What underlies inadequate and unequal fruit and vegetable consumption in India?

Samira Choudhury (SOAS, University of London)

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Background

- Dietary risks are amongst the top two risk factors for death and disability in India (Global Burden of Disease, 2019)

- Diets in India are cereal-dominated, lacking in adequate intakes of fruits and vegetables (F&V)

- However, there is limited analysis of household F&V consumption beyond computation of population averages
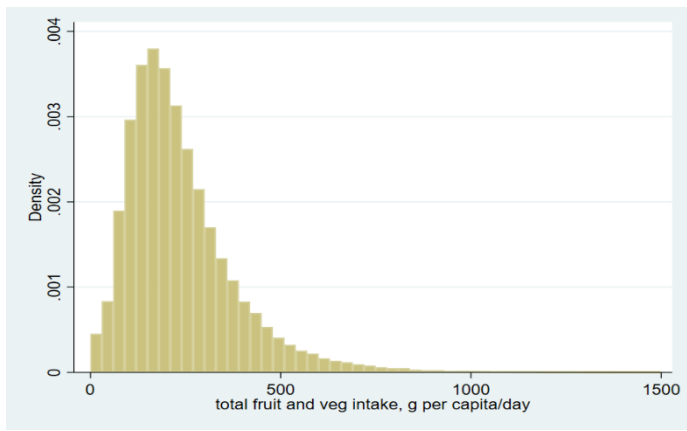
Research Question

- What are the key economic, socio-demographic and food systems drivers of household F&V consumption?
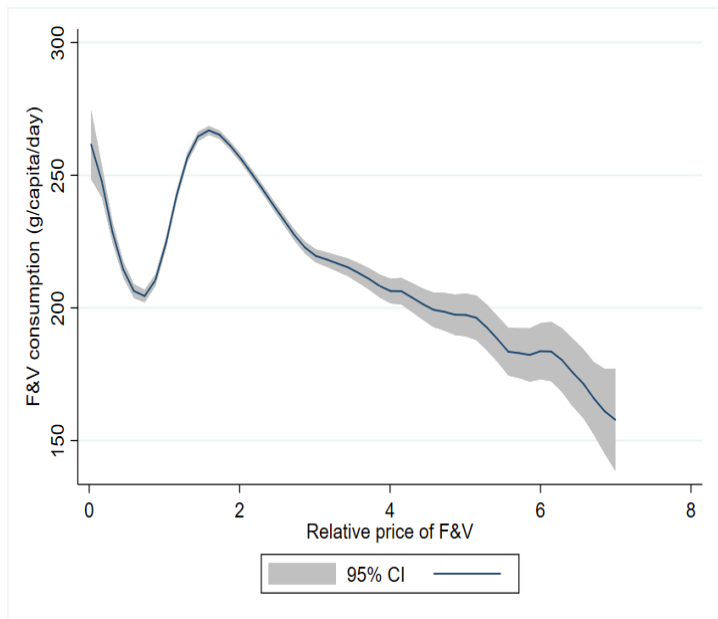
Data

- Round 68 of the Nationally representative National Sample Survey Household data (2011-2012) combined with food system district-level data (Village Dynamics in South Asia (VDSA) data from ICRISAT)
  - Household F&V consumption (g/capita/day) (7-day recall method)
  - Food system level drivers (road & market densities)

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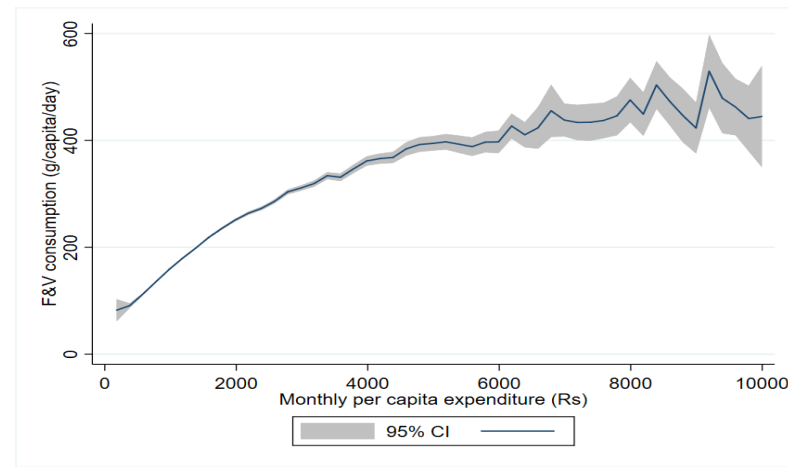University of London
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Methods

