Gender Bias in Household Educational Expenditure

An Econometric Analysis of Bargaining and Budget Share

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Abstract

The gender bias in education and household education expenditure is analysed, and the effect of parental bargaining power on the budget share of education in the household expenditure is examined using the 68th round (2011-2012) of NSSO data on Bihar and Kerala. The collective household model and Three Stage Least Square estimation approaches are used. The 3SLS estimates show a significant gender gap in education in rural and urban Bihar and Kerala, but not much difference in the gender allocation patterns of households in the two states. Though urban households allocate more resources for education, gender disparity is more in urban households relative to rural households. The household budget share on education increases with an increase in the proportion of boys than girls. The male bargaining power has some effect on the budget share of household education expenditure in urban households, but not in rural households of Bihar and Kerala.

INTRODUCTION

In the post-independence 1951 Census of India, the literacy rates of females and males were only 9 per cent and 27 per cent respectively and the corresponding rates were 39.3 per cent and 64.1 per cent in the 1991 Census. With economic reforms of 1991, there has been increased public attention on the benefits of schooling and the feasibility of private participation, and government policies have been revitalised to improve the supply side

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and incentivise households to enroll children in schools. Also, significant efforts have been made to promote female schooling which is important for reducing the gender differential in literacy rates. With the Sarva Shiksha Abhiyan and Education For All educational programmes, the proportion of out of school children fell from 66 per cent in 2005 to 3.5 per cent in 2010 for children between the ages of 6 and 14 in rural India. Though there have been dramatic changes in enrollments, there remains an acute shortfall in terms of infrastructure and quality in government schools which necessitates further action by the government to improve the education system in India.

While the mean years of schooling have grown noticeably across successive generations, for both men and women, in both rural and urban areas, gender gaps in education have also increased. The most significant educational gains have been among urban females; in rural areas, mean years of schooling grew at comparable rates for both men and women. A 2001 World Bank report in a study of 41 countries that the ratio of boys to girls enrolled in secondary school is 40 per cent for poorest countries and 20 per cent for rich countries. According to the 2001 Census of India, "the gender gap in literacy ranges from 24.6 per cent in rural India and 13.4 per cent in urban India. In the northern part of India, literacy rates vary from 27.7 per cent from rural Bihar and 17.5 per cent in urban Bihar, whereas in Uttar Pradesh figures are 30.3 per cent in rural areas and 16.1 per cent for urban areas. In the southern states of India like Kerala, the literacy gap between the rural and urban areas is much less compared to other states of India, standing at 6.7 per cent for the rural areas and 5.2 per cent for the urban areas".

The issue of gender bias against girls within the household is particularly important in the Indian context as there exists widespread social sanction for son preference and skewed property rights. But it is difficult to observe the inner working of the household allocation mechanism due to a lack of data. The best way to gauge the extent of gender bias against girls within households is to look at the issue by using external observable outcomes like education expenditure on children by the household. A general approach is to understand the budget share of education expenditure in the household expenditure with respect to the gender composition of the household. It tests the significance of gender differential between the marginal impact of boy and girl child on the expenditure share of education in the budget share of the household. This can be stated that if one replaces a girl child in the particular age group with a boy in that same age group, then the extent to which expenditure share of education changes gives a measure of gender bias in the household allocation of resources.

The main objectives of this paper are to examine the nature and existence of gender bias in the household allocation of resources to the education of children and to analyse the effects of the bargaining power of the parents on the budget share of educational expenditure. This paper follows the collective household model and applies the Three Stage Least Square (3SLS) estimation method on the 68th round NSSO (2011–2012) data on Kerala and Bihar. The empirical methodology for testing gender bias is to test the difference between the expenditure share of education in the household budget associated with an addition of a boy and a girl child in the household. The approach of Basu (2006) is followed for testing whether the earnings of the household head is a true measure of the bargaining power of the head within the household, and whether the household head has an effect on the budget share of education in the household expenditure.

Review of Literature

Studies by Bardhan (1974) and Das Gupta (1987) that examine gender bias and bargaining power of household members over allocation of resources for education within the household clearly show evidence of discrimination against females in India, although the explanations put forward by the two authors are quite different. The problem of detecting gender bias at the household level comes from two kinds of limitations: lack of data on consumption at the individual level, and the fact that the differential allocations among boys and girls might be compensatory, so that no real discrimination exists in the household resource allocation. Deaton (1989) proposes an outlay equivalent/adult good approach to detect gender bias at the household level.

