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IZA DP No. 12671

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Sandip Datta
City Montessori School

Geeta Gandhi Kingdon
University College London, City Montessori School and IZA

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IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Gender Bias in Intra-Household Allocation of Education in India: Has It Fallen over Time?

This paper asks whether gender bias in education expenditure in rural India fell over the two-decade period from 1995 to 2014. We find that instead of falling over time, the channel through which gender bias is practiced changed dramatically over the 20 years. Secondly, the paper demonstrates the usefulness of distinguishing between the two potential channels of gender bias, namely bias in the school enrolment decision, and bias in the conditional educational expenditure decision, rather than in the single unconditional education expenditure decision; this distinction is shown to be important because gender bias in the enrolment decision has greatly fallen but bias in the conditional expenditure decision has significantly risen over time. Thirdly, we find that individual child level data has much greater power to detect gender bias in education spending, compared to household level data. Lastly, household fixed effects analysis shows that the observed gender biases in education spending are a within-household phenomenon in rural India.

JEL Classification: I24, I240

Keywords: gender bias, education expenditure, education and gender, India

Corresponding author:
Geeta Gandhi Kingdon
Chair of Education Economics and International Development
Institute of Education
University College London (UCL)
20 Bedford Way
London, WC1H 0AL
United Kingdom
E-mail: g.kingdon@ucl.ac.uk

Gender Bias in Intra-Household Allocation of Education in India:

Has it fallen over time?

1. Introduction

It is widely discussed in the literature that within-household gender bias exists in Indian society in various forms, be it in household allocation of food, healthcare expenditure, education expenditure, etc. In general, researchers have used two approaches to detect gender bias in the intra-household allocation of consumption and expenditure: a direct comparison of consumption of males and females if there is data availability at the level of the individual, and an indirect household expenditure methodology known as the Engle Curve Approach. However, the efficacy of the conventional Engle curve approach in detecting within-family gender bias has been questioned by Deaton (1997), Case and Deaton (2003), and Kingdon (2005) finds that individual-level data has greater power to detect such bias.

Kingdon (2005) argues that there are two main ways through which gender bias may occur in educational expenditure: (i) via zero spending on education for daughters and positive spending on sons and (ii) conditional on positive educational spending for both daughters and sons, via lower educational expenditure on daughters than sons. She showed that gender bias occurs in rural India mostly via the decision of lower enrolment of daughters than sons, and not through differential spending once both are enrolled. Using a hurdle model, she showed that in many cases the conventional Engle curve approach using household-level data failed to detect gender bias in educational spending even where individual-level data showed bias existed, and she concluded that individual-level data is better able to 'pick up' gender bias where it exists.

The main goal of this paper is to present a near 20-year comparative scenario of gender bias in educational expenditure in 2014 vis-à-vis that in 1995. It is expected that differentiated treatment of girls and boys in education can have changed much in India over this period for a number of reasons. Firstly, starting immediately after the economic liberalisation of India, this period witnessed strong economic growth, increasing incomes and poverty reduction, and this would have eased the economic constraints that may compel parents to choose a higher level of educational investment in boys than girls, perhaps because in Indian society boys provide old-age support while any benefits from a girl's education are reaped by her in-laws and not by the investing parents. Secondly, India's central government brought in a District Primary Education Program (DPEP) in 1994 which targeted educational interventions towards girls, and this was replaced by the 'Education for All' program – the *Sarva Shiksha Abhiyan* – in 2003 which also provided free books, uniforms, and school meals for children of both genders, which virtually eliminated the economic barriers to girls' education in government elementary schools (these were already free of tuition fee for girls before 1993-94). Thirdly, it may be that attitudes have become more pro-equality over time, due to possible dismantling of age-old conservative gender norms, not least through cinema, TV and media presenting empowered female role models who have education and employment.

However, there are forces in the opposite direction too, and it is not inevitable that there will be greater gender equality in education within the household over time. The supply of fee-charging (private) schooling has greatly increased in rural India over time: in 1993-94, only 10% of total rural elementary-level enrolment was in private schools (Kingdon, 1996) but by 2014, it was 31% (Kingdon 2017); the greater availability of private schools provides more of a channel for the exercise/expression of intra-household gender-discrimination in education now than 20 years ago when rural parents had little choice to send boys to fee-charging (private) schools and girls to fee-free government schools. Consequently, whether overall gender differentiated treatment within the household has increased or decreased over time is an empirical question.

Recently some studies have investigated gender bias in intra-household education expenditure allocation in Indian states (Saha, 2013; Zimmerman, 2012) using different data sources, e.g. NSS 64th Round data of 2007 and IHDS 2005 data. Kingdon (2005) investigated gender bias in education expenditure across 16 Indian states using 1993-94 NCEAR household survey of rural India. However, these studies do not provide a temporal comparison of intra-household gender bias in education.

In the present paper, we compare the extent and form of gender bias in the within-household allocation of education expenditure in rural India between 1995 and 2014 using the National Sample Survey (NSS) 52nd round and 71st round data on education, both at the household and individual levels. We have restricted our analysis to rural areas of 16 major Indian states. To compare the quantum of household education expenditure on an individual in 2014 with that in 1995, as well as with 1994 data in Kingdon (2005), all the price related terms are converted to 1994 prices using the overall consumer price index (CPI) of agricultural workers of 16 major Indian states. In this analysis, we have used both the conventional Engle curve approach and the two step hurdle model as described in Kingdon (2005).

The paper finds that, consistent with Kingdon (2005), individual-level education expenditure data are more capable of detecting gender bias in educational expenditure than household level data, in both 1995 and in 2014: individual level analysis detected the presence of gender bias in a much greater number of states than household level analysis. Secondly, our results show that gender bias in educational expenditure has reduced substantially in 2014 vis-à-vis that in 1995, though it has not disappeared. Moreover, the channel for the practice of gender bias has changed over time. In 1995 gender bias occurred in many states through the enrolment of sons and non-enrolment of daughters, but by 2014 this was no longer the channel, i.e. upto age 14, girls' enrolment rates were no longer significantly lower than boys'. By 2014, the major channel of bias was through higher educational expenditure on enrolled sons than on enrolled daughters, and the much greater availability of private schools by 2014 was a major factor driving gender bias in educational expenditure in Indian states by 2014.

