

# Caste Differences in Behavior and Personality: Evidence from India

Utteeyo Dasgupta, Wagner College and Fordham University  
Subha Mani, Fordham University, University of Pennsylvania & IZA  
Smriti Sharma, UNU-WIDER  
Saurabh Singhal, UNU-WIDER

May 16, 2016  
ASREC Europe, Copenhagen

- Caste is critical determinant of poverty and inequality in India.
- The lower castes (Scheduled Castes), indigenous tribes (Scheduled Tribes) and Other Backward Classes (OBCs) have fared worse than upper castes, on average.
- Differences in endowments as well as differential treatment play a role in perpetuating poorer outcomes among marginalized groups.
  - Munshi and Rosenzweig, 2006; Hnatkowska et al., 2012; Siddique, 2011; Deshpande and Sharma 2013, 2016
- These gaps could be exacerbated due to self-fulfilling prophecies regarding negative stereotypes (Coate and Loury, 1993).

# Objective

Examine caste-based gaps in behavioral preferences and personality traits:

- Behavioral preferences: risk preference, competitiveness, confidence, distributional preferences
- Personality traits: Big Five traits, grit, and locus of control

Personality traits and behavioral preferences are important predictors of educational attainment, earnings and job performance (Borghans et al. 2008; Buser et al. 2014)

Given the observed gaps in socioeconomic characteristics, one would expect some differences across castes in behavior and personality.

These gaps could also arise on account of internalization of negative stereotypes by the low castes.

- Hoff and Pandey (2006): revelation of caste leads to drop in performance and willingness to compete in a cognitive task among among rural Indian students.
- Bros (2014) : caste is a major determinant of perceived social rank.
- Spears (2016): low castes express lower life satisfaction in rural north India.
- Mukherjee (2015): priming caste and gender affects parents' aspirations about their children's future.

- Second and third year college students enrolled in undergraduate programs in colleges at University of Delhi
- Restricted to co-educational, full-time colleges that offer humanities and social sciences
- Incentivized experiments followed by socio-economic surveys
- 60 sessions lasting around 75 minutes each
- Sample size: 2065 students
- Show-up fee: Rs. 150; average additional payment: Rs. 230

# Data: competitiveness and confidence

- Competitiveness game a la Niederle and Vesterlund (2007)
- Subjects administered a real-effort task of adding up four 2-digit numbers in 90 seconds.
- After a practice round and before actual task, asked to choose between:
  - Piece-rate scheme: Rs. 10 for every correct answer.
  - Tournament scheme: Rs. 20 for every correct answer if subject outperforms a randomly selected university student who had played game earlier ('competitive').
- Subject is considered 'confident' if she believes her performance in the actual task will exceed those of others in the university.

# Data: distributional preferences

- Distributional preferences (Bartling et al. 2009)
- Subject is 'egalitarian' if always choosing option A

	Option A		Option B
Row 1	You get Rs. 200; and other person gets Rs. 200.	OR	You get Rs. 200; and other person gets Rs. 120.
Row 2	You get Rs. 200; and other person gets Rs. 200.	OR	You get Rs. 320; and other person gets Rs. 80.
Row 3	You get Rs. 200; and other person gets Rs. 200.	OR	You get Rs. 200; and other person gets Rs. 360.
Row 4	You get Rs. 200; and other person gets Rs. 200.	OR	You get Rs. 220; and other person gets Rs. 380.

## Investment game by Gneezy and Potters (1997)

- Subjects asked to allocate Rs. 150 between safe asset and risky lottery.
- If lottery is won, subject triples the lottery amount plus receives the safe amount.
- If lottery is lost, subject only receives safe amount.

'Risk attitude' defined as share invested in lottery.



# Data: socioeconomic survey

Family and schooling background characteristics

10 item Big Five inventory (Gosling et al., 2003)

- *Openness to experience* reflects imagination, creativity, intellectual curiosity, and appreciation of aesthetic experiences.
- *Extraversion* reflects sociability, assertiveness, and positive emotionality.
- *Conscientiousness* describes traits related to self-discipline, organization, and the control of impulses.
- *Agreeableness* comprises traits relating to altruism, such as empathy and kindness.
- *Neuroticism* describes the tendency to experience negative emotions and related processes easily.