Deaton (1989) does not find any evidence of a significant level of gender bias in Cote d' Ivoire, but find evidence for some gender discrimination in Thailand. Subramanian and Deaton (1991) test the gender gap in the intrahousehold consumption patterns in Maharashtra, India using the outlay equivalent/adult good approach. The study finds in urban areas a pro-male preference for educational and medical expenditures while expenditures on basic foodstuffs are either gender-neutral or pro-female. In rural households, discrimination against girls has been found among young age groups. However, there is no evidence of gender disparity in the household allocation of resources. Haddad and Reardon (1993) find no significant gap in the intrahousehold allocations towards male and female children in Burkina Faso Burkina between agro-economical zones (rural versus urban) and income strata.

Applying the outlay equivalent technique for adult goods and educational and medical expenditures for rural areas of five Indian states, Subramanian (1995) fails to find evidence of gender discrimination in the northern states, although Andhra

Pradesh and Maharashtra show some evidence of gender discrimination in the 5–9 age group. The study finds some evidence of gender bias in educational expenditure in Andhra Pradesh and Rajasthan, and gender discrimination in medical expenditure in Rajasthan and Punjab.

Kingdon (2005) questions the household level consumption-based Engel curve approach to detect gender bias in household resource allocation, and argues that the extent of gender bias can only be captured using individual-level educational expenditure data. Using the 1994 NCAER household survey data, the study finds that the individual level estimates detect about one-third of gender bias in education expenditure than the household level estimates in terms of non-enrolment of girls and expenditure allocation on girl children in India.

Lancaster, Maitia and Ray (2008) analyse the budget share of education expenditure as well as the effect of male bargaining power on budget share in Indian states using the Standard Living Survey and the 1993–94 50th round of NSSO data. The study finds that household size has a statistically significant negative effect on education expenditure patterns and a significant gender bias in favour of boys in the household educational expenditure. The male bargaining power and household income have a statistically significant positive impact on the household budget share of education.

Husain (2011) studies the gender gap in enrolment, educational attainment and educational expenditure in India using the 2009 64th round of NSSO data, district-level data from the 2001 census and the 2005–06 district information on education data. The OLS, probit and double hurdle model estimates show that households spend more on boys and the coefficient on male dummy is significantly positive.

Data and Methodology

To analyse gender bias in India in educational expenditure and the effect of bargaining power on the budget share of education, this paper uses the 68th round of NSSO data (2011–12), consisting of 59,695 rural and 41,967 urban households, applying three stage least square method for both rural and urban areas of Kerala and Bihar. Kerala and Bihar are the two contrasting states in India in terms of literacy rate — Kerala has the highest literacy rate and Bihar is one with the lowest literacy rate in India. The NSSO data allows the answer to the questions: whether gender bias and rural-urban disparities are a general prevalence in India or specific to certain regions alone?

As per the NSSO 68th round data, the average MPCE in 2011–12 was ₹1430 for rural and ₹2630 for urban India, and the household expenditure of the bottom 5 per cent of the population in rural India is just ₹7.54 per month, compared to ₹908.12 of the top 5 per cent of the

population. In Kerala, the average MPCE is ₹ 2669 in rural and ₹ 3408 in urban areas. The MPCE is ₹ 1127 in rural Bihar and ₹1507 in urban Bihar. In Kerala, the rural-urban gap in MPCE was 28 per cent and 34 per cent in Bihar. In 2011–12, the educational expenditure was ₹ 50 per person per month in rural and ₹ 181.50 in urban India, constituting about 3.5 per cent and 7 per cent of MPCE of households. While rural households spend 15.3 per cent, urban households spend 18.4 per cent of household expenses on higher education in India (Chandrasekhar et al., 2019).

Theoretical Model

Theoretically, this paper follows the collective household model of Bourguignon and Chiappori (1992), Bourguignon, Browning, Chiappori and Lechene (1993) and Browning and Chiappori (1998). The household objective function is a weighted sum of utilities of household members, male (m) and female (f), which depends upon the consumption of commodities (x) and leisure (l) of each member separately:

$$Max[\theta u_m(x_m,x_f,l_m,l_f)+(1-\theta)\, u_f(x_m,x_f,l_m,l_f)] \quad (1)$$

The household income constraint is:

$$\sum_{i=m,f} px_i \leq \sum_{i=m,f}[w_i\,(T_i-l_i)]+I \quad (2)$$

Where, u represents the utility of member i, T_i the time endowment, w wage rate, I the total household unearned income, p a vector of prices of goods, and θ () the welfare weight of member i that depends on the bargaining power within the household.