2. Data and Estimation Procedure

2.1 Methodology

In this analysis, we first use the conventional Engle curve method to detect intra-household gender bias using household-level education spending data. The following equation is estimated to detect the gender bias by using conventional Engle Curve approach.

$$s_i = \alpha + \beta \ln(x_i / n_i) + \gamma \ln n_i + \left\{ \sum_{j=1}^{J-1} \theta_j (n_{ji} / n_i) \right\} + \eta z_i + u_i \quad (1)$$

where, x_i is total expenditure of the household i; s_i is the budget share of education i.e. total household education expenditure divided by total household expenditure, i.e. eduexp/x_i ; n_i is household size; z_i is a vector of other household characteristics such as religion, caste, household head's education and u_i is the error term. The term ln(n_i) allows for an independent scale effect for household size, while j = 1, ... , J refers to the Jth age-gender class within the household and n_{ji}/n_i is the fraction of household members in the jth age-gender class. Since this fraction adds up to unity, therefore one of them is omitted from the regression and forms the base or reference group. In this analysis there are 14 age-gender groups. These are the males and females in the seven age groups 0 – 4, 5 – 9, 10 – 14, 15 – 19, 20 – 24, 25 – 60 and 61 and above years. The fraction of women age 61 and over in the household is the omitted category. Of main interest are the school-going age children that is 5 – 19 age group. The testing of gender differences in education expenditure among the school-going age children is simply the testing of the hypothesis that the coefficient on 'proportion of Males aged 5 – 9 years old' (M5to9) is equal to the coefficient on the 'proportion of females aged 5 – 9 years old' (F5to9), and similarly for the other age two age groups – '10 to 14' and '15 to 19'. This helps us to detect gender bias – if any – in each age group. The Engle curve approach includes all households with both zero and positive education expenditure. The dependent variable (budget share of education in total household expenditure) in rural areas is censored at zero for 19.8 percentage of households in 1995 and for 8.3 percentage of households in 2014, so an important estimation issue is the choice of appropriate model. While a large literature has used OLS, there is a well-justified reluctance to include both zero and positive values in an OLS regression.

The standard solution often suggested for the above problem is a Tobit model. However, a Tobit suffers from the problem of heteroskedasticity and it also assumes that a single mechanism determines the decision whether to spend anything at all (s=0 versus s>0), and the decision of how much to spend, given positive spending (s | s>0). In particular, the marginal effects $\partial P(s > 0 | x) / \partial x_j$ and $\partial E(s | x, s > 0) / \partial x_j$ are constrained to have the same sign.

An alternative to censored Tobit that allows the initial decision of s=0 versus s>0 to be separate from the decision of how much s is, given that s>0, is the 'hurdle model' (Wooldridge, 2002: 536). These models allow the effect of a variable to differently affect the decision s=0 versus s>0, and the conditional decision how much to spend (s | s>0). A simple hurdle model can be written down as:

$$P(s = 0 | x) = 1 - \Phi(x\gamma) \quad (2)$$

$$\log(s) | (x, s > 0) \sim Normal(x\beta, \sigma^2) \quad (3)$$

Where s is the budget share of education, x a vector of explanatory variables, β and γ are parameters to be estimated, and σ is the standard deviation of s. Equation (2) stipulates the probability that s is zero or positive (estimated using a binary probit). Equation (3) states that, conditional on s>0, s|x, follows a lognormal distribution (estimated from an OLS regression of log(s) on x using observations for which s>0). The conditional expectation of *E(s|x, s>0)* and the unconditional expectation of *E(s|x)* are easy to obtain using properties of the lognormal distribution:

$$E(s \mid x, s > 0) = \exp(x\beta + \sigma^2 / 2) \quad (4)$$

$$E(s \mid x) = \Phi(x\gamma)\exp(x\beta + \sigma^2 / 2) \quad (5)$$

and, these are easily estimated given $\hat{\beta}$, $\hat{\sigma}$, and $\hat{\gamma}$.

Therefore, the marginal effect of x on s can be obtained by transforming the marginal effect of x on log(s) using the exponent. Thus, the marginal effect of x on s in the OLS regression of log(s) conditional on s>0 is obtained by taking the derivative of the conditional expectation of s with respect to x:

$$\frac{\partial E(s \mid x, s > 0)}{\partial x} = \beta.\exp(x\beta + \sigma^2 / 2) \quad (6)$$

The marginal effect of a variable x on s - taking into account the effect of x on both the probability that s>0 and on the size of s conditional on s>0 - is obtained by taking the derivative of the unconditional expectation of s with respect to x. Differentiating (5) using the product rule:

$$\frac{\partial E(s \mid x)}{\partial x} = \gamma\phi(x\gamma)\exp(x\beta + \sigma^2 / 2) + \Phi(x\gamma)\beta\exp(x\beta + \sigma^2 / 2)$$

$$= \{\gamma\phi(x\gamma) + \Phi(x\gamma)\beta\}.\exp(x\beta + \sigma^2 / 2) \quad (7)$$

where, $\phi(.)$ is the standard normal density function and $\Phi(.)$ is the cumulative normal distribution function.

In our analysis, following Kingdon (2005) we also estimated a probit equation and an OLS of conditional educational expenditure i.e. when the educational expenditure is positive. To compute the marginal effect of the conditional and unconditional OLS, we have estimated equations (6) and (7). The equation (7) provides us the unconditional OLS using hurdle model which makes a departure from the conventional Engle curve approach and helps us to detect the gender bias in a more nuanced manner. The results of the above estimations are reported in Table 6 and 7.

2.2. Data

We use data from two rounds of India's National Sample Survey (NSS) titled *Education in India* – the 52nd Round carried out in 1995, and the 71st Round conducted in 2014. In 1995, NSS data was collected from 43,076 rural households from 7663 villages, and from 29,807 urban households from 4991 urban blocks. In 2014, NSS data was collected from 36,479 rural households from 4577 villages, and from 29,447 urban households from 3720 urban blocks. We have confined our analysis to rural areas of 16 major Indian states, as also done in Kingdon (2005) which used NCAER 1994 rural household survey. The NSS 2014 collected detailed data on education on all persons enrolled in any educational institute and aged 5 - 29 years old, and the NSS 1995 collected equivalent data on all young people aged 5-24 years old. We have limited our analysis only to the 5 – 19 year age group, i.e. the school-going age group, which yields a sub-sample of 26,995 rural households with 57034 young people aged 5-19 in 2014, and a sub-sample of 33353 rural households with 83797 young people aged 5 to 19 years old in 1995.

