, 1.14]	1.31 [1.27, 1.35]
Tripura	1.08 [1.05, 1.11]	1.31 [1.28, 1.36]
Meghalaya	1.08 [1.05, 1.12]	1.27 [1.21, 1.31]
Maharashtra	1.07 [1.02, 1.11]	1.18 [1.14, 1.22]
Delhi	1.06 [1.02, 1.09]	1.25 [1.20, 1.29]
West Bengal	1.05 [1.00, 1.09]	1.13 [1.09, 1.18]
Himachal Pradesh	1.05 [1.00, 1.08]	1.19 [1.13, 1.24]
Arunachal Pradesh	1.04 [1.01, 1.08]	1.32 [1.27, 1.36]
Gujarat	1.02 [0.98, 1.05]	1.12 [1.07, 1.17]
Odisha	1.00 [0.97, 1.04]	1.17 [1.12, 1.22]
Chhattisgarh	1.00 [0.96, 1.04]	1.19 [1.14, 1.24]
Punjab	0.99 [0.95, 1.03]	1.14 [1.08, 1.19]
Uttarakhand	0.99 [0.95, 1.03]	1.22 [1.17, 1.27]
Haryana	0.99 [0.94, 1.03]	1.08 [1.03, 1.13]
Bihar	0.95 [0.91, 0.99]	1.14 [1.10, 1.19]
Jharkhand	0.94 [0.89, 0.99]	1.07 [1.03, 1.13]
Manipur	0.93 [0.89, 0.97]	1.19 [1.15, 1.23]
Uttar Pradesh	0.92 [0.88, 0.96]	1.09 [1.03, 1.13]
Madhya Pradesh	0.80 [0.76, 0.84]	1.02 [0.98, 1.06]
Rajasthan	0.77 [0.72, 0.81]	0.84 [0.79, 0.90]

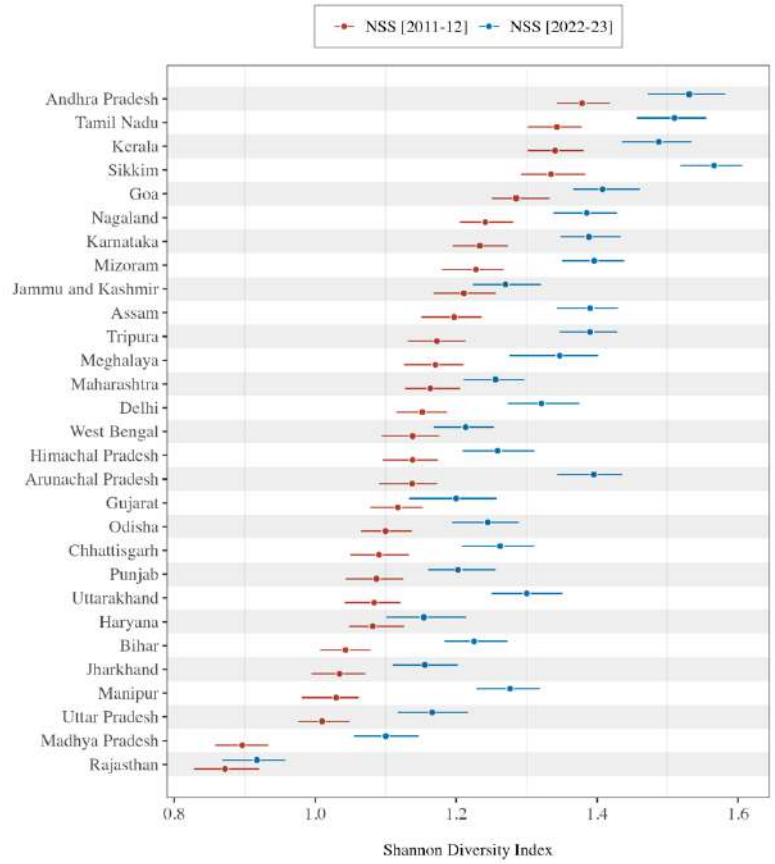
Table 3d Part 2:

Shannon Diversity Index of Urban Households: Thiamin (Vitamin B1)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.29 [1.27, 1.31]	1.40 [1.38, 1.42]
60-80%	1.22 [1.20, 1.23]	1.36 [1.34, 1.38]
40-60%	1.16 [1.14, 1.18]	1.32 [1.30, 1.34]
20-40%	1.11 [1.10, 1.13]	1.28 [1.27, 1.30]
Bottom 20%	1.02 [1.00, 1.04]	1.21 [1.19, 1.23]

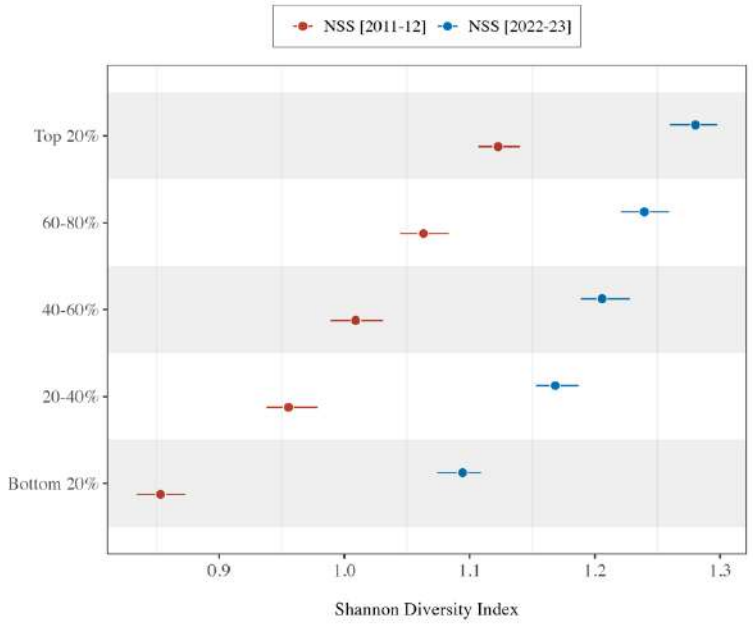
Shannon Diversity Index of Urban Households: Thiamin (Vitamin B1)



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	1.38 [1.34, 1.42]	1.53 [1.47, 1.58]
Tamil Nadu	1.34 [1.30, 1.38]	1.51 [1.46, 1.56]
Kerala	1.34 [1.30, 1.38]	1.49 [1.44, 1.53]
Sikkim	1.33 [1.29, 1.38]	1.57 [1.52, 1.61]
Goa	1.29 [1.25, 1.33]	1.41 [1.37, 1.46]
Nagaland	1.24 [1.21, 1.28]	1.39 [1.34, 1.43]
Karnataka	1.23 [1.20, 1.27]	1.39 [1.35, 1.43]
Mizoram	1.23 [1.18, 1.27]	1.40 [1.35, 1.44]
Jammu and Kashmir	1.21 [1.17, 1.26]	1.27 [1.22, 1.32]
Assam	1.20 [1.15, 1.24]	1.39 [1.34, 1.43]
Tripura	1.17 [1.13, 1.21]	1.39 [1.35, 1.43]
Meghalaya	1.17 [1.13, 1.21]	1.35 [1.28, 1.40]
Maharashtra	1.16 [1.13, 1.21]	1.26 [1.21, 1.30]
Delhi	1.15 [1.11, 1.19]	1.32 [1.27, 1.37]
West Bengal	1.14 [1.09, 1.18]	1.21 [1.17, 1.25]
Himachal Pradesh	1.14 [1.10, 1.17]	1.26 [1.21, 1.31]
Arunachal Pradesh	1.14 [1.09, 1.17]	1.40 [1.34, 1.44]
Gujarat	1.12 [1.08, 1.15]	1.20 [1.13, 1.26]
Odisha	1.10 [1.06, 1.14]	1.24 [1.19, 1.29]
Chhattisgarh	1.09 [1.05, 1.13]	1.26 [1.21, 1.31]
Punjab	1.09 [1.04, 1.13]	1.20 [1.16, 1.26]
Uttarakhand	1.08 [1.04, 1.12]	1.30 [1.25, 1.35]
Haryana	1.08 [1.05, 1.13]	1.15 [1.10, 1.21]
Bihar	1.04 [1.01, 1.08]	1.23 [1.18, 1.27]
Jharkhand	1.03 [0.99, 1.07]	1.16 [1.11, 1.20]
Manipur	1.03 [0.98, 1.06]	1.28 [1.23, 1.32]
Uttar Pradesh	1.01 [0.98, 1.05]	1.17 [1.12, 1.22]
Madhya Pradesh	0.90 [0.86, 0.93]	1.10 [1.05, 1.15]
Rajasthan	0.87 [0.83, 0.92]	0.92 [0.87, 0.96]

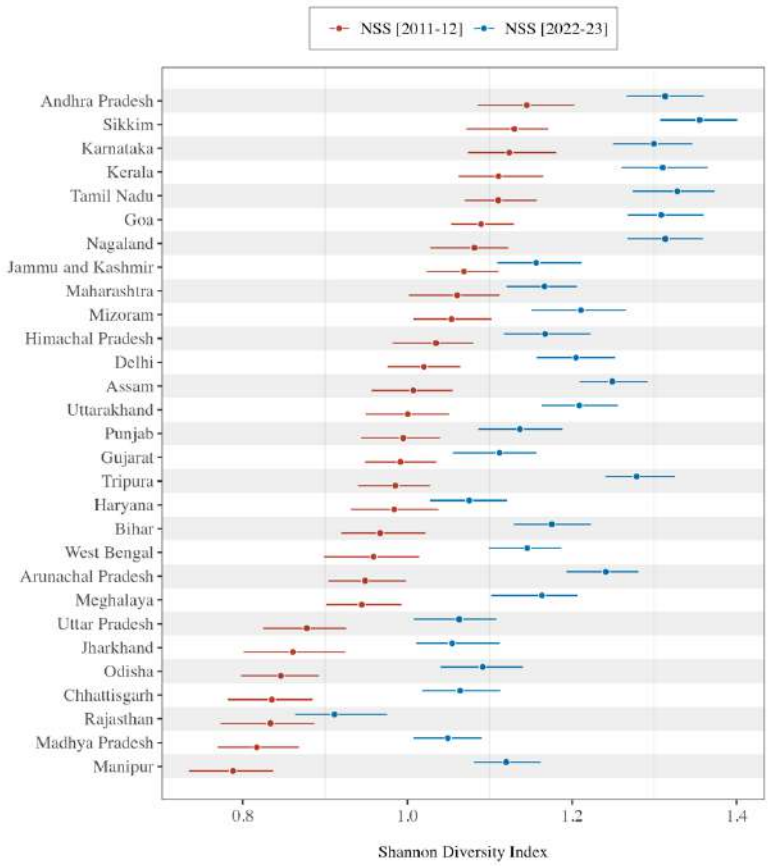
Table 3e Part 1:

Shannon Diversity Index of Rural Households: Riboflavin (Vitamin B2)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.12 [1.11, 1.14]	1.28 [1.26, 1.30]
60-80%	1.06 [1.04, 1.08]	1.24 [1.22, 1.26]
40-60%	1.01 [0.99, 1.03]	1.21 [1.19, 1.23]
20-40%	0.96 [0.94, 0.98]	1.17 [1.15, 1.19]
Bottom 20%	0.85 [0.83, 0.87]	1.09 [1.07, 1.11]

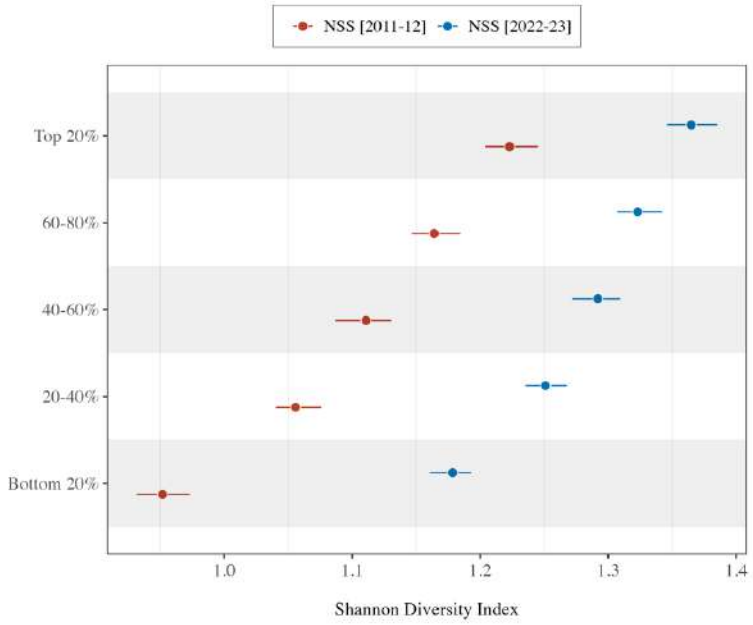
Shannon Diversity Index of Rural Households: Riboflavin (Vitamin B2)



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	1.15 [1.08, 1.20]	1.31 [1.27, 1.36]
Sikkim	1.13 [1.07, 1.17]	1.36 [1.31, 1.40]
Karnataka	1.12 [1.07, 1.18]	1.30 [1.25, 1.35]
Kerala	1.11 [1.06, 1.16]	1.31 [1.26, 1.36]
Tamil Nadu	1.11 [1.07, 1.16]	1.33 [1.27, 1.37]
Goa	1.09 [1.05, 1.13]	1.31 [1.27, 1.36]
Nagaland	1.08 [1.03, 1.12]	1.31 [1.27, 1.36]
Jammu and Kashmir	1.07 [1.02, 1.11]	1.16 [1.11, 1.21]
Maharashtra	1.06 [1.00, 1.11]	1.17 [1.12, 1.21]
Mizoram	1.05 [1.01, 1.10]	1.21 [1.15, 1.27]
Himachal Pradesh	1.03 [0.98, 1.08]	1.17 [1.12, 1.22]
Delhi	1.02 [0.98, 1.06]	1.20 [1.16, 1.25]
Assam	1.01 [0.96, 1.06]	1.25 [1.21, 1.29]
Uttarakhand	1.00 [0.95, 1.05]	1.21 [1.16, 1.26]
Punjab	0.99 [0.94, 1.04]	1.14 [1.09, 1.19]
Gujarat	0.99 [0.95, 1.04]	1.11 [1.06, 1.16]
Tripura	0.99 [0.94, 1.03]	1.28 [1.24, 1.33]
Haryana	0.98 [0.93, 1.04]	1.08 [1.03, 1.12]
Bihar	0.97 [0.92, 1.02]	1.18 [1.13, 1.22]
West Bengal	0.96 [0.90, 1.01]	1.15 [1.10, 1.19]
Arunachal Pradesh	0.95 [0.90, 1.00]	1.24 [1.19, 1.28]
Meghalaya	0.94 [0.90, 0.99]	1.16 [1.10, 1.21]
Uttar Pradesh	0.88 [0.83, 0.93]	1.06 [1.01, 1.11]
Jharkhand	0.86 [0.80, 0.92]	1.05 [1.01, 1.11]
Odisha	0.85 [0.80, 0.89]	1.09 [1.04, 1.14]
Chhattisgarh	0.84 [0.78, 0.88]	1.06 [1.02, 1.11]
Rajasthan	0.83 [0.77, 0.89]	0.91 [0.86, 0.98]
Madhya Pradesh	0.82 [0.77, 0.87]	1.05 [1.01, 1.09]
Manipur	0.79 [0.73, 0.84]	1.12 [1.08, 1.16]

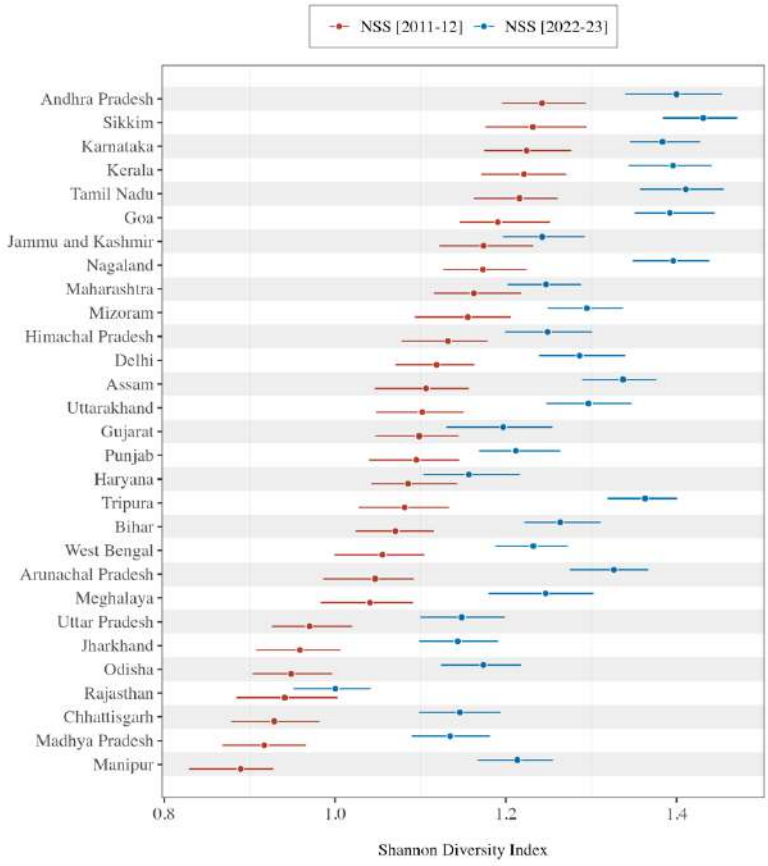
Table 3e Part 2:

Shannon Diversity Index of Urban Households: Riboflavin (Vitamin B2)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.22 [1.20, 1.25]	1.36 [1.35, 1.39]
60-80%	1.16 [1.15, 1.18]	1.32 [1.31, 1.34]
40-60%	1.11 [1.09, 1.13]	1.29 [1.27, 1.31]
20-40%	1.06 [1.04, 1.08]	1.25 [1.24, 1.27]
Bottom 20%	0.95 [0.93, 0.97]	1.18 [1.16, 1.19]

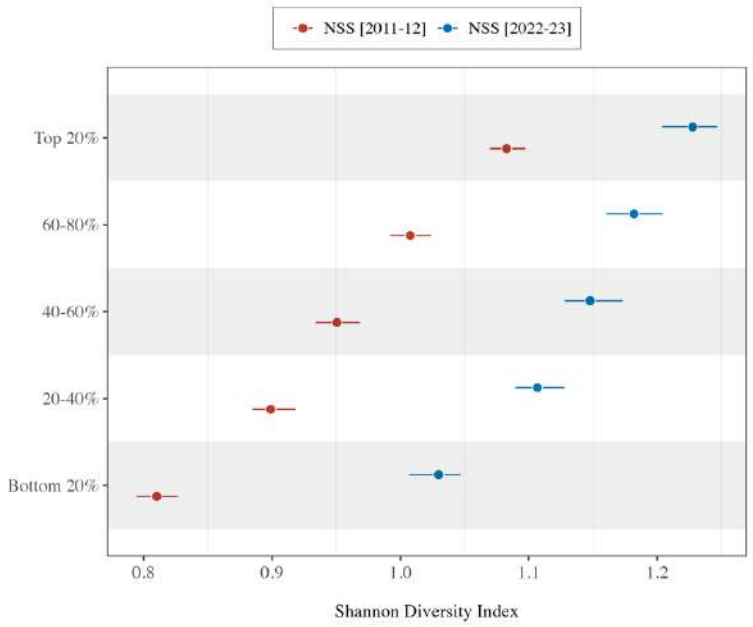
Shannon Diversity Index of Urban Households: Riboflavin (Vitamin B2)



