Contested narratives of dietary transitions in India

Examining the incommensurability of macro and micro datasets

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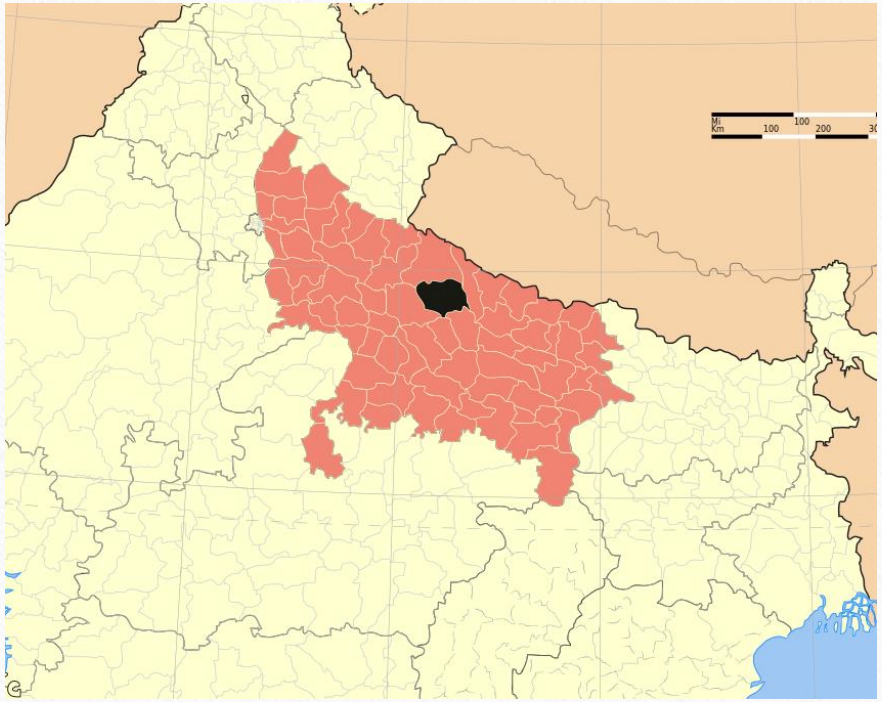
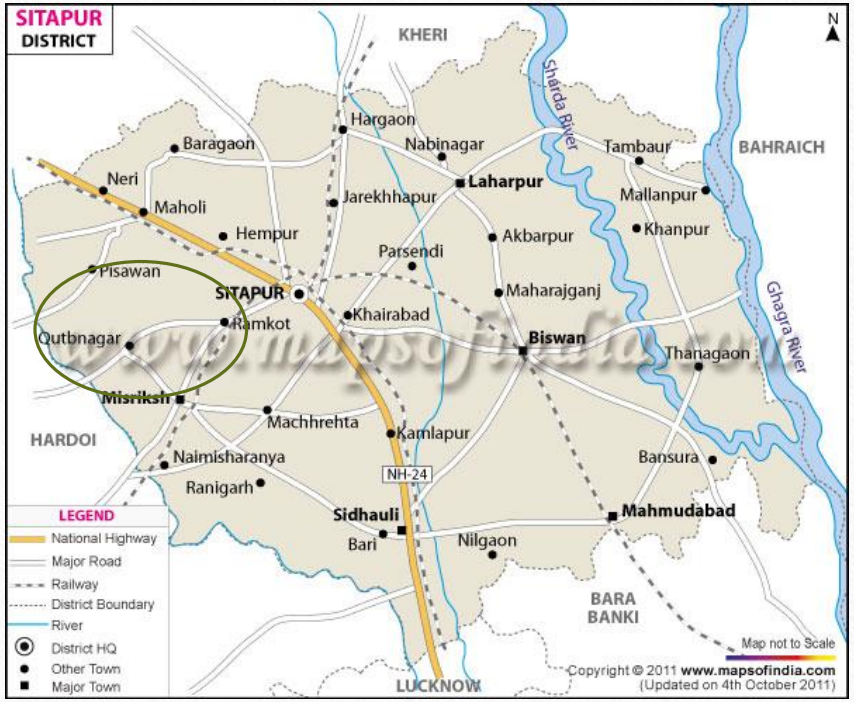
Outline of presentation

