

Indian diets: Composition, cost, affordability

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Why should we care about diets?

- India's nutrition indicators have been slow to move over the last two decades
 - Persistent high rates of stunting among children <5 years (all India 35.5%; Kerala 23.4%)
 - High rates of anemia among children aged 6-59 months (all India 67.1%; Kerala 39.4%) and women (all India 57%; Kerala 36.3%)
 - Growing rates of overweight and obesity among women 15-49 (all India 24%; Kerala 38.1%) and men 15-49 (all India 22.9%; Kerala 36.4%)
- Growing burden also of non-communicable and lifestyle related diseases, like diabetes and hypertension
- A **diverse nutritious diet** can help address both under- and over-nutrition as well as micronutrient deficiencies – recommended *double-duty* action

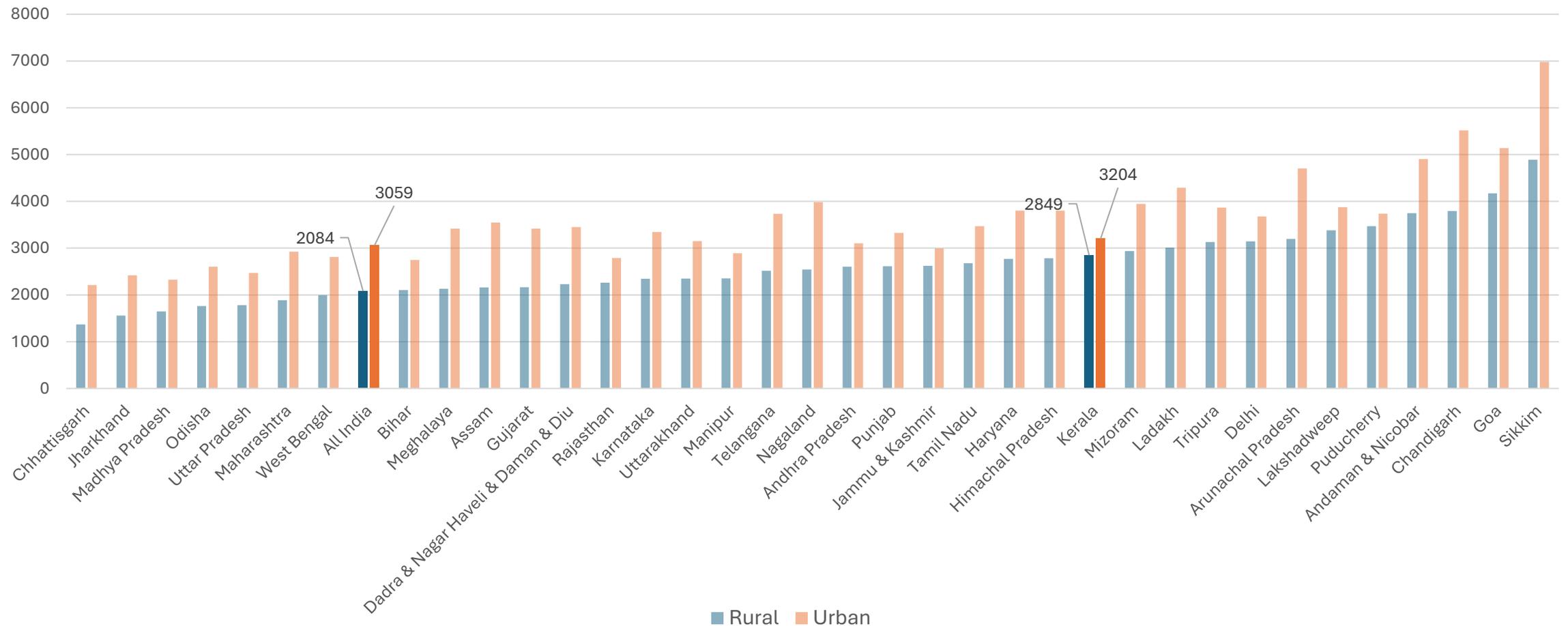
What we do in this analysis

- Use the latest round of the Household Consumer Expenditure Survey (2023-24) to provide estimates of
 - Monthly per consumer unit **expenditure on food** and on **processed foods**
 - Per consumer unit **calories, protein, and fat intake**
 - The minimum daily per consumer unit **cost to meet India's food-based dietary guidelines**, prepared by the National Institute of Nutrition
 - The **affordability of those diets**, against various benchmarks

One Consumer Unit (CU) is equivalent to the amount of energy required, on average, by an Indian adult man aged 20–39 years, weighing 60 kilograms, performing sedentary work

How much are people spending on food?