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	1.24 [1.20, 1.29]	1.40 [1.34, 1.45]
Sikkim	1.23 [1.18, 1.29]	1.43 [1.38, 1.47]
Karnataka	1.22 [1.17, 1.28]	1.38 [1.35, 1.43]
Kerala	1.22 [1.17, 1.27]	1.40 [1.34, 1.44]
Tamil Nadu	1.22 [1.16, 1.26]	1.41 [1.36, 1.46]
Goa	1.19 [1.15, 1.25]	1.39 [1.35, 1.44]
Jammu and Kashmir	1.17 [1.12, 1.23]	1.24 [1.20, 1.29]
Nagaland	1.17 [1.13, 1.22]	1.40 [1.35, 1.44]
Maharashtra	1.16 [1.12, 1.22]	1.25 [1.20, 1.29]
Mizoram	1.16 [1.09, 1.21]	1.29 [1.25, 1.34]
Himachal Pradesh	1.13 [1.08, 1.18]	1.25 [1.20, 1.30]
Delhi	1.12 [1.07, 1.16]	1.29 [1.24, 1.34]
Assam	1.11 [1.05, 1.16]	1.34 [1.29, 1.38]
Uttarakhand	1.10 [1.05, 1.15]	1.30 [1.25, 1.35]
Gujarat	1.10 [1.05, 1.14]	1.20 [1.13, 1.25]
Punjab	1.10 [1.04, 1.15]	1.21 [1.17, 1.26]
Haryana	1.09 [1.04, 1.14]	1.16 [1.10, 1.22]
Tripura	1.08 [1.03, 1.13]	1.36 [1.32, 1.40]
Bihar	1.07 [1.02, 1.12]	1.26 [1.22, 1.31]
West Bengal	1.06 [1.00, 1.10]	1.23 [1.19, 1.27]
Arunachal Pradesh	1.05 [0.99, 1.09]	1.33 [1.27, 1.37]
Meghalaya	1.04 [0.98, 1.09]	1.25 [1.18, 1.30]
Uttar Pradesh	0.97 [0.93, 1.02]	1.15 [1.10, 1.20]
Jharkhand	0.96 [0.91, 1.01]	1.14 [1.10, 1.19]
Odisha	0.95 [0.90, 1.00]	1.17 [1.12, 1.22]
Rajasthan	0.94 [0.88, 1.00]	1.00 [0.95, 1.04]
Chhattisgarh	0.93 [0.88, 0.98]	1.15 [1.10, 1.19]
Madhya Pradesh	0.92 [0.87, 0.97]	1.13 [1.09, 1.18]
Manipur	0.89 [0.83, 0.93]	1.21 [1.17, 1.26]

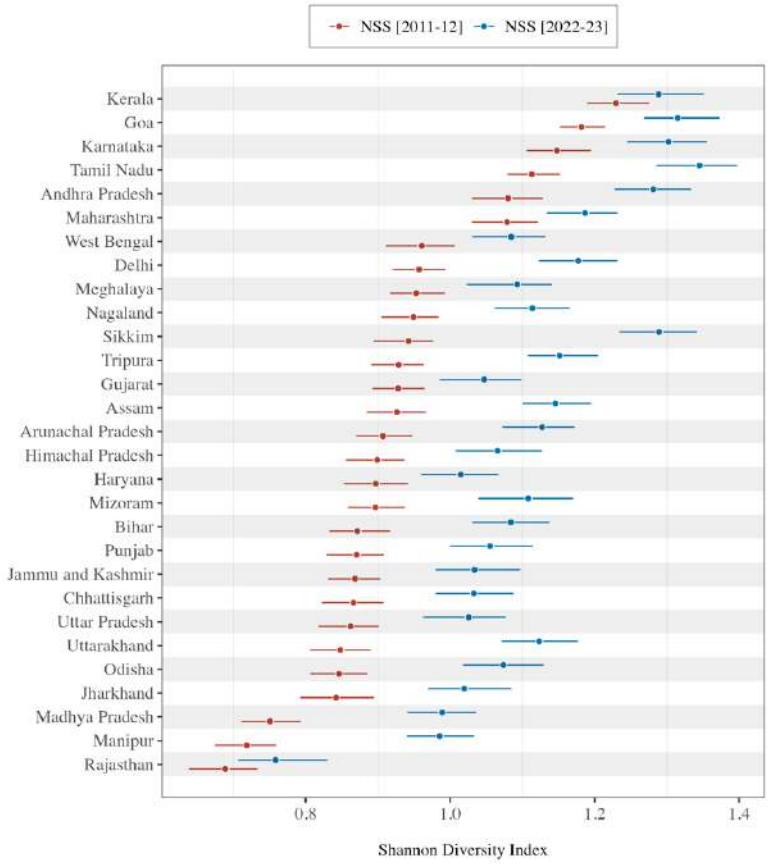
Table 3f Part1:

Shannon Diversity Index of Rural Households: Niacin (Vitamin B3)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.08 [1.07, 1.10]	1.23 [1.20, 1.25]
60-80%	1.01 [0.99, 1.02]	1.18 [1.16, 1.20]
40-60%	0.95 [0.93, 0.97]	1.15 [1.13, 1.17]
20-40%	0.90 [0.88, 0.92]	1.11 [1.09, 1.13]
Bottom 20%	0.81 [0.79, 0.83]	1.03 [1.01, 1.05]

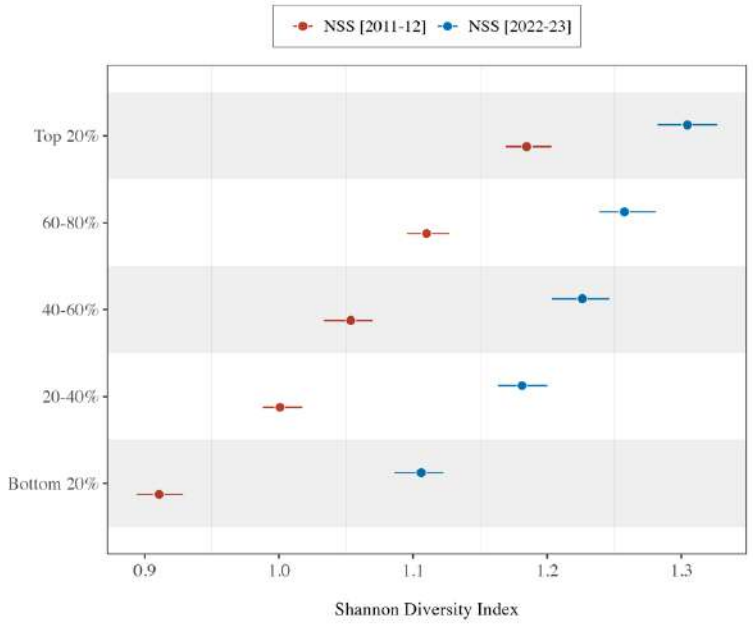
Shannon Diversity Index of Rural Households: Niacin (Vitamin B3)



	NSS [2011-12]	HCES [2022-23]
Kerala	1.23 [1.19, 1.28]	1.29 [1.23, 1.35]
Goa	1.18 [1.15, 1.21]	1.32 [1.27, 1.37]
Karnataka	1.15 [1.11, 1.19]	1.30 [1.24, 1.36]
Tamil Nadu	1.11 [1.08, 1.15]	1.35 [1.29, 1.40]
Andhra Pradesh	1.08 [1.03, 1.13]	1.28 [1.23, 1.33]
Maharashtra	1.08 [1.03, 1.12]	1.19 [1.13, 1.23]
West Bengal	0.96 [0.91, 1.01]	1.08 [1.03, 1.13]
Delhi	0.96 [0.92, 0.99]	1.18 [1.12, 1.23]
Meghalaya	0.95 [0.92, 0.99]	1.09 [1.02, 1.14]
Nagaland	0.95 [0.90, 0.98]	1.11 [1.06, 1.17]
Sikkim	0.94 [0.89, 0.98]	1.29 [1.23, 1.34]
Tripura	0.93 [0.89, 0.96]	1.15 [1.11, 1.20]
Gujarat	0.93 [0.89, 0.96]	1.05 [0.99, 1.10]
Assam	0.93 [0.88, 0.97]	1.15 [1.10, 1.19]
Arunachal Pradesh	0.91 [0.87, 0.95]	1.13 [1.07, 1.17]
Himachal Pradesh	0.90 [0.86, 0.94]	1.07 [1.01, 1.13]
Haryana	0.90 [0.85, 0.94]	1.01 [0.96, 1.07]
Mizoram	0.90 [0.86, 0.94]	1.11 [1.04, 1.17]
Bihar	0.87 [0.83, 0.92]	1.08 [1.03, 1.14]
Punjab	0.87 [0.83, 0.91]	1.06 [1.00, 1.11]
Jammu and Kashmir	0.87 [0.83, 0.90]	1.03 [0.98, 1.10]
Chhattisgarh	0.87 [0.82, 0.91]	1.03 [0.98, 1.09]
Uttar Pradesh	0.86 [0.82, 0.90]	1.03 [0.96, 1.08]
Uttarakhand	0.85 [0.81, 0.89]	1.12 [1.07, 1.18]
Odisha	0.85 [0.81, 0.88]	1.07 [1.02, 1.13]
Jharkhand	0.84 [0.79, 0.89]	1.02 [0.97, 1.09]
Madhya Pradesh	0.75 [0.71, 0.79]	0.99 [0.94, 1.04]
Manipur	0.72 [0.67, 0.76]	0.99 [0.94, 1.03]
Rajasthan	0.69 [0.64, 0.73]	0.76 [0.71, 0.83]

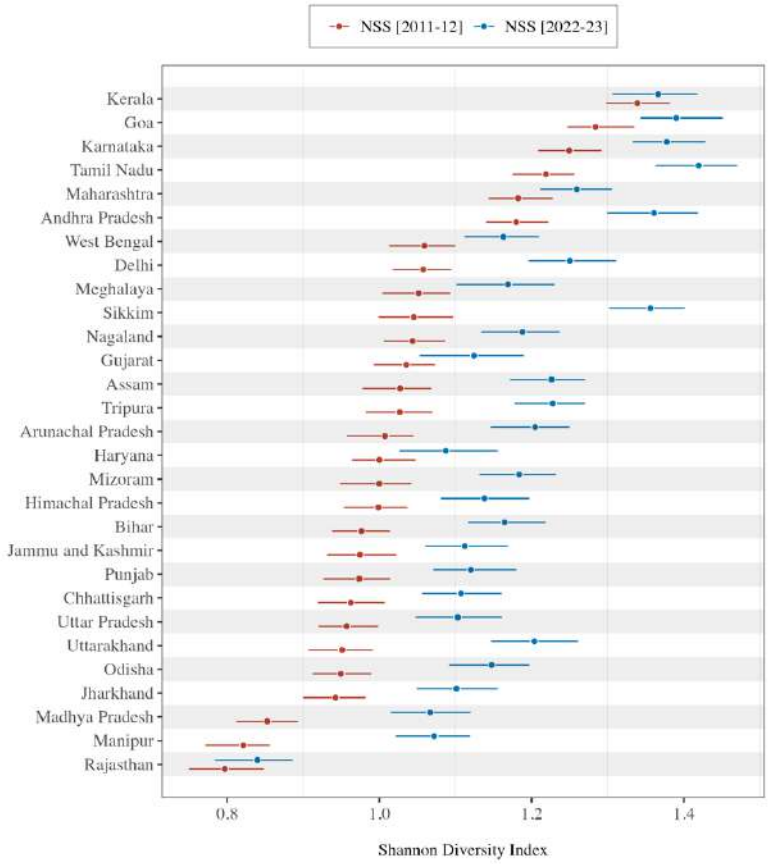
Table 3f Part 2:

Shannon Diversity Index of Urban Households: Niacin (Vitamin B3)



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.18 [1.17, 1.20]	1.30 [1.28, 1.33]
60-80%	1.11 [1.10, 1.13]	1.26 [1.24, 1.28]
40-60%	1.05 [1.03, 1.07]	1.23 [1.20, 1.25]
20-40%	1.00 [0.99, 1.02]	1.18 [1.16, 1.20]
Bottom 20%	0.91 [0.89, 0.93]	1.11 [1.09, 1.12]

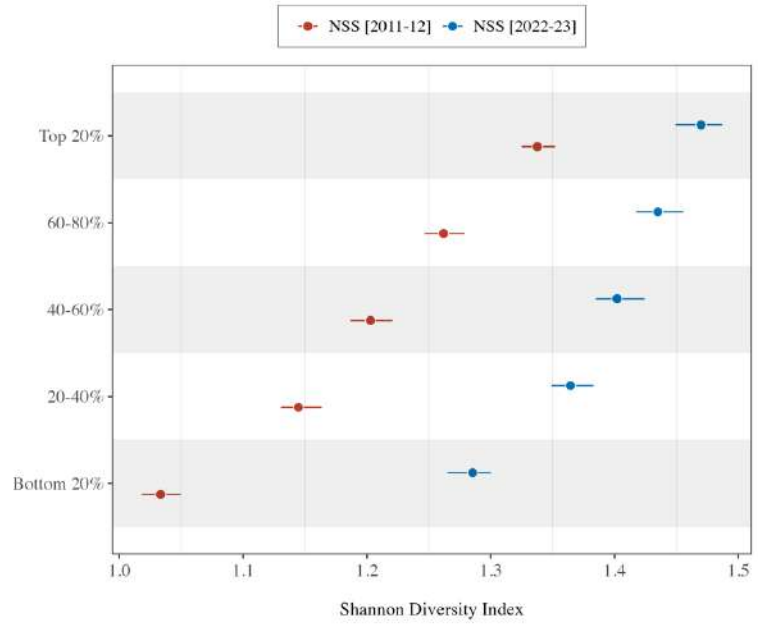
Shannon Diversity Index of Urban Households: Niacin (Vitamin B3)



	NSS [2011-12]	HCES [2022-23]
Kerala	1.34 [1.30, 1.38]	1.37 [1.31, 1.42]
Goa	1.28 [1.25, 1.34]	1.39 [1.34, 1.45]
Karnataka	1.25 [1.21, 1.29]	1.38 [1.33, 1.43]
Tamil Nadu	1.22 [1.17, 1.26]	1.42 [1.36, 1.47]
Maharashtra	1.18 [1.14, 1.23]	1.26 [1.21, 1.31]
Andhra Pradesh	1.18 [1.14, 1.22]	1.36 [1.30, 1.42]
West Bengal	1.06 [1.01, 1.10]	1.16 [1.11, 1.21]
Delhi	1.06 [1.02, 1.09]	1.25 [1.20, 1.31]
Meghalaya	1.05 [1.00, 1.09]	1.17 [1.10, 1.23]
Sikkim	1.05 [1.00, 1.10]	1.36 [1.30, 1.40]
Nagaland	1.04 [1.01, 1.09]	1.19 [1.13, 1.24]
Gujarat	1.04 [0.99, 1.07]	1.12 [1.05, 1.19]
Assam	1.03 [0.98, 1.07]	1.23 [1.17, 1.27]
Tripura	1.03 [0.98, 1.07]	1.23 [1.18, 1.27]
Arunachal Pradesh	1.01 [0.96, 1.04]	1.20 [1.15, 1.25]
Haryana	1.00 [0.96, 1.05]	1.09 [1.03, 1.16]
Mizoram	1.00 [0.95, 1.04]	1.18 [1.13, 1.23]
Himachal Pradesh	1.00 [0.95, 1.04]	1.14 [1.08, 1.20]
Bihar	0.98 [0.94, 1.01]	1.16 [1.12, 1.22]
Jammu and Kashmir	0.97 [0.93, 1.02]	1.11 [1.06, 1.17]
Punjab	0.97 [0.93, 1.01]	1.12 [1.07, 1.18]
Chhattisgarh	0.96 [0.92, 1.01]	1.11 [1.06, 1.16]
Uttar Pradesh	0.96 [0.92, 1.00]	1.10 [1.05, 1.16]
Uttarakhand	0.95 [0.91, 0.99]	1.20 [1.15, 1.26]
Odisha	0.95 [0.91, 0.99]	1.15 [1.09, 1.20]
Jharkhand	0.94 [0.90, 0.98]	1.10 [1.05, 1.16]
Madhya Pradesh	0.85 [0.81, 0.89]	1.07 [1.02, 1.12]
Manipur	0.82 [0.77, 0.86]	1.07 [1.02, 1.12]
Rajasthan	0.80 [0.75, 0.85]	0.84 [0.78, 0.89]

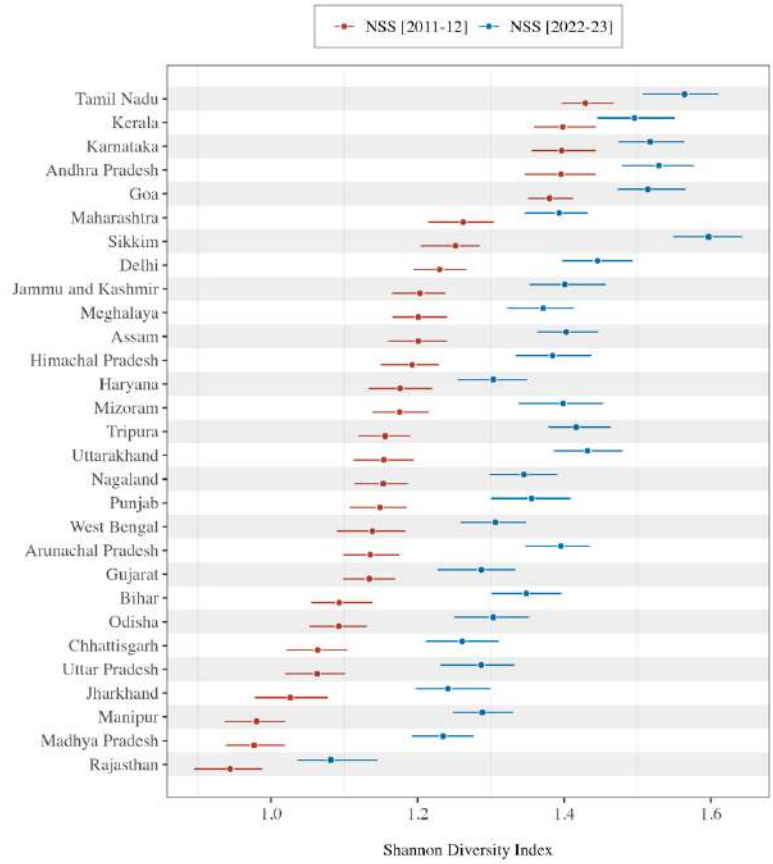
Table 3g Part 1:

Shannon Diversity Index of Rural Households: Vitamin B6



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.34 [1.32, 1.35]	1.47 [1.45, 1.49]
60-80%	1.26 [1.25, 1.28]	1.44 [1.42, 1.46]
40-60%	1.20 [1.19, 1.22]	1.40 [1.38, 1.42]
20-40%	1.14 [1.13, 1.16]	1.36 [1.35, 1.38]
Bottom 20%	1.03 [1.02, 1.05]	1.29 [1.26, 1.30]

