



Tracking Access to Healthy Diets

Using recent administrative urban food price data for India

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Rising double (triple?) burden of malnutrition in India

- As of 2020 ~306 million undernourished people were from South Asia and **~210 million were from India alone** (SOFI 2021)
- Rising trends in obesity and overweight, especially in urban areas
 - 33.2% of women and 29.8% of men in urban areas are overweight or obese, 10 pp increase in 5 years (NFHS 4 and 5)
- Increase in anemia for men, women, children – ~2/3rds of kids < 5 years & 50% women 15-49 anemic
- India clearly in stage of nutrition transition characterized by the 'double burden' of malnutrition

What kinds of policy solutions can work?

- National policy largely geared to the north and to rural areas
- Improving access to healthy and nutritious diets good policy instrument - addresses problems at both ends of the spectrum
- But can people afford to purchase these in the market? Estimates suggest that about 92% of all food consumed is purchased
- We have a data problem: existing estimates of affordability of diets are either outdated, or use small-scale primary data



Can routine administrative price data fill this gap?



- We gather urban food price data from several publicly available administrative databases
- Combine these with the most recent India food-based dietary guidelines to assess the cost of a nutritious diet
 - How has this changed due to COVID?
 - What food groups have seen the steepest price rises?
- Extrapolate from most recent consumption data to assess affordability
 - How does the cost compare to average per adult equivalent food expenditures across quintiles?
 - How does expenditure across food groups compare to recommendations?

Urban food prices from multiple sources

Department of Consumer Affairs

- Daily retail
- 21 commodities
 - Common foods only
- 182 urban centres

National Horticulture Board

- Daily retail
- 26 commodities:
 - fruits & vegetables
- 31 urban centres

Dept. of Economics & Statistics – Ministry of Agriculture

- Weekly retail prices
- 45 commodities
 - Wide range of foods
- 77 urban centres

Ministry of Agriculture

- Daily farmgate prices
- 312 commodities (not all foods)
- 567 districts

- Aggregated into weekly district-level dataset: January 2018 to April-May 2022
- Prices manually checked for outliers that could be errors in data entry, also winsorized within centre and commodity combinations
- Deflated using state-month level general urban CPI

Calculating the cost of a healthy diet: Using India's FBDG and food composition tables

- NIN came out with new "My Plate" guidelines in 2018
- We used the total kcal/day recommendations, combined with the 2015 India Food Composition Tables to estimate daily serving sizes for each commodity
- Unlike earlier guidelines, no variation across sex or by levels of physical activity

Food groups	Foods to be Consumed (g)/day	Percent of Total E /day	Total E (kcal)/day	Total protein (g)/ day	Total fat (g)/ day	Carbohydrate (g)/day
Cereals (incl. Nutricereals)	240	40	800	18	4	162
Pulses*	90	17	340	21	3	41
Milk/ Curd (ml)	300	10	200	10	12	18
Vegetables+ green leafy vegetable (GLV)	350	5	100	4	1	17
Fruits#	150	5	100	1	1	20
Nuts & Seeds	30	11	217	6	12	6
Fats & Oils§	27	12	243	-	27	0
Total	1187	100	2000	60	60	264

* Eggs/fish/meat can substitute pulses

* Prescribed amount of vegetables (excluding potato) may be consumed either in cooked form/ salad

Prefer fresh fruits (avoid juices)

§ Use different varieties of cooking oils, vegetables, fruits, nuts etc., to obtain a variety of phytonutrients, vitamins, minerals and bioactive compounds.