Average monthly food expenditure is INR 3059/cu (urban) and INR 2084/cu (rural); Kerala's food expenditure is far higher than the national average



Growing consumption of packaged processed foods

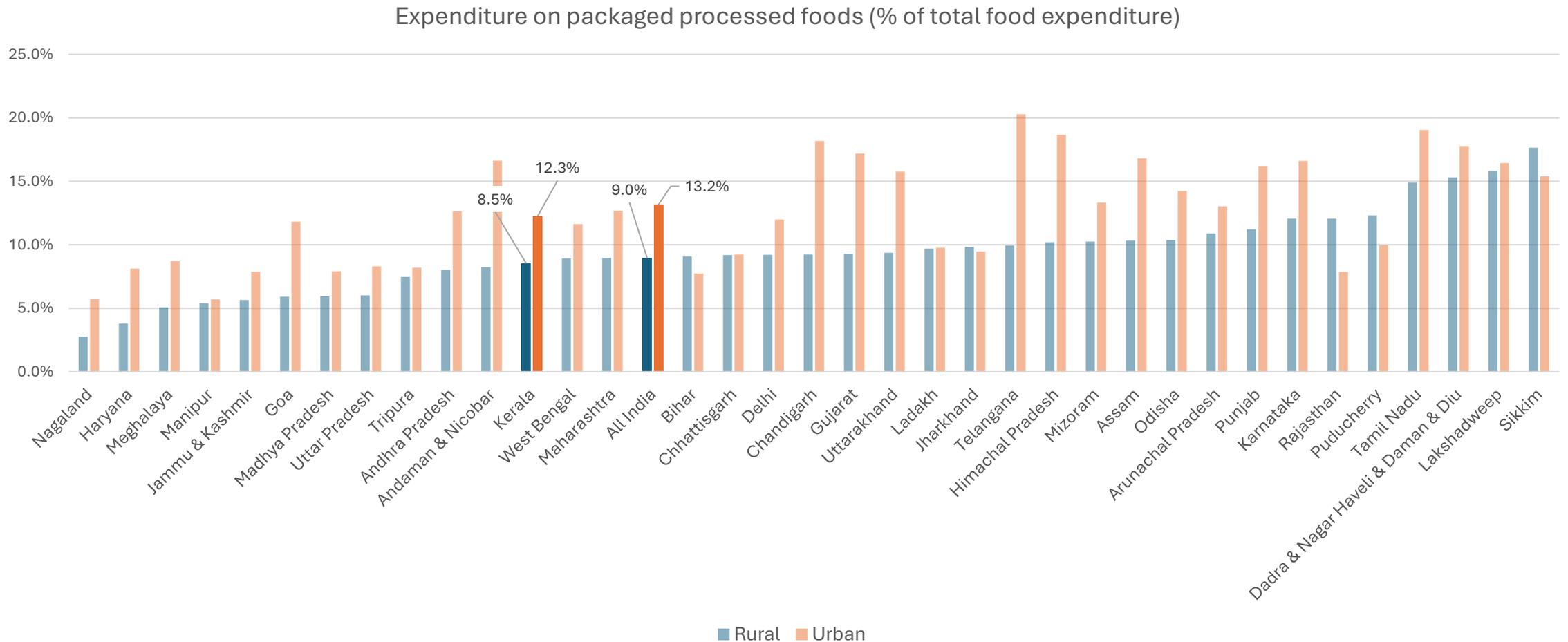
High salt, high fat, linked to diet-related chronic disease; recent Lancet report on ultra-processed foods



Photos taken by the author on field trips to Bihar (left, October 2025) and Chhattisgarh (right, December 2025)

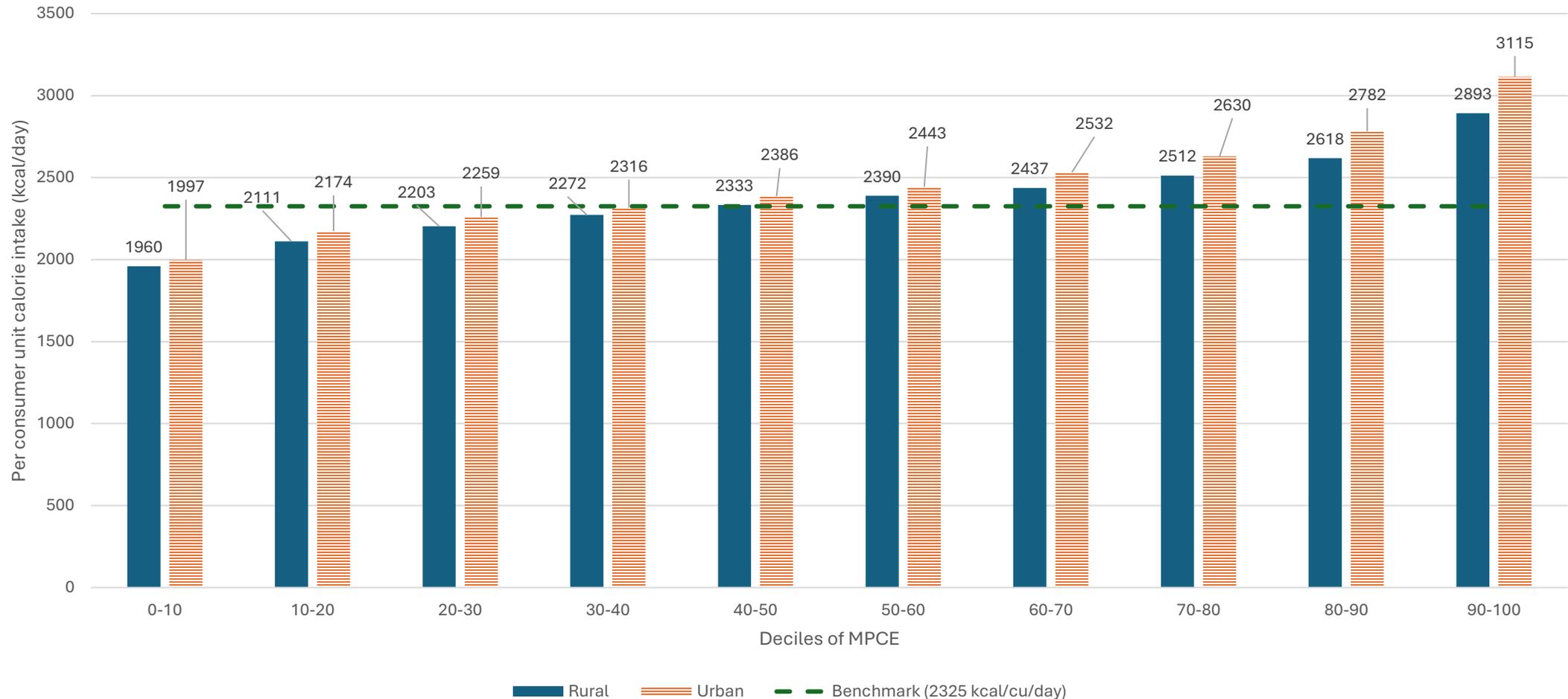
State-wise expenditure on packaged processed foods