- Our mixed-method study
  - Overview
  - Some key findings
- What do large datasets, small datasets and our study tell us about transitions in
  - Diet diversity?
  - Consumption of milk and milk products?
  - Inequality of food consumption?
- Implications for understanding nutrition transitions

Study location

Sitapur district, Uttar Pradesh (UP) state Popn of UP: ~200 million





Study goals

- Map historical and current diets in the region
- Track agricultural and dietary transitions for different communities
  - Examine linkages between production and consumption
  - Identify factors that shaped transitions
- Contextualize findings within broader narratives of nutrition transitions in India

Findings – then and now

- Great diversity in the past (up to the 1980s)
- Cultivated & uncultivated foods in the past
- Current diets are predominantly wheat, rice, potatoes, sugar & processed foods

Food group	Historical foods	Current foods
Cereals	Barley; pearl, barnyard, kodo & foxtail millets; sorghum; various types of paddy; wheat etc.	Wheat, paddy, a little pearl millet
Pulses	Gram, pigeon pea (arhar), black gram (urad), cowpea, moth etc.	Arhar, urad
Fruits	Mango, guava, ber, jamun, bel, beljharra, tamarind, gular etc.	Limited
Veggies, flowers	Different types of gourds & tubers, greens, jute flowers etc.	Potato, onion, others (limited)
Fish & meat	Many types of fish, goats, pigs, hares, aquatic birds	Limited

1970s-80s

- Land redistribution
  - Loss of commons and wild foods
- Green Revolution, land improvements
  - Shift from millets, pulses & oilseeds to paddy, wheat & sugarcane

1990s

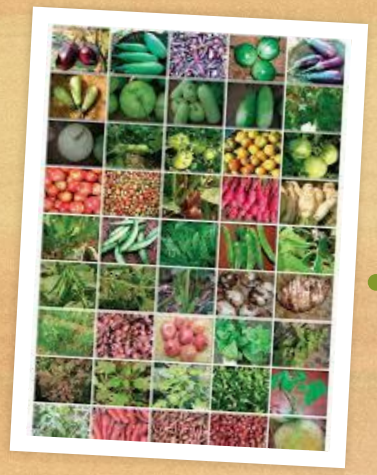
- Sugar mills
  - Shift from gur (jaggery) to sugar
- Dairy cooperative penetration
  - Decline in consumption of milk & products

Post-2000

- Mobility of labour
- PDS & MGNREGA
- Women's empowerment
  - Reduction in hunger among marginalised communities

Dietary diversity – large studies

- Defined as number of different foods or food groups consumed over a given reference period
- Measured as simple count, count of food groups or weighted system
  - Weights: nutrient density, bioavailability
- Studies in India based on national surveys
  - NSS (National Sample Survey), NNMB (National Nutritional Monitoring Bureau), IHDS (India Health & Development Survey) etc.
  - Report a 'decline in cereal and pulse consumption and diversification towards high-value foods such as fruits and oil' (Pingali P & Khwaja Y 2004, Gaiha et. al., 2014, Joshi PK et al. 2016)
  - These are all economic analyses
    - Diversification here implies a ***shift in expenditure*** to 'high-value' foods
- Dietary diversity as defined by these studies needs to be re-examined from the perspective of nutritional implications