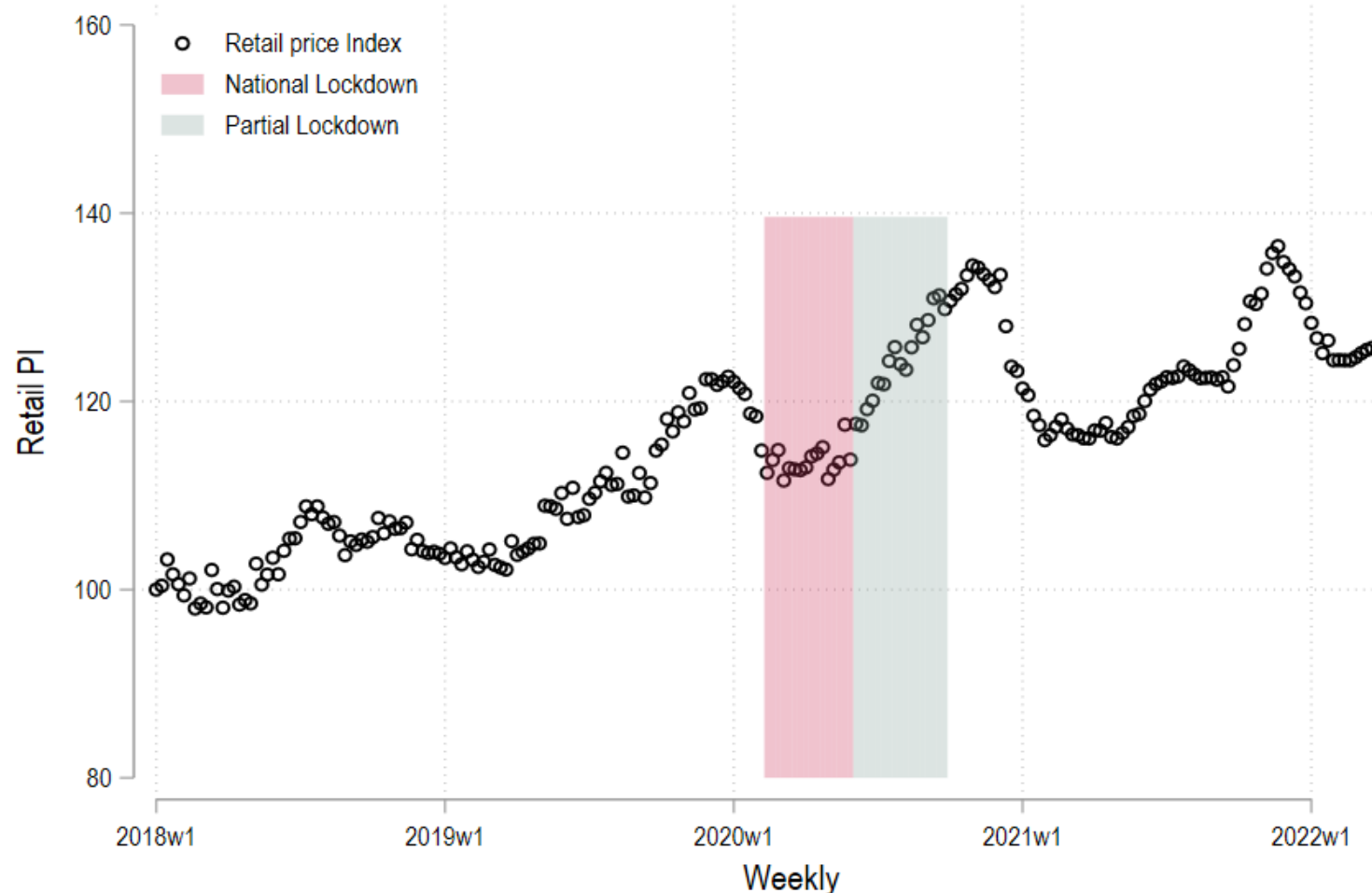
Number of commodities, prices by food group

Food group	#items	#obs in 2018	2018 Retail price (defl INR/kg)	#obs in 2021	2021 Retail price (defl INR/kg)
			mean (sd)		mean (sd)
			[min-max]		[min-max]
Cereals	9	32,462	29.68 (10.31) [8.53, 120]	40,866	28.17 (9.12) [11.88, 78.94]
Pulses	6	34,496	69.95 (12.65) [36.1, 144]	46,554	79.02 (14.06) [44.15, 168.85]
Eggs, flesh foods	4	11,781	247.47 (165.38) [9.17, 1500]	12,625	260.57 (177.62) [74.16, 1019.05]
Dairy	1	6,327	42.42 (6.25) [27.26, 70.1]	8,567	40.78 (5.82) [23.57, 68.95]
Fruits	14	16,580	67.95 (43.19) [9.49, 327.92]	12,852	68.13 (46.1) [8.41, 253.24]
Vegetables	9	28,398	24.79 (12.94) [4.81, 164.75]	33,322	25.84 (13.23) [3.24, 172.35]
DGLV*	6	7,554	13.9 (9.84) [0.06, 99.33]	7,039	14.27 (9.59) [0.05, 83.97]
Edible oils	9	33,977	176.35 (147.69) [34.07, 2272.09]	44,645	181.64 (108.05) [54, 2007.64]
Nuts & seeds*	4	5,419	105.5 (209.9) [17.13, 1078.42]	4,351	85.15 (161.82) [16.6, 860.26]