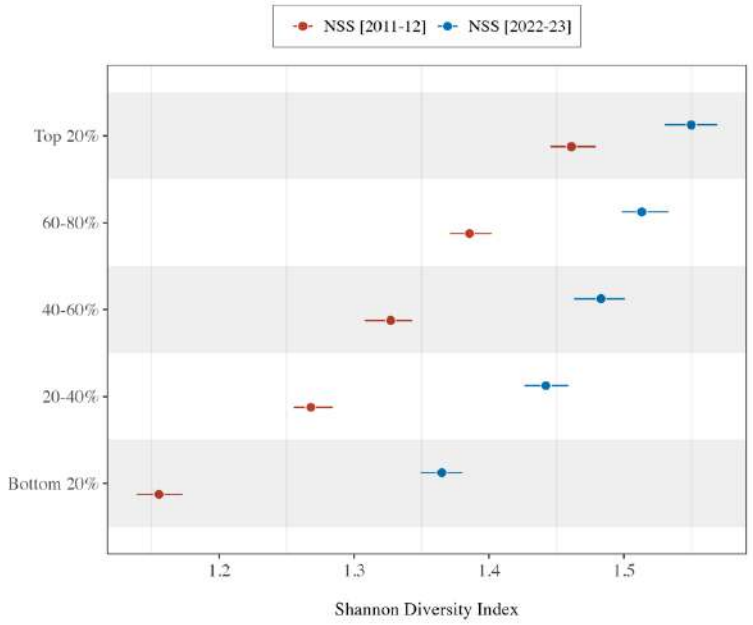
Shannon Diversity Index of Rural Households: Vitamin B6



	NSS [2011-12]	HCES [2022-23]
Tamil Nadu	1.43 [1.40, 1.47]	1.56 [1.51, 1.61]
Kerala	1.40 [1.36, 1.44]	1.50 [1.45, 1.55]
Karnataka	1.40 [1.36, 1.44]	1.52 [1.47, 1.56]
Andhra Pradesh	1.40 [1.35, 1.44]	1.53 [1.48, 1.58]
Goa	1.38 [1.35, 1.41]	1.51 [1.47, 1.57]
Maharashtra	1.26 [1.21, 1.30]	1.39 [1.35, 1.43]
Sikkim	1.25 [1.20, 1.29]	1.60 [1.55, 1.64]
Delhi	1.23 [1.19, 1.27]	1.45 [1.40, 1.49]
Jammu and Kashmir	1.20 [1.16, 1.24]	1.40 [1.35, 1.46]
Meghalaya	1.20 [1.17, 1.24]	1.37 [1.32, 1.41]
Assam	1.20 [1.16, 1.24]	1.40 [1.36, 1.45]
Himachal Pradesh	1.19 [1.15, 1.23]	1.38 [1.33, 1.44]
Haryana	1.18 [1.13, 1.22]	1.30 [1.26, 1.35]
Mizoram	1.18 [1.14, 1.22]	1.40 [1.34, 1.45]
Tripura	1.16 [1.12, 1.19]	1.42 [1.38, 1.46]
Uttarakhand	1.15 [1.11, 1.19]	1.43 [1.39, 1.48]
Nagaland	1.15 [1.11, 1.19]	1.34 [1.30, 1.39]
Punjab	1.15 [1.11, 1.19]	1.36 [1.30, 1.41]
West Bengal	1.14 [1.09, 1.18]	1.31 [1.26, 1.35]
Arunachal Pradesh	1.14 [1.10, 1.18]	1.40 [1.35, 1.43]
Gujarat	1.13 [1.10, 1.17]	1.29 [1.23, 1.33]
Bihar	1.09 [1.05, 1.14]	1.35 [1.30, 1.40]
Odisha	1.09 [1.05, 1.13]	1.30 [1.25, 1.35]
Chhattisgarh	1.06 [1.02, 1.10]	1.26 [1.21, 1.31]
Uttar Pradesh	1.06 [1.02, 1.10]	1.29 [1.23, 1.33]
Jharkhand	1.03 [0.98, 1.08]	1.24 [1.20, 1.30]
Manipur	0.98 [0.94, 1.02]	1.29 [1.25, 1.33]
Madhya Pradesh	0.98 [0.94, 1.02]	1.23 [1.19, 1.28]
Rajasthan	0.94 [0.90, 0.99]	1.08 [1.04, 1.15]

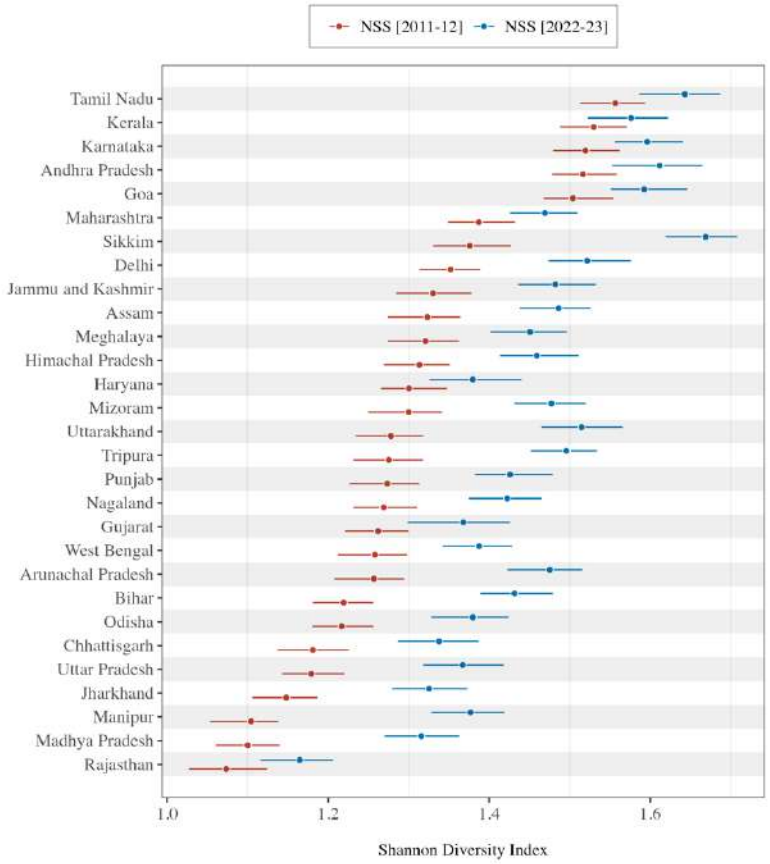
Table 3g Part 2:

Shannon Diversity Index of Urban Households: Vitamin B6



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.46 [1.45, 1.48]	1.55 [1.53, 1.57]
60-80%	1.39 [1.37, 1.40]	1.51 [1.50, 1.53]
40-60%	1.33 [1.31, 1.34]	1.48 [1.46, 1.50]
20-40%	1.27 [1.26, 1.28]	1.44 [1.43, 1.46]
Bottom 20%	1.16 [1.14, 1.17]	1.36 [1.35, 1.38]

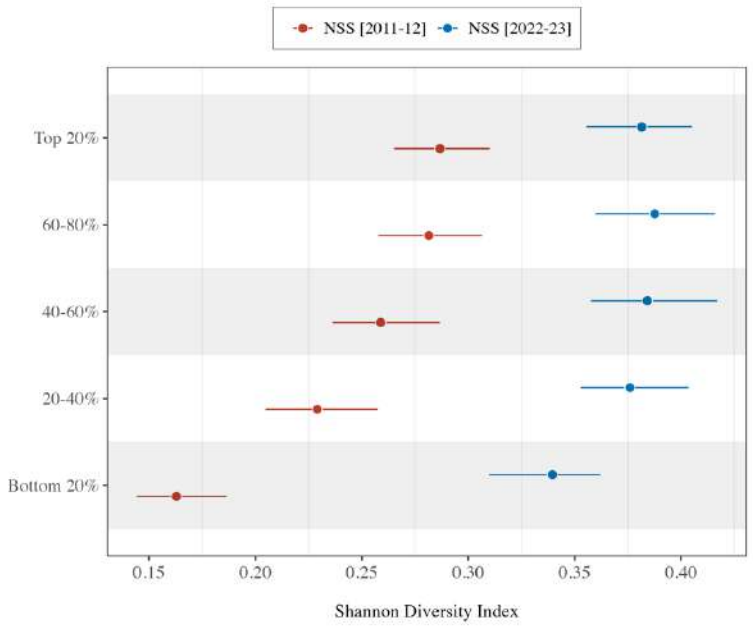
Shannon Diversity Index of Urban Households: Vitamin B6



	NSS [2011-12]	HCES [2022-23]
Tamil Nadu	1.56 [1.51, 1.59]	1.64 [1.59, 1.69]
Kerala	1.53 [1.49, 1.57]	1.58 [1.52, 1.62]
Karnataka	1.52 [1.48, 1.56]	1.60 [1.56, 1.64]
Andhra Pradesh	1.52 [1.48, 1.56]	1.61 [1.55, 1.66]
Goa	1.50 [1.47, 1.55]	1.59 [1.55, 1.65]
Maharashtra	1.39 [1.35, 1.43]	1.47 [1.43, 1.51]
Sikkim	1.38 [1.33, 1.43]	1.67 [1.62, 1.71]
Delhi	1.35 [1.31, 1.39]	1.52 [1.47, 1.58]
Jammu and Kashmir	1.33 [1.28, 1.38]	1.48 [1.44, 1.53]
Assam	1.32 [1.27, 1.36]	1.49 [1.44, 1.53]
Meghalaya	1.32 [1.27, 1.36]	1.45 [1.40, 1.50]
Himachal Pradesh	1.31 [1.27, 1.35]	1.46 [1.41, 1.51]
Haryana	1.30 [1.27, 1.35]	1.38 [1.33, 1.44]
Mizoram	1.30 [1.25, 1.34]	1.48 [1.43, 1.52]
Uttarakhand	1.28 [1.23, 1.32]	1.51 [1.46, 1.57]
Tripura	1.28 [1.23, 1.32]	1.50 [1.45, 1.53]
Punjab	1.27 [1.23, 1.31]	1.43 [1.38, 1.48]
Nagaland	1.27 [1.23, 1.31]	1.42 [1.37, 1.47]
Gujarat	1.26 [1.22, 1.30]	1.37 [1.30, 1.43]
West Bengal	1.26 [1.21, 1.30]	1.39 [1.34, 1.43]
Arunachal Pradesh	1.26 [1.21, 1.29]	1.48 [1.42, 1.52]
Bihar	1.22 [1.18, 1.26]	1.43 [1.39, 1.48]
Odisha	1.22 [1.18, 1.26]	1.38 [1.33, 1.42]
Chhattisgarh	1.18 [1.14, 1.23]	1.34 [1.29, 1.39]
Uttar Pradesh	1.18 [1.14, 1.22]	1.37 [1.32, 1.42]
Jharkhand	1.15 [1.11, 1.19]	1.33 [1.28, 1.37]
Manipur	1.10 [1.05, 1.14]	1.38 [1.33, 1.42]
Madhya Pradesh	1.10 [1.06, 1.14]	1.32 [1.27, 1.36]
Rajasthan	1.07 [1.03, 1.12]	1.16 [1.12, 1.21]

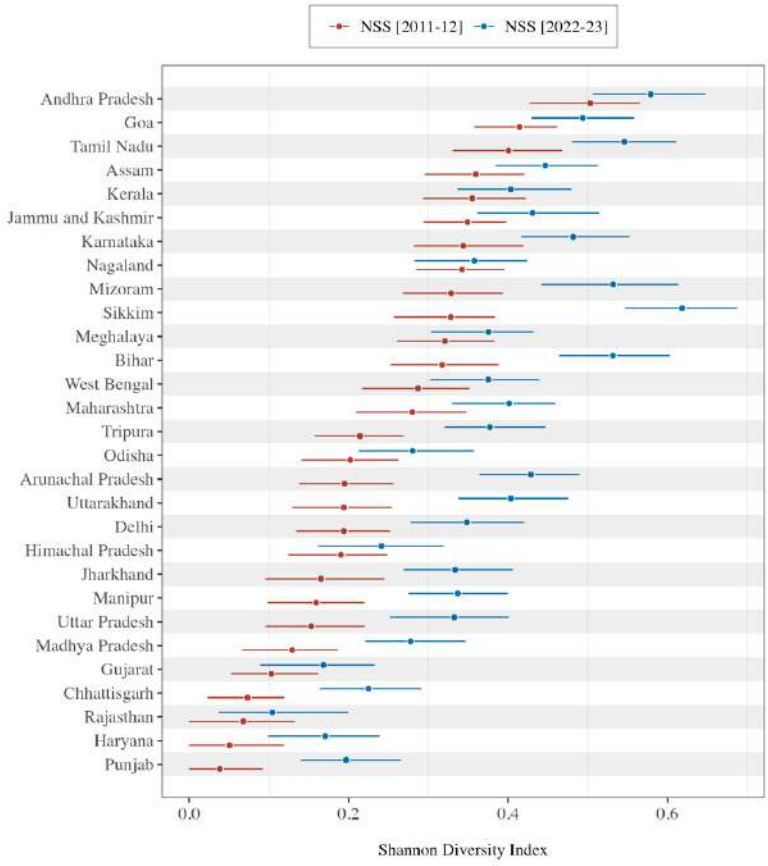
Table 3h Part 1:

Shannon Diversity Index of Rural Households: Vitamin B12



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.29 [0.27, 0.31]	0.38 [0.36, 0.41]
60-80%	0.28 [0.26, 0.31]	0.39 [0.36, 0.42]
40-60%	0.26 [0.24, 0.29]	0.38 [0.36, 0.42]
20-40%	0.23 [0.20, 0.26]	0.38 [0.35, 0.40]
Bottom 20%	0.16 [0.14, 0.19]	0.34 [0.31, 0.36]

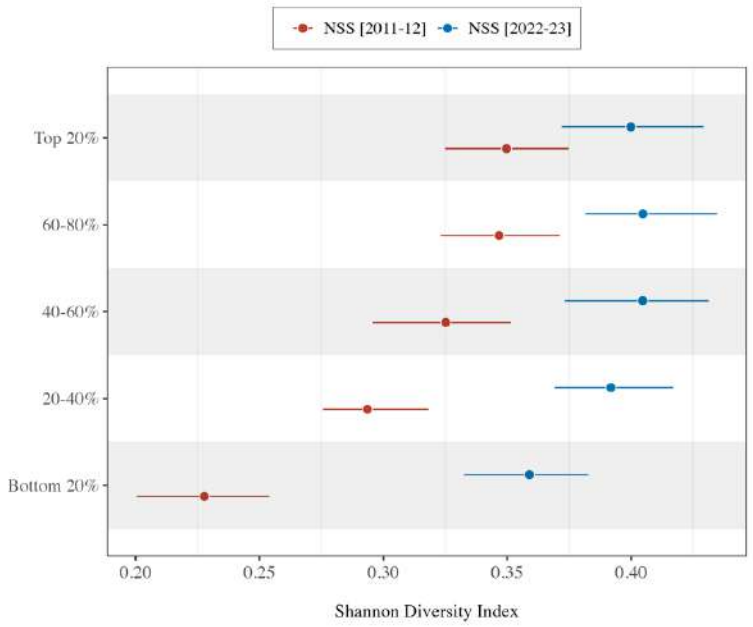
Shannon Diversity Index of Rural Households: Vitamin B12



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	0.50 [0.43, 0.57]	0.58 [0.51, 0.65]
Goa	0.41 [0.36, 0.46]	0.49 [0.43, 0.56]
Tamil Nadu	0.40 [0.33, 0.47]	0.55 [0.48, 0.61]
Assam	0.36 [0.30, 0.42]	0.45 [0.38, 0.51]
Kerala	0.36 [0.29, 0.42]	0.40 [0.34, 0.48]
Jammu and Kashmir	0.35 [0.29, 0.40]	0.43 [0.36, 0.51]
Karnataka	0.34 [0.28, 0.42]	0.48 [0.42, 0.55]
Nagaland	0.34 [0.28, 0.40]	0.36 [0.28, 0.42]
Mizoram	0.33 [0.27, 0.39]	0.53 [0.44, 0.61]
Sikkim	0.33 [0.26, 0.38]	0.62 [0.55, 0.69]
Meghalaya	0.32 [0.26, 0.38]	0.38 [0.30, 0.43]
Bihar	0.32 [0.25, 0.39]	0.53 [0.46, 0.60]
West Bengal	0.29 [0.22, 0.35]	0.38 [0.30, 0.44]
Maharashtra	0.28 [0.21, 0.35]	0.40 [0.33, 0.46]
Tripura	0.21 [0.16, 0.27]	0.38 [0.32, 0.45]
Odisha	0.20 [0.14, 0.26]	0.28 [0.21, 0.36]
Arunachal Pradesh	0.19 [0.14, 0.26]	0.43 [0.36, 0.49]
Uttarakhand	0.19 [0.13, 0.25]	0.40 [0.34, 0.48]
Delhi	0.19 [0.13, 0.25]	0.35 [0.28, 0.42]
Himachal Pradesh	0.19 [0.12, 0.25]	0.24 [0.16, 0.32]
Jharkhand	0.17 [0.10, 0.24]	0.33 [0.27, 0.41]
Manipur	0.16 [0.10, 0.22]	0.34 [0.28, 0.40]
Uttar Pradesh	0.15 [0.10, 0.22]	0.33 [0.25, 0.40]
Madhya Pradesh	0.13 [0.07, 0.19]	0.28 [0.22, 0.35]
Gujarat	0.10 [0.05, 0.16]	0.17 [0.09, 0.23]
Chhattisgarh	0.07 [0.02, 0.12]	0.22 [0.16, 0.29]
Rajasthan	0.07 [0.00, 0.13]	0.10 [0.04, 0.20]
Haryana	0.05 [0.00, 0.12]	0.17 [0.10, 0.24]
Punjab	0.04 [0.00, 0.09]	0.20 [0.14, 0.26]

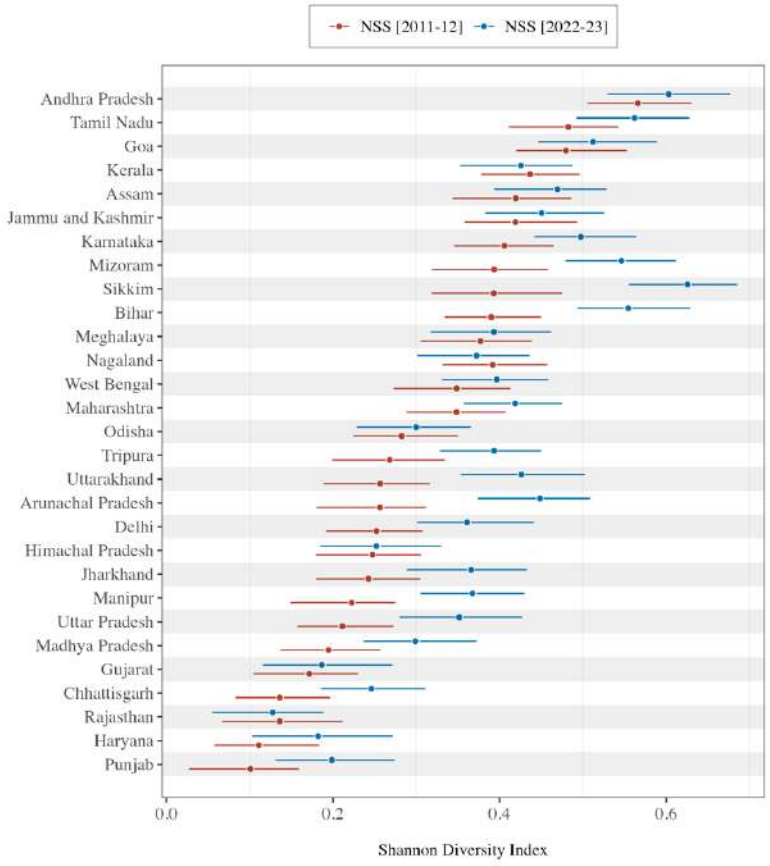
Table 3h Part 2:

Shannon Diversity Index of Urban Households: Vitamin B12



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.35 [0.32, 0.37]	0.40 [0.37, 0.43]
60-80%	0.35 [0.32, 0.37]	0.40 [0.38, 0.43]
40-60%	0.33 [0.30, 0.35]	0.40 [0.37, 0.43]
20-40%	0.29 [0.28, 0.32]	0.39 [0.37, 0.42]
Bottom 20%	0.23 [0.20, 0.25]	0.36 [0.33, 0.38]

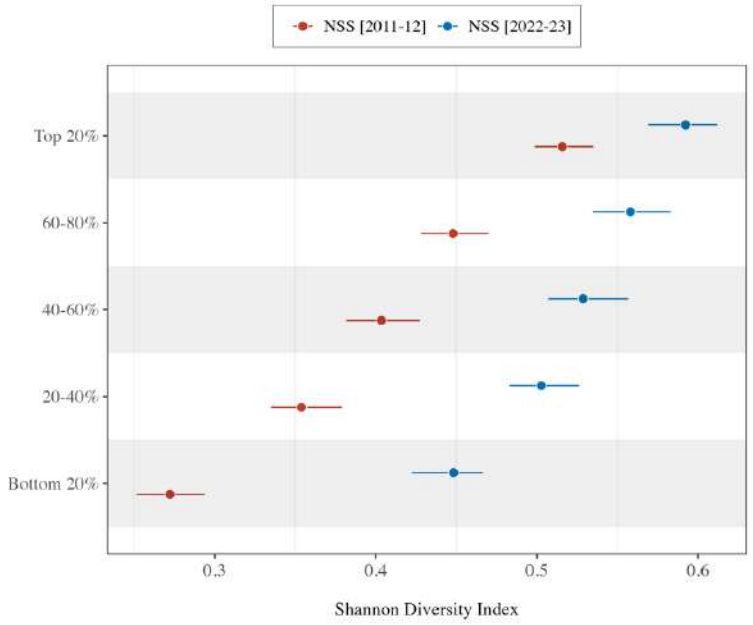
Shannon Diversity Index of Urban Households: Vitamin B12



	NSS [2011-12]	HCES [2022-23]
Andhra Pradesh	0.57 [0.51, 0.63]	0.60 [0.53, 0.68]
Tamil Nadu	0.48 [0.41, 0.54]	0.56 [0.49, 0.63]
Goa	0.48 [0.42, 0.55]	0.51 [0.45, 0.59]
Kerala	0.44 [0.38, 0.50]	0.43 [0.35, 0.49]
Assam	0.42 [0.34, 0.49]	0.47 [0.39, 0.53]
Jammu and Kashmir	0.42 [0.36, 0.49]	0.45 [0.38, 0.53]
Karnataka	0.41 [0.35, 0.46]	0.50 [0.44, 0.56]
Mizoram	0.39 [0.32, 0.46]	0.55 [0.48, 0.61]
Sikkim	0.39 [0.32, 0.48]	0.63 [0.56, 0.69]
Bihar	0.39 [0.33, 0.45]	0.55 [0.49, 0.63]
Meghalaya	0.38 [0.31, 0.44]	0.39 [0.32, 0.46]
Nagaland	0.39 [0.33, 0.46]	0.37 [0.30, 0.44]
West Bengal	0.35 [0.27, 0.41]	0.40 [0.33, 0.46]
Maharashtra	0.35 [0.29, 0.41]	0.42 [0.36, 0.48]
Odisha	0.28 [0.22, 0.35]	0.30 [0.23, 0.37]
Tripura	0.27 [0.20, 0.33]	0.39 [0.33, 0.45]
Uttarakhand	0.26 [0.19, 0.32]	0.43 [0.35, 0.50]
Arunachal Pradesh	0.26 [0.18, 0.31]	0.45 [0.37, 0.51]
Delhi	0.25 [0.19, 0.31]	0.36 [0.30, 0.44]
Himachal Pradesh	0.25 [0.18, 0.31]	0.25 [0.18, 0.33]
Jharkhand	0.24 [0.18, 0.30]	0.37 [0.29, 0.43]
Manipur	0.22 [0.15, 0.27]	0.37 [0.30, 0.43]
Uttar Pradesh	0.21 [0.16, 0.27]	0.35 [0.28, 0.43]
Madhya Pradesh	0.19 [0.14, 0.26]	0.30 [0.24, 0.37]
Gujarat	0.17 [0.10, 0.23]	0.19 [0.12, 0.27]
Chhattisgarh	0.14 [0.08, 0.20]	0.25 [0.19, 0.31]
Rajasthan	0.14 [0.07, 0.21]	0.13 [0.06, 0.19]
Haryana	0.11 [0.06, 0.18]	0.18 [0.10, 0.27]
Punjab	0.10 [0.03, 0.16]	0.20 [0.13, 0.27]

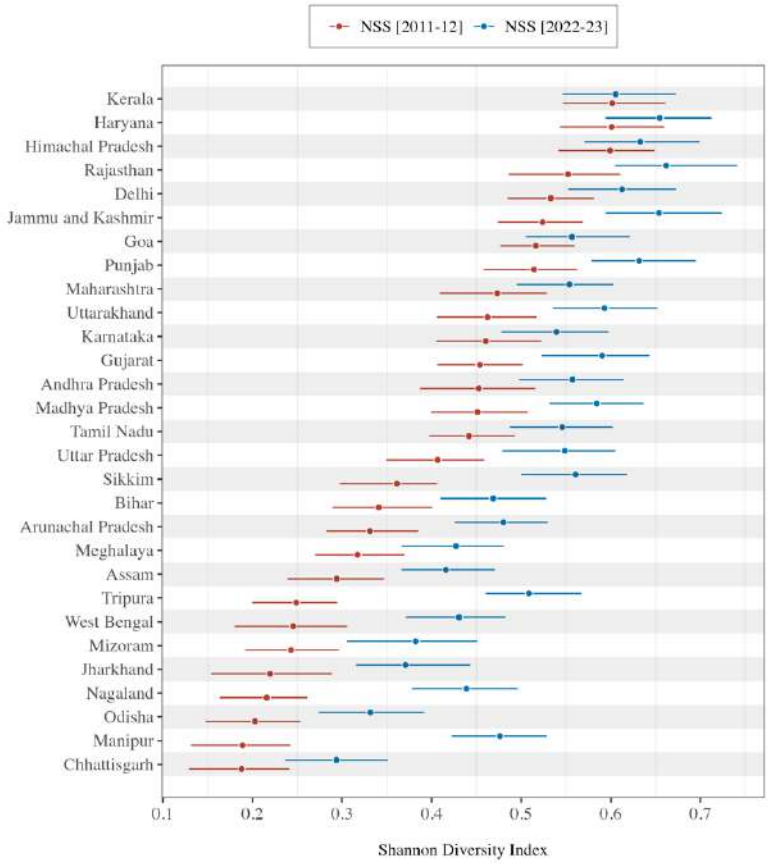
Table 3i Part 1:

Shannon Diversity Index of Rural Households: Vitamin C



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.52 [0.50, 0.53]	0.59 [0.57, 0.61]
60-80%	0.45 [0.43, 0.47]	0.56 [0.53, 0.58]
40-60%	0.40 [0.38, 0.43]	0.53 [0.51, 0.56]
20-40%	0.35 [0.33, 0.38]	0.50 [0.48, 0.53]
Bottom 20%	0.27 [0.25, 0.29]	0.45 [0.42, 0.47]

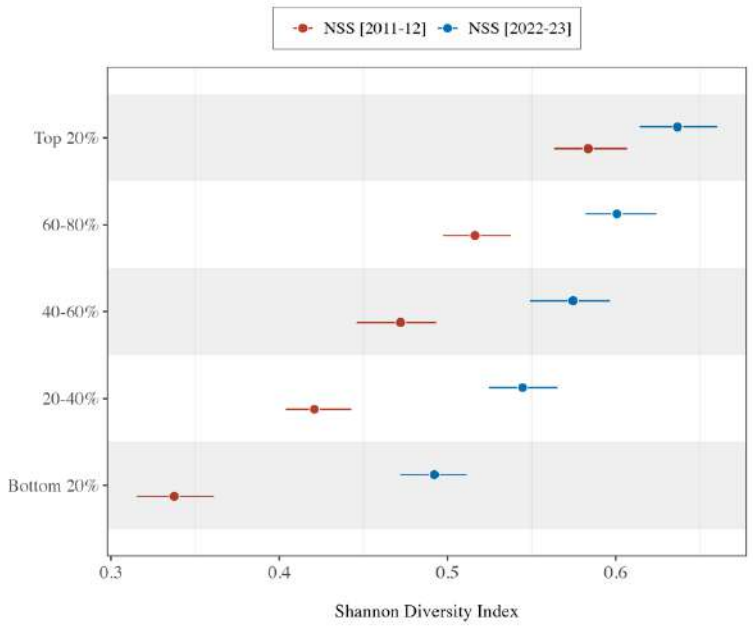
Shannon Diversity Index of Rural Households: Vitamin C



	NSS [2011-12]	HCES [2022-23]
Kerala	0.60 [0.55, 0.66]	0.61 [0.55, 0.67]
Haryana	0.60 [0.54, 0.66]	0.65 [0.59, 0.71]
Himachal Pradesh	0.60 [0.54, 0.65]	0.63 [0.57, 0.70]
Rajasthan	0.55 [0.49, 0.61]	0.66 [0.60, 0.74]
Delhi	0.53 [0.48, 0.58]	0.61 [0.55, 0.67]
Jammu and Kashmir	0.52 [0.47, 0.57]	0.65 [0.59, 0.72]
Goa	0.52 [0.48, 0.56]	0.56 [0.51, 0.62]
Punjab	0.51 [0.46, 0.56]	0.63 [0.58, 0.70]
Maharashtra	0.47 [0.41, 0.53]	0.55 [0.49, 0.60]
Uttarakhand	0.46 [0.41, 0.52]	0.59 [0.54, 0.65]
Karnataka	0.46 [0.41, 0.52]	0.54 [0.48, 0.60]
Gujarat	0.45 [0.41, 0.50]	0.59 [0.52, 0.64]
Andhra Pradesh	0.45 [0.39, 0.52]	0.56 [0.50, 0.61]
Madhya Pradesh	0.45 [0.40, 0.51]	0.58 [0.53, 0.64]
Tamil Nadu	0.44 [0.40, 0.49]	0.55 [0.49, 0.60]
Uttar Pradesh	0.41 [0.35, 0.46]	0.55 [0.48, 0.61]
Sikkim	0.36 [0.30, 0.41]	0.56 [0.50, 0.62]
Bihar	0.34 [0.29, 0.40]	0.47 [0.41, 0.53]
Arunachal Pradesh	0.33 [0.28, 0.39]	0.48 [0.43, 0.53]
Meghalaya	0.32 [0.27, 0.37]	0.43 [0.37, 0.48]
Assam	0.29 [0.24, 0.35]	0.42 [0.37, 0.47]
Tripura	0.25 [0.20, 0.29]	0.51 [0.46, 0.57]
West Bengal	0.25 [0.18, 0.31]	0.43 [0.37, 0.48]
Mizoram	0.24 [0.19, 0.30]	0.38 [0.31, 0.45]
Jharkhand	0.22 [0.15, 0.29]	0.37 [0.32, 0.44]
Nagaland	0.22 [0.16, 0.26]	0.44 [0.38, 0.50]
Odisha	0.20 [0.15, 0.25]	0.33 [0.27, 0.39]
Manipur	0.19 [0.13, 0.24]	0.48 [0.42, 0.53]
Chhattisgarh	0.19 [0.13, 0.24]	0.29 [0.24, 0.35]

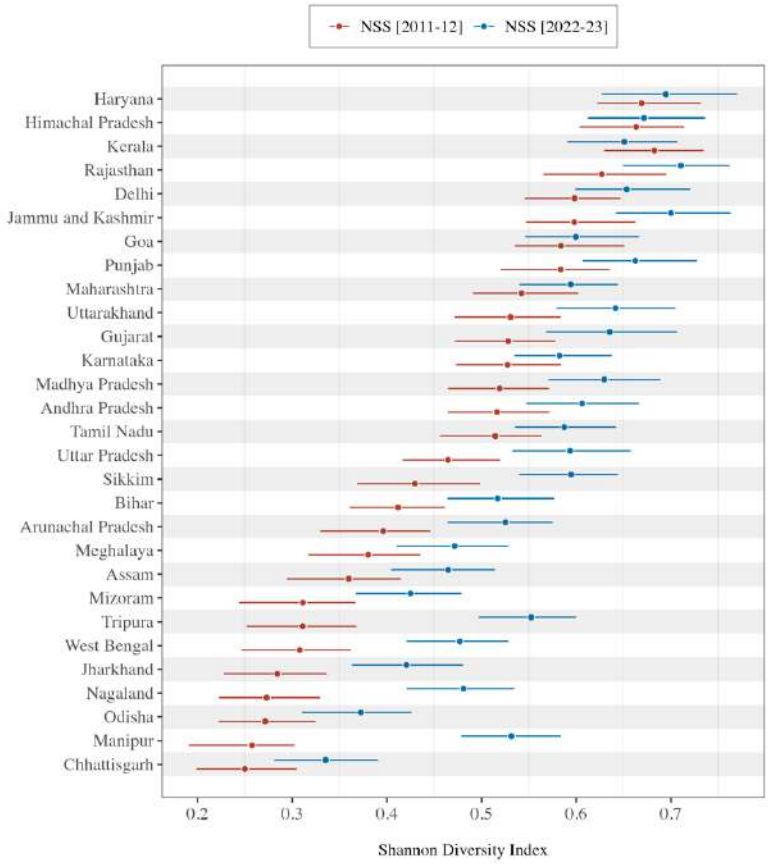
Table 3i Part 2:

Shannon Diversity Index of Urban Households: Vitamin C



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.58 [0.56, 0.61]	0.64 [0.61, 0.66]
60-80%	0.52 [0.50, 0.54]	0.60 [0.58, 0.62]
40-60%	0.47 [0.45, 0.49]	0.57 [0.55, 0.60]
20-40%	0.42 [0.40, 0.44]	0.54 [0.52, 0.57]
Bottom 20%	0.34 [0.31, 0.36]	0.49 [0.47, 0.51]

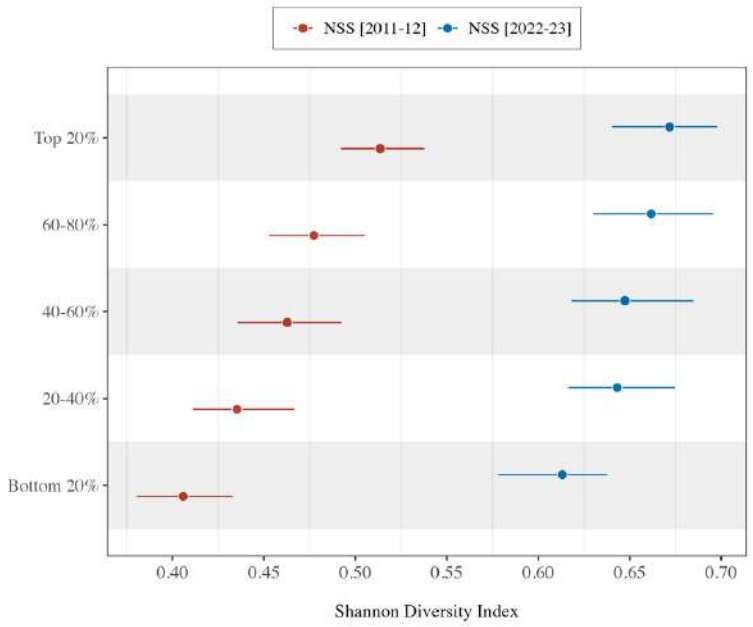
Shannon Diversity Index of Urban Households: Vitamin C



	NSS [2011-12]	HCES [2022-23]
Haryana	0.67 [0.62, 0.73]	0.69 [0.63, 0.77]
Himachal Pradesh	0.66 [0.60, 0.71]	0.67 [0.61, 0.74]
Kerala	0.68 [0.63, 0.73]	0.65 [0.59, 0.71]
Rajasthan	0.63 [0.57, 0.69]	0.71 [0.65, 0.76]
Delhi	0.60 [0.55, 0.65]	0.65 [0.60, 0.72]
Jammu and Kashmir	0.60 [0.55, 0.66]	0.70 [0.64, 0.76]
Goa	0.58 [0.54, 0.65]	0.60 [0.55, 0.67]
Punjab	0.58 [0.52, 0.64]	0.66 [0.61, 0.73]
Maharashtra	0.54 [0.49, 0.60]	0.59 [0.54, 0.64]
Uttarakhand	0.53 [0.47, 0.58]	0.64 [0.58, 0.70]
Gujarat	0.53 [0.47, 0.58]	0.64 [0.57, 0.71]
Karnataka	0.53 [0.47, 0.58]	0.58 [0.53, 0.64]
Madhya Pradesh	0.52 [0.46, 0.57]	0.63 [0.57, 0.69]
Andhra Pradesh	0.52 [0.46, 0.57]	0.61 [0.55, 0.67]
Tamil Nadu	0.51 [0.46, 0.56]	0.59 [0.54, 0.64]
Uttar Pradesh	0.46 [0.42, 0.52]	0.59 [0.53, 0.66]
Sikkim	0.43 [0.37, 0.50]	0.59 [0.54, 0.64]
Bihar	0.41 [0.36, 0.46]	0.52 [0.46, 0.58]
Arunachal Pradesh	0.40 [0.33, 0.45]	0.53 [0.46, 0.58]
Meghalaya	0.38 [0.32, 0.44]	0.47 [0.41, 0.53]
Assam	0.36 [0.29, 0.41]	0.46 [0.40, 0.51]
Mizoram	0.31 [0.24, 0.37]	0.42 [0.37, 0.48]
Tripura	0.31 [0.25, 0.37]	0.55 [0.50, 0.60]
West Bengal	0.31 [0.25, 0.36]	0.48 [0.42, 0.53]
Jharkhand	0.28 [0.23, 0.34]	0.42 [0.36, 0.48]
Nagaland	0.27 [0.22, 0.33]	0.48 [0.42, 0.53]
Odisha	0.27 [0.22, 0.32]	0.37 [0.31, 0.43]
Manipur	0.26 [0.19, 0.30]	0.53 [0.48, 0.58]
Chhattisgarh	0.25 [0.20, 0.31]	0.34 [0.28, 0.39]