Much higher in urban than in rural areas; Kerala's expenditure on processed foods/cu/day lower than all India average



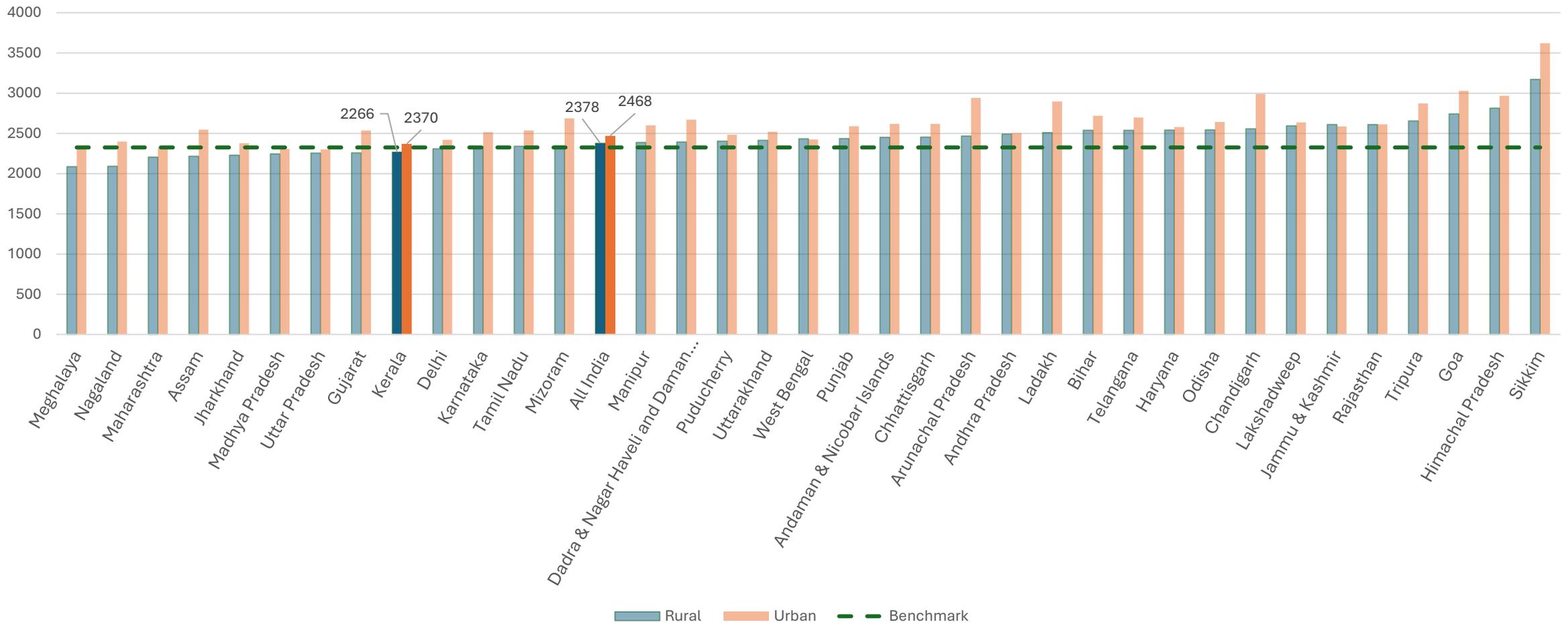
Calorie intake, across deciles of MPCE

Calorie intake exceeds the benchmark of 2325 kcal/cu/day for all MPCE deciles except the 3-4 poorest