The household members solve the following separate utility maximisation problems:

$$Max\ u_m(x_m) \text{ subject to } px_m=\theta S \quad (3)$$

$$Max\ u_f(x_f) \text{ subject to } px_f=(1-\theta)S \quad (4)$$

Where, S denotes total (full) household income $[w_i(T_i-l_i)+I]$. Solving the equations yields the individual demand equations for good x, say educational expenditure, in budget share form, i.e., as the share of each household member's allotted expenditure:

$$b_m^x = \alpha_m^x + \beta_m^x[\theta S] + \varepsilon_m^x \quad (5)$$

$$b_f^x = \alpha_f^x + \beta_f^x[(1-\theta)S)] + \varepsilon_f^x \quad (6)$$

Where, ε_m^x and ε_f^x are stochastic error terms. However, the demands for individual goods b_m^x and b_f^x are not typically observable as surveys do not collect data on gender specific expenditure on specific commodities. Hence, studies assume that the household level budget share of good is the θ weighted average of the budget share of that good of the spouses (m, f):

$$b^x = [\theta b_m^x + (1-\theta) b_f^x] \quad (7)$$

On substitution, the estimating equation, including household size and composition variables, can be specified as:

$$b^x = a_0^x + a_1^x\theta + \beta_f^x\theta^2 S + \beta_1^x(1-\theta)^2 S + \lambda^x In(n) + \sum_i = mf \sum_{k=1}^{k} \phi_{ik}^x \left(\frac{nik}{n}\right) + \varepsilon^x \quad (8)$$

(8)

Where, $x=1,\ldots,X$ denotes the goods, n the size of household and n_{ik} number of individuals in the household in the gender i and age category k.

As the household composition matters, a test of the statistical significance of the estimated difference in the effect of changing household composition on budget shares $\left(\phi^{x}_{mk} - \phi^{x}_{fk}\right)$ constitutes a test of gender bias in the age group k in the expenditure allocation of good x. Then, the expenditure on a particular commodity depends on the gender composition of children also.

As the male welfare weight θ, which is a determinant of budget shares is jointly determined with household expenditure and budget shares, θ is potentially endogenous in the budget share equation. The years of schooling of the household head is commonly used as a proxy for the welfare weight as it directly affects the earnings or income. To consider the potential endogeneity, the male bargaining power, monthly per capita household expenditure and educational budget share are jointly estimated as a set of simultaneous equations using the 3SLS model. The three estimating equations are specified as:

$$\theta=g(z_1)+v_1 \quad (9)$$

$$HExp=h(z_2)+v_2 \quad (10)$$

$$b^x=\psi(\theta,HExp,z_3)+v_3 \quad (11)$$

Where, HEXP is per capita household expenditure, z_1, z_2 and z_3 are the vectors of exogenous determinants.

The budget share of education is calculated as a ratio of household education expenditure to total household expenditure. The bargaining power of the household head is measured by the ratio $[Edu_m/(Edu_m+Edu_f)]$ where, Edu_m is the years of education of the most educated male member of the household and Edu_f is the years of education of the most educated female member of the household.

Three Stage Least Squares Estimation Method (3SLS)

The 3SLS estimation method considers the general linear model containing G jointly endogenous variables and k predetermined variables. There are i equations that can be written as—

$$y_i=\beta_i x_i+\gamma_i z_i+u_i \quad (12)$$

Where, y_i is an $nx1$ vector of the dependent variable in the i^{th} equation, x is an nxg_i matrix of other endogenous variables in the equation, z is an nxk matrix of the predetermined variable in the equation. The β and γ are the vectors of structural parameters and u is a vector of disturbance terms. Rewriting equation (12) as—

$$y_i=\omega_i \psi_i+u_i \quad (13)$$

Where, $\boldsymbol{\psi}_i=[x_i,z_i]$ and $\omega_i=\frac{\beta}{\gamma}$, the 3SLS model specification is:

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_G \end{bmatrix} = \begin{bmatrix} \dot{E}_1 & 0 & \ldots & 0 \\ 0 & \dot{E}_2 & \ldots & 0 \\ \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & \ldots & \dot{E}_G \end{bmatrix} \begin{bmatrix} \omega_1 \\ \omega_1 \\ \vdots \\ \omega_G \end{bmatrix} + \begin{bmatrix} u_1 \\ u_2 \\ \vdots \\ u_G \end{bmatrix} \quad (14)$$