*: Farmgate prices from mandi data

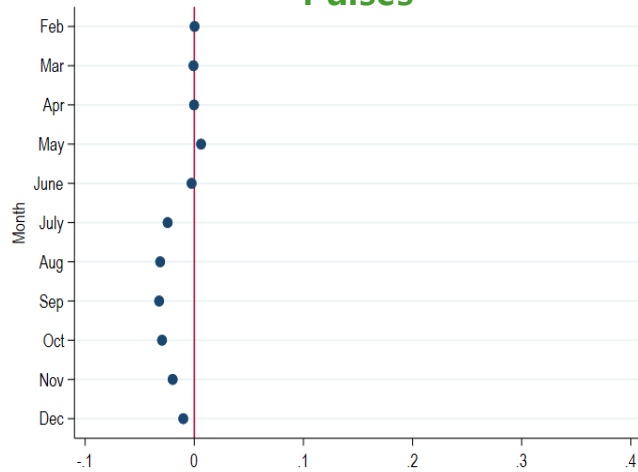
Food prices rose steeply during COVID

- We use the urban retail prices to construct a weighted price index
- The "base basket" here contains 31 commonly consumed foods: cereals, pulses, vegetables, fruits and oils
- On unpacking: sharp increases in price of vegetables (esp. initially), pulses (over a longer period), animal-sourced foods