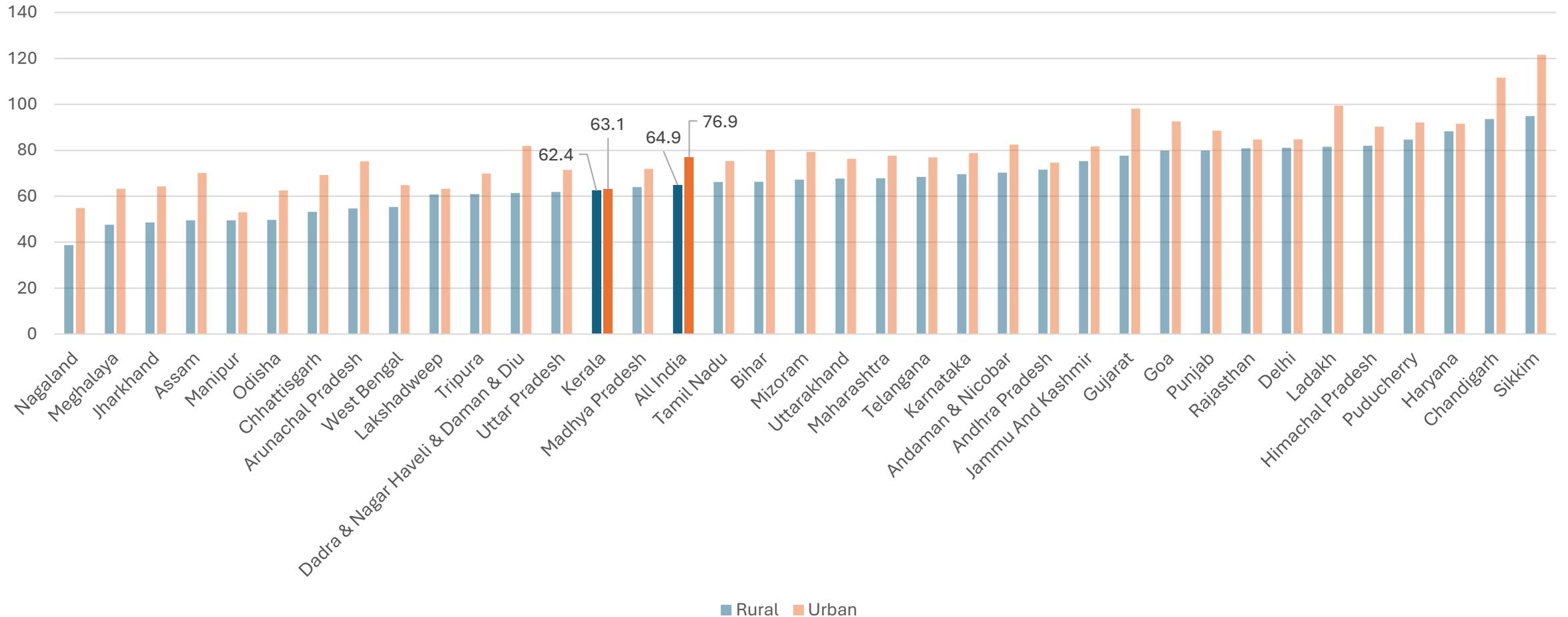
Calorie intake, by states

Somewhat surprisingly, Kerala's average daily calorie intake per consumer unit is lower than the all-India average and lower than that of several states. Calorie intake exceeds the benchmark in urban but not rural areas of the state.