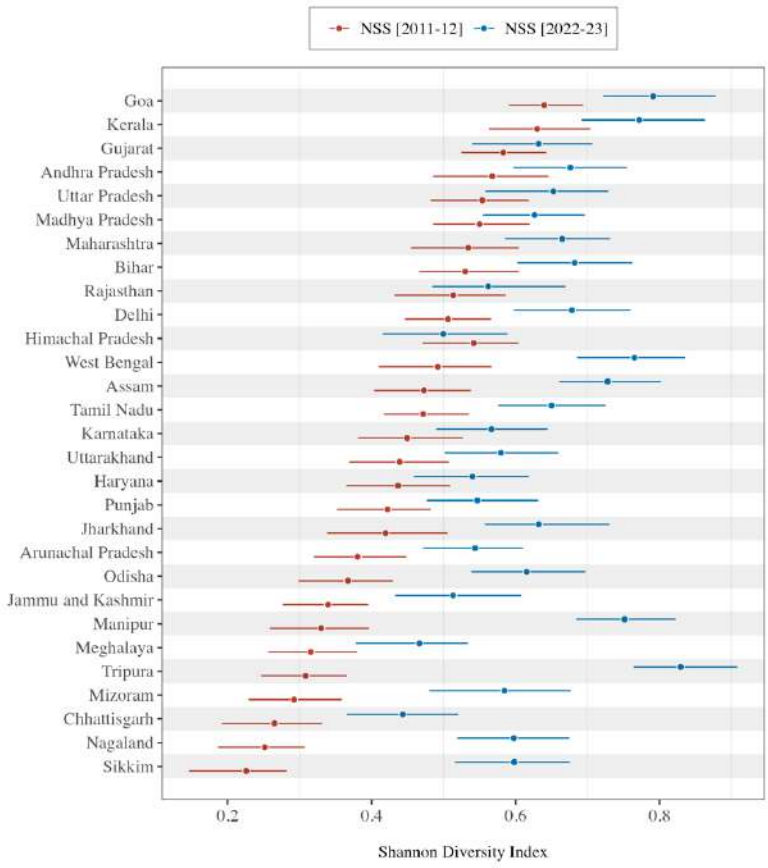
Table 3j Part 1:

Shannon Diversity Index of Rural Households: Vitamin A



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.51 [0.49, 0.54]	0.67 [0.64, 0.70]
60-80%	0.48 [0.45, 0.50]	0.66 [0.63, 0.70]
40-60%	0.46 [0.44, 0.49]	0.65 [0.62, 0.68]
20-40%	0.44 [0.41, 0.47]	0.64 [0.62, 0.67]
Bottom 20%	0.41 [0.38, 0.43]	0.61 [0.58, 0.64]

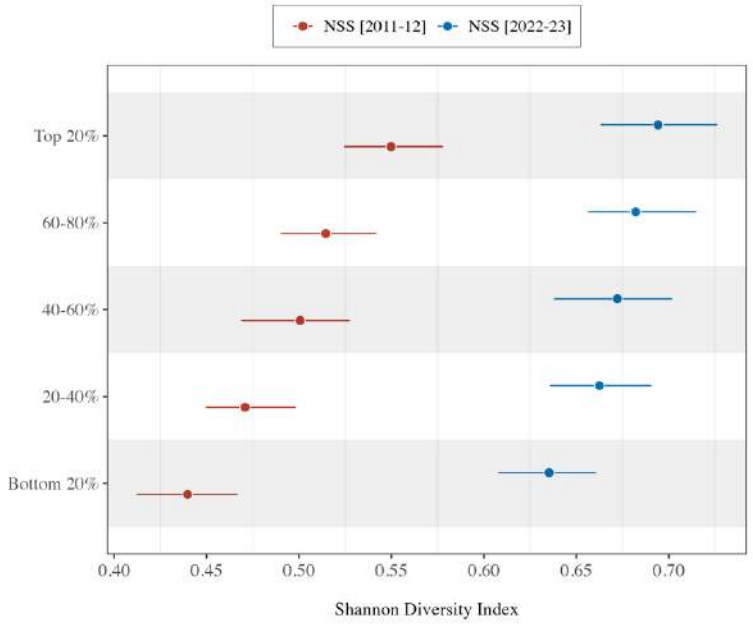
Shannon Diversity Index of Rural Households: Vitamin A



	NSS [2011-12]	HCES [2022-23]
Goa	0.64 [0.59, 0.69]	0.79 [0.72, 0.88]
Kerala	0.63 [0.56, 0.70]	0.77 [0.69, 0.86]
Gujarat	0.58 [0.52, 0.64]	0.63 [0.54, 0.71]
Andhra Pradesh	0.57 [0.49, 0.65]	0.68 [0.60, 0.75]
Uttar Pradesh	0.55 [0.48, 0.62]	0.65 [0.56, 0.73]
Madhya Pradesh	0.55 [0.49, 0.62]	0.63 [0.55, 0.70]
Maharashtra	0.53 [0.45, 0.60]	0.66 [0.59, 0.73]
Bihar	0.53 [0.47, 0.60]	0.68 [0.60, 0.76]
Rajasthan	0.51 [0.43, 0.59]	0.56 [0.48, 0.67]
Delhi	0.51 [0.45, 0.57]	0.68 [0.60, 0.76]
Himachal Pradesh	0.54 [0.47, 0.60]	0.50 [0.42, 0.59]
West Bengal	0.49 [0.41, 0.57]	0.77 [0.69, 0.84]
Assam	0.47 [0.40, 0.54]	0.73 [0.66, 0.80]
Tamil Nadu	0.47 [0.42, 0.54]	0.65 [0.58, 0.73]
Karnataka	0.45 [0.38, 0.53]	0.57 [0.49, 0.64]
Uttarakhand	0.44 [0.37, 0.51]	0.58 [0.50, 0.66]
Haryana	0.44 [0.36, 0.51]	0.54 [0.46, 0.62]
Punjab	0.42 [0.35, 0.48]	0.55 [0.48, 0.63]
Jharkhand	0.42 [0.34, 0.51]	0.63 [0.56, 0.73]
Arunachal Pradesh	0.38 [0.32, 0.45]	0.54 [0.47, 0.61]
Odisha	0.37 [0.30, 0.43]	0.62 [0.54, 0.70]
Jammu and Kashmir	0.34 [0.28, 0.40]	0.51 [0.43, 0.61]
Manipur	0.33 [0.26, 0.40]	0.75 [0.68, 0.82]
Meghalaya	0.32 [0.26, 0.38]	0.47 [0.38, 0.53]
Tripura	0.31 [0.25, 0.37]	0.83 [0.76, 0.91]
Mizoram	0.29 [0.23, 0.36]	0.58 [0.48, 0.68]
Chhattisgarh	0.27 [0.19, 0.33]	0.44 [0.37, 0.52]
Nagaland	0.25 [0.19, 0.31]	0.60 [0.52, 0.67]
Sikkim	0.23 [0.15, 0.28]	0.60 [0.52, 0.68]

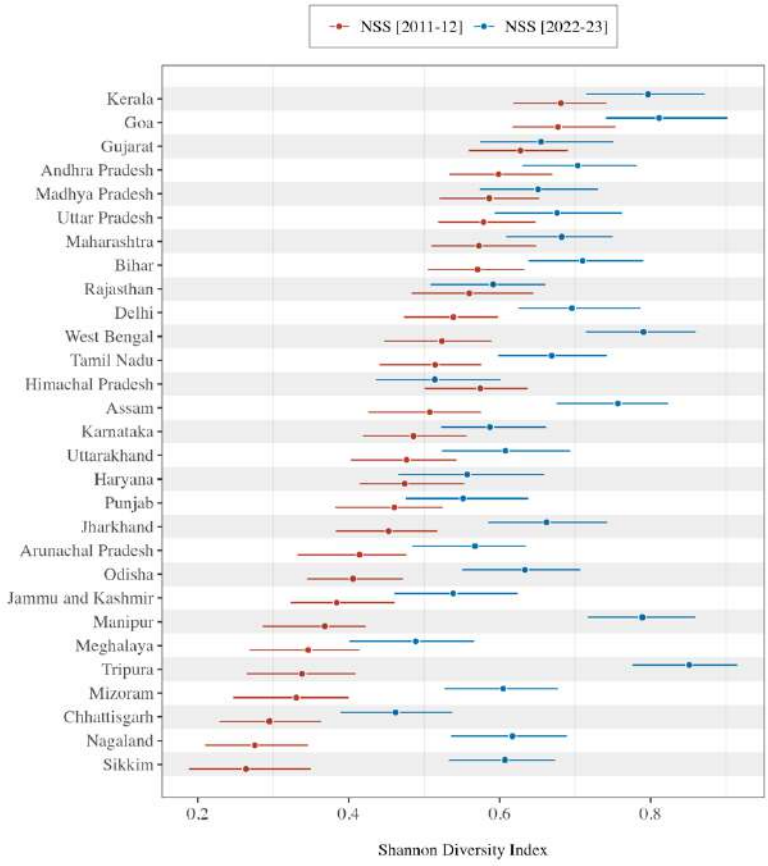
Table 3j Part 2:

Shannon Diversity Index of Urban Households: Vitamin A



	NSS [2011-12]	HCES [2022-23]
Top 20%	0.55 [0.52, 0.58]	0.69 [0.66, 0.73]
60-80%	0.51 [0.49, 0.54]	0.68 [0.66, 0.71]
40-60%	0.50 [0.47, 0.53]	0.67 [0.64, 0.70]
20-40%	0.47 [0.45, 0.50]	0.66 [0.64, 0.69]
Bottom 20%	0.44 [0.41, 0.47]	0.64 [0.61, 0.66]

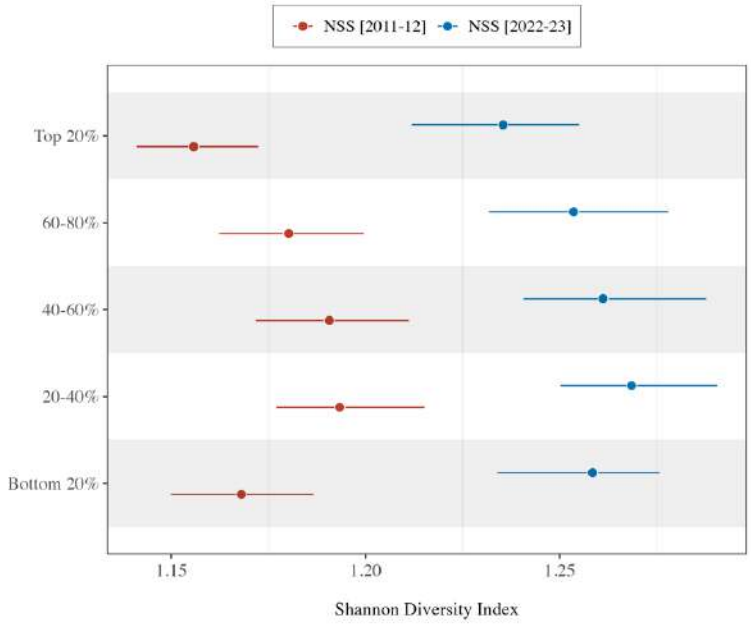
Shannon Diversity Index of Urban Households: Vitamin A



	NSS [2011-12]	HCES [2022-23]
Kerala	0.68 [0.62, 0.74]	0.80 [0.71, 0.87]
Goa	0.68 [0.62, 0.75]	0.81 [0.74, 0.90]
Gujarat	0.63 [0.56, 0.69]	0.65 [0.57, 0.75]
Andhra Pradesh	0.60 [0.53, 0.67]	0.70 [0.63, 0.78]
Madhya Pradesh	0.59 [0.52, 0.65]	0.65 [0.57, 0.73]
Uttar Pradesh	0.58 [0.52, 0.65]	0.68 [0.59, 0.76]
Maharashtra	0.57 [0.51, 0.65]	0.68 [0.61, 0.75]
Bihar	0.57 [0.50, 0.63]	0.71 [0.64, 0.79]
Rajasthan	0.56 [0.48, 0.64]	0.59 [0.51, 0.66]
Delhi	0.54 [0.47, 0.60]	0.70 [0.62, 0.79]
West Bengal	0.52 [0.45, 0.59]	0.79 [0.71, 0.86]
Tamil Nadu	0.51 [0.44, 0.58]	0.67 [0.60, 0.74]
Himachal Pradesh	0.57 [0.50, 0.64]	0.51 [0.44, 0.60]
Assam	0.51 [0.43, 0.58]	0.76 [0.68, 0.82]
Karnataka	0.49 [0.42, 0.56]	0.59 [0.52, 0.66]
Uttarakhand	0.48 [0.40, 0.54]	0.61 [0.52, 0.69]
Haryana	0.47 [0.41, 0.55]	0.56 [0.47, 0.66]
Punjab	0.46 [0.38, 0.52]	0.55 [0.48, 0.64]
Jharkhand	0.45 [0.38, 0.52]	0.66 [0.58, 0.74]
Arunachal Pradesh	0.41 [0.33, 0.48]	0.57 [0.48, 0.63]
Odisha	0.41 [0.34, 0.47]	0.63 [0.55, 0.71]
Jammu and Kashmir	0.38 [0.32, 0.46]	0.54 [0.46, 0.62]
Manipur	0.37 [0.29, 0.42]	0.79 [0.72, 0.86]
Meghalaya	0.35 [0.27, 0.41]	0.49 [0.40, 0.57]
Tripura	0.34 [0.27, 0.41]	0.85 [0.78, 0.91]
Mizoram	0.33 [0.25, 0.40]	0.60 [0.53, 0.68]
Chhattisgarh	0.30 [0.23, 0.36]	0.46 [0.39, 0.54]
Nagaland	0.28 [0.21, 0.35]	0.62 [0.54, 0.69]
Sikkim	0.26 [0.19, 0.35]	0.61 [0.53, 0.67]

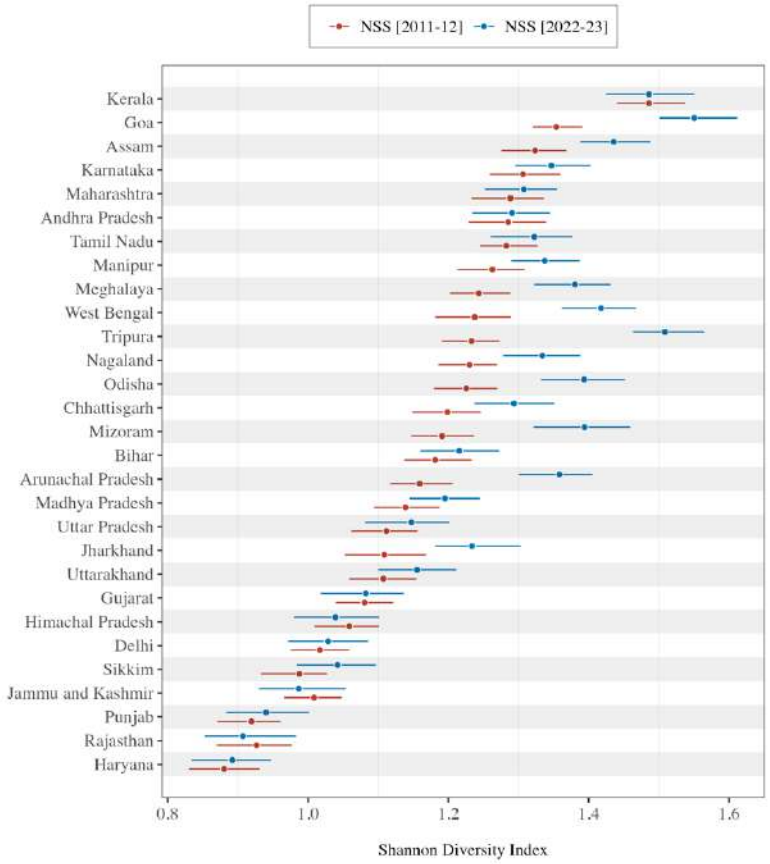
Table 3k Part 1:

Shannon Diversity Index of Rural Households: Calcium



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.16 [1.14, 1.17]	1.24 [1.21, 1.25]
60-80%	1.18 [1.16, 1.20]	1.25 [1.23, 1.28]
40-60%	1.19 [1.17, 1.21]	1.26 [1.24, 1.29]
20-40%	1.19 [1.18, 1.22]	1.27 [1.25, 1.29]
Bottom 20%	1.17 [1.15, 1.19]	1.26 [1.23, 1.28]

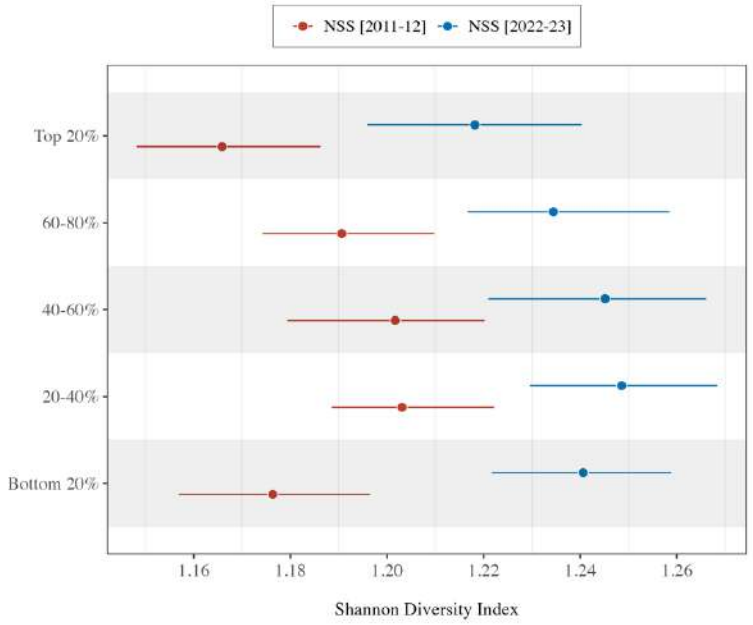
Shannon Diversity Index of Rural Households: Calcium



	NSS [2011-12]	HCES [2022-23]
Kerala	1.49 [1.44, 1.54]	1.49 [1.42, 1.55]
Goa	1.35 [1.32, 1.39]	1.55 [1.50, 1.61]
Assam	1.32 [1.28, 1.37]	1.44 [1.39, 1.49]
Karnataka	1.31 [1.26, 1.36]	1.35 [1.30, 1.40]
Maharashtra	1.29 [1.23, 1.34]	1.31 [1.25, 1.35]
Andhra Pradesh	1.29 [1.23, 1.34]	1.29 [1.23, 1.35]
Tamil Nadu	1.28 [1.24, 1.33]	1.32 [1.26, 1.38]
Manipur	1.26 [1.21, 1.31]	1.34 [1.29, 1.39]
Meghalaya	1.24 [1.20, 1.29]	1.38 [1.32, 1.43]
West Bengal	1.24 [1.18, 1.29]	1.42 [1.36, 1.47]
Tripura	1.23 [1.19, 1.27]	1.51 [1.46, 1.56]
Nagaland	1.23 [1.19, 1.27]	1.33 [1.28, 1.39]
Odisha	1.23 [1.18, 1.27]	1.39 [1.33, 1.45]
Chhattisgarh	1.20 [1.15, 1.25]	1.29 [1.24, 1.35]
Mizoram	1.19 [1.15, 1.24]	1.39 [1.32, 1.46]
Bihar	1.18 [1.14, 1.23]	1.22 [1.16, 1.27]
Arunachal Pradesh	1.16 [1.12, 1.21]	1.36 [1.30, 1.41]
Madhya Pradesh	1.14 [1.09, 1.19]	1.20 [1.14, 1.24]
Uttar Pradesh	1.11 [1.06, 1.16]	1.15 [1.08, 1.20]
Jharkhand	1.11 [1.05, 1.17]	1.23 [1.18, 1.30]
Uttarakhand	1.11 [1.06, 1.15]	1.16 [1.10, 1.21]
Gujarat	1.08 [1.04, 1.12]	1.08 [1.02, 1.14]
Himachal Pradesh	1.06 [1.01, 1.10]	1.04 [0.98, 1.10]
Delhi	1.02 [0.98, 1.06]	1.03 [0.97, 1.09]
Sikkim	0.99 [0.93, 1.03]	1.04 [0.98, 1.10]
Jammu and Kashmir	1.01 [0.97, 1.05]	0.99 [0.93, 1.05]
Punjab	0.92 [0.87, 0.96]	0.94 [0.88, 1.00]
Rajasthan	0.93 [0.87, 0.98]	0.91 [0.85, 0.98]
Haryana	0.88 [0.83, 0.93]	0.89 [0.83, 0.95]

