

Beliefs on Inequality in Rural India

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Introduction

- What do villagers in Chhattisgarh, India, see as the main reasons for poverty and inequality?

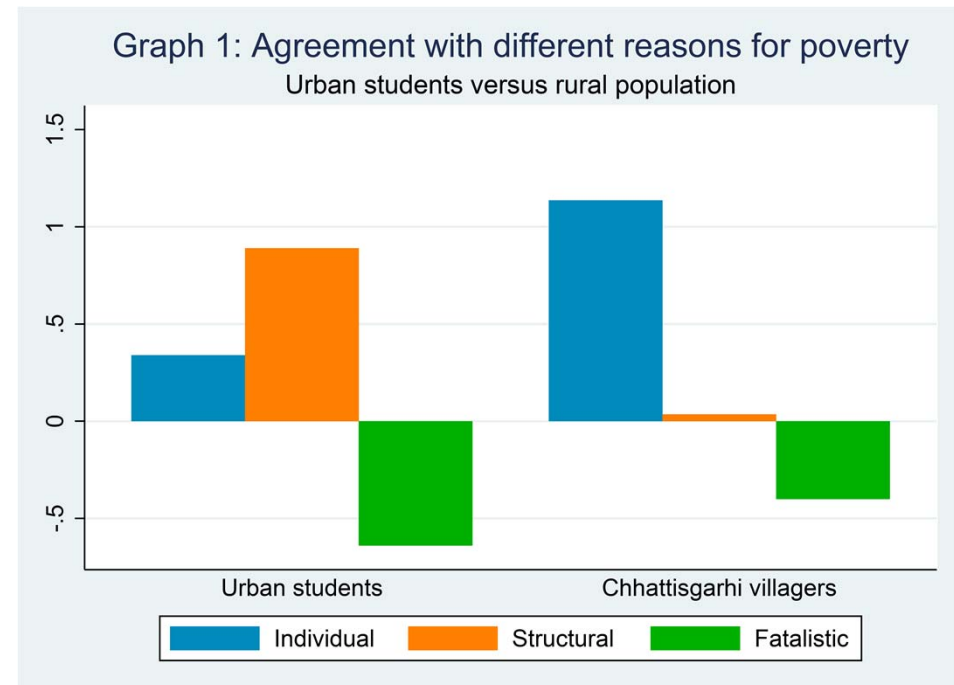
“Some people say that people get ahead by their own effort; others say that luck or one’s family background are more important. Which do you think is most important?”

1... Luck or family background are much more important; 2... Luck or family background are slightly more important; 3... Effort is slightly more important; 4... Effort is much more important

- What are their beliefs based on?
 - Previous literature: Personal experience + family mobility
 - My hypothesis: Experience of their network as well

Motivation

- Comparison with study on metropolitan college students: villagers agree more with individual and less with structural explanations for poverty than students
- Puzzle: Urban students are more likely to come from rich or upwardly mobile families – they should believe more in the importance of effort (if only family experience matters)
- Hypothesis: Networks matter



Model (Piketty: 1995)

- Individuals receive utility from income and disutility from effort:

$$U_{it} = y_{it} - C(e_{it}), \text{ cost of effort } C(e) = e^2/2a, a > 0$$

- Income can be high (y_H) or low (y_L) and depends stochastically on effort (e) and social origins (π_L or π_H):

$$pr(y_{it} = y_H | e_{it} = e, y_{it-1} = y_L) = \pi_L + \theta e$$

$$pr(y_{it} = y_H | e_{it} = e, y_{it-1} = y_H) = \pi_H + \theta e$$

- 4 categories of people: Rich dynasty, upwardly mobile, poor dynasty, downwardly mobile
- Agents choose effort to maximize utility. They do not know the true parameters π and θ , but act based on their beliefs $\hat{\pi}$ and $\hat{\theta}$.

Model (Piketty: 1995)

- Agents update their beliefs based on their dynasty's experience.