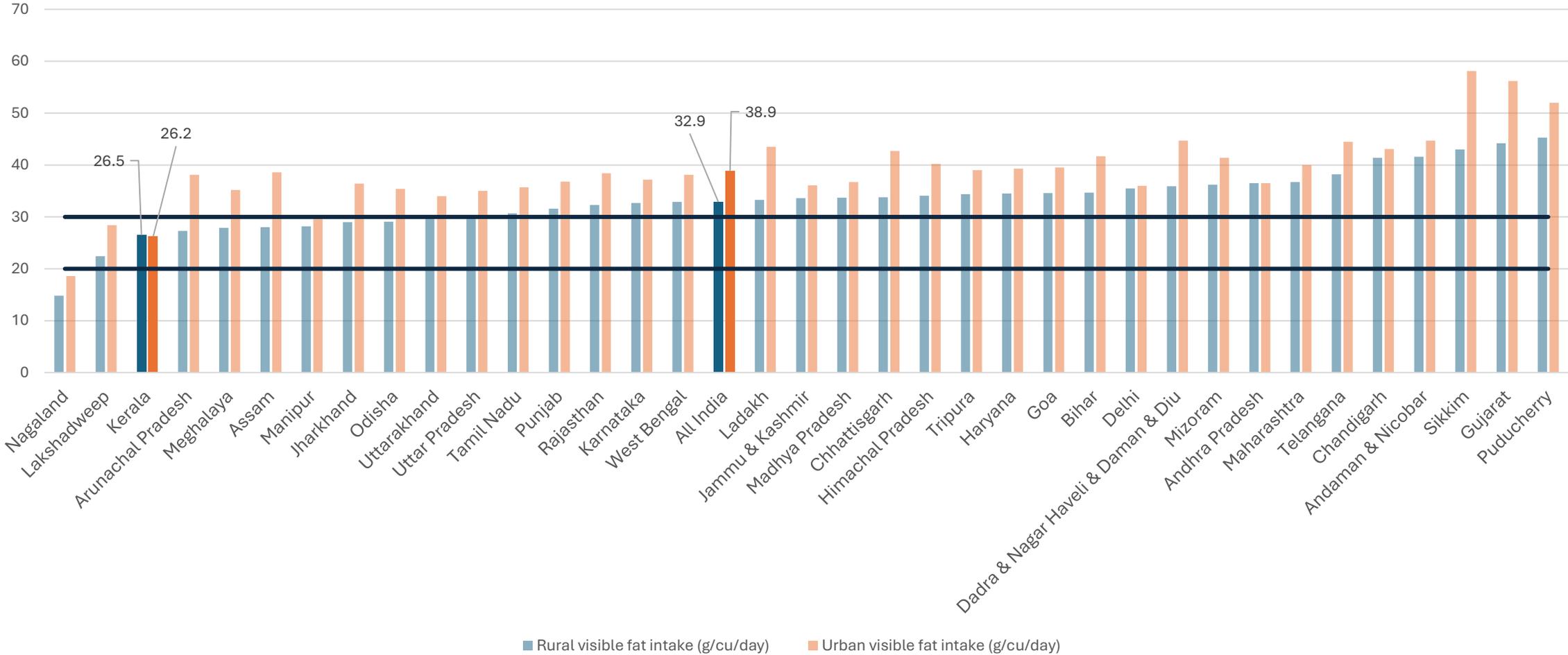
Fat intake, across states

In light of rising overweight/obesity, fat intake is of serious concern. Kerala's overall intake of fats is lower than the all-India average. Overall, we see that fat intake is higher in urban than rural areas.



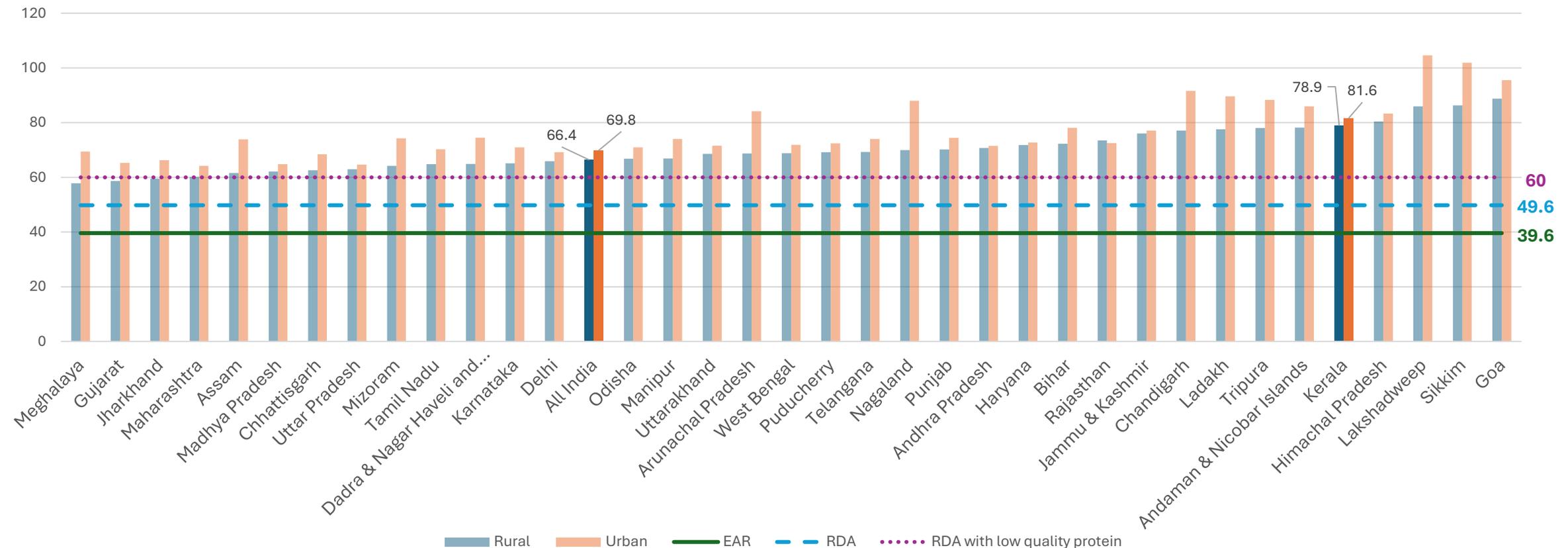
Visible fat intake, across states

What we should be most concerned about is the amount of **visible fat intake**. NIN recommends between 20-30g/cu/day. Here we see that Kerala performs far better than the all-India average, with visible fat consumption in the recommended range.