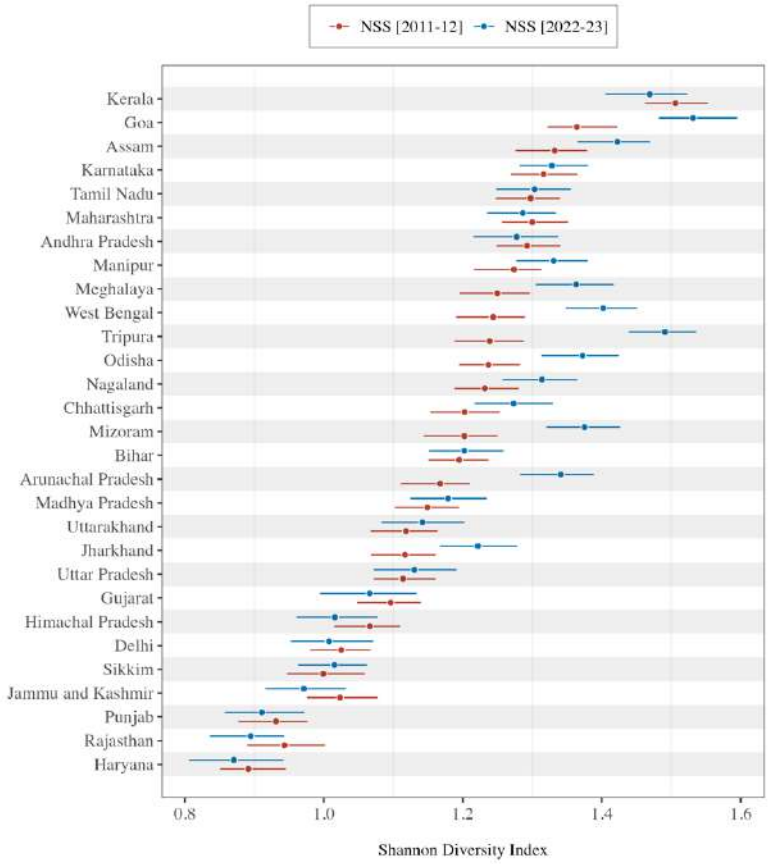
Table 3k Part 2:

Shannon Diversity Index of Urban Households: Calcium



	NSS [2011-12]	HCES [2022-23]
Top 20%	1.17 [1.15, 1.19]	1.22 [1.20, 1.24]
60-80%	1.19 [1.17, 1.21]	1.23 [1.22, 1.26]
40-60%	1.20 [1.18, 1.22]	1.25 [1.22, 1.27]
20-40%	1.20 [1.19, 1.22]	1.25 [1.23, 1.27]
Bottom 20%	1.18 [1.16, 1.20]	1.24 [1.22, 1.26]

Shannon Diversity Index of Urban Households: Calcium



	NSS [2011-12]	HCES [2022-23]
Kerala	1.51 [1.46, 1.55]	1.47 [1.41, 1.52]
Goa	1.36 [1.32, 1.42]	1.53 [1.48, 1.60]
Assam	1.33 [1.28, 1.38]	1.42 [1.37, 1.47]
Karnataka	1.32 [1.27, 1.37]	1.33 [1.28, 1.38]
Tamil Nadu	1.30 [1.25, 1.34]	1.30 [1.25, 1.36]
Maharashtra	1.30 [1.26, 1.35]	1.29 [1.24, 1.33]
Andhra Pradesh	1.29 [1.25, 1.34]	1.28 [1.22, 1.34]
Manipur	1.27 [1.22, 1.31]	1.33 [1.28, 1.38]
Meghalaya	1.25 [1.20, 1.30]	1.36 [1.30, 1.42]
West Bengal	1.24 [1.19, 1.29]	1.40 [1.35, 1.45]
Tripura	1.24 [1.19, 1.29]	1.49 [1.44, 1.54]
Odisha	1.24 [1.19, 1.28]	1.37 [1.31, 1.42]
Nagaland	1.23 [1.19, 1.28]	1.31 [1.26, 1.36]
Chhattisgarh	1.20 [1.15, 1.25]	1.27 [1.22, 1.33]
Mizoram	1.20 [1.14, 1.25]	1.38 [1.32, 1.43]
Bihar	1.19 [1.15, 1.24]	1.20 [1.15, 1.26]
Arunachal Pradesh	1.17 [1.11, 1.21]	1.34 [1.28, 1.39]
Madhya Pradesh	1.15 [1.10, 1.19]	1.18 [1.12, 1.23]
Uttarakhand	1.12 [1.07, 1.16]	1.14 [1.08, 1.20]
Jharkhand	1.12 [1.07, 1.16]	1.22 [1.17, 1.28]
Uttar Pradesh	1.11 [1.07, 1.16]	1.13 [1.07, 1.19]
Gujarat	1.10 [1.05, 1.14]	1.07 [0.99, 1.13]
Himachal Pradesh	1.07 [1.01, 1.11]	1.02 [0.96, 1.08]
Delhi	1.03 [0.98, 1.07]	1.01 [0.95, 1.07]
Sikkim	1.00 [0.95, 1.06]	1.02 [0.96, 1.06]
Jammu and Kashmir	1.02 [0.98, 1.08]	0.97 [0.92, 1.03]
Punjab	0.93 [0.88, 0.98]	0.91 [0.86, 0.97]
Rajasthan	0.94 [0.89, 1.00]	0.89 [0.84, 0.94]
Haryana	0.89 [0.85, 0.95]	0.87 [0.81, 0.94]

(v) Distribution of the Estimated Micronutrient Intake & Shannon Diversity Index

So far in the analysis, we have focused on the estimated mean of the daily micronutrient intake. As important as the mean is for understanding the differences across the consumption classes and the inter–state variations, it is essential to look at the distribution of these values as well. We illustrate this for the micronutrient iron.

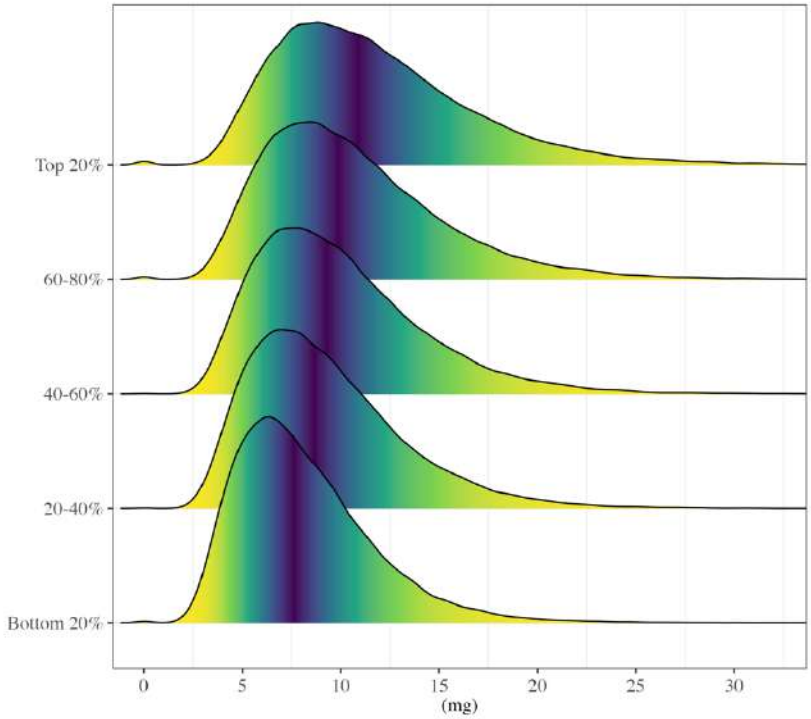
We observed significant variability in the estimated daily intake (adult female equivalent) around the median value (presented by the dark purple line) for each consumption class. It also reflects that for each consumption class, a significant proportion of individuals have an estimated daily iron intake below 5 mg. For instance, as Figure 15a shows, there is a considerable population, even within the highest consumption class (top 20%), whose iron intake is below 5mg. We also observed a similar distribution in the Shannon diversity index, reflecting variability in the dietary diversity of households. These results are reported in Figure 15a.

We also repeat the analysis for the states and find significant variations across and within states. For example, it is interesting to note that the average dietary diversity for iron intake in households in Rajasthan is very high compared to other states. Still, there is a significant variation within the state. A large proportion of households are way below the mean value. These results are reported in Figures 15b Part 1 and 15b Part 2.

From a policy perspective, the wide variability from the mean implies that policymakers would not only have to worry about improving the average micronutrient intake but also about the households within the consumption category or the states that should be targeted from an intervention perspective.

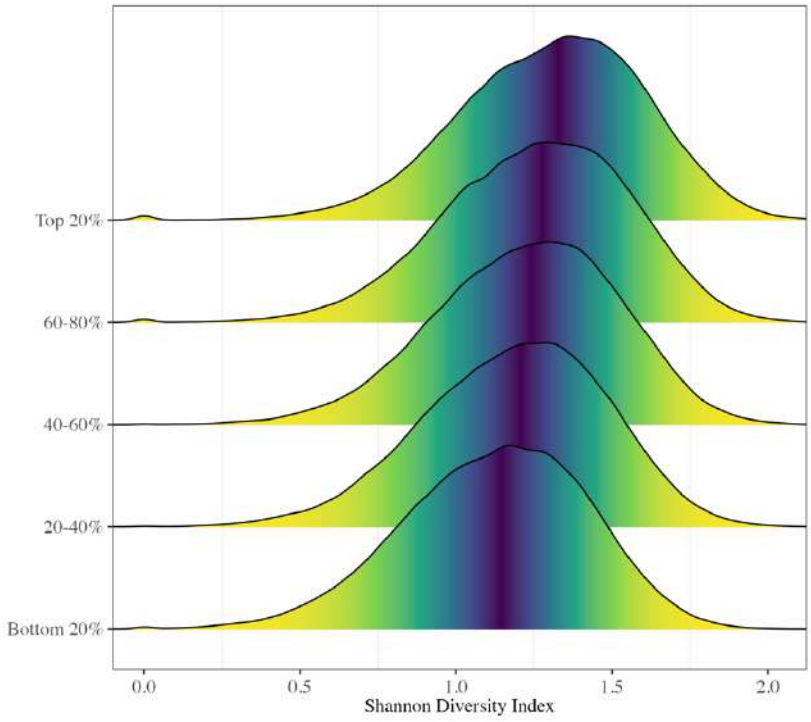
Table 15a:

Distribution of the Estimated Daily Intake (AFE): Iron



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Distribution of the Shannon Diversity Index: Iron



Data Source: Ministry of Statistics & Programme Implementation (MOSPI).
Dr. Shamika Ravi (Member, EAC-PM) & Dr. Mudit Kapoor (EPU, ISI-Delhi Center).

Table 15b Part 1:

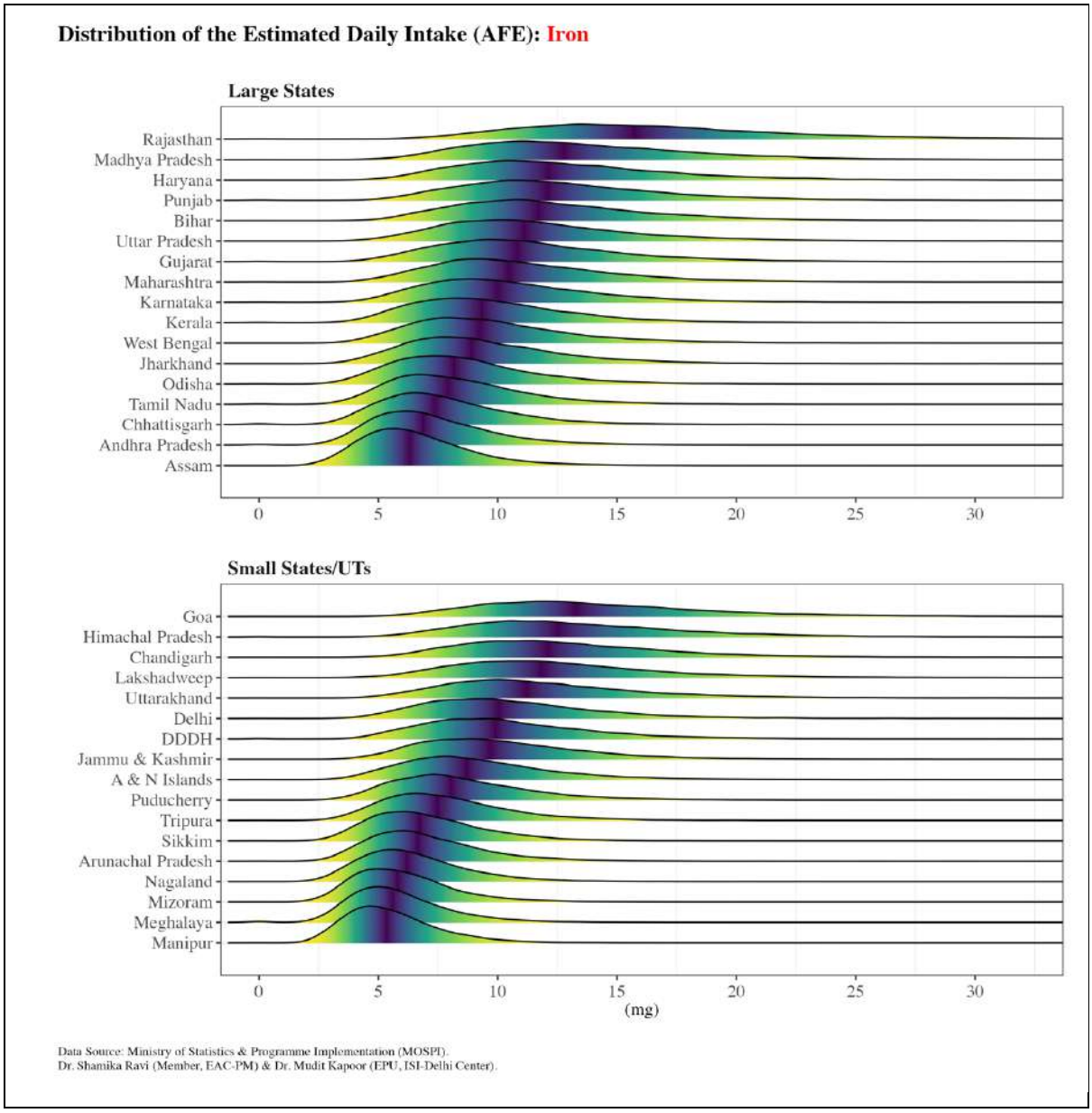
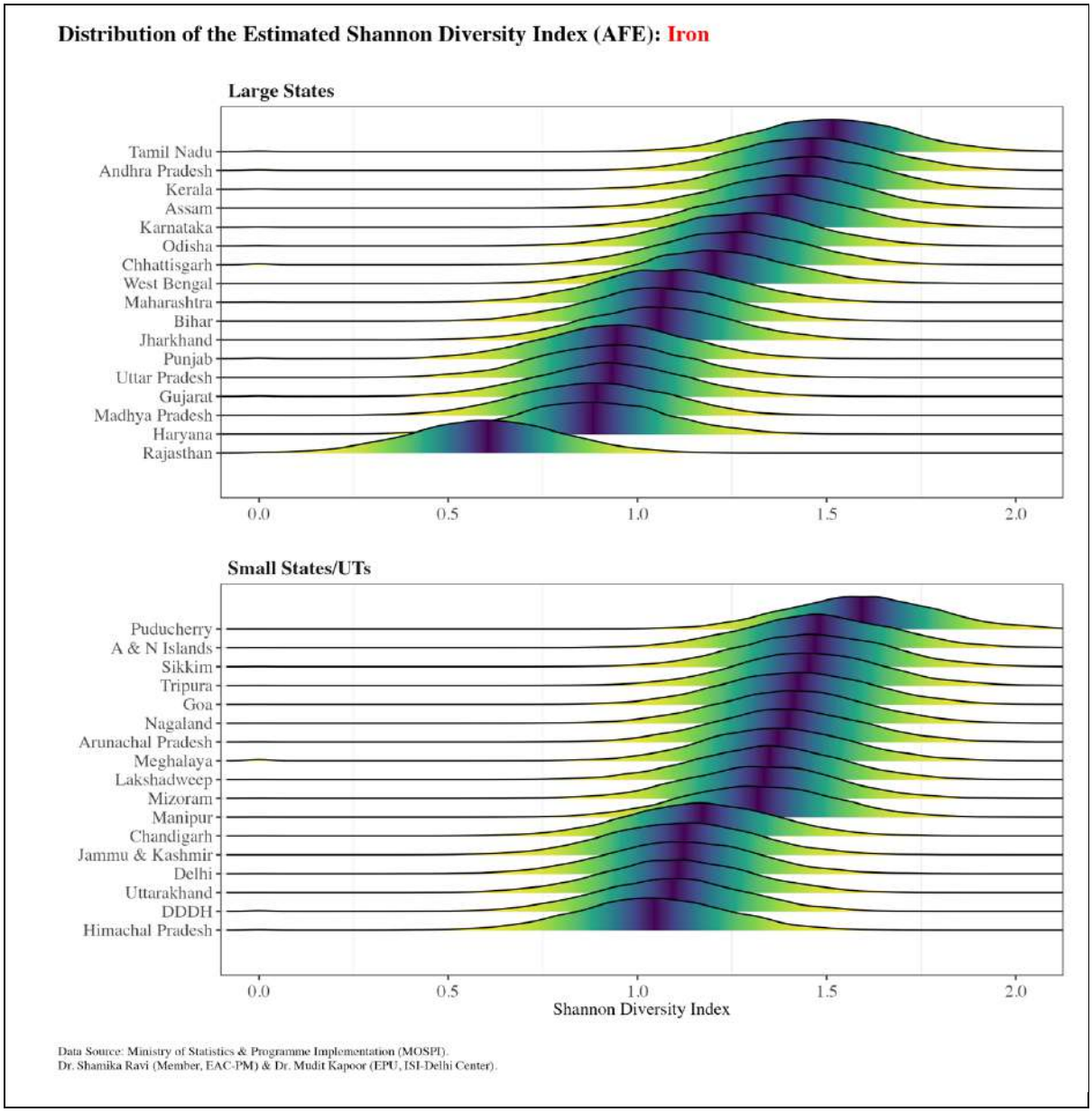


Figure 15b Part 2:



Key Takeaways

1. The estimated average daily intake of micronutrients in terms of adult female equivalent varied across consumption classes and states.
2. Cereals are an important source of many micronutrients, such as iron and Zinc. The differences in the average daily intake of these micronutrients between the top 20% of households and the bottom 20% were much lower when cereal was included than when cereal was excluded.
3. Comparisons between 2011–12 and 2022–23 reveal a decline in the average daily intake of micronutrients that depend heavily on cereals, such as Iron and Zinc. However, great care is needed in interpreting these results as analysis of food items has revealed a significant decline (almost 20%) in per capita consumption of cereals during the same period. We also observed a substantial rise in consumption of packaged processed food across all consumption classes. In this analysis, we have limited our attention to food items cooked at home and excluded micronutrient intake from packaged processed food. A detailed study on trends in packaged processed food would be done separately as it has significant health implications.
4. We observed a significant improvement in dietary diversity (as measured by the Shannon Diversity Index) of the micronutrient intake from 2011–12 to 2022–23. This phenomenon was observed across all consumption classes, where the bottom 20% of households have made the most substantial gain in raising dietary diversity.
5. We also observed significant gains in dietary diversity across states and UTs. However, the northeastern states, such as Sikkim, Arunachal Pradesh, and Tripura, have made some of the most significant gains. Dietary diversity in micronutrient intake also improved for states such as Bihar and Odisha, while Rajasthan showed only minor improvements.
6. The increase in dietary diversity, in particular for the bottom 20%, reflects substantial improvements in infrastructure, transport, and storage, which have made fresh fruits, eggs, fish & meat, and milk & milk products accessible and affordable across different socio-economic classes and different geographies in the country. This is a particularly heartening development and an essential marker of inclusive growth in the country in the last ten years.
7. We observed significant variations from the mean and the median in the average daily intake of micronutrients and dietary diversity within consumption classes and

states/UTs. This has important policy implications, as the impact of policy interventions will not necessarily be uniform. For example, government intervention to improve the average iron intake in the population could target the bottom 20%. Yet, the programme's impact could be very different depending on who the beneficiaries are within this subgroup. Therefore, policy interventions affecting micronutrient intake must be carefully calibrated and well-targeted.