3. Discussion of Results

We present the results in three subsections. The first explores gender bias by means of descriptive statistics using individual and household level NSS data from both the 52nd and 71st rounds. The second sub-section uses *household level* data to detect gender bias in the within-household allocation of education expenditure using the conventional Engel curve approach, and it examines whether incorrect functional form (estimating a single equation for both the zero and positive education-expenditure decisions) is responsible for any failure of the Engel curve approach to detect gender bias; we examine this by estimating a probit of whether the household incurs any positive education expenditure and then a conditional OLS of educational expenditure, conditional on positive education expenditure. The third sub-section asks whether aggregation of data at the household level is to blame for the failure of the Engel curve approach to detect gender bias in states where there is apparently no bias as per the Engel curve results, i.e. it presents results from the analysis of *individual child level* data. In all sub-sections, we present a comparative picture of gender bias in 1995 and 2014 to see how gender bias has changed in rural India over two decades.

3.1. Descriptive Statistics

Descriptive statistics are presented in Tables 1 to 5. The second (2.1 to 2.3) column of Table 1 shows the sex ratio in the 0-14 age group in the sample households in 1995 and 2014. It shows that the proportion of girls has slightly increased from 46.6% to 46.8% during a span of two decades in rural India. However, these exists a considerable variation across states. The performance of states like Andhra Pradesh, Assam, Bihar, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh was below the national average in 1995. This picture did not change much in 20 years except for Andhra Pradesh, Bihar and Uttar Pradesh; the performance of states such as Assam, Gujarat, Haryana, Karnataka, Maharashtra and Odisha has deteriorated (see column 2.3, negative sign indicates a more skewed sex-ratio). This gives us the prior belief that gender difference in the intra-household allocation of educational expenditure is likely to be the strongest in these states.

In the remaining columns of Table 1, we divide all households with children upto age 14 years old into two groups: 'all-girl households' (where all children below age 15 are girls), and 'at-least-one-boy households' (where there are one or more boys in the households). The percentage of 'all girl' households in all households increased nationally from 18.9% in 1995 to 23.4% in 2014 (see column 3, last row), and it increased in all states except for Gujarat and Haryana. This represents some dismantling of boy preference over time as it shows that a greater percentage of households are content to be son-less now, compared to twenty years ago. Columns 4, 5 and 6 show that in 1995 there was a dramatic difference in the percentage of households incurring positive educational expenditure depending on whether they are 'all-girl' or 'at-least one boy' household (Rajasthan and Haryana being extreme examples, with a gender gap of 44 and 36 percentage points respectively). Although this gap reduced by 2014, it did not disappear and continued to be statistically significant in most Indian states. Looking at the national picture in the last row, in 1995, all-girl households in rural India were nearly 21 percentage points more likely to report zero educational outlay than at-least-one-boy households, but by 2014 this figure had reduced to 10.7 percentage points though it still remained highly statistically significant. This indicates a clear correlation between the gender composition of the household child population and the household's decision to incur positive educational spending, even in 2014.

Table 2 shows that in 1995 girls had significantly and substantially lower school enrolment rate in almost all the age categories in most states, but that this gap significantly reduced in the period to 2014 and enrolment rates have improved in the 5-9 and 10-14 age categories in most of the states. However, in the age category 15-19, though the enrolment rates have improved both for boys and girls, the gender difference in enrolment rate continued to be statistically significant for most of the states in 2014. The improvement in enrolment rates and reduction in the gender gap in school enrolment between 1995 and 2014 can be attributed partly to the various public educational programs e.g. Sarva Siksha Abhiyan (SSA) and partly to poverty reduction over this period, inter alia.

Table 3 shows the picture of private school enrolment. It shows that while enrolment of both genders in private schools dramatically increased over the two decades (1995 to 2014) in almost all the major states, it increased more for boys than for girls. The number of states where the gender difference in private school enrolment rate is statistically significant, has *increased over time* in the higher two age categories (10-14 and 15-19 year olds). In 1995, the gender difference in *school enrolment rate* was the major driver of gender differences in educational spending (Table 2), but by 2014 it was no longer the driver in the 5-9 age group and its importance as the driver had greatly dwindled in the upper two age groups. Gender difference in *private school enrolment rate* had now become the dominant driver of gender differences in educational spending.

Table 4 shows average educational expenditure, conditional on enrolment. It shows that, once enrolled in school, girls and boys were not treated differently in 1995 in terms of educational spending in most of the states. However, this picture changed after two decades. By 2014, significantly less was spent on enrolled girls' education in 7 out of 16 states in the 10-14 age group, and in 9 out of 16 states in the 15-19 age group. In other words, the incidence of gender bias in conditional education expenditure (i.e. among enrolled young people) rose over time. Combining this with the findings of Table 3 suggests that the spread of private schooling over time provided parents the mechanism through which they could practice gender differentiated treatment in their children's education.

Table 5 includes the zero expenditure (i.e. non-enrolled) children, i.e. it shows unconditional education expenditure. It suggests strong gender bias in the higher two age groups across most states in 1995. Comparing the columns here with those in Table 4 (conditional education expenditure table) suggests that in 1995 the gender gap in educational spending could be attributed mainly to the higher probability of non-enrolment of girls (i.e. via zero education expenditure), and much less so via lower expenditures once enrolled, because the gender gap in educational expenditure is significant in many more states in Table 5 than in table 4. But by 2014 the picture had changed: gender bias in 2014 was practiced not only through lower enrolment (i.e. lower incidence of positive education spending) but also lower educational expenditure once enrolled.

The question is what explains the emergence of significant gender gaps in conditional educational spending in many states by 2014? The answer is manifest in table 3, which shows that enrolment in private schools has increased substantially in the last two decades, and that the gender gap in enrolment rates in the private schools is statistically significant in most of the states in the age group 15-19. In almost all cases we find one to one correspondence of the gender gap in enrolment in private school (Table 3) and the gender gap in educational spending in the 15-19 category (Table 4). Similar correspondence is true for the other two age categories. Thus, there is fairly strong evidence of gender bias in the raw data and of particularly strong bias in the older age groups.