13 items to measure *Locus of control* (Rotter, 1966)

8 items to capture *Grit* (Duckworth and Quinn, 2009 )

# Summary statistics

	Pooled	Upper caste	OBC	SCST	UC vs OBC p-value	UC vs SCST p-value	OBC vs SCST p-value
<b>Panel A: Behavioral traits</b>							
Competitiveness	0.31	0.31	0.32	0.31	0.91	0.98	0.95
Confidence	0.32	0.31	0.38	0.28	0.01	0.29	0.01
Risk attitude	46.78	46.18	48.18	48.22	0.08	0.09	0.98
Egalitarianism	0.15	0.13	0.19	0.18	0.01	0.03	0.84
<b>Panel B: Personality traits</b>							
Extraversion	4.62	4.76	4.28	4.25	0.00	0.00	0.77
Agreeableness	5.13	5.19	5.07	4.83	0.08	0.00	0.02
Conscientiousness	5.27	5.29	5.31	5.11	0.83	0.03	0.06
Emotional Stability	4.56	4.52	4.65	4.62	0.14	0.3	0.76
Openness to experience	5.33	5.43	5.14	5.04	0.00	0.00	0.29
Locus of control	7.29	7.27	7.51	7.19	0.07	0.6	0.04
Grit	3.35	3.39	3.28	3.21	0.00	0.00	0.14
<b>Panel C: Control variables</b>							
Female	0.49	0.58	0.28	0.24	0.00	0.00	0.27
Age (in years)	19.75	19.72	19.78	19.83	0.35	0.07	0.57
Number of siblings	1.58	1.36	1.97	2.20	0.00	0.00	0.03
Private school enrollment	0.70	0.82	0.52	0.31	0.00	0.00	0.00
High socioeconomic status	0.71	0.82	0.46	0.37	0.00	0.00	0.02
Mother's employment	0.23	0.28	0.08	0.14	0.00	0.00	0.04

Note: maximum value for Big Five, Locus of control and Grit is 7, 13 and 8 respectively.

# Conceptual Framework: Seemingly Unrelated Regression

As the same subject makes choices in all tasks, we estimate these equations using SUR framework that allows for these choices to be correlated.

$$Y_{ij} = \beta_0 + \beta_1 SCST_i + \beta_2 OBC_i + \sum_{j=1}^M \delta_j Z_{ij} + \sum_{k=3}^N \beta_k X_{ik} + \epsilon_s + \epsilon_{ij}$$

- Estimate this separately for sets of behavioral preferences and personality traits.
- Controls include gender, religion, age, number of siblings, socioeconomic status, private school, maternal employment and outcome-specific controls.
- All regressions control for session dummies.
- Able to reject the null that the outcomes are independent for the vector of behavior and personality measures.

# SUR estimates: Behavioral preferences

	Competition	Confidence	Risk	Egalitarianism
SCST	-0.065* (0.036)	-0.079** (0.038)	0.993 (1.521)	0.058** (0.029)
OBC	-0.075** (0.032)	0.030 (0.034)	-0.129 (1.352)	0.049* (0.026)
Female	-0.143*** (0.023)	-0.095*** (0.023)	-6.039*** (0.919)	0.004 (0.018)
Constant	0.656** (0.269)	0.278 (0.281)	49.846*** (11.192)	0.159 (0.214)
Observations	1,872	1,872	1,872	1,872
R-squared	0.141	0.069	0.086	0.064
Other controls	Yes	Yes	Yes	Yes
H0: SCST=OBC	0.79	0.01	0.49	0.76

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# SUR estimates: Personality traits

	Agreeable	Extraversion	Conscientiousness	Emotional stability	Openness to experience	Locus of control	Grit
SCST	-0.200** (0.089)	-0.264*** (0.088)	-0.289*** (0.089)	-0.076 (0.090)	-0.310*** (0.087)	-0.224** (0.089)	-0.304*** (0.089)
OBC	-0.042 (0.079)	-0.270*** (0.078)	-0.004 (0.079)	-0.022 (0.079)	-0.221*** (0.077)	-0.030 (0.079)	-0.177** (0.079)
Female	0.275*** (0.052)	0.071 (0.052)	0.125** (0.053)	-0.213*** (0.053)	0.038 (0.052)	-0.068 (0.053)	0.179*** (0.053)
Constant	0.586 (0.631)	0.521 (0.628)	-0.077 (0.635)	0.573 (0.639)	0.158 (0.621)	0.046 (0.635)	0.654 (0.634)
Observations	1,632	1,632	1,632	1,632	1,632	1,632	1,632
R-squared	0.071	0.079	0.066	0.054	0.068	0.064	0.080
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H0: SCST=OBC	0.1	0.96	0.003	0.57	0.35	0.04	0.19