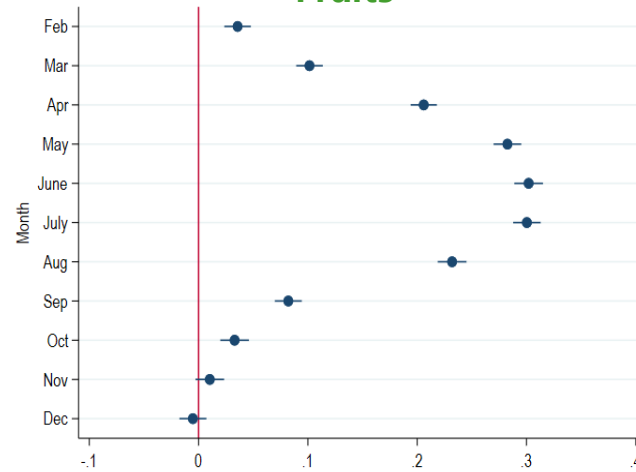


Large uncoordinated seasonal swings in prices

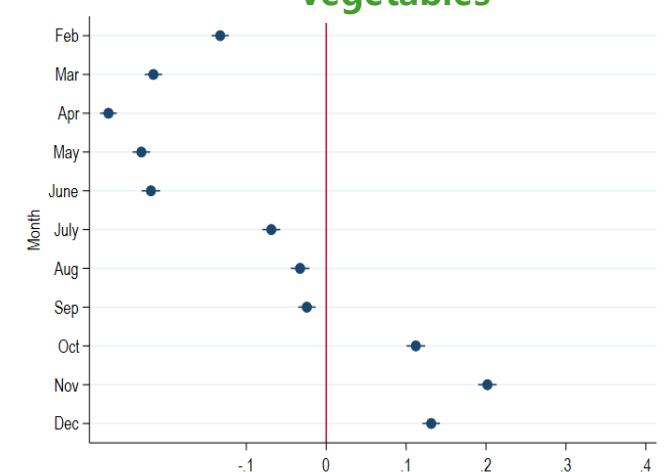
Pulses



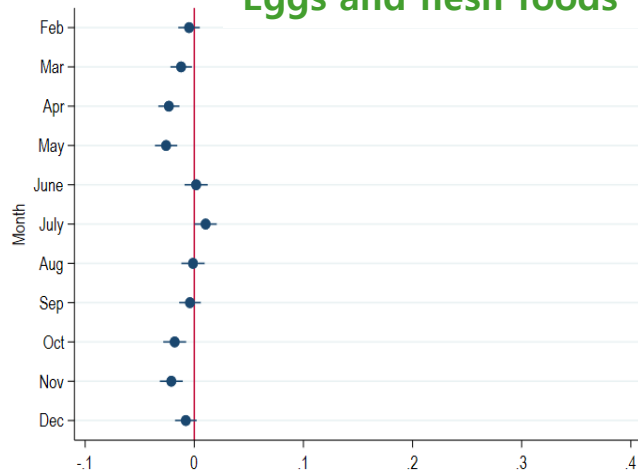
Fruits



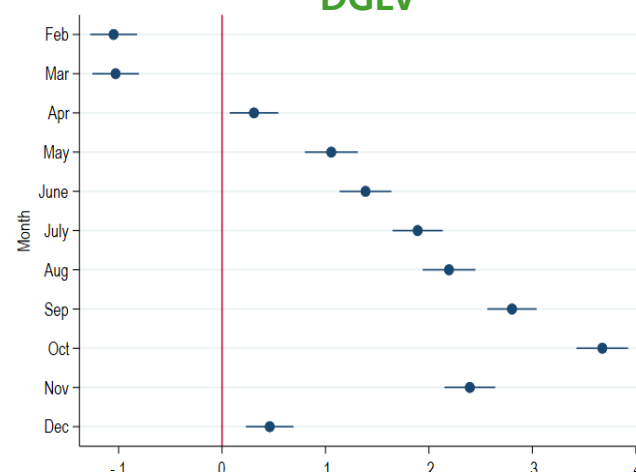
Vegetables



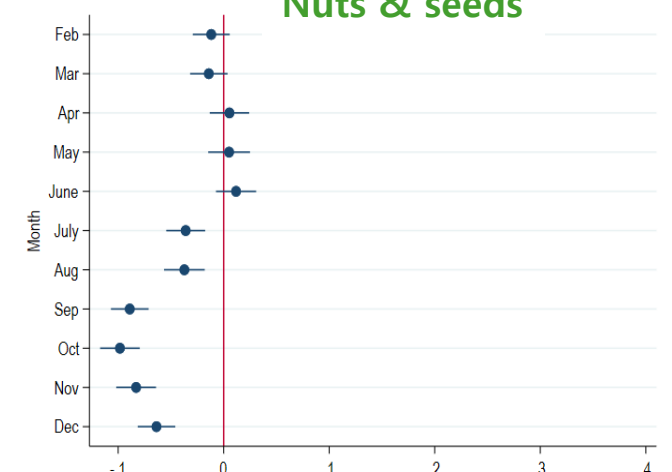
Eggs and flesh foods



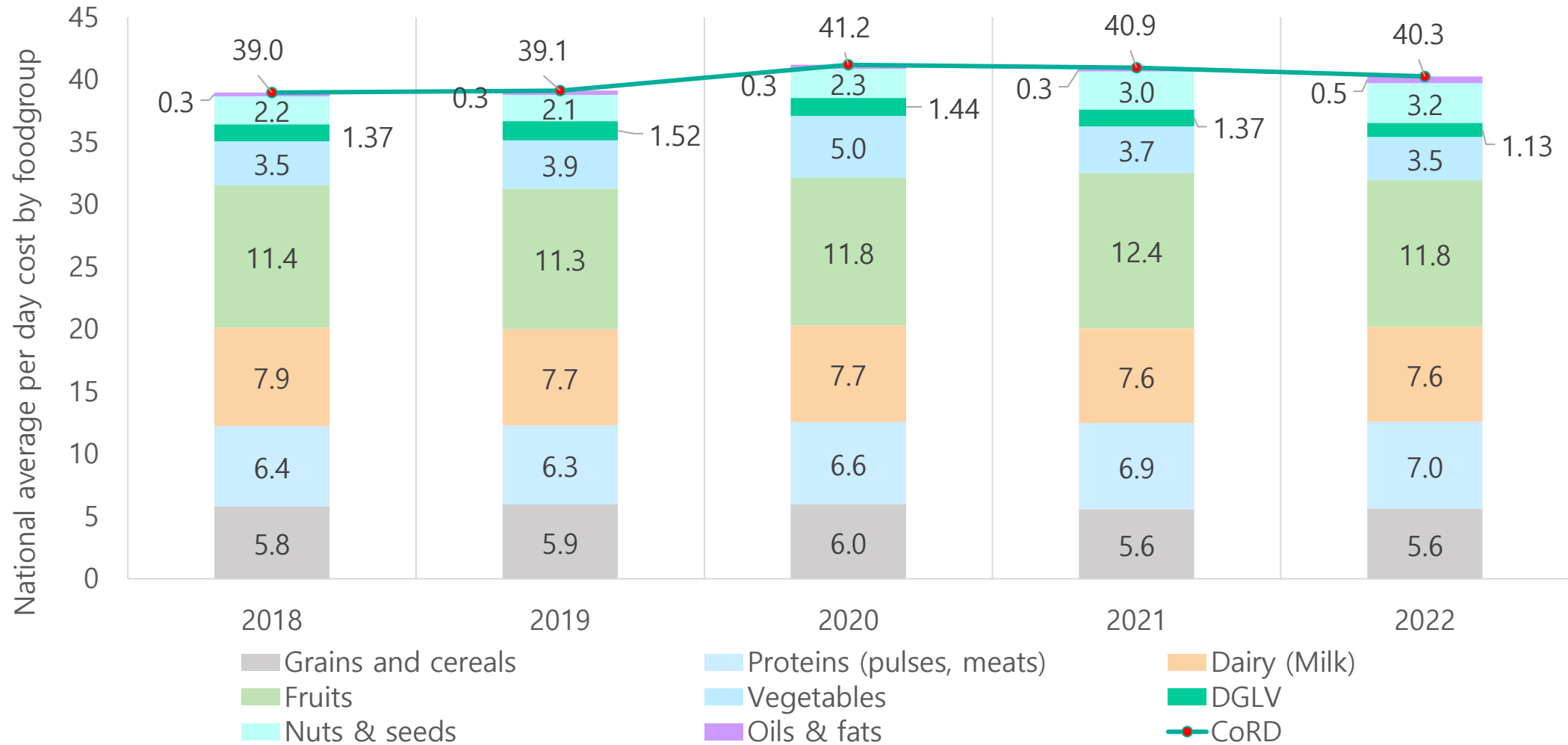
DGLV



Nuts & seeds



Fruits and dairy are the largest contributors to the cost of a healthy diet