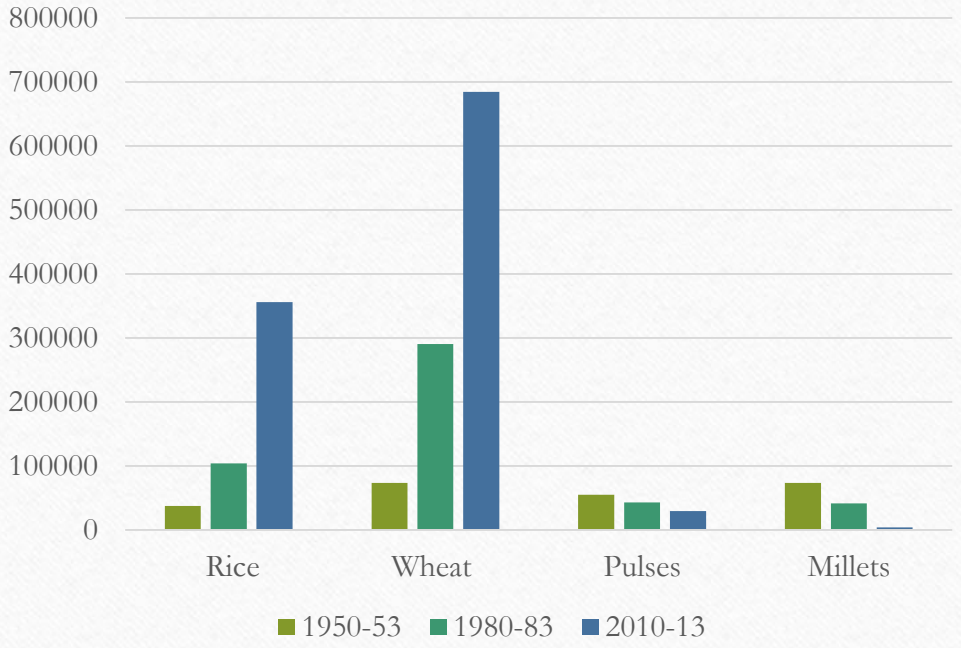
Dietary diversity – small studies

- Ethnobotanical studies on wild and uncultivated foods or WNEP (Wild and Non-cultivated Edible Plants)
  - Review papers, studies, independent publications from across the world & India (Bharucha Z & Pretty J 2010, Mazhar F et al 2007, Rowland D et al 2016)
  - All show a wide diversity of wild foods & range of nutritional properties (Deb D et al 2014, Ghosh-Jerath S et al 2016)
  - Declines due to overuse of resources, herbicide use, forest management and agricultural policies as well as changing food preferences (Kuhnlein HV & Receveur O 1996, Aryal KP et al 2018)
- Village studies
  - Ethnographic studies, commentaries etc.
  - Show decline in mixed cropping and agro-biodiversity (Finnis E 2007, Shankari U 2015)
  - Describe loss of commons or customary practices, commercialisation of foods, influence of market and aspirations etc. (Beck, T. 1994)
- Broad conclusions: loss of diverse & nutritious foods from diets over time

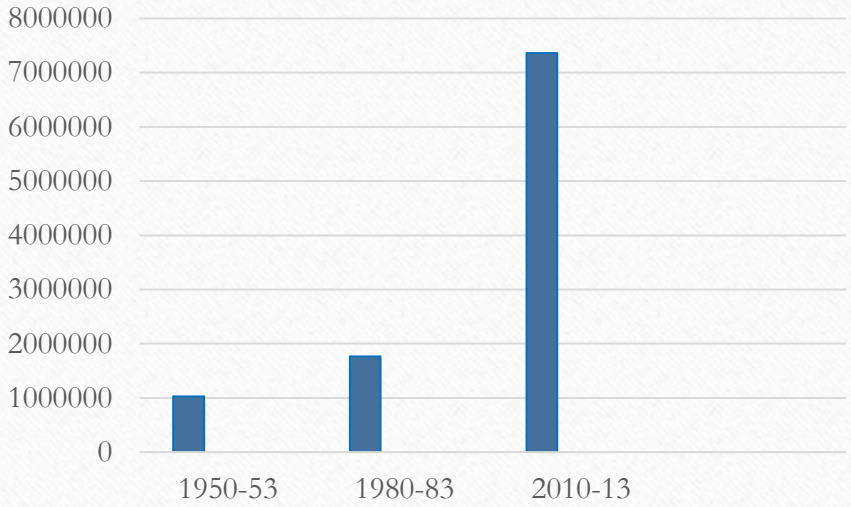
Production diversity in Sitapur district

DI (Herfendahl index): 1950-53=0.352; 1980-83=0.372; 2010-13=0.236

Average 3-yr production of cereals and pulses



Average 3-yr sugarcane production



Milk and milk products – large studies

Availability & consumption

- Per capita milk availability has increased
- Consumption is a mixed story
- *Source for availability: NDDB, Verghese K (2007)*