An important fact that emerges from Tables 4 and 5 is that absolute household education expenditure has sharply increased in all the states (in real terms) in all the age groups over the near-20 year period under consideration. Moreover, the share of education expenditure in total household consumption expenditure rose from 7.6% to 9.8% between 1995 and 2014 in rural India. This dramatic increase in educational expenditure is due to a significant rise in private school enrolment and educational cost inflation, with the educational consumer price index (CPI) rising strongly over time, e.g. the educational CPI rose by around 8% per annum from 2011 to 2014.

3.2. Detecting gender bias using household level data

Kingdon (2005) found that the conventional Engel curve method – using household level data – to detect intra-household disparities in education expenditure allocation across individuals (sons and daughters) may have a problem in detecting gender bias because the method combines/conflates two different educational decisions in which gender bias could potentially go in the opposite directions: the positive purchase decision, and the conditional expenditure decision, conditional on positive purchase. While there may be pro-male bias in the enrolment (positive purchase/positive expenditure) decision, there may be pro-female bias in the conditional educational expenditure decision, e.g. if more is spent on enrolled girls' education than on enrolled boys' education which could be for example if boys can walk or go by bicycle or bus to school but girls have to go in a (more expensive) private rickshaw for safety reasons, or if girls' school clothes cost more than boys' because girls have to be well wrapped up. Kingdon (2005) suggested that this conflating of the two decisions in household-data methodology could have been the reason why Subramanian and Deaton (1991) using NSS data of the Indian state of Maharashtra did not find any gender bias in household education expenditure in the 5–9 and 15–54 age groups[1]. As a result, Kingdon (2005) divided the household educational expenditure decision into two components for separate modelling: one, the decision to incur positive education expenditure, i.e. a positive budget share of education (that is, to enrol children in schooling), and two, conditional on this positive budget share, the decision of the size/amount of the budget share of education.

Following the same methodology, we estimate three equations for the rural areas of each of 16 major Indian states using household level data obtained from NSS 52nd (conducted in July 1995 - July 1996) and NSS 71st round (conducted in January and June 2014): (i) the conventional Engle curve equation; (ii) a binary probit of whether the educational budget share of household is positive or zero; and (iii) an OLS of the natural log of education budget share (education budget share is lognormally distributed), conditional on positive budget share. All the results i.e. 96 regression estimates (16 states * 3 equations * two time periods) are presented in Appendix Tables A1 and A2.

[1] Using NSS 52nd Round (1995-96) data we have also obtained similar results. Our analysis suggests that there is no evidence of pro-male gender bias in intra-household education expenditure allocation in Maharashtra in the 5 – 9 and 10 – 14 age groups but the 15 – 19 age group indicates pro-male gender bias. Similarly, Ahmad and Morduch (1993) find no evidence of gender bias in Bangladesh. Identical treatment of Boys and Girls are confirmed for Pakistan by Deaton (1997) and Bhalotra and Attfield (1998).

The first column of Table A1 under each state presents the conventional Engel curve of the share of education expenditure in total household expenditure (or ESHARE) fitted on all (zero and positive education expenditure) households. To compare results with Kingdon (2005), our presentation maintains the same model specifications.

Overall, the budget share of education in rural India was 7.6% in 1995 and 9.8% in 2014, i.e. the proportion of the household budget spent on education has increased substantially in the 20-year period between 1995 and 2014. The education budget share of rural households in 2014 varies substantially across states from 6.8% in Assam to 14.6% in Haryana, vis-à-vis 6.1% and 13.8% in Madhya Pradesh and Punjab respectively in 1995. The goodness of fit of the unconditional OLS varies across states from 40% to 63% (see Table A1).

We find that log of per capita expenditure (LNPCE), is a highly significant predictor of the education budget share, and the elasticity of education expenditure with respect to LNPCE is greater than unity for all the states except Assam (0.95), Kerala (1.0) and West Bengal (0.88). This suggests that education expenditure is a luxury good in rural India in almost all the major states. This is similar to the situation in 1994 in rural India in Kingdon 2005. The average elasticity has slightly increased over time, from 1.17 in 1995 to 1.24 in 2014.

In Table A1, the log of household size has a positive coefficient and head's years of education is also positively associated with the budget share of education expenditure across all Indian states, suggesting a higher demand for education in educated households. Unlike in 1994 (in Kingdon, 2005), caste plays a significant role in determining the budget share of education expenditure. The results show that in 10 out of 16 states (i.e. in all states except Assam, Bihar, Gujarat, Maharashtra, Odisha and West Bengal) Schedule Caste households spend significantly lesser on education than General and other backward castes (the omitted category) in 2014, vis-à-vis in only 4 out of 16 states in 1995, which is similar to the findings of Kingdon (2005). While Kingdon (2005) found that in 1994 NCAER data, Muslim households had significantly lower education budget share compared to Hindus and Sikhs in almost all states, this situation has evidently improved over two decades: by 2014, in only 6 out of 16 states (Andhra Pradesh, Assam, Haryana, Maharashtra, Tamil Nadu and Uttar Pradesh), was Muslim households' education budget share significantly lower than that of the Hindus and Sikhs. In NSS 52nd round, there was no variable related to religion therefore we could not incorporate the variable 'religion' in our 1995 NSS analysis. In 2014, as in 1995, the education budget share increases as the share of school going children increases within the household.

To detect gender bias in educational expenditure within the household under the Engel Curve approach, we inspected the p-values of the F-test of the null hypothesis that the coefficient of the demographic variables in each age group (M5to9 & F5to9; M10to14 & F10to14; and M15to19 & F15to19) are equal in the Appendix Tables A1 (for 2014) and A2 (for 1995). Table 6 shows the 'difference in marginal effect' (DME) of these gender variable by age group, for example, the difference in the coefficient on M5to9 (proportion of males aged 5-9 in the household) and the coefficient on F5to9 (proportion of females aged 5-9 in the household) using 2014 data, taken from Appendix Table A1. Table 6.1 shows the equivalent estimates using 1995 data, from Appendix Table A2.

On observing the lack of evidence of gender bias using the conventional Engle curve method, Kingdon's innovation was to divide the household's education expenditure decision into two components, and use the hurdle model: the first decision being the 0/1 decision of whether or not to incur any positive education expenditure at all 'ANYEDEXP' (education budget-share being positive or zero), and the second decision of '*how much* to spend on education', conditional on incurring positive education expenditure i.e. an equation of the log of actual budget share of education (log of ESHARE). In the second and third columns of Appendix Table A1 we estimate these equations.