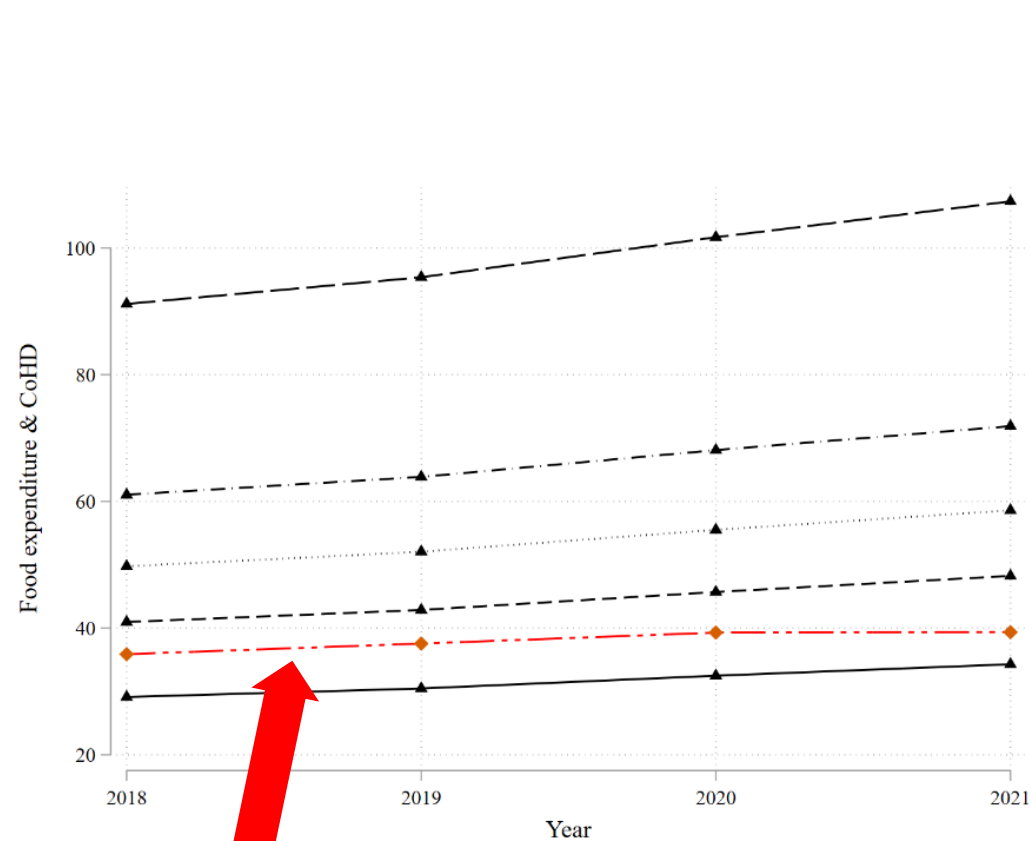


Average per day cost by food groups is estimated by unweighted average of commodity cost per item for two lowest cost foods (identified by food groups: 2 each for cereals, proteins, fruits and veg, 1 for all others)

What can we say about diet affordability?

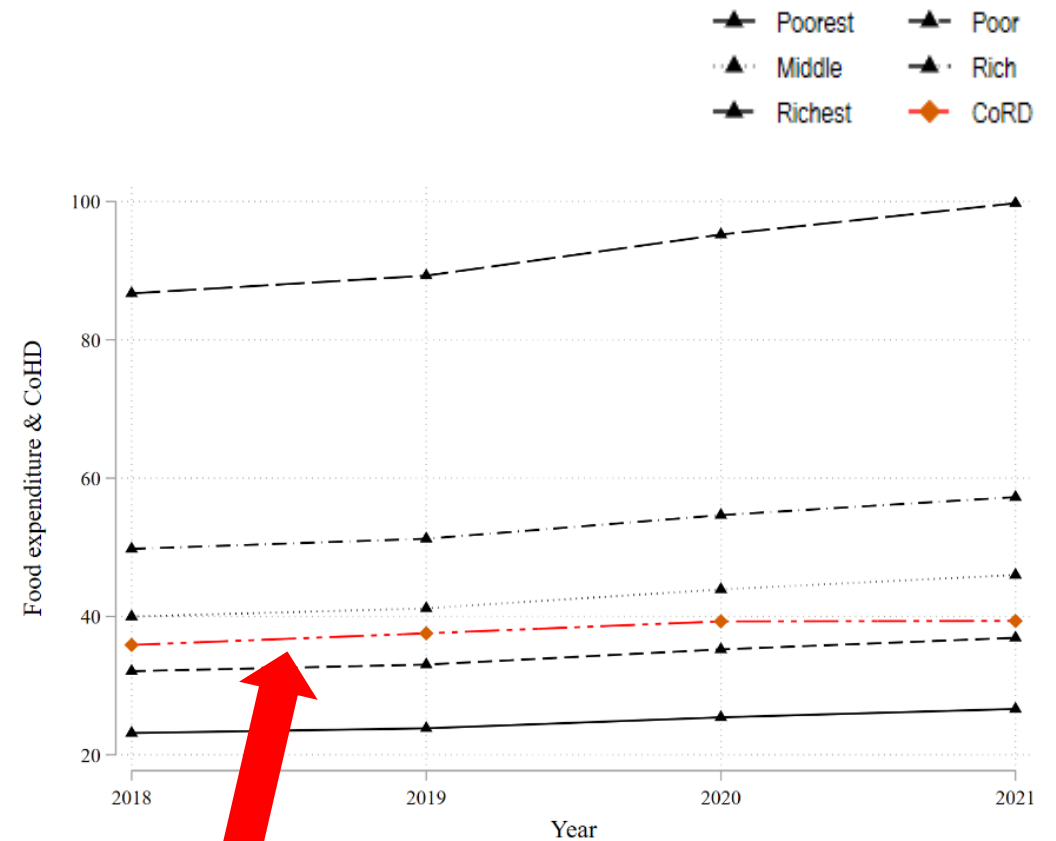
- Used the NSS 2011-12 data to calculate expenditure on food for each wealth quintile, separately for rural and urban
 - Wealth quintiles calculated using total expenditure, including on non-food items
 - Food expenditure includes processed foods, snacks, beverages, meals outside the home
- Used state-wise estimates of the adult equivalent conversion factors to calculate per adult equivalent expenditure
- Inflate rural expenditures by state-commodity specific rural-urban markups, since we will compare these to an urban price-based cost of healthy diet