Per capita availability (g/day)	1950-51	2001-02	2016-17
All India	124	224	355
Uttar Pradesh		241	348

Indicator	1975-78	1983-84	1988	1993-94	1996	2004-05	2009-10	2011-12	Source
Dairy farmers' consumption / capita / day			290 ml		339 ml				Impact evaluation, Operation Flood (1999)
Average daily consumption / capita / day in rural India				131 g		129 g	137 g	144 g	NSSO *increase*
Average daily consumption / CU / day in rural India	116 g		92 g^		86 g~			85 g	NNMB *decrease*
Average daily consumption / capita / day in rural UP				181 g		155 g	153 g	166 g	NSSO *decrease*
Average daily consumption / CU in rural UP	52 g*							79 g	NNMB *increase*

Milk – perspectives from small studies

- "...despite the large increase in the amount of milk in the village, almost all of it was sold... urban consumers in the towns around Alipur could afford to pay a lot for the milk, and farmers needed the cash..." Gupta A (1998)
- "(before the dairy cooperative) … many households were running a dairy surplus and could gift not just milk but other dairy-based products such as dahi (yogurt). However, this abundance of milk and willingness to share was now largely absent in the village, a fact made apparent through several household reports of no access to dairy products." - Nichols C (2016)

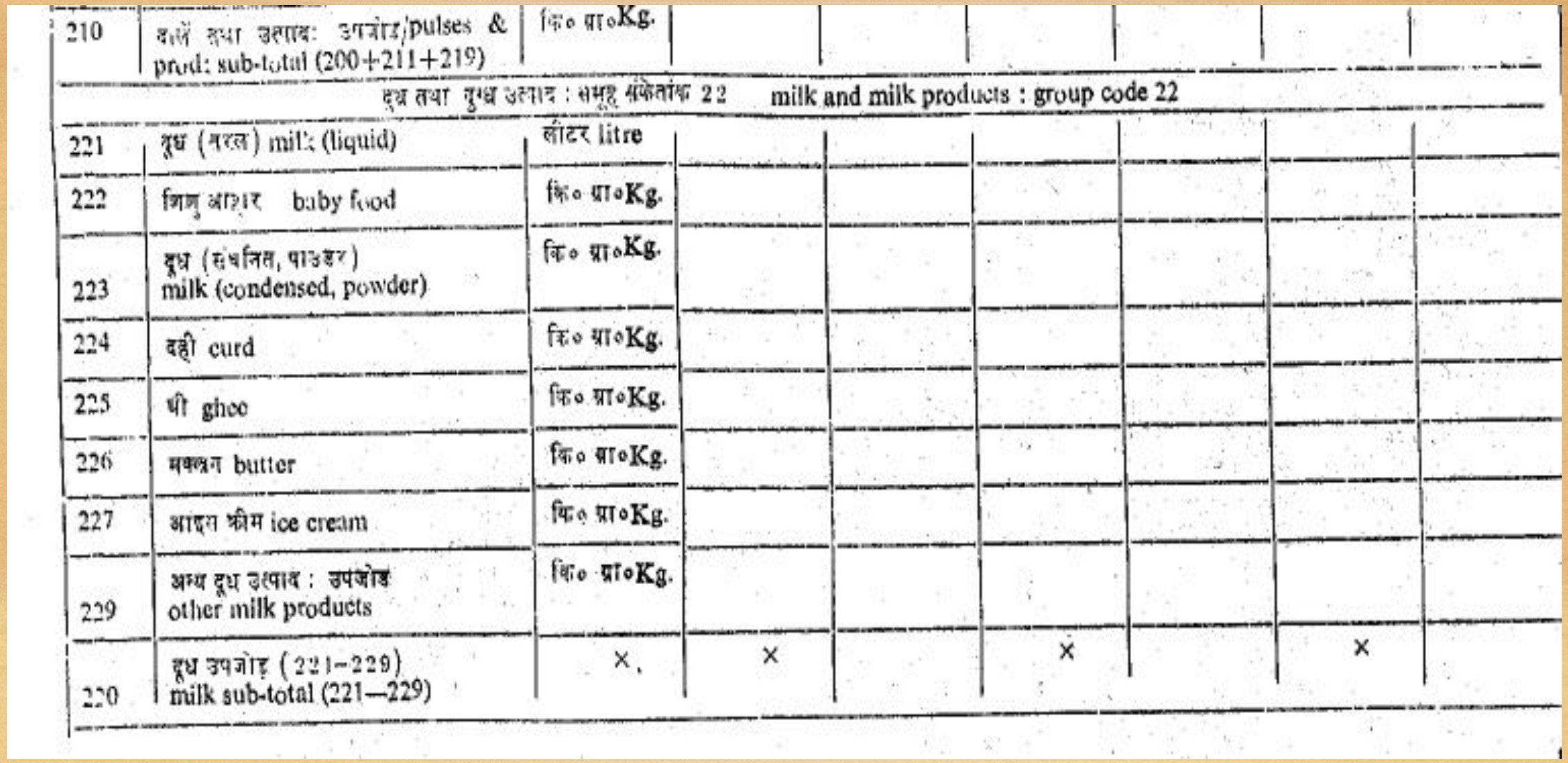
Where's the buttermilk?