The Appendix Tables A1 and A2 show that the log of per-capita household expenditure does not have any significant coefficient in the probit of ANYEDXP in the 5-9 age group in 2014 (Table A1). This is progress, as it signifies that primary school enrolment is no longer dependent on household's economic status, and it signals the triumph of the government's 'education for all' campaign (*Sarva Shiksha Abhiyan*) as well as reflecting a reduction in poverty over time. However, conditional on positive education expenditure, LNPCE continues to have a positive and significant coefficient in the conditional educational spending equation in almost all the states in 2014, as was also the case in 1995 (Table A2), i.e. better-off households devote a bigger budget share to education.

To measure gender bias, the coefficients on the demographic variables M5to9 (household's proportion of males aged 5 – 9) and F5to9 (proportion of females aged 5-9) in Appendix Table A1 are compared; similarly the coefficients on M10to14 and on F10to14 (household's proportion of males and females aged 10 – 14) are compared, and finally the coefficients on M15to19 and on F15to19 (household's proportion of males and females aged 15 – 19) are compared, i.e. we inspect the difference in the marginal effects of these male and female demographic variables in each equation. For example, in the probit equation of 'any educational expenditure' ANYEDEXP (or 'positive education budget share' ESHARE), the marginal effect on the variable M5to9 minus the marginal effect on the variable F5to9 is the 'Difference in Marginal Effect' (DME) of these two gender variables in the 5–9 age group. The DME is a scalar.

Table 6 presents the DMEs of the demographic variables for the 5–9, 10–14, and 15–19 age groups, respectively, calculated from the results in Table A1. Since the DME is a scalar, and we need to know whether the DME is statistically significantly different from zero, we obtained bootstrapped standard error in 500 replications of each equation. The figures in parentheses below each DME are the p-values of the F-test that the DME is equal to zero. The statistically significant DMEs (at the 5% level or better) are identified with an asterisk. In Table 6, the probit results in column 1 refer to male-female DME from the probit of whether the household had a positive education budget share (ANYEDEXP). Column 2 refers to the male-female DME in the conditional OLS of the log of education budget share (LNESHARE). Since the dependent variable here is in logs, the marginal effects of the male and female demographic variables were transformed before taking differences, so that the DMEs reported in column 2 are comparable to those in column 4, where the dependent variable is absolute budget share of education (ESHARE). Column 3 shows the DME from the combined marginal effects from the probit and conditional OLS equations, the combined marginal effect having been derived in the way shown in equation (7). Column 4 pertains to the DME in the unconditional OLS results, that is, in the OLS of the absolute budget share of education fitted on all (including zero education expenditure) households—the commonly reported Engel curve equation.

Discussion of results of Tables 6 and 6.1

A comparison of 2014 and 1995 results for the 5-9 age group in Tables 6 and 6.1 shows that whereas in 1995 there was statistically significant pro-male gender bias in four states in the decision to incur any positive education expenditure (ANYEDEXP) i.e. in the decision to enrol a child in school, by 2014 there was no such bias in any of the 16 major Indian state. According to Table 6.1, in 1995, having an extra boy in the 5 – 9 age group in the household raised the probability of the household 'having positive education expenditure' significantly more than having an extra girl in the 5-9 age group, in Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh. But about 20 years later in 2014, there is no significant pro-male bias in the conditional educational expenditure decision in any of the states (Table 6). The results of conventional Engle curve estimates (unconditional OLS of log of education budget-share, i.e OLS of LNESHARE) in column 4 show no gender bias in 2014, but in 1995 (Table 6.1) we do see that there was significant bias in Uttar Pradesh[2].

Moving to the 10 – 14 age group, in 2014 (Table 6), the gender DME in the probit equation may be positive for all states except Assam, Kerala, Rajasthan and West Bengal but it is significant only in Uttar Pradesh, vis-à-vis its being positive and significant in nine states in 1995 (see Table 6.1) and in seven states in 1994 (in Kingdon, 2005), suggesting that gender bias has reduced very markedly in the enrolment decision over the course of twenty years in this 'junior'/middle/upper-primary school age. Similarly, the gender DME in the conditional OLS is insignificant in all states expect West Bengal where we notice pro-female bias in educational spending. However, the conventional Engle curve results in column 4 shows that there is no gender bias in any of the states in 2014, whereas in 1995 there was very significant pro-male bias in nine states. The hurdle model (combined probit and OLS in column 3, Table 6) for the 10 – 14 age group also does not detect gender bias in any state, except a striking *pro-female* bias in the unconditional educational spending in West Bengal in 2014. However, both the hurdle model and Engle curve approach detect the presence of gender bias in many states in 1995, leading to the conclusion that gender bias in educational spending in the upper-primary age group has virtually disappeared in two decades.

Our analysis for the 15 – 19 age group throws some strikingly different findings compared to those for the two younger age groups. In the 15-19 age group in 2014 (Table 6) the gender DME in the probit of ANYEDEXP is significantly positive in four states (Assam, Karnataka, Punjab and Rajasthan), whereas in 1995, it was significantly positive in thirteen states (vis-à-vis ten states in 1994 data in Kingdon, 2005). The gender DME in conditional educational expenditure OLS is significantly positive in five states in 2014, and in nine states in 1995 (eight states in 1994 in Kingdon, 2005). The hurdle model detects the presence of gender bias in five states in 2014 vis-à-vis nine states in 1995 (Table 6.1). Thus, although the extent of pro-male gender bias in the intra-household allocation of educational spending in the secondary/higher-secondary school age group has fallen over time, it has not disappeared; it continues to exist in the northern states of UP, Bihar and Rajasthan but also in Andhra Pradesh and somewhat surprisingly Gujarat.

In summary, our analysis using household level data suggests that, over the near-20 year period from 1995 to 2014, the extent of gender bias in household education expenditure has virtually disappeared in the primary and

[2] The results using NSS data 1995 are somewhat similar to those from NCAER data 1994 reported in Kingdon (2005) which showed that in six states, there was significant within-household gender bias in the school enrolment (ANYEDEXP) decision and in three states there was bias in the unconditional education expenditure decision. Karnataka shows pro-female bias in conditional and combined educational spending in 1995. This trend is similar while comparing our results with Kingdon (2005)

upper primary ages but that in the 15-19 age group, though reduced, gender bias has not been eradicated. Gender difference in education expenditure may persist at the secondary-school level because of a variety of factors: conservative attitudes to girls going out to school post-puberty; the greater distance of (the far fewer) secondary schools, especially of single-sex secondary schools; the higher cost of secondary education since government freebies under *Sarva Shiksha Abhiyan* (free school uniforms, free books, bags, etc.) stop after elementary education; closeness to the high-stakes further education courses and to employment, etc. Our descriptive statistic Table 3 showed that private school enrolment increased very substantially in these 20 years in rural India in all age groups, but most dramatically in the 15-19 years age group (from 7% for both males and females in 1995, to 41% for females and 48% for males by 2014), and thus in the secondary-school age group, girls' seven percentage point lower enrolment than boys' in private schools (48 – 41 = 7) is an important mechanism of gender bias in educational spending within the household in 2014, as compared to some supply-side factors in the 1990s in the higher age group.