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

# Differences in Behavior by Socioeconomic Status

	Competition	Confidence	Risk	Egalitarianism
SCST	-0.075 (0.053)	-0.062 (0.055)	0.756 (2.219)	0.083** (0.042)
OBC	-0.039 (0.049)	0.087* (0.051)	-0.173 (2.080)	0.090** (0.039)
High SES	-0.977** (0.462)	0.574 (0.484)	10.886 (19.108)	0.121 (0.364)
High SES x SCST	0.001 (0.073)	-0.003 (0.076)	0.424 (3.066)	-0.041 (0.058)
High SES x OBC	-0.061 (0.065)	-0.097 (0.067)	0.564 (2.707)	-0.068 (0.052)
Constant	1.121*** (0.355)	-0.031 (0.373)	42.921*** (14.797)	0.069 (0.280)
Observations	1,872	1,872	1,872	1,872
R-squared	0.153	0.074	0.091	0.066
Other controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Differences in Personality by Socioeconomic Status

	Agreeable	Extraversion	Conscientiousness	Emotional stability	Openness to experience	Locus of control	Grit
SCST	-0.227* (0.128)	-0.191 (0.127)	-0.219* (0.128)	-0.194 (0.129)	-0.214* (0.125)	-0.405*** (0.128)	-0.309** (0.128)
OBC	-0.089 (0.121)	-0.206* (0.120)	0.014 (0.122)	-0.137 (0.122)	-0.184 (0.119)	-0.240** (0.122)	-0.157 (0.122)
High SES	2.289** (1.087)	-0.685 (1.079)	0.070 (1.095)	2.233** (1.100)	-0.930 (1.070)	-0.003 (1.094)	-1.234 (1.094)
High SES x SCST	0.089 (0.179)	-0.203 (0.178)	-0.131 (0.181)	0.264 (0.181)	-0.182 (0.176)	0.299* (0.180)	-0.009 (0.180)
High SES x OBC	0.087 (0.157)	-0.093 (0.156)	-0.013 (0.158)	0.187 (0.159)	-0.041 (0.155)	0.344** (0.158)	-0.051 (0.158)
Constant	-0.548 (0.832)	0.777 (0.826)	-0.271 (0.838)	-0.522 (0.842)	0.564 (0.819)	0.058 (0.837)	1.364 (0.837)
Observations	1,632	1,632	1,632	1,632	1,632	1,632	1,632
R-squared	0.076	0.087	0.070	0.060	0.072	0.068	0.083
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Differences in Behavior by Private School Enrollment

	Competition	Confidence	Risk	Egalitarianism
SCST	-0.109** (0.052)	-0.067 (0.053)	0.790 (2.143)	0.038 (0.041)
OBC	-0.070 (0.053)	0.025 (0.054)	-2.558 (2.169)	0.046 (0.042)
Private School	-0.108 (0.473)	0.698 (0.493)	11.626 (19.543)	0.316 (0.372)
SCST X Private	0.114 (0.074)	-0.025 (0.076)	-0.092 (3.064)	0.061 (0.058)
OBC X Private	-0.008 (0.066)	0.014 (0.068)	4.113 (2.723)	0.002 (0.052)
Constant	0.726* (0.401)	-0.225 (0.420)	41.876** (16.742)	0.004 (0.317)
Observations	1,872	1,872	1,872	1,872
R-squared	0.148	0.076	0.091	0.067
Other controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



# Differences in Personality by Private School Enrollment

	Agreeable	Extraversion	Conscientiousness	Emotional stability	Openness to experience	Locus of control	Grit
SCST	-0.436*** (0.124)	-0.339*** (0.124)	-0.359*** (0.125)	-0.340*** (0.126)	-0.339*** (0.122)	-0.372*** (0.125)	-0.312** (0.125)
OBC	-0.193 (0.124)	-0.273** (0.124)	-0.159 (0.125)	-0.217* (0.126)	-0.389*** (0.122)	-0.185 (0.125)	-0.199 (0.125)
Private School	1.335 (1.128)	-0.924 (1.125)	0.478 (1.138)	0.468 (1.144)	-1.539 (1.111)	0.925 (1.138)	-0.281 (1.139)
SCST X Private	0.464*** (0.178)	0.148 (0.178)	0.130 (0.180)	0.510*** (0.181)	0.040 (0.175)	0.285 (0.180)	-0.001 (0.180)
OBC X Private	0.224 (0.158)	-0.013 (0.157)	0.261* (0.159)	0.286* (0.160)	0.271* (0.155)	0.242 (0.159)	0.034 (0.159)
Constant	-0.322 (0.971)	1.314 (0.968)	-0.424 (0.980)	0.244 (0.985)	1.209 (0.956)	-0.646 (0.980)	0.823 (0.981)
Observations	1,632	1,632	1,632	1,632	1,632	1,632	1,632
R-squared	0.080	0.083	0.071	0.060	0.075	0.067	0.081
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