- Traditionally, all leftover milk converted to ghee (pure fat) and buttermilk (protein and micronutrients)
  - 10-13 kg of buffalo milk would yield 1 kg ghee, plus 25-30 litres of buttermilk (Verghese K 2007)
  - Nutritive value of this buttermilk: all the nutrients in buffalo milk except the fat
    - Protein 430-559 g, calcium 21-27.3 g and iron 20-26 mg
  - No market in villages for buttermilk – distributed free
  - Technical know-how to extract skim milk powder from buffalo milk developed by Amul
- All the protein, previously available free of cost and 'wasted', was now monetised
- This was a key factor in the success of Operation Flood (Scholten, 2010)

Was buttermilk important for the rural poor?

- Research from a village in Haryana talked about 'long lines of landless, low-caste people with their utensils accepting buttermilk from the female relatives of the big landowners... it is considered socially undesirable to charge money for it' – George S (1985).
- "Since milk was not sold, there was plenty of butter milk, after ghee had been extracted...Milk cooperatives were opened (1983) and milk became a cash crop. Milk practically disappeared from farmers' diets, except for what was consumed in tea and coffee." - Shankari U (2015) describing her village in Andhra Pradesh.
- Little evidence about the consumption of buttermilk – Alderman H et al (1987)
- "...this consumption may not have been accurately recorded." - Deaton & Dreze (2009)

Schedule for collecting data in the NSSO 38th round (1983)