Chapter 4: Relationship between Prevalence of Anaemia, Average Daily Intake of Iron, and Dietary Diversity (Shannon Diversity Index): An Exploratory Analysis

Introduction

In this chapter, we explore the relation between the prevalence of Anaemia, the average daily intake of iron, and the dietary diversity of the source of iron (measured by the Shannon Diversity Index). We do this analysis at the state/UT level and further extend the study to the National Sample Survey regions, where some large states, such as Uttar Pradesh, Bihar, and Madhya Pradesh etc., are further subdivided into regions. We consider the prevalence of Anaemia among children (6 to 59 months) and women (aged 15 to 49 years).

Data

The data for Anaemia is from the 5th round of the National Family Health Survey (NFHS 5) 2019–21.[17] We used the unit-level data from the Person Record files to estimate the prevalence of Anaemia among children aged 6 to 59 months across states/UTs. We used the district information to construct the NSS regions and estimate the prevalence of Anaemia among children across the NSS regions. Information from a sample of 153,365 children was used for the analysis. Unit-level data on 690,153 women (aged 15 to 49 years) from the Individual Records was used to estimate the prevalence of Anaemia among women across states/UTs and the NSS regions. Our analysis relies on the prevalence of any Anaemia.

The estimates for the average iron intake and the Shannon Diversity Index (a measure of dietary diversity) at the state/UT level and the NSS regions were from the Household Consumption Expenditure Survey (HCES) 2022–23. The details of the survey are described in Chapter 1. For this part of the analysis, we used unit-level data on 257,905 households with cooking arrangements.

Statistical Model and Analysis

We use the estimates of the prevalence of Anaemia for children (6 to 59 months) and women (aged 15 to 49 years) from the NFHS–5 2019–21, and the estimates of the average iron intake and the average Shannon Diversity Index from the HCES 2022–23 and run the following regression. We run the regression at the state/UT level and the NSS regions.

In particular, for the state/UT level regression, we run the following,

[17] Details of the factsheets and the data are available from this website https://dhsprogram.com/pubs/pdf/FR375/FR375.pdf. The unit level data can be downloaded from DHS website https://dhsprogram.com/data/available-datasets.cfm.

$$log\ (Prevalence\ of\ Anaemia_{state}) = constant + (region_{state}) + \beta_1 \times standardized(log\ (average\ iron\ intake_{state})) + \beta_2 \times standardized(average\ Shannon\ Diversity\ Index_{state}) + error\ term,$$

where *region* refers to the six regions that state/UTs are divided into, North, Central, East, Northeast, West, and South. We use a random-intercept model for regions to allow for the possibility that states within a region might be correlated. We use standardized values for the natural logarithmic value of the average iron intake at the state level and the average Shannon Diversity index. The standardization allows for an easy interpretation of the intercept term.

We use the same regression for the NSS regions except that the random–effect across regions is replaced by State/UT. This allows for the possibility that NSS regions within each state might be correlated. In particular, we run the following regression.

$$log\ \left(Prevalence\ of\ Anaemia_{NSS\ Region}\right) = constant + \left(State/UT_{NSS\ Region}\right) + \beta_1 \times standardized\left(log\ \left(average\ iron\ intake_{NSS\ Region}\right)\right) + \beta_2 \times standardized\left(average\ Shannon\ Diversity\ Index_{NSS\ Region}\right) + error\ term.$$

For states, the data for the analysis was based on 37 states/UTs, and for the NSS regions, the analysis was based on 87 NSS regions.

The statistical analysis was done in *R*[18] , and the statistical package used was *rstanarm*[19] , a package for Bayesian Applied Regression Modeling via stan. Specifically, we used *stan_glmer - Bayesian inference for GLMs with group-specific coefficients with unknown covariance matrices with flexible priors*.[20] The analysis is based on four chains and 4000 iterations.

Results

(i) Dietary Diversity for Average Iron Intake

First, we show the variation across states regarding the dietary diversity in the source of iron. We present the results for six states, each presenting one of the six regions of India: North, Central, East, Northeast, West, and South.

Our analysis reveals significant diversity across the states. For example, roughly 84% of the average daily iron intake is from cereals in the Northern state of Rajasthan. In contrast, in the southern state of Kerala, cereals contributed only 22% of the average iron intake, while fresh

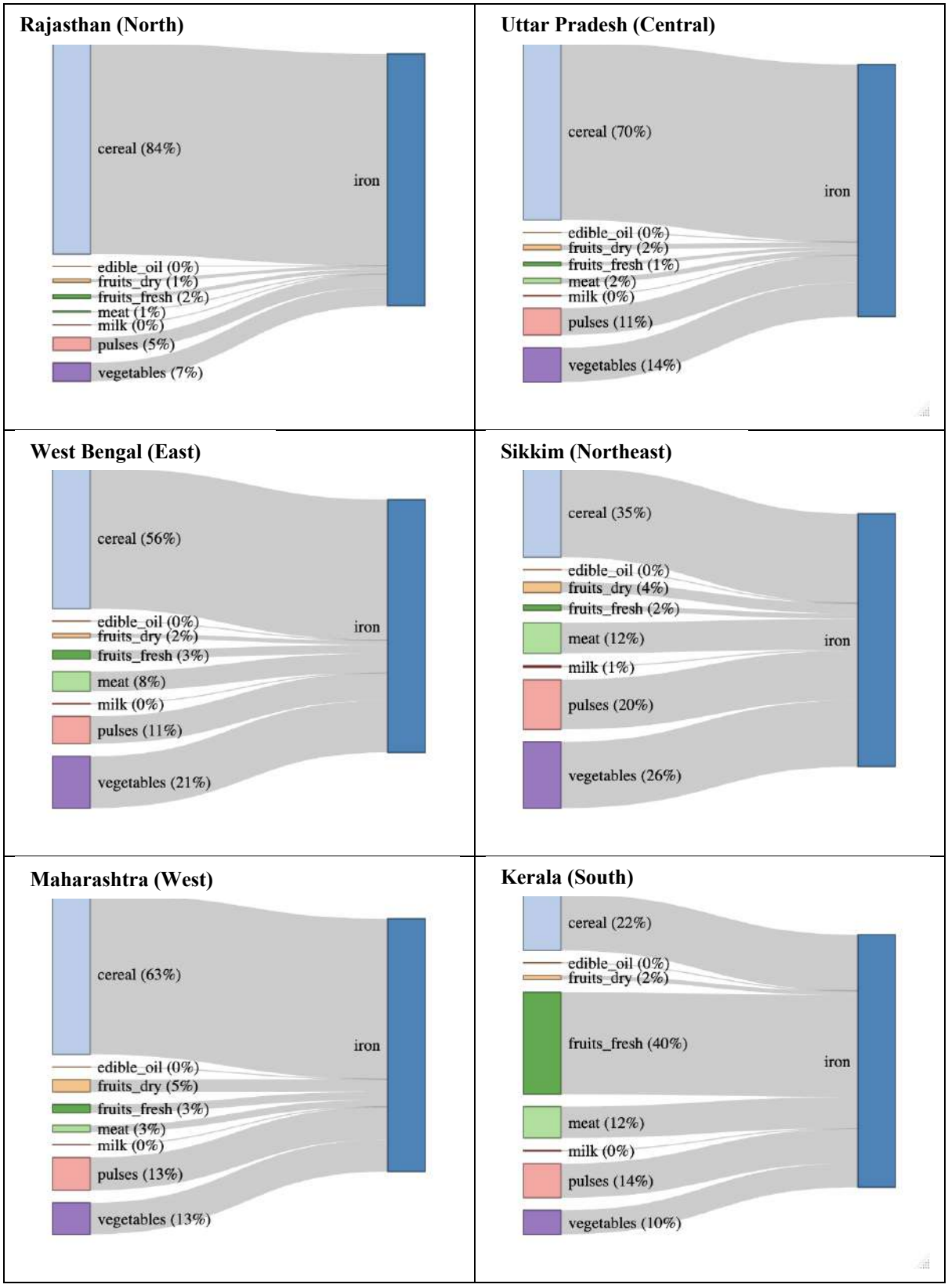
[18] https://www.r-project.org/.

[19] https://cran.r-project.org/web/packages/rstanarm/rstanarm.pdf

[20] https://cran.r-project.org/web/packages/rstanarm/rstanarm.pdf

fruits contributed 40% to the average iron intake. We also observed that vegetables (26%) and pulses (20%) contributed significantly to the average daily iron intake in the Northeastern state of Sikkim relative to other states. The analysis reveals that in the Central state of Uttar Pradesh, eastern state of West Bengal, and the Western state of Maharashtra, more than 50% of iron intake came from cereals. These results are shown in Figure 16.

Figure 16: Dietary Diversity across Regions



(ii) Prevalence of Anaemia among Children (6 to 59 months)

(a) State

Our first set of regression results are for the relationship between prevalence of Anaemia among children (6 to 59 months), the average iron intake and the average Shannon Diversity Index at the state level. We found that a 1–standard deviation increase from the mean value of the average Shannon Diversity Index was associated with approximately 14% [95% Uncertainty Interval: -20%, -3%] lower level in the prevalence of Anaemia.

A 1–standard deviation increase from the mean value of the natural log of average iron intake was associated with a 4% [95% UI: -15%, 5%] lower prevalence of Anaemia. The median Bayesian R^2 of the regression was 0.34. In other words, the model was able to explain 34% of the variation in the prevalence of Anaemia across states/UTs.

These results are in Figures 17a and 17b.

Figure 17a:

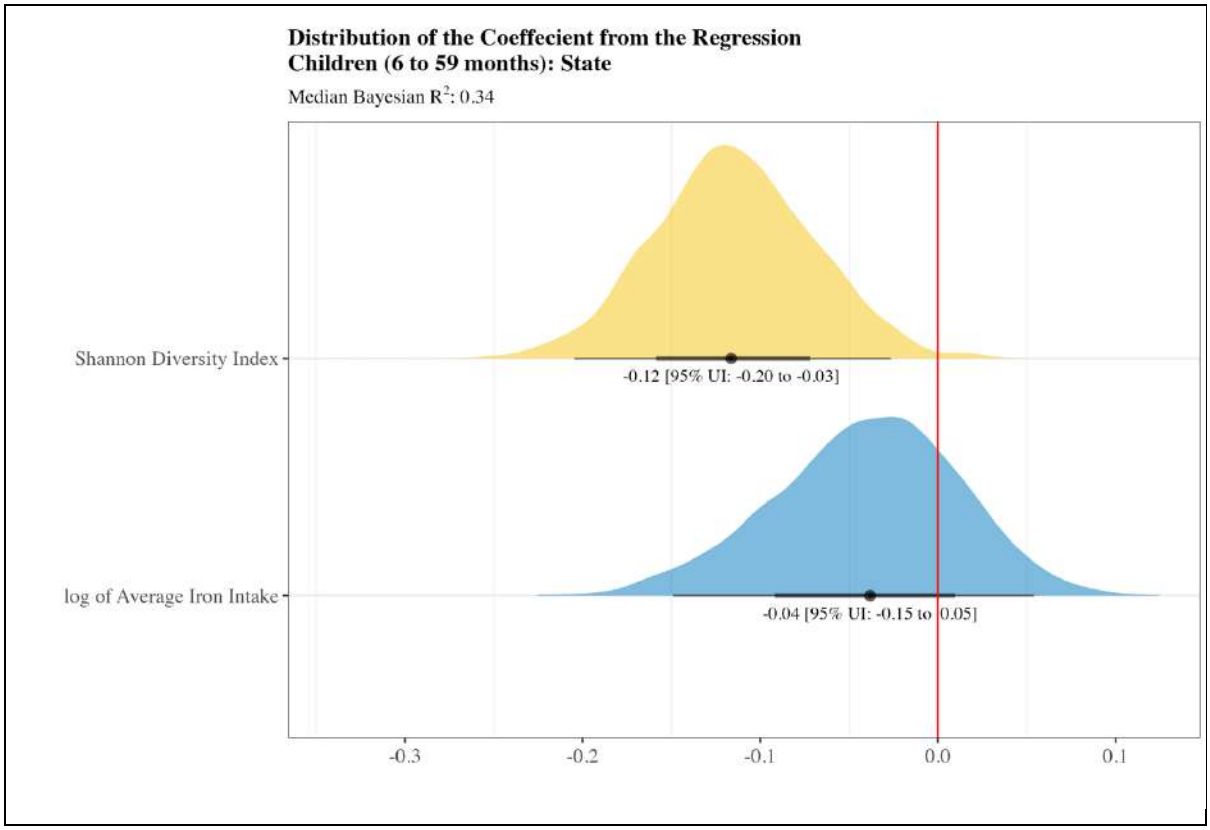
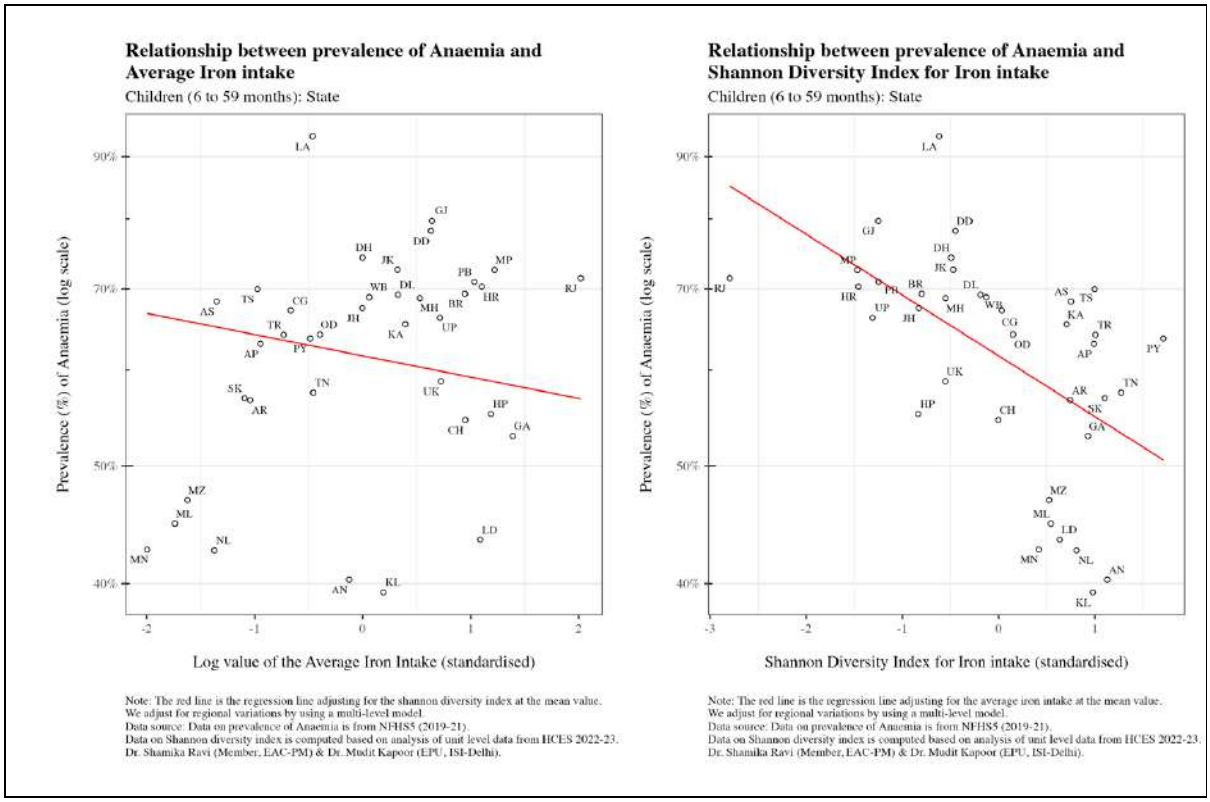


Figure 17b:



(b) NSS Region

Our next set of regression results are for the relationship between prevalence of Anaemia among children (6 to 59 months), the average iron intake and the average Shannon Diversity Index at the NSS region level. We found that a 1–standard deviation increase from the mean value of the average Shannon Diversity Index was associated with approximately 12% [95% Uncertainty Interval: -18%, -7%] lower level in the prevalence of Anaemia.

A 1–standard deviation increase from the mean value of the natural log of average iron intake was associated with a 7% [95% UI: -12%, -2%] lower prevalence of Anaemia.

The median Bayesian R^2 of the regression was 0.83. In other words, the model could explain 83% of the variation in the prevalence of Anaemia across the NSS region.

These results are in Figures 18a and 18b.