Where, u has a zero mean and variance-covariance matrix $\Sigma^{\otimes}\boldsymbol{I}$ are

possible correlations between the disturbances. Applying GLS on the whole system yields:

$$\hat{\omega}_{GLS}=[\psi^T (I\otimes x)\ \Sigma^{-1}\otimes(x'\ x^{-1})]\ [(I\otimes x)\psi]^{-1}$$
$$[\psi^T (I\otimes x)\ \Sigma^{-1}\otimes(x'\ x^{-1})][(I\otimes x^T)y] \quad (15)$$

Simplifying,

$$\omega_{GLS}=[\psi^T (\Sigma^{-1}\otimes I)\psi]^{-1}\ [\psi^T (\Sigma^{-1}\otimes I)y] \quad (16)$$

However, an estimate of Σ for i^{th} equation is needed. Estimating by 2SLS, the residuals are obtained so that $u_i = y_i - w_i \psi_i$ and the estimate of Σ is given by $\Sigma = \left|\hat{\sigma}_{ij}\right|$ where:

$$\sigma ij = \frac{\left(y_i - \hat{\delta}_j \psi_i\right)\left(y_i - \hat{\delta}_j \psi_i\right)}{\sqrt{T - g_i \quad k_i}\sqrt{T - g_j \quad k_j}} \quad (17)$$

Hence, the 3SLS estimator is given by:

$$\omega_{3SLS} = \left[\psi\left(\hat{\Sigma^{-1}}\otimes I\right)\hat{\psi}\right]^{-1} \hat{\psi}(\Sigma^{-1}\otimes I)y \quad (18)$$

The estimating 3SLS equations are specified as:

$$b^x = \delta_0 + \beta_1\theta + \beta_2(EXP) + \beta_2(HHsize)$$
$$+\beta_k \sum_{k=1}^{k} \phi_{ik}^x \left(\frac{n_{ik}}{n}\right) + \xi_1 \quad (19)$$

$$\theta = \delta_1 + \beta_4(Maleedu) + \beta_5(Maleedu)^2$$
$$+\beta_6(HHSize) + \beta_7(Socia\lg roup) +$$
$$\beta_8(\mathrm{Re}ligion) + \xi_2 \quad (20)$$

$$Exp= \delta 2+\beta_9(HHage)+\beta_{10}(\text{HHmaritalstatus})+\beta_{11}(HType)+\beta_{12}(HHedulevel)+\beta_{12}(\text{HLandholding}) +\xi_3 \quad (21)$$

Empirical Results

Table 1 presents the descriptive statistics of the variables used in the analysis of the determinants of the budget share of education expenditure in total household expenditure. The MPCE is higher in urban areas than in rural areas of Bihar and Kerala. In rural Bihar, the average year of the most educated male in the household is twice greater than the year of schooling of most female educated, in both rural and urban Kerala the years of schooling of most educated male and female in the household are approximately the same. Households in urban areas allocate more resources to education in the total budget of the household.

Table 1
Description and Measurement of Variables

Variable	Urban Bihar	Rural Bihar	Urban Kerala	Rural Kerala	Urban India	Rural India
Per capita monthly expenditure (proxy for total household income) (₹)	1600.79 (1314.68)	698.16 (434.57)	2846.46 (2822.96)	3381.28 (1449.69)	2612.47 (4388.63)	1656.05 (4026.19)

Education of most educated male in the household (yrs)	8.54 (5.98)	6.11 (5.52)	7.57 (5.64)	6.10 (5.10)	8.76 (5.88)	5.75 (5.44)
Education of most educated female in the household (yrs)	3.49 (4.92)	2.04 (3.80)	5.23 (4.94)	4.90 (4.76)	5.23 (5.75)	2.71 (4.33)
Household size	5.05 (2.65)	5.31 (2.35)	4.49 (2.42)	4.36 (2.02)	4.17 (2.20)	4.78 (2.25)
Budget share of education expenditure	0.075 (0.089)	0.037 (0.049)	0.092 (0.224)	0.061 (0.102)	0.086 (0.137)	0.266 (0.254)
Sample	1720	3312	3382	5318	41967	59695

Notes: Standard deviations in parentheses

Tables 2 presents the 3SLS estimates of the budget share of education expenditure in household expenditure for rural and urban Bihar and rural and urban Kerala. In rural Bihar, an increase in the proportion of boys in the age group 11–16 significantly increases the budget share of education by 2.17 per cent while an increase in the number of girls aged 11–16 increases the budget share of education by 0.7 per cent only. In urban Bihar, an increase in the proportion of boys in the age group 11–16 increases the household budget share of education by 1.4 per cent while an increase in the number of girls aged 11–16 increases the budget share of education by 1 per cent. Thus, the results show a significant gender bias in household educational expenditure, and in both 6–10 and 11–16 age groups, the bias runs in favour of boys, though statistically significant only for the age category 11–16. The male household bargaining power has a statistically significant positive effect on the budget share of education in urban Bihar, but statistically insignificant in rural Bihar. In urban Bihar, a unit increase in household head male bargaining power increases the budget share of education increase by a sizable 16.8 per cent.

