

# **The Power to Choose: Gender Balance of Power and Intra-Household Educational Spending in India**

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## Motivation (1)

- In recent decades, empowering women has been acknowledged as an important outcome, not just in its own right, but also as a way to confer benefits to their households, and thereby contribute to overall economic development.
- In this paper, our objective is to understand how gender matters for intra-household decision-making processes in India.
- We ask the following three questions:
  - (i) does the bargaining power of women affect the household's budget share devoted to education?
  - (ii) does the intra-household allocation of educational expenditure among sons and daughters depend on female bargaining power?
  - (iii) do these effects vary by caste?

## Motivation (2)

- **Increase in female bargaining power** and autonomy has been **linked to greater allocation of resources in favour of children in the household** (Doss, 2013)
- Hoddinott & Haddad (1995): share of women's cash income increases the budget share of food and reduces the share of expenditures on alcohol and cigarettes (**Cote d'Ivoire**)
- Reggio (2011): increase in female bargaining power associated with fewer hours of work for daughters (**Mexico**)
- Afridi (2010): households with more educated and autonomous mothers exhibit lesser bias against girls' schooling attainment (**India**)
- Quisumbing & Maluccio (2003): female bargaining power (female assets at marriage) increases the share of household expenditures on children's education (**Bangladesh, Indonesia, Ethiopia and South Africa**), but whether boys or girls benefit more differs substantially across countries, highlighting the relevance of cultural factors.
- Dasgupta and Mani (2015): looking at consumption choices among husbands and wives with an experiment (**India**), they suggest greater altruism on the part of women who choose joint HH consumption good over private goods.

## Motivation (3)

- **Possible differentiation by caste** of the effect of female bargaining power (some anthropological evidence):
  - Scheduled Castes (SCs) women have historically worked outside the home, the resulting income and independence gave rise to a culture in which these women were relatively assertive within their households, enjoyed greater financial autonomy and greater control over household resources (Kapadia, 1997; Mencher, 1988).
  - Similarly, within Scheduled Tribes (STs), attitudes towards women are more liberal in general, and in some northeastern Indian states (e.g. Meghalaya), there is also a presence of matrilineal tribes.
  - In contrast, among the upper castes (UCs), irrespective of their economic status, maintaining ritual purity is an important concern, which results in greater restrictions on the mobility, decision-making, and labour force participation of women (Chakravarti, 1993).

## Motivation (4)

### In this paper:

- Following Lancaster, Maitra and Ray (2006, “LMR” thereafter), we **simultaneously estimate** equations for **female bargaining power**, **log of per capita household expenditure** and **budget share of education** using a three stage least squares (3SLS) methodology.
- Some of the key differences between our analysis and LMR (2006) are:
  1. we focus solely on the effect of female bargaining on educational expenditures and are further able to study its impact on gender-specific expenditures, as facilitated by our data;
  2. we shed light on how these relationships are mediated by caste;
  3. we use a nationally representative data covering all states thereby providing generalizable results for a recent time period.

## Key results

- (i) Female bargaining power has a positive and significant effect on the household budget share of educational spending
- (ii) This bargaining power is associated positively (negatively) with educational spending in urban (rural) areas
- (iii) Further differentiation based on caste affiliation:
  - female bargaining power has a uniformly positive effect on educational expenditure of girls in urban areas among all caste groups.
  - the observed negative association in rural areas appears to be driven by one of the lower caste groups.
  - a pro-male bias exists in educational spending for all age groups with some differentiation by caste

# Data and descriptive statistics

- **India Human Development Survey 2011-12 (IHDS-II)**

42,152 households across 33 states and union territories

- **Analysis restricted to households with at least one member aged 5-19.**
- We calculate the total **HH education expenditure as the sum** of the following expenses for each enrolled child: **school fees, school books, uniforms and other materials, transportation, and private tuition.**
- **The share of sum of female wages in total household wage income is our proxy of female bargaining power.**

The share of female wages in total household wage income is always greater in households where females have greater say in decision-making. In households where women have most say in 5-8 decisions under consideration, the share is 0.45 as compared to 0.39 in households where women have a say in 4 or fewer decisions.

Score regarding decision-making on daily cooking, number of children to have, purchases of expensive items, buying and selling of land, expenditures on large social functions, child health, etc.