- Non-parametric regressions
- OLS regressions with state fixed effects
- Unconditional quantile regression methods
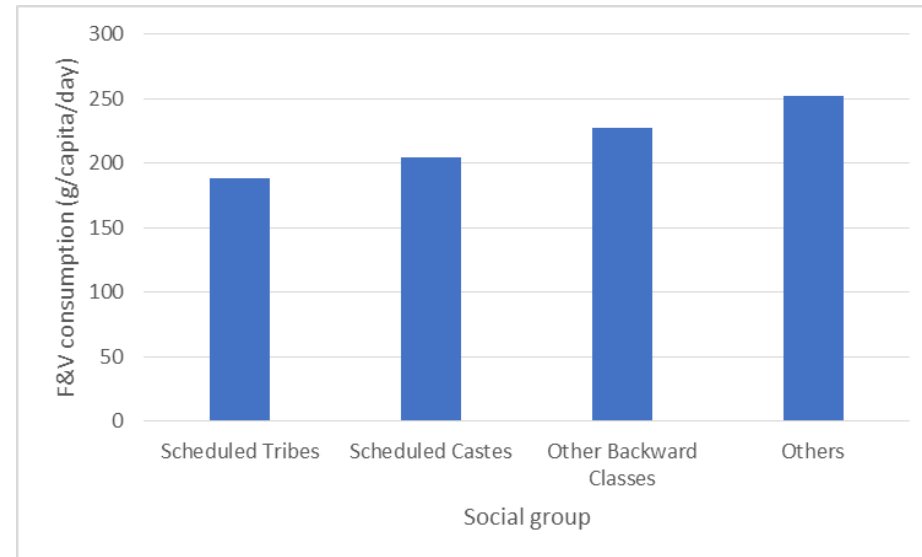- Multilevel regressions (household and district)

F&V consumption is generally low (mean 230g/p/day)