Protein intake, across states

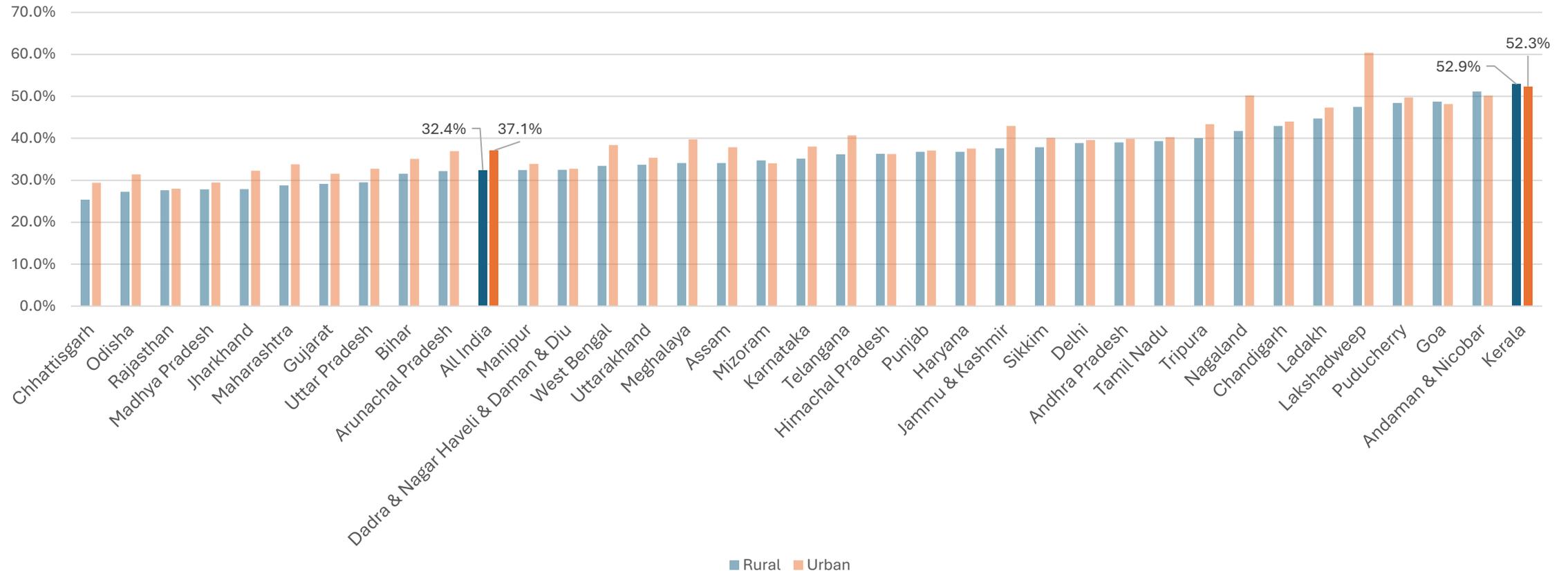
Almost all states report protein intakes in both rural and urban areas greater than the RDA. Kerala outperforms the all-India average and is in the top five states/union territories in terms of overall protein consumption.



Estimated Average Requirement (requirements for healthy individuals)= 0.66g/kg/day; Recommended Daily Allowance (requirements for deficient individuals)= 0.83g/kg/day

Proportion of protein intake from high-quality sources

Despite broadly adequate protein intake, much (~50%) of overall protein intake comes from cereals, a low-quality source. When the intake of protein from high quality sources is considered, Kerala is the top-performing state in the country.



Summary of diet composition

- It appears that the quality of an average diet in rural and urban areas in Kerala is better than that of the all-India average
- Despite having lower calorie intake than all-India average, Kerala diets
 - Exhibit a **lower proportion of unhealthy packaged processed foods**
 - Have **far lower visible fat intake** per consumer unit per day
 - **High proportion of proteins coming from high-quality sources**
- We now turn to the cost of a healthy diet: how much does one have to pay to purchase a diet that meets nutrient requirements?

Cost of a Healthy Diet (CoHD) according to India's food-based dietary guidelines (FBDGs)