**qualitative measures of female autonomy**

	All		Rural		Urban	
	Share of female wage income	N (Households)	Share of female wage income	N (Households)	Share of female wage income	N (Households)
<b>Household index of 'most say in decisions making'</b>						
0-4	0.39	864	0.38	731	0.44	133
5-8	0.45	8,675	0.44	6,847	0.49	1,828
		9,539		7,578		1,961
t-test of mean difference	4.87		4.39		1.01	
<b>Household with females having cash to spend on household expenditures</b>						
No	0.39	644	0.40	535	0.37	109
Yes	0.45	9,977	0.44	7,851	0.51	2,126
		10,621		8,386		2,235
t-test of mean difference	4.57		2.86		4.14	
<b>Household with females having their name on bank account</b>						

Altogether, comforting that the financial measure of bargaining power we use is consistent with other decision-making based measures of female autonomy in the data.



# Data and descriptive statistics

## Educational spending

- Share of HH expenditure on education is about 5.5% (rural: 4.5% and urban: 7.8%)
- Education expenditures are increasing in age for both boys and girls in all areas.
- More is spent on boys' than on girls' education. This gap is higher in older age groups.
- Gender gap in expenditures is generally smaller in rural areas for all age groups.

# Methodology (1)

- Collective household model (Bourguignon et al, 1993; Browning and Chiappori, 1998) which relaxes the unitary model assumption of income pooling between the household income earners in determining the expenditure outcomes.
- Additional assumption (Basu, 2006) that welfare weight of the adult male vis-à-vis the adult female income earner ( $\theta \in [0,1]$ ), the “bargaining power”, is jointly determined with the household’s expenditure outcomes.
- A household budget shares of good  $g$ , ( $b^g$ ), can be obtained as a  $\theta$ -weighted average of the budget shares of that good for each spouse ( $m, f$ ), namely,  $b_f^g$  and  $b_m^g$ , so that:

$$b^g = \theta b_f^g + (1 - \theta) b_m^g.$$

$\theta$  is used as the household income sharing rule.

- Demand functions of education ( $edu$ ) for each spouse ( $m, f$ ) can be written as:

$$\begin{aligned} b_f^{edu} &= \alpha_f^{edu} + \beta_f^{edu}[\theta\mu] + \epsilon_f^{edu} \\ b_m^{edu} &= \alpha_m^{edu} + \beta_m^{edu}[(1 - \theta)\mu] + \epsilon_m^{edu} \end{aligned}$$

$\mu$  denotes the household income, so that  $\theta\mu$  is the income assigned to the female and  $(1 - \theta)\mu$  is assigned to the male.

## Methodology (2)

With the inclusion of demographic variables (household size and age-sex composition) as independent variables, an aggregated budget share of education can be derived:

$$b = \alpha_0 + \alpha_1 \theta + \beta_f \theta^2 \mu + \beta_m (1 - \theta)^2 \mu + \gamma \log(n) + \sum_{k=1}^K \varphi_k \left( \frac{n_k}{n} \right) + \varepsilon$$

where  $n$  denotes the household size, and  $n_k$  the number of individuals in the age-sex group  $k$ .

Thanks to the availability of the amounts of expenditures on girls' and boys' education, we can separately estimate the budget shares for girls ( $g$ ) and boys ( $b$ ).

## Methodology (3)

- We adopt the empirical framework developed in Lancaster et al. (2006, 2008).
- The “bargaining power” variable is jointly determined with the household’s expenditure outcomes,  $\theta(z)$ , with  $z$  not exogenous but part of the household’s decision-making process.
- We then jointly estimate bargaining power (1), per capita household expenditure (2) and the budget share of education spending (3) using three-stage least squares (3SLS) estimation methodology:

$$(1) \quad \theta = \theta(X_1, TotExp) + \vartheta_1$$

$$(2) \quad PCExp = PCExp(X_2) + \vartheta_2$$

$$(3) \quad b^{edu} = b^{edu}(\theta, PCExp, X_3) + \vartheta_3$$

$X_1, X_2, X_3$  are vectors of exogenous HH and HH head determinants.

## 3SLS estimates of female bargaining power

The female bargaining power is weaker in larger households, with magnitude of effect larger for urban households

Low caste households (SCSTs and OBCs) in rural areas exhibit a greater female bargaining power compared to upper caste households.

Females in urban households have lower bargaining power, as measured by female share of HH wages.