Cost of healthy diet versus per adult equivalent expenditures



A. Urban

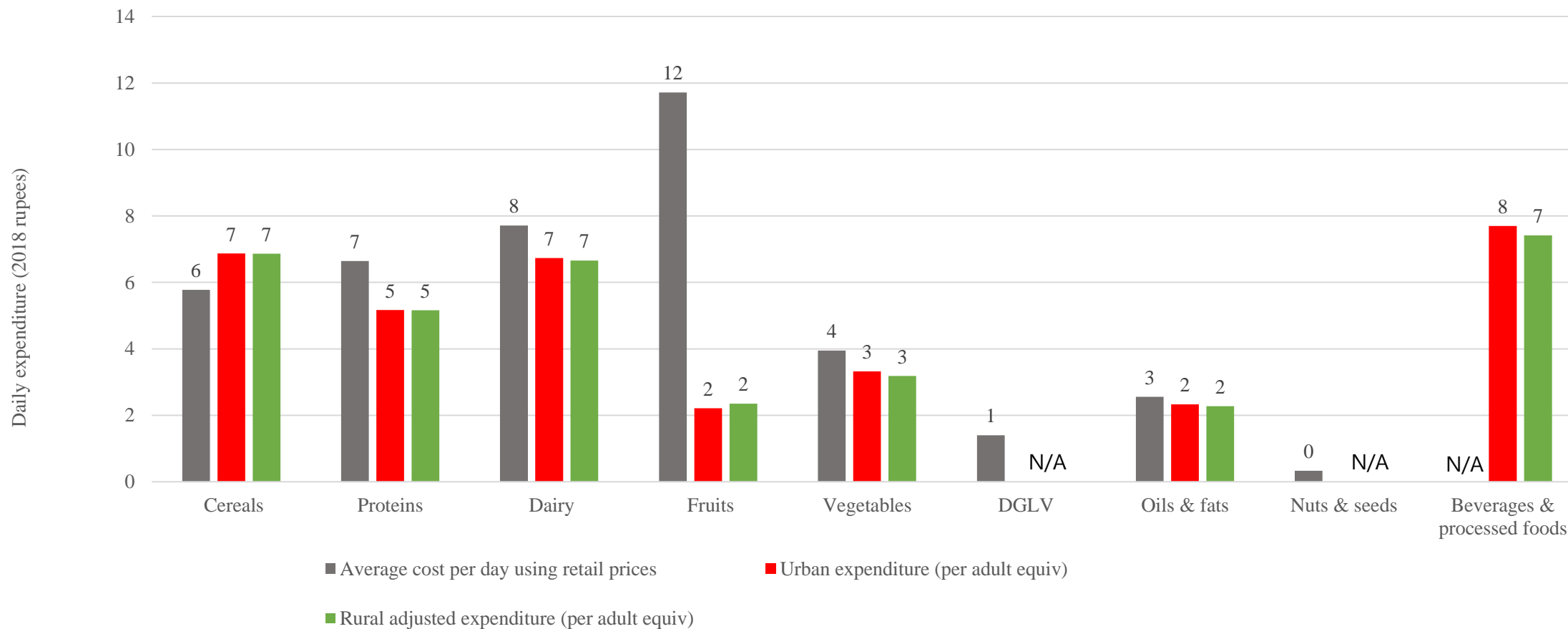
All but the lowest urban quintile spend more than the CoRD.
Policy recommendations: information!