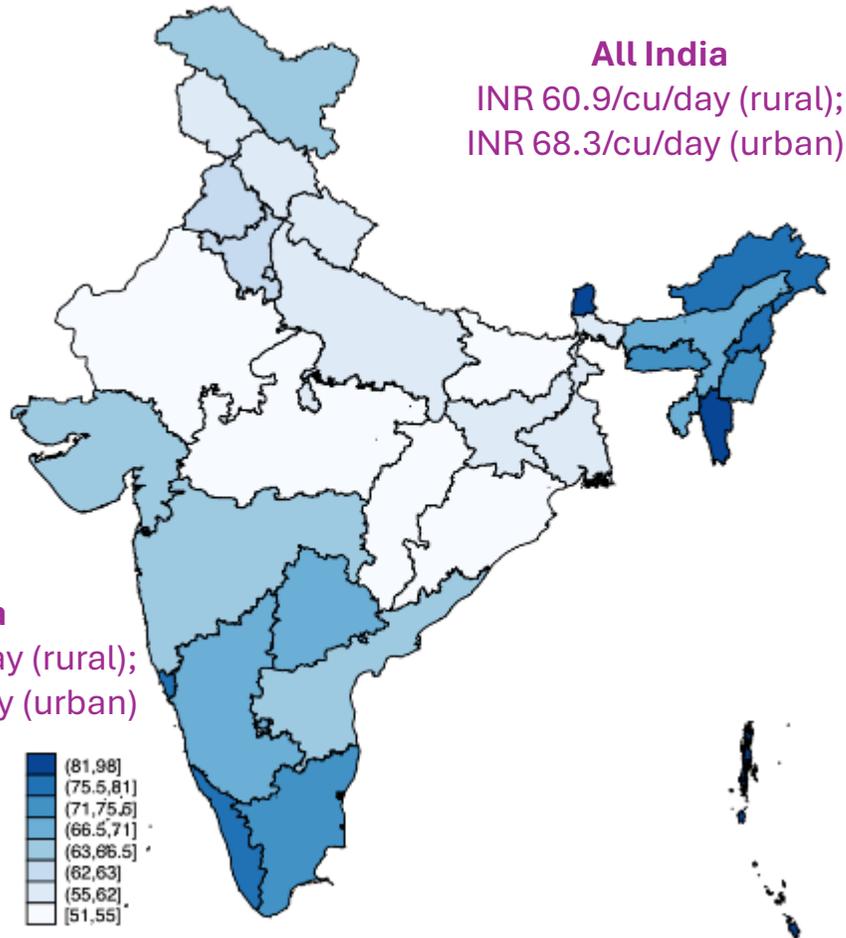
- The CoHD is the least-cost way of meeting a country's FBDGs
- The FBDGs provide a food-group wise daily calorie recommendation
 - We use food composition tables to estimate the quantities of each food required to meet the guideline
 - We then estimate the cost of purchasing that quantity
 - We then select the cheapest 1 or 2 foods in each food group
 - Adding the cost of least cost items across food groups gives us the CoHD

ICMR-NIN's FBDGs, scaled to 2325 kcal/cu/day

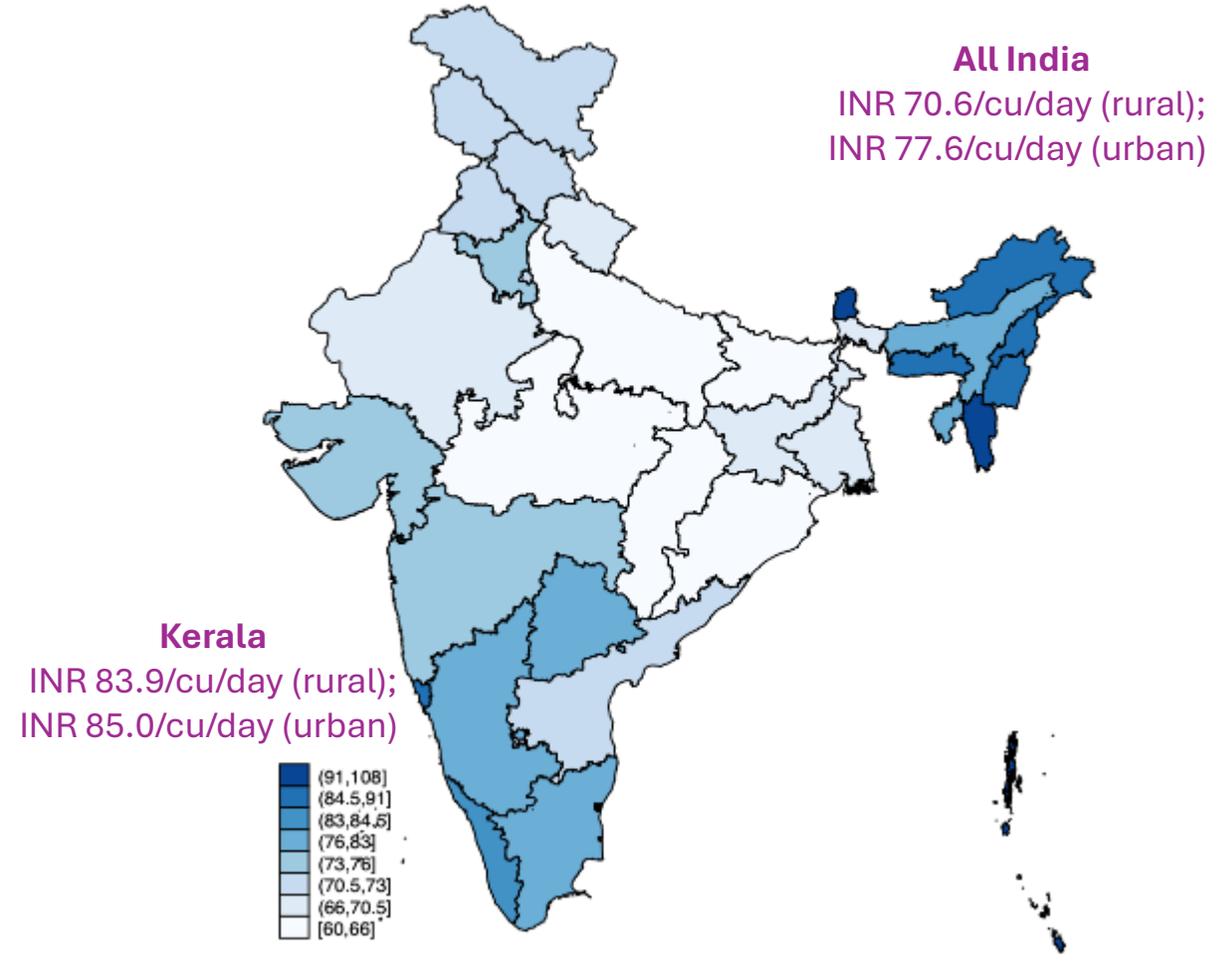
	Total energy from each food group (kcal/day)	
	Vegetarian	Non-vegetarian
Cereals and cereal substitutes	980	1018
Pulses	319	206
Dairy	251	251
Vegetables, including dark-green leafy veg	202	214
Fruits	65	65
Nuts and seeds	210	180
Egg and flesh foods		120
Oils and fats	283	283