	(1) All	(2) Rural	(3) Urban
Sh. of female education in total education	-0.195*** (0.021)	-0.176*** (0.025)	-0.289*** (0.039)
Sh. of female education squared	0.472*** (0.022)	0.424*** (0.026)	0.629*** (0.041)
Log (total expenditure)	0.021*** (0.004)	0.001 (0.006)	0.043*** (0.007)
Ln (household size)	-0.097*** (0.007)	-0.082*** (0.009)	-0.108*** (0.011)
Hindu	0.024*** (0.006)	0.000 (0.009)	0.037*** (0.010)
SCST	0.026*** (0.006)	0.050*** (0.008)	-0.008 (0.010)
OBC	0.009 (0.006)	0.029*** (0.008)	-0.013 (0.009)
Age of head	0.079*** (0.009)	0.070*** (0.011)	0.102*** (0.016)
Urban	-0.052*** (0.007)		
Constant	-0.334*** (0.062)	-0.113 (0.078)	-0.646*** (0.105)
Observations	17,603	11,323	6,280
R-squared	0.180	0.194	0.179

**Note:** Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. District dummy variables included.

**Source:** Authors' calculations using India Human Development Survey, 2011-12.

## 3SLS estimates of budget share of educational expenditures

	(1) All	(2) Rural	(3) Urban
Female bargaining power	0.040*** (0.012)	-0.062*** (0.021)	0.115*** (0.017)
Female bargaining power sq*per capita expenditure	-1.57e-07 (1.85e-07)	7.58e-07* (4.37e-07)	-5.46e-07*** (2.03e-07)
Male bargaining power sq*per capita expenditure	4.82e-07*** (7.26e-08)	-4.29e-08 (1.30e-07)	8.44e-07*** (9.53e-08)
Urban	0.030*** (0.002)		
Log (household size)	0.013*** (0.002)	0.011*** (0.002)	0.012*** (0.004)
Sh. of males aged 0-4	-0.081*** (0.012)	-0.096*** (0.013)	-0.062*** (0.024)
Sh. of females aged 0-4	-0.078*** (0.011)	-0.083*** (0.013)	-0.083*** (0.023)
Sh. of males aged 5-9	0.048*** (0.010)	0.017 (0.011)	0.109*** (0.019)
Sh. of females aged 5-9	0.031*** (0.010)	0.013 (0.011)	0.063*** (0.020)
Sh. of males aged 10-14	0.071*** (0.009)	0.050*** (0.010)	0.111*** (0.018)
Sh. of females aged 10-14	0.050*** (0.009)	0.027*** (0.010)	0.098*** (0.018)
Sh. of males aged 15-19	0.083*** (0.009)	0.068*** (0.011)	0.107*** (0.018)
Sh. of females aged 15-19	0.062*** (0.009)	0.059*** (0.010)	0.092*** (0.018)
Sh. of males aged 20-55	-0.058*** (0.011)	-0.086*** (0.015)	-0.040** (0.020)
Sh. of females aged 20-55	-0.017** (0.008)	0.004 (0.009)	-0.044*** (0.016)
Sh. of males aged over 55	-0.056*** (0.013)	-0.086*** (0.015)	-0.011 (0.024)

## 3SLS estimates of budget share of educational expenditures (cont'd)

	(1) All	(2) Rural	(3) Urban
Constant	-0.009 (0.013)	0.033** (0.015)	-0.027 (0.025)
Observations	17,603	11,323	6,280
R-squared	0.175	0.133	0.134
<b>Wald test for female bargaining</b>			
$\theta = 0$	69.24***	58.34***	78.52***
$\theta = 0.2$	34.36***	109.34***	54.93***
$\theta = 0.4$	10.71***	125.23***	52.43***
$\theta = 0.6$	28.98***	92.93***	85.31***
$\theta = 0.8$	51.65***	65.67***	110.26***
$\theta = 1$	65.83***	49.71***	121.66***
Effect of female bargaining power	0.021**	-0.054***	0.069***
t-statistic	2.48	-4.01	5.84

**Note:** Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. District dummy variables included.

**Source:** Authors' calculations using India Human Development Survey, 2011-12.

- Rejection of the null for all reported values of  $\theta$ : female bargaining power (FBP) is significantly associated with the share of household budget devoted to education.
- Differential effects in rural and urban areas: effect of FBP is negative in rural areas and positive in urban areas with a larger absolute magnitude.