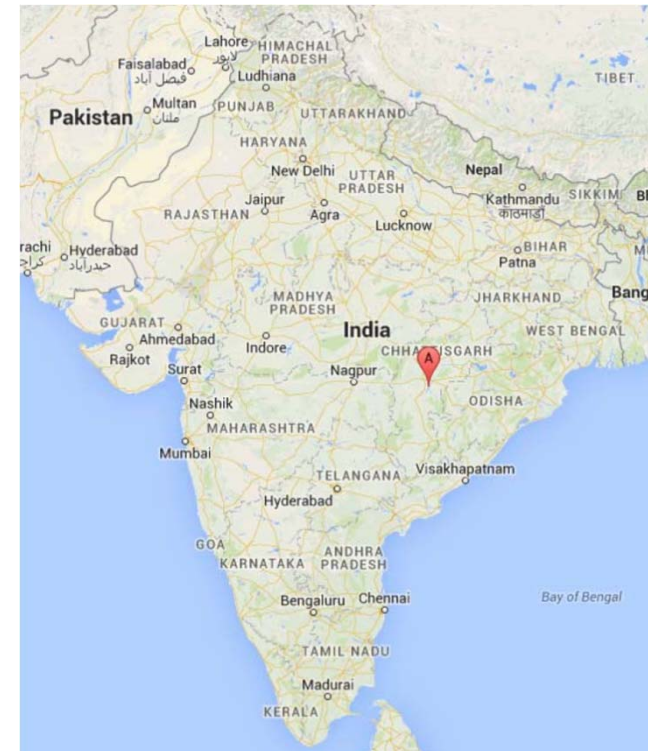
$$\mu_{it+1}(\pi_L, \pi_H, \theta) = \mu_{it}(\pi_L, \pi_H, \theta) \frac{\pi_L + \theta e(\theta(\mu_{it}))}{\sum_{\text{supp}(\mu_{it})} \pi'_L + \theta' e(\theta(\mu_{it})) \mu_{it}(\pi'_L, \pi'_1, \theta')}$$

- As a result, the outcome of the updating process for an otherwise identical individual depends on his family's last mobility experience:

Upwardly mobile:	μ_{it+1}	α	$\mu_{it}[\pi_L + \theta e(\theta(\mu_{it}))]$
Rich:	μ_{it+1}	α	$\mu_{it}[\pi_H + \theta e(\theta(\mu_{it}))]$
Downwardly mobile:	μ_{it+1}	α	$\mu_{it}[1 - \pi_H - \theta e(\theta(\mu_{it}))]$
Poor:	μ_{it+1}	α	$\mu_{it}[1 - \pi_L - \theta e(\theta(\mu_{it}))]$

Data

- Data collected between October 2013 and September 2014 in the framework of the project “Savings Behaviour and the Introduction of Mobile Banking in India”
- 519 household heads or spouses of household heads from 17 villages in rural Chhattisgarh
- Sample not representative of the general population, but unbanked households in unbanked villages
- Villages: No branch of a cooperative, rural or commercial bank
- Households: No savings account in any such bank



Variables

- **Beliefs:** Importance of income (increasing on a scale from 1-4)
- **Income** and past income: Self-assessed on a scale between 1 (very poor) and 5 (very rich)
- **Mobility:** Moving from very poor/poor as a child to neither poor nor rich/rich/very rich as an adult (or vice versa)
- **Effort**, parents' effort: Self-assessed on a scale between 1 (very little effort) and 5 (a lot of effort)
- Alternative measures will be available for current income and effort. But for belief formation, self-assessed income and effort may be more relevant than the «truth»
- **Network:** Section with a set of questions about all other respondents from the same village (including perception of their income and effort)
- Definition of a respondent's network: "Did you know this person before the baseline survey?"

Empirics

- Ordered logit with village fixed effects, bootstrapped S.E.:

$$Beliefs_i = \alpha + \beta_1 UM_i + \beta_2 PD_i + \beta_3 DM_i + \gamma_1 \frac{1}{J_i} \sum_{j=1}^{J_i} UM_{ij} + \gamma_2 \frac{1}{J_i} \sum_{j=1}^{J_i} PD_{ij} + \gamma_3 \frac{1}{J_i} \sum_{j=1}^{J_i} DM_{ij} + controls_i$$

i: individual

UM: Upwardly mobile ($y_{t-1} = y_L, y_t = y_H$)

j: network

PD: Poor dynasty ($y_{t-1} = y_t = y_L$)

DM: Downwardly mobile ($y_{t-1} = y_H, y_t = y_L$)

(Comparison category: Rich dynasty ($y_{t-1} = y_t = y_H$))

- LHS: Beliefs on the importance of effort
- RHS:
 - Family mobility dummies
 - Share of «mobility types» in network
 - Other controls (gender, age education, TV ownership, migration, caste category, occupation type, parents' effort, number of siblings)

Table 1: All controls.