Strongly related to household income

Relative price of F&V has a – influence at low to medium consumption levels
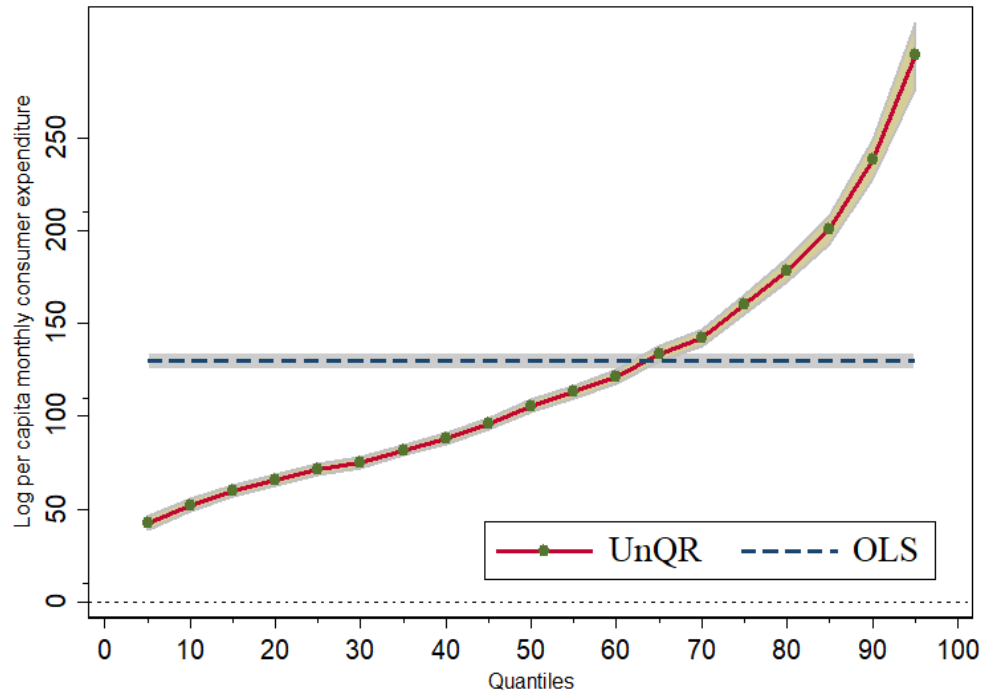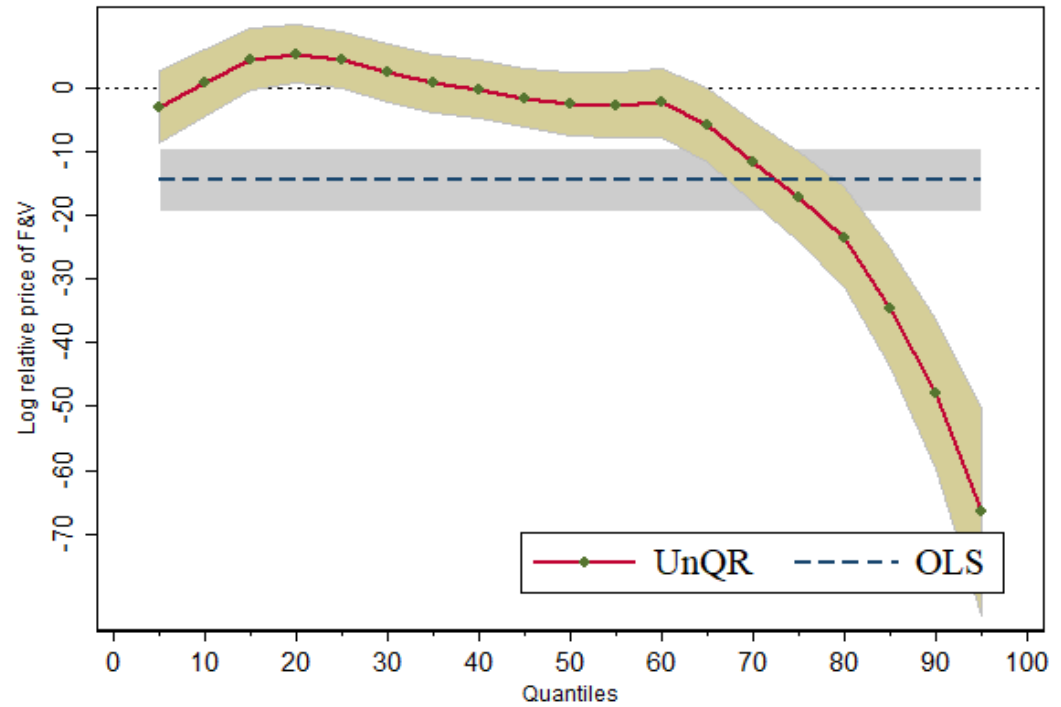

Lowest castes have worst outcomes

Results

- OLS & RIF Unconditional Quantile Regression Results of drivers of household F&V consumption (g/capita/day)

- Multilevel regression estimates of influence of district-level road and market infrastructure on household F&V consumption (g/capita/day)