Table 2
3SLS Estimates of Budget Share of Education Expenditure in Household Expenditure in Rural and Urban Bihar and Kerala

Dependent variable	Independent variable	Bihar		Kerala	
		Rural	***Urban***	***Rural***	***Urban***
Household budget share of education expenditure	Male bargaining power	0.003 (0.006) [0.56]	0.168* (0.020) [8.27]	-0.011 (0.017) [0.63]	0.054** (0.021) [2.55]
	Per capita monthly household expenditure	0.00003* (0.00001) (5.90]	-0.00007* (0.00001) [5.85]	7.83* (1.95) [4.03]	1.09 (6.80) [0.02]
	Household size	-0.011 (0.0037) [0.27]	-0.733* (0.012) [6.12]	0.0163*** (0.009) [1.74]	0.014 (0.01`) [1.08]
	Male child-0–5 years	0.0002 (0.0014) [0.16]	-0.0002 (0.005) [0.04]	-0.006 (0.005) [1.16]	0.003 (0.007) [0.49]
	Male child 11–16 years	0.0217* (0.0013) [4.74]	0.0139* (0.004) [3.37]	0.009** (0.004) [2.19]	0.012** (0.006) [1.99]
	Female child-0–5 years	-0.0003 (0.002) [0.18]	0.001 (0.005) [0.21]	-0.007 (0.005) 1.42]	00.013*** (0.0071) [1.81]
	Female child 11–16 years	0.007* (0.002) [4.25]	0.011** (0.005) [2.34]	0.007 (0.005) [0.02]	0.011*** (0.006) [1.75]
	R-square	0.15	0.22	0.14	0.28
	Chi-square	14.35	94.75	36.08	27.33

Male bargaining power	Male education share	1.843* (0.098) [18.68]	2.696* (0.250) [10.75]	1.57* (0.119) [13.16]	2.240* (0.218) [10.23]
	Male education share square	-1.497* (0.075) [19.76]	-2.183* (0.181) [12.03]	-1.269* (0.100) [12.68]	--1.773* (0.174) [10.16]
	SC/ST household	-0.086* (0.016) [5.45]	-0.067* (0.081) [2.89]	-0.130* (0.015) [8.68]	-0.114* (0.026) [4.50]
	Hindu household	0.067* (0.0173) [3.91]	0.120* (0.0287) [4.21]	0.048* (0.011) [4.30]	0.020 (0.18) [0.25]
	Household size	-0.186* (0.015) [11.72]	-0.224* (0.020) [11.18]	-0.002* (0.011) [13.23]	-0.241* (0.02) [11.80]
	R-square	0.18	0.22	0.12	0.13
	Chi-square	5.54	13.41	3.29	3.84
Per capita household expenditure	Age of household head	5.91* (1.093) [5.24]	2.56 (3.55) [0.72]	-0.743 (0.012) [0.46]	9.66 (6.32) [1.06]
	Married household head	-7.601* (1.554) [4.94]	-4.184** (1.824) [2.29]	-7.441 (11.50) [0.28]	-2.520* (0.578) [4.17]
	Nuclear household	11.827* (3.144) [3.43]	9.423 (8.239) [1.17]	15.943** (6.123) [2.29]	2.632 (1.985) [1.29]
	Head secondary school educated	8.683* (2.172) [3.75]	6.849* (1.206) [5.62]	19.211* (9.201) [1.28]	10.194* (2.781) [3.04]
	Head graduate and above	7.557* (2.88) [4.14]	11.936* (1.459) [8.20]	5.104* (2.012) [2.76]	21.717* (3.291) [7.38]
	Land owned	0.055* (0.008) [6.55]	-0.008 (0.061) [0.14]	0.350** (0.156) [2.01]	0.161** (0.083) [1.91]
	R-square	0.16	0.14	0.20	0.23
	Chi-square	4.35	25.73	5.41	21.47