(Mobility of network members as reported by network members)

	(1)	(2)
Family: Upwardly mobile	-0.658*	-0.631*
	(0.371)	(0.379)
Family: Poor dynasty	-0.994**	-0.986**
	(0.397)	(0.385)
Family: Downwardly mobile	-1.270***	-1.247***
	(0.406)	(0.431)
Network: UM		2.472
		(2.018)
Network: Poor		1.941
		(1.806)
Network: DM		1.273
		(2.230)
Observations	495	494

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Village FE, additional controls and constants not shown

- Respondents from poor or downwardly mobile families are less likely to believe in the importance of effort than rich or upwardly mobile
- Share of UM/Poor/DM in networks is insignificant

Alternative specification (1)

- Previous specification does not take account of the effort made by network members (only whether they were mobile or not)
- Importance of effort and family mobility in network based on OLS regression (using only network members for each respondent):

$$Income_{ijt} = \alpha + \theta_i * Effort_{ijt} + \pi_i * Income_{ijt-1}$$

$$Beliefs_i = \alpha + \beta_1 UM_i + \beta_2 P_i + \beta_3 DM_i + \gamma_1 \hat{\theta}_i + \gamma_2 \hat{\pi}_i + controls_i$$

Table 2: All controls.

Coefficients on effort and income from regression on network.

	(1)	(2)
Family: Upwardly mobile	-0.658* (0.371)	-0.646 (0.519)
Family: Poor dynasty	-0.994** (0.397)	-0.797 (0.567)
Family: Downwardly mobile	-1.270*** (0.406)	-1.452** (0.585)
Network: Perceived importance of effort (θ)		-0.393 (0.500)
Network: Perceived importance of family income (π)		-0.209 (0.460)
Observations	495	357

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Village FE, additional controls and constants not shown

- Similar results on family mobility, but insignificant
- Reduction in significance is due to sample size. (Test: Regression of table 1 on reduced sample yields almost identical results)
- Still no evidence that networks matter

Alternative specification (2)

- Measures of poverty and parents' poverty are based on self-assessment
- What matters for beliefs? Respondents' perception of their situation or their «objective situation»?
- Test: Instead of self-assessment, use average of other network members' perceptions

Table 3: All controls.

Own perceptions of poverty versus average network perceptions of poverty

	(1) OWN PERCEPTION	(2) NETWORK'S PERCEPTION	(3) OWN PERCEPTION	(4) NETWORK'S PERCEPTION
Family: Upwardly mobile	-0.658* (0.371)	-0.244 (0.383)	-0.631* (0.379)	-0.185 (0.408)
Family: Poor dynasty	-0.994** (0.397)	-0.346 (0.316)	-0.986** (0.385)	-0.381 (0.358)
Family: Downwardly mobile	-1.270*** (0.406)	-0.275 (0.423)	-1.247*** (0.431)	-0.349 (0.464)
Network: UM			2.472 (2.018)	1.256 (3.034)
Network: Poor			1.941 (1.806)	-0.768 (1.970)
Network: DM			1.273 (2.230)	-3.848 (3.072)
Observations	495	495	494	494

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Village FE, additional controls and constants not shown

- Subjective, not «objective» mobility matters for beliefs on inequality

Trying to rescue networks...

- **Do networks not matter?** No conclusive evidence...
- Some alternative network definitions
 - Too broad? → use smaller network (based on mutual visits/gifts/loans in the last 6 months) → insignificant
 - Estimation imprecise due to too small networks? → use only people with minimum number of network members → insignificant
 - Different network types? Maybe only influenced by members of your network with similar characteristics as you (gender, age, education, caste category, occupation) → insignificant

Main challenge: The sample

- Do I have the right data to find an effect?
 - Survey sample based on certain characteristics (un-banked people living in the same village) – only captures a specific part of respondents' networks
 - I cannot conclude that networks do not affect beliefs
- Focus on shocks: Do financial shocks to network members affect respondent's beliefs?
 - Perception of shocks (did X experience a shock)? Insignificant.
 - Size of own and network members' shocks from weekly panel data (total and average weekly cost of shocks): insignificant
- Weighting network members according to relevant characteristics (e.g., privilege network members who opened a savings account after the survey started): tbd

Conclusion

- **Family matters.** Respondents from poor or downwardly mobile families are less likely to believe that effort is an important determinant of income than respondents from rich or upwardly mobile dynasties
- Subjective, not objective mobility matters.
- **Do networks matter?** So far, no evidence in favor...
- **What next?**
 - Use alternative variables («true» income, ...)
 - Use more sophisticated network measures
 - Manski reflection problem...
 - Explore differences why people are rich (inheritance versus occupation...)