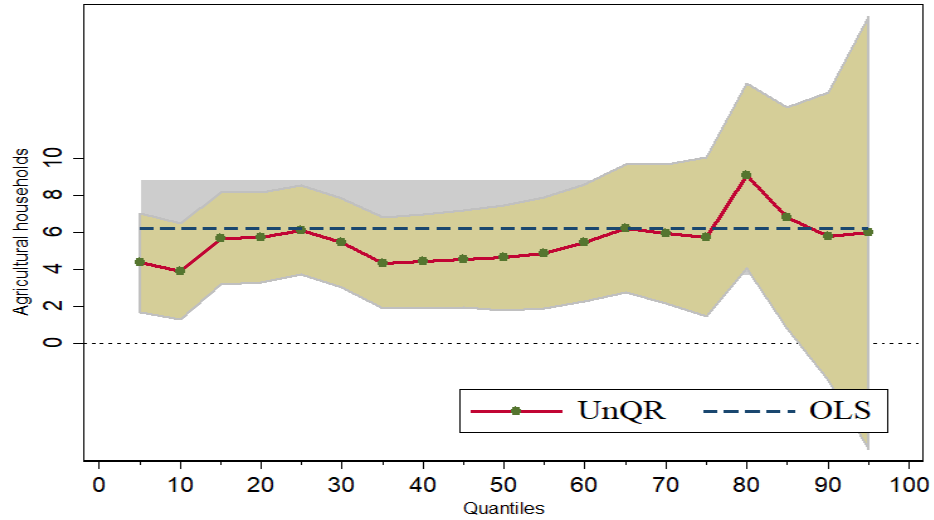# Effect of log per capita monthly expenditure on F&V consumption

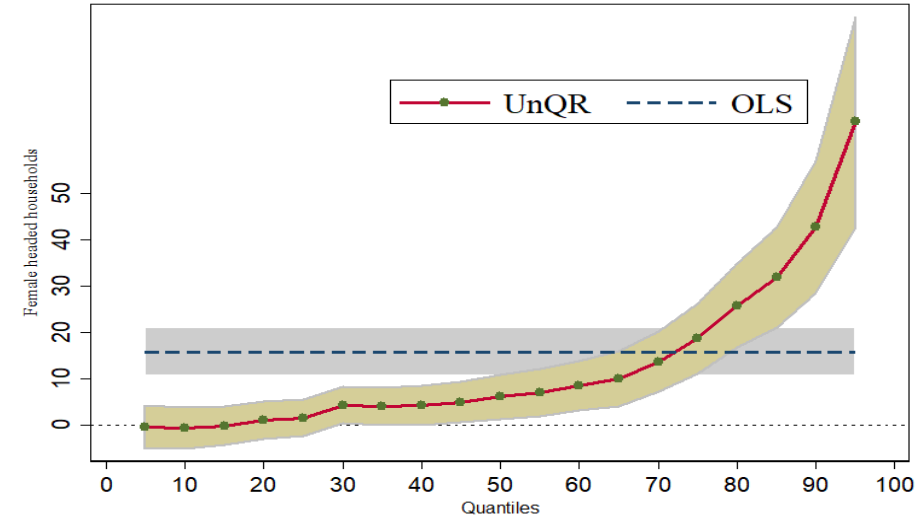# Effect of log relative price of F&V on F&V consumption

- Those at the lower quantiles who consume the least F&V are hard to influence using economic policy levers
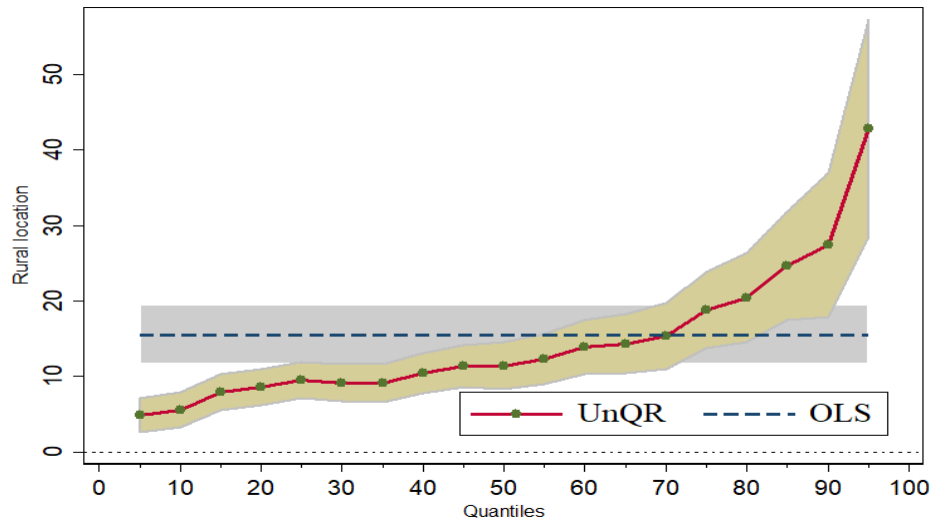
Effect of agricultural households on F&V consumption