Notes: Standard errors in parentheses z-values in brackets
** significant at 1% level*
*** significant at 5% level*
**** significant at 10% level*

The statistically significant positive sign of the coefficient of education share of the most educated male in the household, and the negative sign of its square term show that the male bargaining power increases with education in Bihar, which could make males allocate more budget to educating children, but the male bargaining power declines beyond a certain level of education. Education increases male bargaining power by 18 per cent in rural Bihar and 27 per cent in urban Bihar. Males belonging to Hindu households in Bihar have higher bargaining power compared to other religious households. In the SC/ST households, male bargaining power declines by 8.6 per cent in rural Bihar and 6.7 per cent in urban Bihar compared to other social groups. An increase in household size decreases male bargaining power in both rural and urban Bihar by about 2 per cent.

In the per capita household expenditure estimation of Bihar, the dummy variables of education of the household head are positive and statistically significant. Similarly, the higher age of the household head increases per capita household expenditure. While land ownership increases per capita household expenditure in rural Bihar, marriage reduces household expenditure in both rural and urban Bihar.

In Kerala, the household monthly household expenditure, household size and presence of the male child in the age group 11–16 have a statistically significant positive effect on the budget share of education expenditure, while the male bargaining power has a significant negative effect. The presence of school going female children influences the budget share of education, and the male bargaining power turns out to be significantly positive in urban Kerala. In rural Kerala, a unit increase in the proportion of boys in the age group 11–16 increases the budget share of education by 0.94 per cent while a unit increase in the number of girls aged 11–16 increases the budget share of education by 0.072 per cent. In urban Kerala, a unit increase in the proportion of boys in the age group 11–16 increases the budget share of education by 1.22 per cent while a unit increase in the number of girls aged 11–16 increases the budget share of education by 1.07 per cent. In urban Kerala, with a unit increase in household head male bargaining power the budget share of education increases by 5.37 per cent. Thus, there also exists significant gender bias in favour of boys in the household educational expenditure in Kerala.

In the estimates of male bargaining power in Kerala, the coefficients of the education share of the most educated male in the household and its square are respectively positive and negative, and both are statistically significant. The bargaining power in the household increases with male education possibly giving rise to more resource allocation to education. However, as the square term shows the male bargaining power declines

beyond a certain level of education. Males in Hindu households have more bargaining power and the males in SC/ST households have less bargaining power by 4.8 per cent in rural and 2 per cent in urban Kerala compared to other social groups. In the per capita household expenditure estimates, the coefficients of nuclear household, education, and land possessed are positive and statistically significant in both rural and urban Kerala. In urban Kerala, the marital status of the household head has a significant negative effect on household income.

Conclusion

There exists significant gender bias in India. Generally, males are favoured over girls in the household allocation of resources, especially education and health. The scenario is the same either in advanced and literate states like Kerala, and in the most backward and illiterate states like Bihar. The gender gap in intrahousehold resource allocation refuses to die even in the face of globalisation, women education, women property and legal rights, and labour force participation. A partial explanation is in the patriarchal system of Indian society, wherein, male heads generally control income sources and allocation of resources within the household. This basic structure of the household coupled with higher male education attainment and labour force attachment increases the male bargaining power in the differential allocation of resources towards educational expenditure on boys and girls within the household.

The main objectives of this paper are the two vexed questions central to the household resource allocations pattern: does the allocation of household educational resources favour boys over girls, and does the relative bargaining power of the decision-maker within the household influence the budget share of household education expenditure. To examine the issue of gender bias in education expenditure in a diverse country like India, this paper considers two contrasting scenarios, rural and urban differentials in the developed state of Kerala and the backward state of Bihar. The data used is derived from the 68th round (2011–2012) NSSO data on Bihar and Kerala. This paper follows the theoretical approach of the collective household model and applies the three stage least square (3SLS) estimation method on the share of education expenditure in the household budget associated with an addition of a boy and a girl child in the household.

The 3SLS estimates of this paper show a significant gender gap in the budget share of education expenditure of households in rural and urban Bihar and Kerala. Even with noticeable differences, there is not much difference in the gender allocation results in households in Kerala and Bihar. Urban households in both states allocate more resources to education compared to rural households. The gender disparity is more strongly prevalent

in urban Bihar and Kerala, whereas in rural areas it is not so strong. An increase in the proportion of boys in the household increases the budget share of education expenditure in the household relative to an increase in the proportion of girls in the household. The male bargaining power has some effect on the budget share of household education expenditure in urban households but does not affect resource allocation to education in rural households of Bihar and Kerala.

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