# 3SLS estimates of budget share of educational expenditures by castes

	Rural			Urban		
	Upper Castes (1)	SCSTs (2)	OBCs (3)	Upper Castes (4)	SCSTs (5)	OBCs (6)
<b>Wald test for female bargaining</b>						
$\theta = 0$	0.27	2.41	8.09**	19.22***	29.61***	11.06***
$\theta = 0.2$	0.92	1.66	15.46***	14.75***	29.86***	8.39**
$\theta = 0.4$	2.28	5.01*	19.65***	19.47***	35.59***	7.18**
$\theta = 0.6$	2.63	8.8**	17.01***	33.06***	44.37***	9.08**
$\theta = 0.8$	2.49	9.95***	13.55***	39.15***	47.60***	10.89***
$\theta = 1$	2.32	10.08***	11.14***	40.43***	47.30***	11.94***
Effect of female bargaining power	-0.017	0.023	-0.036*	0.074***	0.091***	0.05**
t-statistic	-0.57	1.32	-1.94	3.37	5.30	2.34

Note: Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. District dummy variables included.

Source: Authors' calculations using India Human Development Survey, 2011-12.

- **In rural areas, among upper castes**, FBP is not a significant determinant of educational spending
- **Among SCSTs**, only once FBP is at least 0.4, it significantly and positively affects the household's education budget.
- On the other hand, FBP is always significant among **rural OBCs** but, at average sample values, the effect is negative.
- **In urban areas**, positive and significant relationship between FBP and educational spending, with effects being larger among upper castes and SCSTs as compared to OBCs.



## 3SLS Estimates of budget share of educational expenditures by sex

	(1)	(2)	(3)	(4)	(5)	(6)
	All		Rural		Urban	
	Girls	Boys	Girls	Boys	Girls	Boys
Female bargaining power	0.028*** (0.010)	-0.007 (0.013)	-0.092*** (0.021)	-0.014 (0.016)	0.111*** (0.015)	-0.021 (0.021)
Female bargaining power sq*per capita expenditure	-1.45e-07 (1.53e-07)	3.13e-07 (2.39e-07)	1.36e-06** (5.38e-07)	2.55e-07 (3.42e-07)	-5.97e-07*** (1.65e-07)	6.22e-07* (3.33e-07)
Male bargaining power sq*per capita expenditure	3.19e-07*** (6.50e-08)	2.67e-07*** (7.55e-08)	-1.34e-07 (1.23e-07)	7.52e-08 (1.20e-07)	6.31e-07*** (9.13e-08)	3.31e-07*** (9.73e-08)
Ln (household size)	0.008*** (0.002)	0.004** (0.002)	0.005*** (0.002)	0.007*** (0.002)	0.009** (0.004)	-0.000 (0.004)
Constant	0.006 (0.012)	0.017 (0.013)	0.049*** (0.015)	0.014 (0.014)	-0.033 (0.024)	0.050* (0.027)
Observations	12,090	13,126	7,902	8,531	4,188	4,595
R-squared	0.186	0.179	0.0548	0.154	0.137	0.189
<b>Wald test for female bargaining</b>						
$\theta = 0$	31.77***	71.59***	86.89***	15.16***	59.94***	47.56***
$\theta = 0.2$	18.02***	54.28***	219.61***	17.19***	56.24***	35.31***
$\theta = 0.4$	7.33**	15.35***	295.90***	11.76***	66.19***	9.03**
$\theta = 0.6$	13.97***	0.37	236.70***	4.91*	85.40***	1.11
$\theta = 0.8$	23.30***	3.83	179.47***	1.97	94.19***	5.16*
$\theta = 1$	29.23***	9.72***	144.40***	1.03	95.91***	9.87***
Effect of female bargaining power	0.015**	-0.014	-0.078***	-0.015	0.076***	-0.032**
t-statistic	2.14	-1.59	-5.69	-1.37	7.12	-2.18

Note: Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Age-sex composition variables and district dummy variables included.  
Source: Authors' calculations using India Human Development Survey, 2011-12.