B. Rural

Top three rural wealth quintiles spend more than the CoRD. Policy recommendations: raise awareness, but also, raise incomes, lower cost of nutritious foods

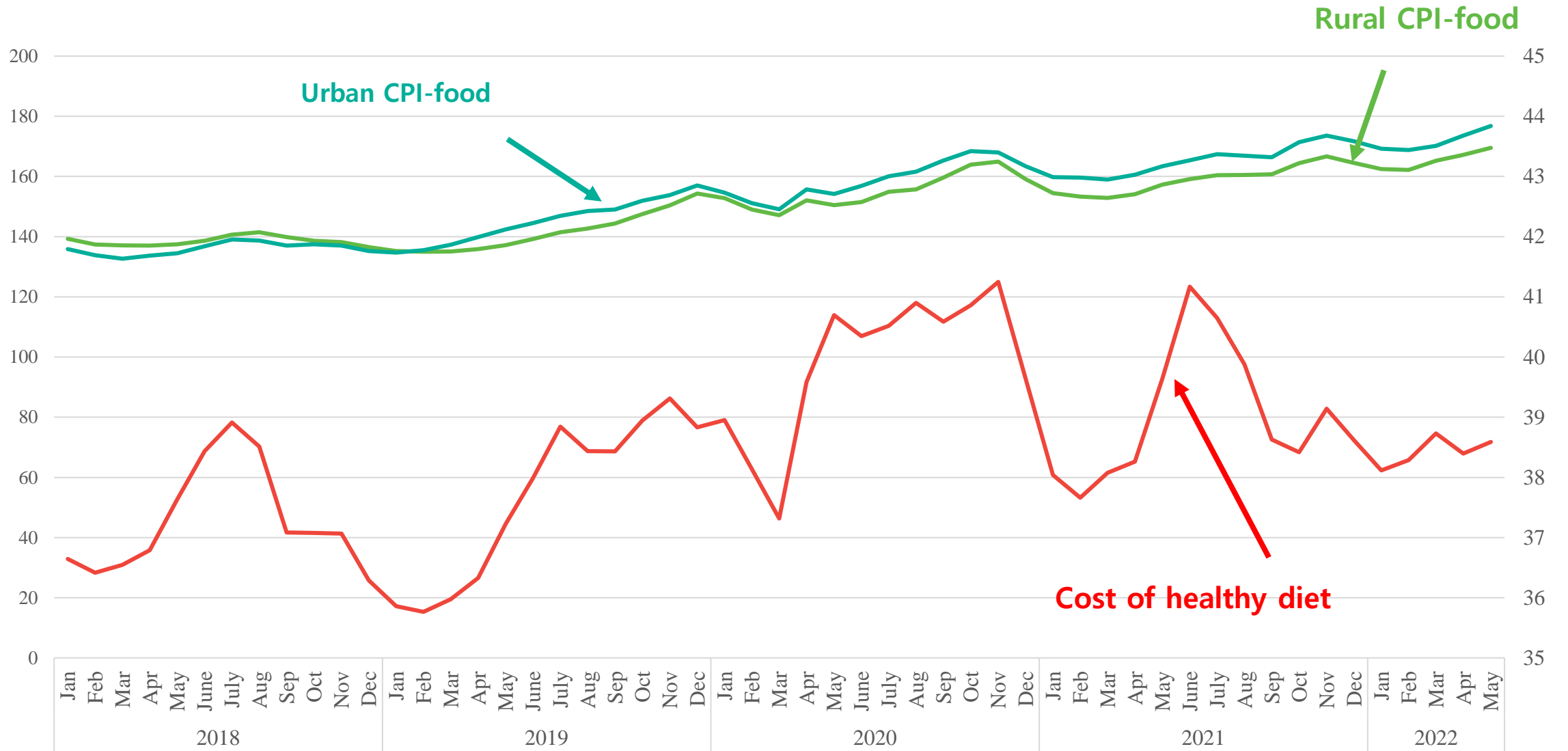
Food group-wise comparisons of CoHD and projected expenditure



Note 1: Average per day cost by food groups is estimated by unweighted average of commodity cost per item for lowest cost foods (2 each for cereals, proteins, fruits and veg, 1 for all others)

Note 2: NSS proteins is a sum of pulses and flesh foods and eggs

Is the healthy diet a useful metric?



Conclusions

- In the absence of rich individual consumption and expenditure data, we need to find other sources
- Routinely collected administrative information can work to plug these gaps, despite data coverage limitations
- We can use this to calculate the cost of a healthy diet, but also to track food price indices over time at a much higher frequency (weekly if not daily)
- Can the food price index and the cost of a healthy diet be metrics that administrative agencies take on as part of routine statistics?
 - CoHD contains important additional information over and above CPI-food