Figure 18a:

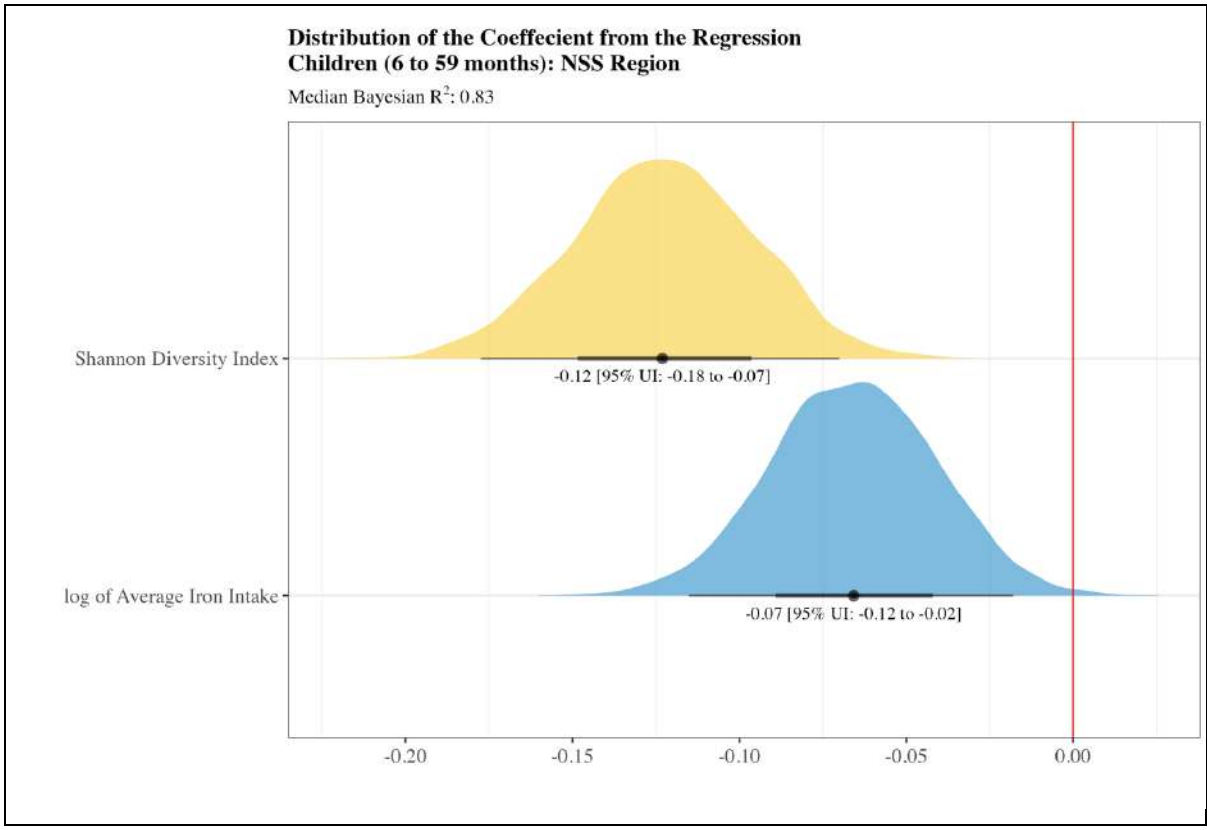
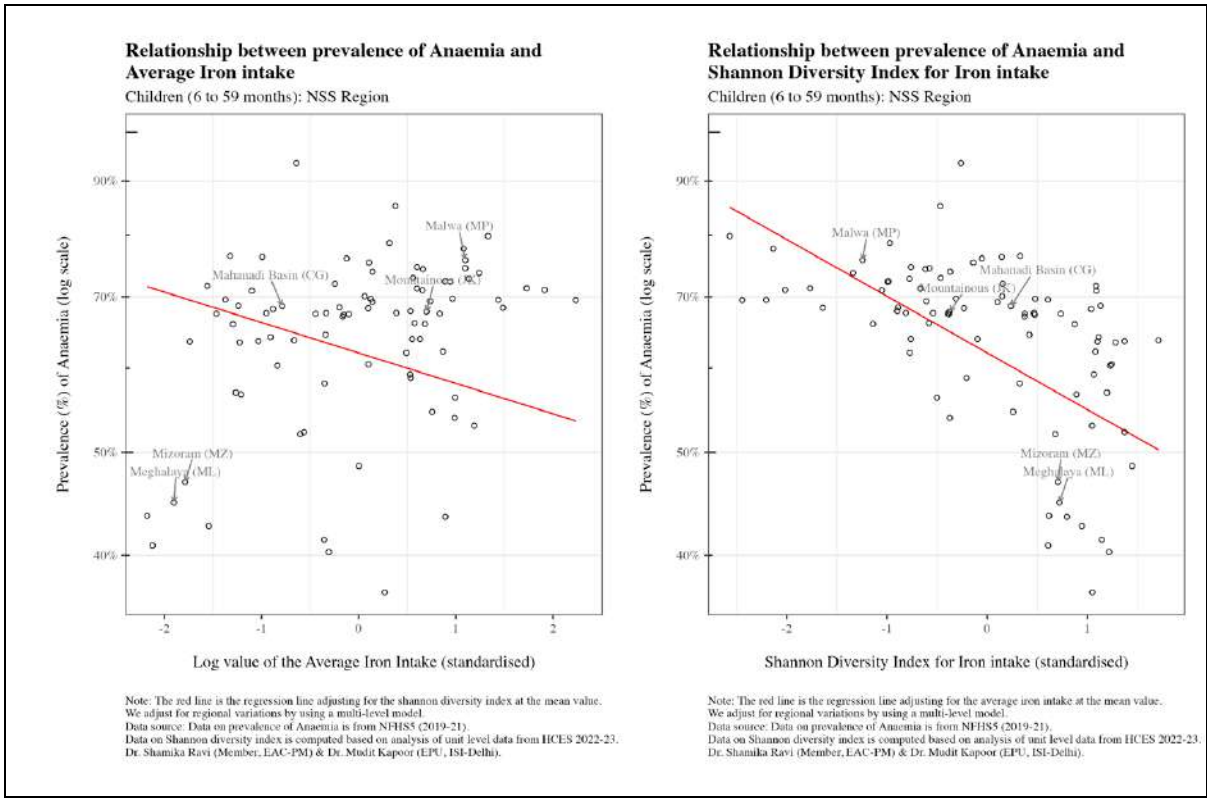


Figure 18b:



(iii) Prevalence of Anaemia among Women (aged 15 to 49 years)

(a) State

Our first set of regression results are for the relationship between prevalence of Anaemia among women (15 to 49 years), the average iron intake and the average Shannon Diversity Index at the state level. We found that a 1–standard deviation increase from the mean value of the average Shannon Diversity Index was associated with approximately 10% [95% Uncertainty Interval: -23%, 4%] lower level in the prevalence of Anaemia.

A 1–standard deviation increase from the mean value of the natural log of average iron intake was associated with a 10% [95% UI: -25%, 5%] lower prevalence of Anaemia.
The median Bayesian R^2 of the regression was 0.25. In other words, the model was able to explain 25% of the variation in the prevalence of Anaemia across states/UTs.

These results are in Figures 19a and 19b.

Figure 19a:

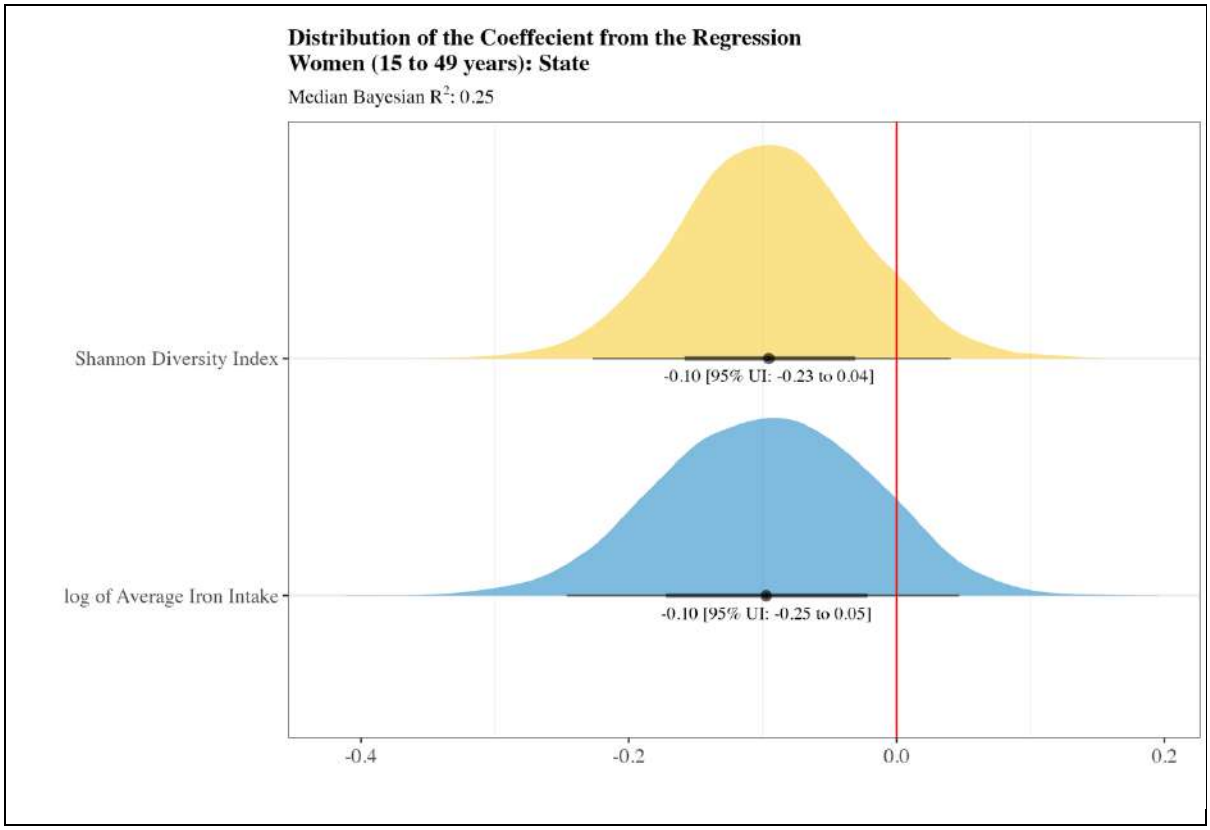
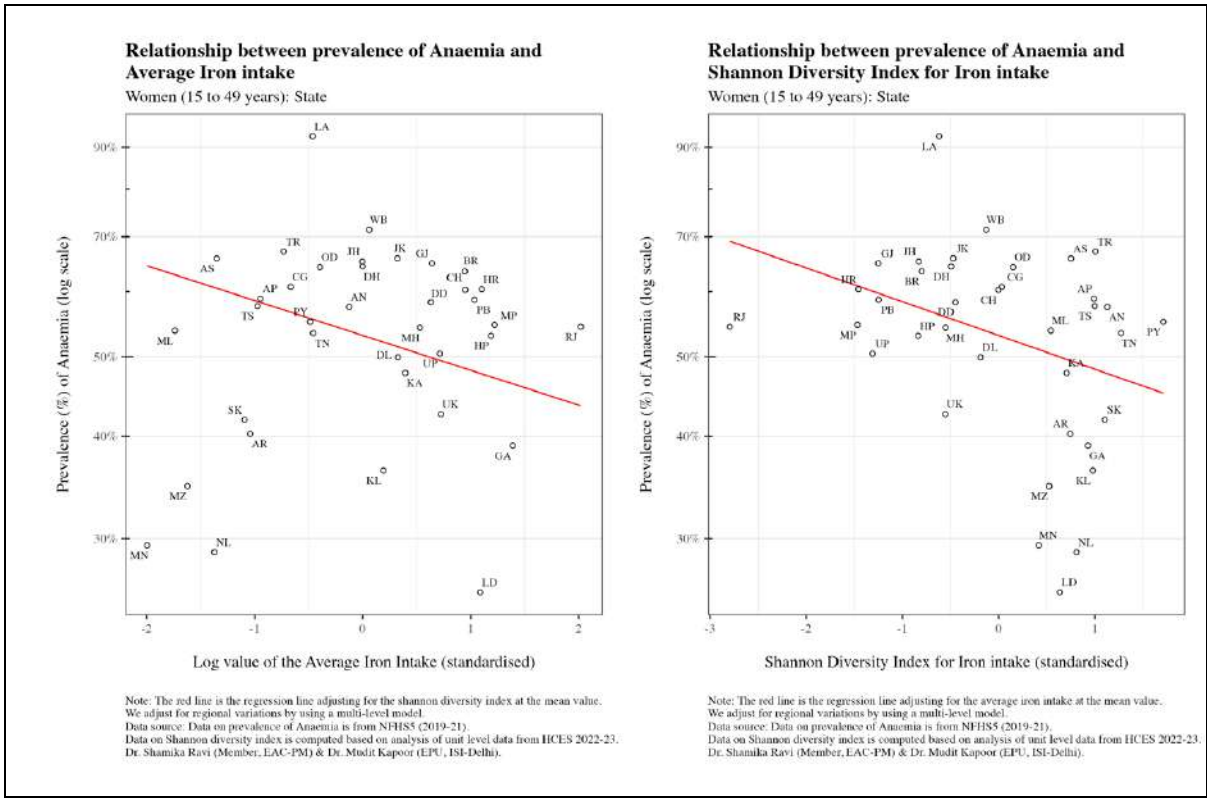


Figure 19b:



(b0 NSS Region

Our next set of regression results are for the relationship between prevalence of Anaemia among women (15 to 49 years), the average iron intake and the average Shannon Diversity Index at the NSS region level. We found that a 1–standard deviation increase from the mean value of the average Shannon Diversity Index was associated with approximately 11% [95% Uncertainty Interval: -18%, -5%] lower level in the prevalence of Anaemia.

A 1–standard deviation increase from the mean value of the natural log of average iron intake was associated with a 7% [95% UI: -13%, -2%] lower prevalence of Anaemia.

The median Bayesian R^2 of the regression was 0.86. In other words, the model could explain 86% of the variation in the prevalence of Anaemia across the NSS region.

These results are in Figures 20a and 20b.

Figure 20a:

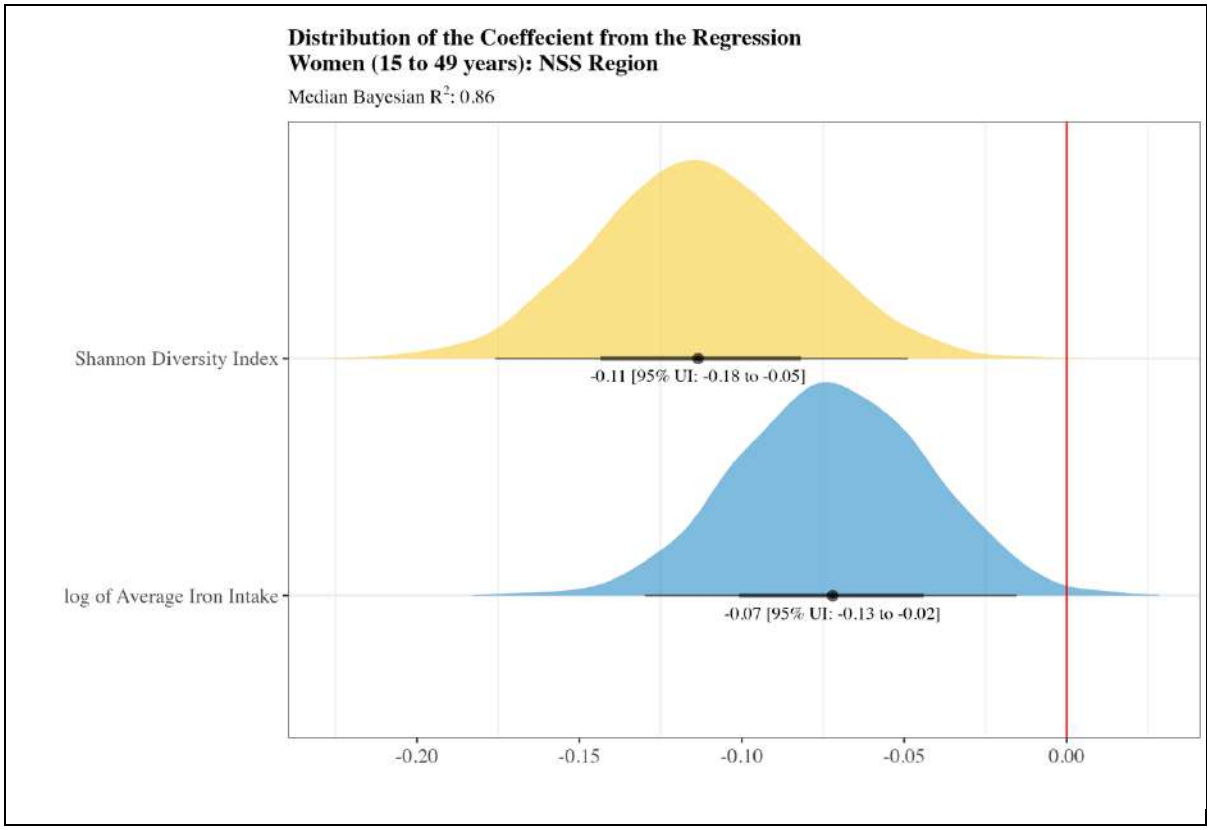
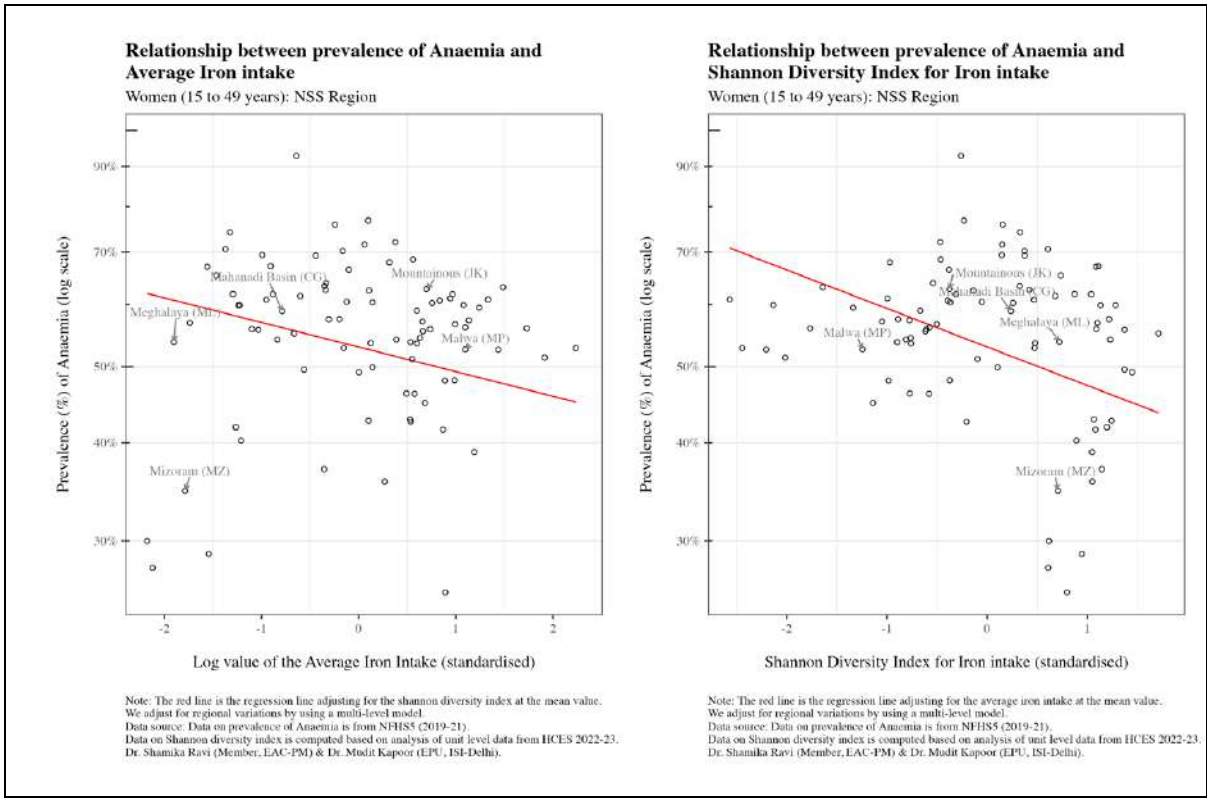


Figure 20b:



Key Takeaways

1. The key takeaway from this chapter is that the prevalence of Anaemia among children (6 to 59 months) and women (15 to 49 years) is inversely associated with the dietary diversity of iron sources as measured by the Shannon Diversity Index. This relationship was observed across state/UTs and the NSS regions.

2. Average Iron intake was inversely related to the prevalence of Anaemia. This relationship, however, was weaker at the state level for children (6 to 59 months).

3. Our analysis reveals that policies that aim to reduce anaemia among children and women would need to focus on improving iron intake and consider the dietary diversity of iron sources.

4. An implication of this is that economic growth and development, which improve the dietary diversity of the household, could play an instrumental role in reducing the prevalence of Anaemia among children and women. This compels us to think of the widespread appeal - yet limited impact - of universal fortification of cereals to improve iron intake and reduce the incidence of Anaemia in India. While such a program has a natural appeal due to the simplicity of implementation, we must acknowledge the empirical finding that a significant impact on reducing Anaemia might be achieved by pushing policies that promote dietary diversity at the household level. Besides general economic growth and further improvements in access and affordability of diverse food items through advancements in supply chain and logistics, it might also be essential to look into traditional practices and food habits at highly localized levels.