CoHD highest in southern and northeastern states, lowest in central Indian belt

Vegetarian CoHD



Non-Vegetarian CoHD

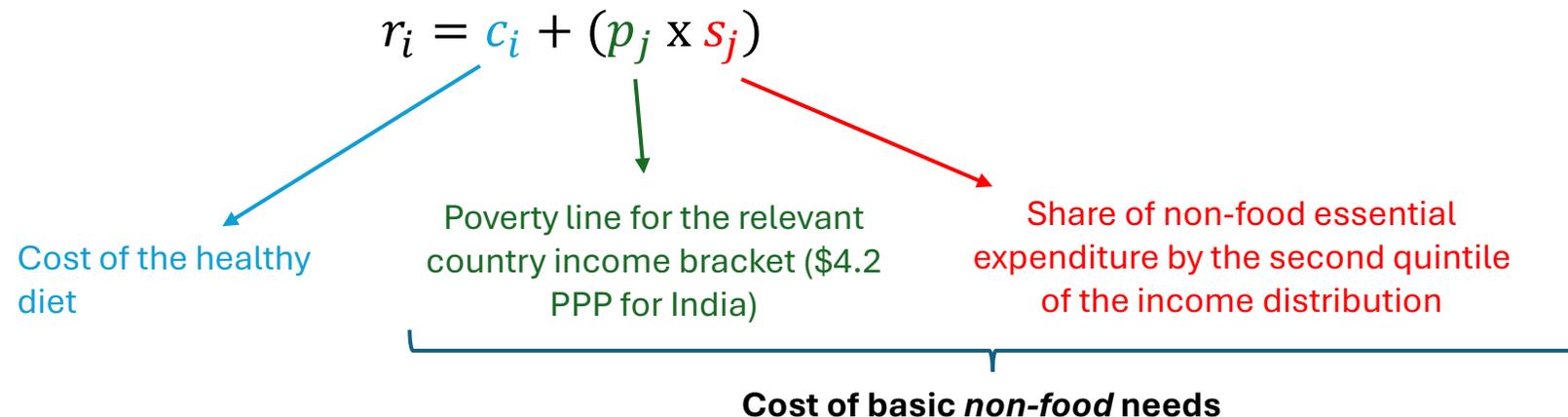


Comparing CoHD to actual expenditures

Food Group	Average expenditure on Food	Cost of a vegetarian Healthy Diet	Cost of a non-vegetarian Healthy Diet
Cereals and cereal substitutes	8.13	11.90	12.36
Pulses	3.22	8.60	5.56
Dairy	11.43	14.64	14.64
Vegetables	8.16	8.00	8.46
Dark green leafy vegetables	0.61	5.61	5.93
Nuts and seeds	1.37	7.64	6.55
Fruits	4.66	3.16	3.16
Eggs, chicken, meat	8.01		12.45
Oils and fats	5.38	4.03	4.03
Spices & garnishes	7.66		
Salt and sugar	1.37		
Beverages	4.53		
Processed foods	14.14		

What's important is the ***affordability*** of the healthy diet

- We need to compare the cost of a healthy diet against some measure of incomes or expenditure to assess affordability
- We do so in two different ways:
 - Comparing CoHD against *current* per consumer unit food expenditure
 - Comparing incomes against the SOFI report income threshold, that combines food and non-food needs



Our estimates of affordability

Affordability is better in urban than in rural areas, and Kerala performs better than the all-India average.

	% Population for whom healthy diets are unaffordable, using the threshold of:	
	Current food expenditure	SOFI report threshold
All India rural	56.6%	32.6%
Kerala rural	42.4%	9.3%
All India urban	31.2%	8.3%
Kerala urban	33.9%	4.5%

In conclusion

- Indian diets: room for improvement! Kerala diets outperform average Indian diets on protein and fat intake
- Depending on threshold, 8-57% cannot afford a healthy diet; unaffordability is higher in rural areas
- CoHD does not account for social safety nets or for the cost of spices and fuel
 - But when we do so, affordability estimates actually *worsen* because of the high cost of fuel
- Implications for policy
 - **Focus on nutrition security**, not just food security – expand social safety nets to include diverse foods; incentives to farmers to produce those foods
 - **Behavior change communication** for the richest deciles, but **improvements in income and wages** for the poorest
 - **Regulation** to reduce consumption of unhealthy, processed foods – those high in visible fat, salt and sugar

Thank you!

We gratefully acknowledge support from the Azim Premji University and comments from APU seminar participants and colleagues that helped improve this analysis. All errors are our own.