- **FBP matters uniformly for educational expenditure on girls but not always for that on boys.**
- **At average sample values, differences of FBP effects by location and by sex of the recipients:** negative in rural for girls, and positive for girls in urban areas compared to boys

## 3SLS Estimates of budget share of educational expenditures by sex and caste in RURAL areas

	(1)	(2)	(3)	(4)	(5)	(6)
	Upper Castes		SCSTs		OBCs	
	Girls	Boys	Girls	Boys	Girls	Boys
<b>Wald test for female bargaining</b>						
$\theta = 0$	0.89	1.85	0.05	5.57*	34.96***	0.73
$\theta = 0.2$	4.53	1.28	0.13	2.41	48.03***	2.17
$\theta = 0.4$	9.36***	0.81	0.95	1.31	46.41***	4.80*
$\theta = 0.6$	9.80***	1.23	1.50	4.95*	29.75***	5.99**
$\theta = 0.8$	9.11**	1.68	1.58	7.73**	19.89***	6.08**
$\theta = 1$	8.47**	1.92	1.54	9.01**	15.60***	5.87*
Effect of female bargaining power	-0.026	0.015	0.0007	0.011	-0.059***	-0.016
t-statistic	-1.024	0.748	0.035	0.808	-4.28	-0.98

Note: Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Age-sex composition variables and district dummy variables included.  
Source: Authors' calculations using India Human Development Survey, 2011-12.

- For **upper castes in rural areas**, FBP matters for girls' educational spending at values of  $\theta$  exceeding 0.2, and is never significant for boys.
- On the other hand, **among SCSTs**, FBP is never an important determinant of spending on girls but it matters for boys except at intermediate values of  $\theta$ .
- The previous negative effect observed for **rural OBCs** driven primarily by the negative effect of FBP on girls' educational expenditures.

## 3SLS Estimates of budget share of educational expenditures by sex and caste in URBAN areas

	(1)	(2)	(3)	(4)	(5)	(6)
	Upper Castes		SCSTs		OBCs	
	Girls	Boys	Girls	Boys	Girls	Boys
<b>Wald test for female bargaining</b>						
$\theta = 0$	7.44**	14.63***	16.17***	1.18	16.01***	13.24***
$\theta = 0.2$	6.62**	8.22**	14.85***	0.92	18.36***	27.76***
$\theta = 0.4$	10.03***	4.27	14.87***	3.61	20.65***	31.06***
$\theta = 0.6$	15.36***	11.31***	18.32***	6.28**	20.12***	23.24***
$\theta = 0.8$	16.79***	18.03***	21.71***	7.06**	18.59***	17.80***
$\theta = 1$	16.64***	21.22***	22.99***	7.12**	17.47***	14.72***
Effect of female bargaining power	0.049**	0.028	0.058***	0.018	0.073***	-0.088***
t-statistic	2.41	1.22	3.39	0.88	4.07	-2.64

Note: Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Age-sex composition variables and district dummy variables included.  
Source: Authors' calculations using India Human Development Survey, 2011-12.

- In urban areas, overall, FBP matters uniformly and significantly for girls, especially in Upper Castes and OBCs.
- For all caste groups, the average effect of FBP is greater for girls' educational expenditure than for boys'.

# Conclusions

- Our objective has been to assess the effect of female bargaining power (FBP) in India on the share of educational expenditures in the household's budget.
- In line with the literature that shows maternal autonomy to positively determine child outcomes, we find FBP to positively affect the share of household budget devoted to children's education.
- However, this effect varies by location such that a positive (negative) effect is observed in urban (rural) areas.
- In line with literature, our results are also consistent with FBP able to reap greater returns for girls rather than boys in the household.
- We suggest that the gender bias in favour of boys differs along caste lines, especially in urban areas where the pro-male bias is almost always significant among upper castes but is significant in fewer cases among SCSTs and OBCs.

## Further work

- Further investigate the processes behind the negative association between FBP and girls' educational spending for OBCs HHs in rural areas.
- To try and test the estimation of the 3SLS model using the IHDS 1 and 2 panel data.

**Thank you for your attention!**

## Motivation (3)

- Gender gaps in educational expenditures in India is not new finding.
- However, finding is dependent on the **methodology used**.
  - Kingdon (2005): due to the existence of both objective and subjective gender biases in educational expenditures (1. decision to enroll and 2. how much to spend), studies aggregating these decisions (with an Engle curve) have failed to consistently detect biases
  - Azam and Kingdon (2013): using a hurdle model, found a greater pro-male bias in enrollments in the 15-19 age group, but a greater bias in expenditure decisions in the 10-14 age groups
  - Zimmerman (2012): using both hurdle and Engel methods, finds discrimination against girls in educational expenditures to be increasing in age.