# Differences in Behavior by Gender

	Competition	Confidence	Risk	Egalitarianism
SCST	-0.022 (0.045)	-0.091** (0.047)	0.989 (1.867)	0.094*** (0.036)
OBC	-0.058 (0.040)	0.005 (0.041)	-0.759 (1.663)	0.067** (0.032)
Female	-0.525 (0.463)	-0.241 (0.485)	-4.324 (19.242)	-0.006 (0.368)
SCST X Female	-0.075 (0.077)	0.040 (0.080)	-0.342 (3.228)	-0.102* (0.061)
OBC X Female	-0.033 (0.067)	0.082 (0.070)	1.931 (2.811)	-0.039 (0.054)
Constant	0.757** (0.310)	0.261 (0.325)	48.673*** (12.876)	0.164 (0.245)
Observations	1,872	1,872	1,872	1,872
R-squared	0.151	0.072	0.089	0.067
Other controls	Yes	Yes	Yes	Yes

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Differences in Personality by Gender

	Agreeable	Extraversion	Conscientiousness	Emotional stability	Openness to experience	Locus of control	Grit
SCST	-0.286*** (0.110)	-0.444*** (0.109)	-0.288*** (0.110)	-0.078 (0.111)	-0.355*** (0.108)	-0.319*** (0.110)	-0.321*** (0.110)
OBC	-0.072 (0.096)	-0.409*** (0.096)	-0.026 (0.097)	-0.086 (0.098)	-0.246*** (0.095)	-0.063 (0.097)	-0.141 (0.097)
Female	3.600*** (1.089)	-0.325 (1.080)	1.428 (1.098)	0.559 (1.105)	0.103 (1.074)	1.009 (1.097)	-1.024 (1.097)
SCST X Female	0.238 (0.185)	0.413** (0.184)	0.012 (0.187)	-0.015 (0.188)	0.173 (0.182)	0.250 (0.186)	0.070 (0.186)
OBC X Female	0.040 (0.163)	0.318** (0.162)	0.093 (0.164)	0.209 (0.165)	0.068 (0.161)	0.085 (0.164)	-0.126 (0.164)
Constant	-0.510 (0.727)	0.761 (0.721)	-0.630 (0.733)	0.251 (0.737)	0.128 (0.717)	-0.398 (0.733)	1.174 (0.732)
Observations	1,632	1,632	1,632	1,632	1,632	1,632	1,632
R-squared	0.078	0.090	0.070	0.058	0.071	0.068	0.084
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

# Robustness (1)

- Since we examine multiple outcomes, the probability of attaining a false positive increases in the number of outcomes. To address this concern, we follow Kling et al. (2007) and construct a standardized index that combines all behavior and personality measures. This index is regressed on the full vector of controls.

	Behavior & personality index
SCST	-0.174*** (0.035)
OBC	-0.075** (0.033)
Constant	0.279 (0.222)
Observations	1,598
R-squared	0.082
Other controls	Yes

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

Our results are also robust to the following:

- Computation of average effect size using the method outlined in Clingingsmith et al. (2009).
- Estimation using OLS: as SUR creates more missing observations than is necessary.

# Conclusion (1)

- SCSTs and OBCs fare worse than the upper castes along several dimensions of behavior and personality that matter for educational attainment, labor market success, and life outcomes.
- SCSTs and OBCs are more likely to prefer an equitable distribution; and are less likely to compete as compared to the upper castes.
- Caste gaps are starker in terms of personality traits.
- Heterogeneous effects on personality:
  - High SES: SCSTs and OBCs have a more internal locus of control.
  - Private school: SCSTs and OBCs are more emotionally stable; SCSTs are more agreeable; OBCs are more conscientious and open to experiences
  - Gender: SCST and OBC females are more extrovert.

## Conclusion (2)

- Given the accumulation of cognitive and behavioral disadvantage among these excluded groups by adulthood, our results suggest the need for redesigning the current structure of affirmative action policies in India.
- Strong case for targeting early childhood interventions towards marginalized groups.
- Caste differences among university students may represent lower bounds of caste gaps in overall society.