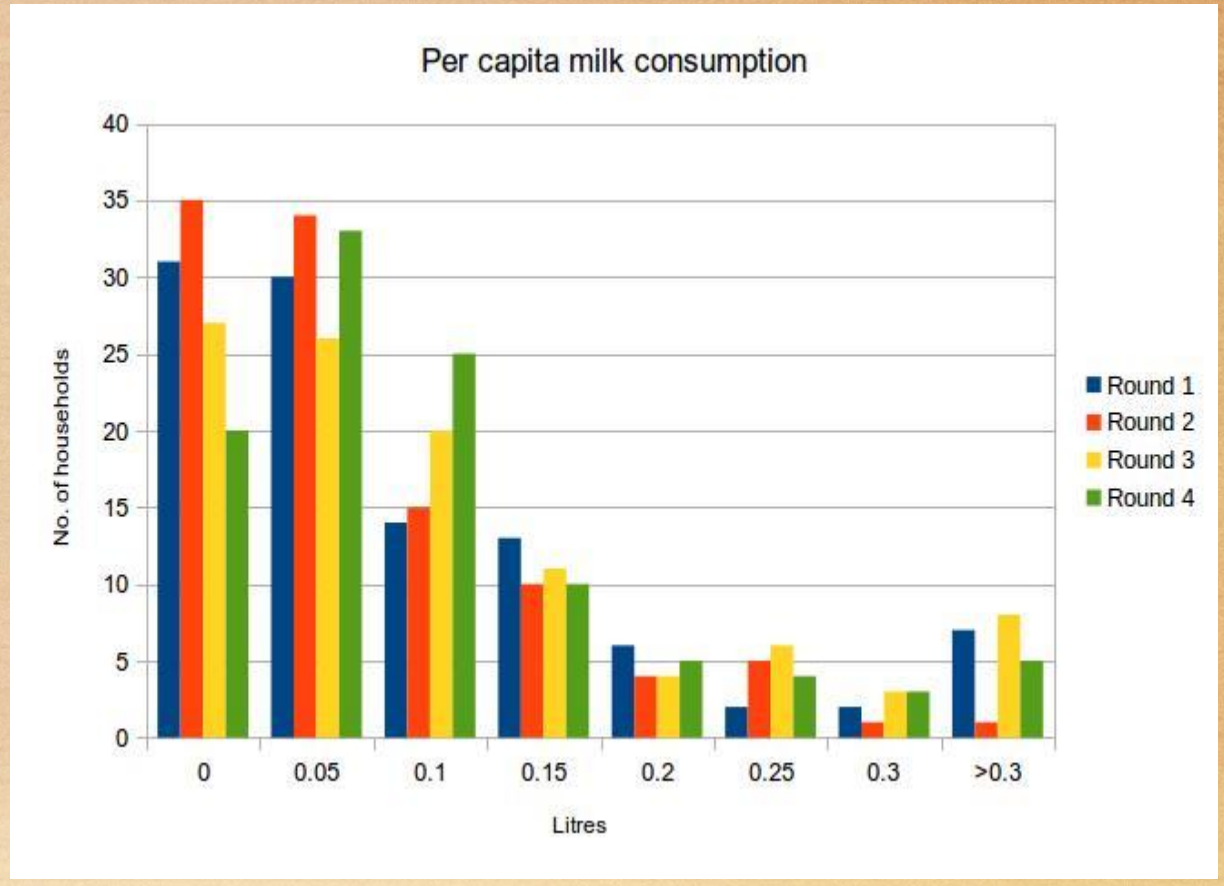


210	दालें तथा उत्पाद: उपजोड़/pulses & prod: sub-total (200+211+219)	कि० ग्रा०Kg.							
	दूध तथा दुग्ध उत्पाद : समूह संकेतांक 22 milk and milk products : group code 22								
221	दूध (तरल) milk (liquid)	लीटर litre							
222	शिशु आहार baby food	कि० ग्रा०Kg.							
223	दूध (संघनित, पाउडर) milk (condensed, powder)	कि० ग्रा०Kg.							
224	दही curd	कि० ग्रा०Kg.							
225	घी ghee	कि० ग्रा०Kg.							
226	मक्खन butter	कि० ग्रा०Kg.							
227	आइस क्रीम ice cream	कि० ग्रा०Kg.							
229	अन्य दूध उत्पाद : उपजोड़ other milk products	कि० ग्रा०Kg.							
220	दूध उपजोड़ (221–229) milk sub-total (221—229)	×	×		×		×		

Milk – our findings

- "We didn't eat much grain then, we drank milk. I would drink 2 kg of *mattha* (buttermilk) and plough 2 bighas. Now we don't drink so much milk." – old Brahmin man who used to rear buffalo.
- "Sometimes, all we had was *mattha* for the entire day" – old Dalit marginal farmer
- "We would mix *mattha* with *raab* (liquid jaggery) – it was called *dahgarda*" – Multiple respondents across caste and gender
- "Earlier, there were just 4 dairies in the block. They were too far to take milk every day. Then, in 1999, Mahila (women) dairies opened in every Panchayat. Since then, most of the milk is sold" – woman dairy farmer who heads a dairy coop.

Milk consumption computed from multi-season survey in 2017



Conclusion:

Implications for understanding nutrition transitions

- Dietary transitions cannot be understood at an all-India level
  - Disaggregation by region, caste/class, gender necessary to understand pathways of dietary shifts
- Foods important for marginalised groups (including women) invisibilised
  - Dominant notions of what counts as food played a role
- Need to re-examine dietary and nutrition transitions in specific regions of India in this light

THANK YOU!