THANKS FOR YOUR ATTENTION!

Literature (Theory)

- Where do beliefs on inequality come from?
 - Beliefs = true parameters (Alesina/Angeletos: 2005)
 - Demand for «Belief in a Just World» despite contradictory evidence (Bénabou/Tirole: 2006)
 - Updating of beliefs in response to family mobility experience (Piketty: 1995)

Literature (Empirical evidence)

- Where do beliefs on inequality come from?
 - Cross-country differences in beliefs about reasons for income inequality (World Values Survey; Rey-Biel, Sheremeta and Uler: 2011)
 - Evidence for influence of personal experience (Di Tella, Galiani and Schagrodsky: 2007) and family experience (Krashinsky: 2007)

Reflection problem?

- Manski (1993)

$$y = \alpha + \beta E(y|x) + E(z|x)' \gamma + z' \eta + u, \text{ with } E(u|x, z) = x' \delta$$

- y = outcome (beliefs)
- x = attributes characterizing an individual's reference group (?)
- z, u = attributes that directly affect y (z =family mobility, u =unobserved, e.g. effort/ability)

- Mean regression of y on x, z :

$$E(y|x, z) = \alpha + \beta E(y|x) + E(z|x)' \gamma + x' \delta + z' \eta$$

- Problem: $E(y|x)$ solves the equation. Parameters $\alpha, \beta, \gamma, \delta$ are not identified, but only

$$E(y|x, z) = \frac{\alpha}{1 - \beta} + E(z|x)' \left(\frac{\gamma + \beta \eta}{1 - \beta} \right) + x' \frac{\delta}{1 - \beta} + z' \eta$$

- Not possible to distinguish the different social effects, but only to see whether there is some social effect

Table 1: Summary statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Age	519	43.66	12.90	20	80
Sons	519	1.651	1.113	0	7
Daughters	519	1.534	1.215	0	7
Education	519	3.177	3.581	0	15
HH size	519	5.293	2.406	1	16
Caste category: Scheduled tribe	519	0.133	0.340	0	1
Caste category: Scheduled caste	519	0.133	0.340	0	1
Caste category: Other backward caste	519	0.726	0.446	0	1
Caste category: Forward caste	519	0.00771	0.0875	0	1
Self-employed	519	0.541	0.499	0	1
Wage-employed	519	0.395	0.489	0	1
Salaried	519	0.0193	0.138	0	1
Number of siblings	519	3.642	1.880	0	11
Own TV	519	0.645	0.479	0	1
Migrated	519	0.127	0.333	0	1
Belief: Effort	519	3.395	1.069	1	4
Family: Upwardly mobile	519	0.258	0.438	0	1
Family: Rich dynasty	519	0.314	0.465	0	1
Family: Downwardly mobile	519	0.131	0.338	0	1
Family: Poor dynasty	519	0.297	0.457	0	1
Self-assessed effort	519	3.674	1.032	1	5
Parents' effort (self-assessed)	495	4.067	0.919	1	5
Network size	518	19.65	7.444	1	31
Gender network size	518	10.67	3.936	1	16
Age group network size	491	4.749	2.531	1	12
Education group network size	498	6.970	3.746	1	16
Caste category network size	501	13.56	7.823	1	30

Literature: Theory

- Main focus: Effect of beliefs about inequality on preferences on redistribution
- Idea: People are more favorable towards redistribution if they believe that individual effort plays a more important role in determining income than luck or family background
- But: Where do beliefs come from?
- Alesina/Angeletos (2005): Agents believe in the “true” effort-randomness ratio in society, and what they believe becomes “self-fulfilling” (equilibria are explained by history)
- Bénabou/Tirole (2006): Demand for “Belief in a Just World” – despite contradicting signals, people want to believe that effort matters
- Piketty (1995): Bayesian updating of beliefs in response to individuals’ family mobility experience

Literature: Empirical Evidence

- World Values Survey (quoted by Alesina/Angeletos): Large cross-country differences in percentage of people who believe that luck determines income
- Experiment: Spanish participants give higher transfers than US-Americans when uninformed about determinants of income, same when informed (Rey-Biel, Sheremeta and Uler: 2011)
- Natural Experiment: Allocation of land titles to squatters exogenous to their characteristics. “Lucky” squatters are more likely to have free-market beliefs than “unlucky” squatters (Di Tella, Galiani and Schagrodsky: 2007)
- Dataset of twins: Perception of within-family mobility (sibling’s education and earnings) affect preferences on redistribution (using family FE) (Krashinsky: 2007)