## 3SLS estimates of log per capita expenditure

	(1) <b>All</b>	(2) <b>Rural</b>	(3) <b>Urban</b>
Male head	-0.059*** (0.013)	-0.060*** (0.016)	-0.047** (0.020)
Age of head	0.381*** (0.017)	0.301*** (0.021)	0.458*** (0.030)
Years of education of head	0.038*** (0.001)	0.028*** (0.001)	0.049*** (0.001)
Hindu	0.071*** (0.011)	0.073*** (0.015)	0.035** (0.017)
SCST	-0.190*** (0.011)	-0.207*** (0.014)	-0.126*** (0.018)
OBC	-0.087*** (0.010)	-0.079*** (0.014)	-0.080*** (0.016)
Total no. of adults	-0.064*** (0.003)	-0.056*** (0.004)	-0.074*** (0.005)
Home owner	-0.102*** (0.014)	-0.016 (0.032)	-0.109*** (0.016)
Electricity	0.188*** (0.014)	0.174*** (0.015)	0.246*** (0.042)
Urban	0.165*** (0.012)		
Constant	8.832*** (0.084)	9.146*** (0.104)	8.481*** (0.150)
Observations	17,603	11,323	6,280
R-squared	0.424	0.362	0.408

**Note:** Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. District dummy variables included.



## 3SLS estimates of female bargaining power by castes

	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Rural</b>			<b>Urban</b>		
	Upper Castes	SCSTs	OBCs	Upper Castes	SCSTs	OBCs
Sh. of female education in total education	-0.044 (0.063)	-0.172*** (0.038)	-0.165*** (0.041)	-0.276*** (0.085)	-0.189*** (0.066)	-0.301*** (0.057)
Sh. of female education squared	0.279*** (0.064)	0.405*** (0.040)	0.452*** (0.043)	0.744*** (0.088)	0.476*** (0.071)	0.594*** (0.062)
Log (total expenditure)	0.030** (0.013)	0.005 (0.009)	-0.008 (0.009)	0.072*** (0.013)	0.026* (0.013)	0.036*** (0.011)
Ln (household size)	-0.088*** (0.020)	-0.086*** (0.014)	-0.082*** (0.014)	-0.079*** (0.021)	-0.116*** (0.023)	-0.125*** (0.017)
Hindu	0.017 (0.020)	-0.027 (0.018)	0.010 (0.015)	0.025 (0.018)	0.011 (0.027)	0.047*** (0.014)
Age of head	0.070*** (0.025)	0.073*** (0.017)	0.064*** (0.018)	0.094*** (0.031)	0.102*** (0.030)	0.106*** (0.023)
Constant	-0.486*** (0.164)	-0.187 (0.212)	0.084 (0.130)	-1.041*** (0.178)	-0.456** (0.227)	-0.640*** (0.229)
Observations	2,308	4,480	4,419	1,993	1,657	2,544
R-squared	0.218	0.219	0.246	0.248	0.243	0.232

**Note:** Standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. District dumm

- Whatever the locality of the households, females in high caste households get higher “returns” to their education in terms of bargaining power:
  - the returns at the sample means are 0.19, 0.10, 0.15, respectively for UC, SCST and OBC groups in rural areas, while these returns amount to 0.40, 0.20 and 0.18 respectively for households in urban localities.

## Difference in marginal effects of HH age-sex composition on budget shares between girls and boys by age, caste and location

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Rural	Urban	Rural			Urban		
Age				UCs	SCSTs	OBCs	UCs	SCSTs	OBCs
5-9	-0.017** (0.008)	-0.004 (0.008)	-0.045*** (0.015)	0.029 (0.019)	-0.002 (0.012)	-0.025* (0.013)	-0.059** (0.029)	-0.031 (0.026)	-0.057** (0.023)
10-14	-0.021*** (0.007)	-0.023*** (0.008)	-0.013 (0.013)	-0.005 (0.017)	-0.033*** (0.012)	-0.031** (0.012)	-0.041 (0.025)	-0.054** (0.023)	0.016 (0.02)
15-19	-0.024*** (0.007)	-0.012 (0.008)	-0.015 (0.013)	-0.039** (0.018)	-0.024* (0.013)	-0.007 (0.012)	-0.044* (0.024)	-0.013 (0.023)	-0.008 (0.02)

Note: Difference between marginal effects is measured as female minus male such that negative values indicate pro-male bias. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

- Negative signs of the difference indicate a pro-boy biases.
- Overall, the difference in the marginal effects (female minus male) is statistically significant and negative for all the age groups, meaning that families spend more on boys' education than that of girls.
- For each of the caste groups, gaps appear to be larger in urban than in rural areas.