3.3. Detecting gender bias using individual-level data

In this section, we examine whether using individual child level (education expenditure) data is more capable of detecting gender bias than household level data. The 2014 NSS 71st round and 1995-96 NSS 52nd Round provide education expenditure data at the individual level, which we had aggregated at the household level in the previous section in order to obtain the household level Engle curve and other results. In individual level analysis, our dependent variable is educational expenditure on an individual child in absolute terms (rather than the household's education budget share). However, to compare our results with those of Kingdon (2005), we have converted all the price variables i.e. education expenditure and per-capita consumption expenditure into 1994 prices by using overall consumer price index (CPI) for each state[3] and have also retained the model specification of Kingdon (2005). In the individual level analysis, instead of using demographic level variables such as M5to10, F5to10 and so forth, the gender variable of interest is simply the dummy variable MALE, which takes the value of one for male and zero for female child. The remaining variables are identical to the household level analysis (for the remaining variables see the first column of Appendix Table A1).

The marginal effects on the household variables in the individual-level and household-level equations are not comparable because the demographic variables in the household level equations differ from the MALE dummy variable in the individual-level equations, and because the dependent variable in the conditional and unconditional OLS in the individual level analysis (presented in Table 7 and 7.1) is educational expenditure in absolute terms, whereas the dependent variable in conditional and unconditional OLS in the household-level analysis was the share of education expenditure in total household expenditure. Thus, DME in Tables 6 & 6.1 are not comparable to the coefficient on the MALE dummy variable in the individual level analysis (7 & 7.1). However, we are interested mainly in whether any statistically significant gender differences in the individual level analysis (in Table 7 and 7.1) are also significant in the household-level analysis in Tables 6 and 6.1.

[3] CPI Data for Himachal Pradesh and Haryana were not available in 1994, therefore to obtain the data in real terms (1994 prices) for these two states, we have used all India CPI.

In the individual level analysis, we estimate 288 different regression equations for 16 states, i.e. 3 different equations for each of 3 different age groups at 2 different time periods (16 states * 3 Age Groups * 3 equations * 2 years). We do not report all 288 regression results for space reasons; instead we have reported the marginal effect on the gender variable MALE in Table 7 and 7.1 for all the states. Our results here are directly comparable to the results in Table 6 of Kingdon (2005) for the year 1994 using NCAER rural survey data for the same 16 states.

Discussion of results of Tables 7 and 7.1

The individual level results (table 7 for 2014 and Table 7.1 for 1995) provide some important insights regarding gender bias. In 1995, gender bias was manifested primarily in the enrolment decision (ANYEDEXP) in all the age groups and also in the decision of how much to spend, conditional on school enrolment (see Table 7.1). But our results in Table 7 show that by 2014, gender bias in the enrolment decision had disappeared in the 5 – 9 years age group and had dramatically fallen in the 10 – 14 years age group: in the latter age group, while in 1995 it existed in 15 of the 16 states, by 2014 it persists only in three states: Madhya Pradesh, Rajasthan and Uttar Pradesh. Instead, by 2014, gender–differentiated treatment in these two younger age groups occurs mostly only at the stage of educational spending after both sons and daughters are enrolled in school. However, in the 15-19 age group, gender bias persisted even in the enrolment decision, with eleven of the 16 states continuing to display statistically significant gender difference in the probit of ANYEDEXP, compared to 15 of the 16 states in 1995.

The hurdle model (column 3 of each age group) detects gender bias in the 5 – 9 age group in ten states in 1995 but in only six states in 2014; in the 10-14 age group, the hurdle model finds significant gender bias in eight states in 1995 but in only four states in 2014. In the 15-19 age group, the hurdle shows gender bias in 15 out of the 16 states in 1995 but in only twelve states in 2014.

In summary, the most important finding to emerge from the temporal comparison of gender bias trends in Tables 6 & 6.1 (household level data) and Tables 7 & 7.1 (individual level data) is that gender-differentiated treatment is statistically significant in many more states when we use individual child level data as compared to household level data, which indicates that individual-level data has more power to discern gender bias than household level data. The other important overall finding to emerge is that over the period 1995 to 2014, gender bias in intra-household educational expenditure has fallen in the 5 – 9 and 10 – 14 age groups, but still persists in most states in the 15 -19 age group. In the enrolment (or positive education expenditure) decision, gender bias has almost completely disappeared in the 5-9 and 10-14 age groups, but there is also a reduction in gender bias in the conditional expenditure decision.

Private school enrolment as a channel for gender bias in conditional education spending

While the story of the temporal change in gender bias in the intra-household allocation of education expenditure so far is a positive one, reflecting a great reduction in gender bias in the probability of school enrolment (incurring positive education expenditure) over time, another gendered aspect to consider is: what has happened to gender bias in terms of children's probability of attending fee-charging private schools. The descriptive statistic table 3 showed statistically significant gender differences in private school enrolment rates in 2014 but not in 1995, as in rural India in 1995 there was a very low rate of enrolment in private schools but by 2014 there had been a dramatic increase in private school attendance rate.

To investigate further, in Tables 8 and 8.1 (for 2014 and 1995 respectively), we fitted a probit equation of private school enrolment (on the sample of all enrolled children) which takes the value of 1 if the child is enrolled in a private school and of 0 if the child is school-enrolled but not in a private school. We also fitted OLS equations of conditional spending on attending private school for each of our three age groups. Finally we also estimated the unconditional OLS of absolute education expenditure, fitted on all children enrolled in any kind of school (private and non-private schools). The Table shows the marginal effect on the gender dummy variable MALE in each equation for each state and age group. This shows that in the 10-14 age group, there is significant gender bias in private school enrolment probability in only 2 states in 1995 but in 7 states in 2014; in the 15-19 age group, it is even more stark: there was gender bias in private school enrolment in 0 states in 1995 but in 9 states by 2014. This finding is similar to the trend detected in Maitra et. al. (2011). Even in the conditional expenditure decision within private schools, there was evidence of gender bias in 2014 and lack of it in 1995 in several states. It appears then that the dynamics of gender bias in educational spending have shifted over the course of twenty years. Earlier it used to occur through the non-enrolment of girls in any educational institution and at present it is occurring through the non-enrolment of girls in private educational institutions.