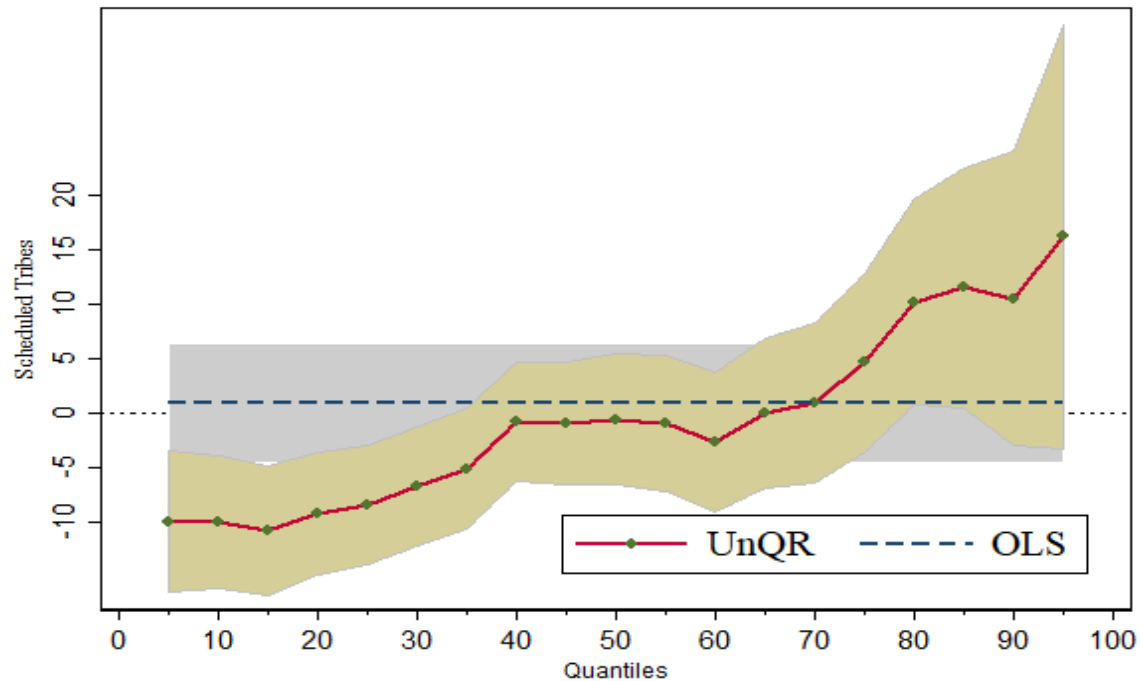# Effect of female headed households on F&V consumption

Effect of rural location on F&V consumption

- Female headed households, rural status & agricultural occupation of the household are important in improving F&V consumption
- Weaker relationships with F&V consumption at the lower tail

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Effect of caste (scheduled tribes compared with other/forward castes) on F&V consumption

- There is a negative Scheduled Tribes association with F&V consumption at the lower tail

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Results

Dependent variable	Household F&V consumption (g/capita/day)	
	(1) OLS with state dummies	(2) Multilevel regression
Road density	12.00 *** (4.09)	-13.90* (5.59)
Market density	2.24*** (0.59)	4.09*** (0.76)
Observations	13,402	13,402

Legend: *** p<0.01, ** p<0.05, * p<0.1. Regressions also control for household expenditure, household size, household head education, household head gender, rural location, religion and caste dummies

- Role of market infrastructure for agriculture is important in improving household F&V consumption

Conclusion

- First study examining key economic, socio-demographic and food system drivers of household F&V consumption in India with UQR and multilevel regressions

- Household income and relative F&V price are important correlates of F&V consumption

- But results provide an important role for female headed households, rural status and agricultural occupation

- Results suggest the need to address a caste-based inequality in F&V consumption

- To improve F&V consumption, policies will need to tailor strategies to reach Scheduled Tribes

THANK YOU!