Family Fixed Effects estimation

Jensen (2002) argued that gender inequality in outcomes could originate through parental fertility behaviour (differential stopping rule after the birth of a son and a daughter) even when there is no parental bias against born daughters. Under son-preference, a family may continue to try for more children after the birth of a girl child (in the hope that the next birth may be a boy) and may stop trying for more children after the birth of a boy child. Thus, in general, girls will tend to live in larger households than boys. If this is the case, then the observed significant male-female differences in education expenditure so far may represent not parental bias *per se* after a child is born, but a prior son-preference before the child is born. Since household size is the outcome of the parental behaviour, it is endogenous in our model. So, controlling for household size will not control adequately for this effect. Thus, to control for the household's unobserved factors, we have recomputed the education outcome equations at the individual level after controlling for household fixed effects. By doing this we get identification from gender differences in educational outcomes *within* the household and not across households. We have taken the subset of only those households where there is at least one girl and one boy in each of the three school-going age groups. We also added *age of the child* as a control in the household fixed effects equations. The results are reported in the Appendix Tables A3a and A3b for 2014 and 1995 respectively. These show that the size of the marginal effects on MALE fell greatly in all the probit ANYEDEXP equations between 1995 and 2014, and the number of states with significant gender bias in the within-household allocation of school enrolment fell in all three age groups over time. Moving to the coefficient on MALE in the family fixed effects conditional and unconditional education expenditure equations, pro-male gender bias greatly increased, both in terms of the number of states that display such bias, and in terms of the size of the bias (the number of rupees more spent on sons' education than on daughters' education), results which mirror the simple OLS (not family fixed effects) results in Tables 7 and 7.1. Thus, it is clear that most of the observed gender differences can indeed be explained by the differential treatment of sons and daughters by parents within the home, rather than being an artefact of across-household differences in unobserved factors.

4. Conclusion

This paper presented a comparative picture of gender bias in educational spending in rural India over two time periods, using NSS 71st round (2014) and NSS 52nd round (1995-96) data both at household and individual levels. We also compared our results with the findings of Kingdon (2005) who used the 1994 NCEAR survey of rural India. To compare expenditure over time, all the price related variables were converted to 1994 prices. Family fixed effects analysis showed that the gender bias observed in the various educational decisions is a within-household phenomenon, rather than an artefact of across-household differences in unobserved factors.

We found that aggregation of data at the household level and using the Engel Curve approach mutes gender effects and that individual level data has more power to detect within-household gender differences in all the age groups, with individual level analysis finding gender bias in many more states than household level analysis. This is consistent with the findings of Kingdon (2005). The results here also highlighted the two distinct processes by which gender bias occurs (enrolment decision and the conditional educational expenditure decision), and showed that a method that jointly models these two processes dilutes the strong gender-differentiation that exists in many states in one or the other decision.

The findings show that far from gender bias disappearing over time, there has merely been a change in *the way that gender bias is practiced within the household*. In 1995, gender bias occurred through a significantly higher probability of school-enrolment of boys than girls, but by 2014, gender bias was practiced via significantly higher conditional education expenditure on boys than girls, which was largely achieved via pro-male *private school enrolment* decisions. Households practicing gender equality in school enrolment of sons and daughters (in the elementary school age group) by 2014 is a positive trend. However, girls' significant disadvantage vis a vis boys in terms of their lower private school attendance rate by 2014 is problematic if private school attendance is associated with higher schooling quality i.e. with acquisition of higher levels of cognitive skills (literacy, numeracy, etc.)[4], since research internationally shows that both individual economic returns and national economic growth, accrue strongly to cognitive skills and not independently to completing a given number of years in school[5].

[4] While survey data show a large gap in raw test scores between private and public schools in India (e.g. ASER in rural India, and IHDS 2005 data on India; and others), the private schools' learning achievement advantage falls sharply after controlling for students' home backgrounds but, even so, it is still large and statistically significant in studies using stringent family fixed effects estimation of the achievement production function (Desai et. al., 2008, using IHDS data; French and Kingdon, 2010, using rural ASER data), with private school attendance associated with a 0.17 to 0.33 SD higher test score, after controlling for family fixed effects, age, gender, etc.

[5] Hanushek and Woessmann (2008); Aslam et. al. (2012); Hanushek and Rivkin (2012). Hanushek et. al. (2015) find that across 23 countries, a 1 s.d. increase in the cognitive skill score raises incomes by an average of 18%.

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Table 1:

Descriptive Statistics by States

	Proportion of Girls in all children in the household (Ages 0-14)			**Proportion of All-Girl households in all households**			**% of 'at-least one boy' households that incurred any positive education expenditure**			**% of 'all-girl' households that incurred any positive education expenditure**			**Percentage Point Difference (columns 4-5)**		**t-value of difference in columns 4 and 5**	
1	**2**			**3**			**4**			**5**			**6**		**7**	
	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	7.1	7.2
States/Year	2014	1995	Diff	2014	1995	Diff	2014	1995	Diff	2014	1995	Diff	2014	1995	2014	1994
Andhra Pradesh	46.8	46.3	0.48	29.4	21.2	8.20	84.8	72.7	12.1	79.5	53.3	26.2	5.3	19.4	2.1	8.3
Assam	44.0	43.6	0.44	24.6	17.7	6.90	84.5	65.8	18.7	72.5	54.1	18.4	12.0	11.7	4.6	3.6
Bihar	46.9	46.2	0.66	19.5	16.5	3.00	78.5	62.8	15.7	65.5	35.5	30.0	13.0	27.3	5.8	12.2
Gujarat	45.2	46.8	-1.61	16.3	17.0	-0.69	83.3	74.7	8.6	64	52.0	12.0	19.3	22.7	5.5	6.5
Haryana	43.0	45.6	-2.63	15.4	16.4	-0.98	74.1	79.5	-5.4	66.2	43.5	22.7	7.9	36.0	1.3	7.2
Himachal Pradesh	49.3	47.2	2.11	23.5	19.2	4.32	82.5	80.0	2.5	78.4	66.7	11.7	4.1	13.3	0.9	3.4
Karnataka	46.8	48.0	-1.16	24	19.0	5.03	81.4	75.7	5.7	75.6	58.1	17.5	5.8	17.6	1.8	5.4
Kerala	50.8	47.6	3.23	35.2	27.8	7.37	83.2	78.0	5.2	81.9	68.3	13.6	1.3	9.7	0.4	3.4
Madhya Pradesh	47.5	46.4	1.14	20.2	17.7	2.47	79.9	65.3	14.6	68.2	38.9	29.3	11.7	26.4	4.9	10.6
Maharashtra	45.6	47.8	-2.24	23.1	19.4	3.70	80.7	75.4	5.3	65.7	53.2	12.5	15.1	22.2	6.1	8.6
Odisha	48.7	49.1	-0.38	27.5	21.4	6.11	86.3	68.9	17.4	76.2	42.9	33.3	10.1	26.0	4.1	8.6
Punjab	45.4	44.3	1.06	21.4	15.8	5.64	80.8	76.1	4.7	67	59.4	7.6	13.8	16.7	2.8	4.5
Rajasthan	46.4	44.3	2.12	18.8	14.8	4.04	79.9	72.4	7.5	64.5	28.2	36.3	15.3	44.2	4.9	13.9
Tamil Nadu	48.5	48.3	0.17	30.7	27.6	3.09	87.6	77.7	9.9	80.1	66.6	13.5	7.5	11.1	3.2	4.7
Uttar Pradesh	46.8	45.7	1.14	19.3	13.8	5.53	78.7	73.5	5.2	60.6	41.1	19.5	18.1	32.4	10.5	16.2
West Bengal	48.2	47.9	0.29	29.8	21.1	8.71	84.8	73.3	11.5	75.2	54.5	20.7	9.6	18.8	4.7	8.0
All India	46.8	46.6	0.19	23.4	18.9	4.52	81.1	71.3	9.8	70.4	50.2	20.2	10.7	21.1	17.2	24.4

Source: Authors' own calculations from the raw NSS 52nd and 71st Rounds, for 1995-96 and for 2014 respectively.

Table 2:
Current enrolment rate of children by age group and gender

	Age 5 to 9						Age 10 to 14						Age 15 to 19					
	2014			1995			2014			1995			2014			1995		
State	**Male**	**Female**	**Gap**	**Male**	**Female**	**Gap**	**Male**	**Female**	**Gap**	**male**	**Female**	**Gap**	**Male**	**Female**	**Gap**	**male**	**Female**	**Gap**
Andhra Pradesh	90	93	-4	75	68	7*	96	94	1	78	60	18*	82	73	9*	40	17	23*
Assam	93	92	1	63	63	0*	94	95	-1	85	80	5*	68	67	1	63	49	13*
Bihar	71	70	1	55	39	15*	92	91	2	78	49	29*	72	64	8*	58	19	39*
Gujarat	88	90	-2	74	66	8*	92	90	2	86	65	20*	73	52	21*	41	19	23*
Haryana	78	82	-4	80	71	9*	95	91	4	92	79	13*	82	72	10*	50	24	26*
Himachal Pradesh	91	93	-2	82	79	3	98	98	0	97	89	8*	88	85	3	72	56	16*
Karnataka	87	84	2	73	67	6*	95	96	0	78	58	19*	75	67	9*	37	18	19*
Kerala	81	83	-2	93	91	2	100	100	0	95	97	-1	91	90	2	51	53	-2
Madhya Pradesh	77	78	-1	53	44	9*	91	89	2	77	53	24*	67	61	6*	57	18	39*
Maharashtra	81	77	4	78	74	3	97	95	2	86	73	13*	77	69	8*	52	28	24*
Odisha	92	89	3	70	60	10*	95	92	3	76	61	16*	62	54	8*	52	24	28*
Punjab	88	91	-3	85	82	3	95	98	-3	91	81	10*	72	73	-1	46	31	15*
Rajasthan	83	80	3	68	42	26*	92	82	10*	86	38	48*	77	50	27*	57	8	48*
Tamil Nadu	96	97	-1	92	87	5*	98	98	0	87	77	10*	82	82	0	41	24	18*
Uttar Pradesh	72	69	3*	66	52	14*	90	84	5*	85	53	31*	66	61	5*	57	18	39*
West Bengal	87	86	0	67	60	7*	93	97	-4*	83	75	8*	65	70	-5	53	36	17*
All India	80	80	0	68	59	9*	93	91	2*	84	66	18*	74	67	7*	54	29	25*

Source: Authors' own calculations from the raw NSS 52nd and 71st Rounds for 1995-96 and for 2014 respectively.
Note: The * signifies that the gender gap is statistically significant at 5% level

Table 3:
Percentage of enrolled children studying in private schools, by age group and gender

States	Age 5 to 9						Age 10 to 14						Age 15 to 19					
	2014			1995			2014			1995			2014			1995		
	Male	Female	Gap	Male	Female	Gap	Male	Female	Gap	Male	Female	Gap	Male	Female	Gap	Male	Female	Gap
Andhra Pradesh	38	32	6	24	20	4*	30	21	9*	20	19	1	68	62	6	18	17	1
Assam	10	7	3	2	2	0	7	7	0	1	1	0	15	11	4	1	0	1
Bihar	13	10	3	14	13	1	15	10	5*	8	11	-3*	26	15	11*	4	7	-3*
Gujarat	14	10	4	5	4	1	19	16	3	2	2	0	44	39	5	1	1	0
Haryana	56	43	13*	34	32	2	41	27	14*	21	20	1	52	43	9	14	7	7*
Himachal Pradesh	42	36	6	7	6	1	24	23	1	6	2	4*	27	19	8	6	5	1
Karnataka	27	24	3	9	9	0	24	25	-1	10	9	1	62	45	17*	10	8	2
Kerala	58	56	2	16	12	4	51	46	5	7	7	0	59	55	4	22	30	-8*
Madhya Pradesh	24	18	6*	9	10	-1	22	15	7*	6	7	-1	33	21	12*	5	5	0
Maharashtra	20	15	5	6	6	0	36	32	4	5	5	0	69	65	4	5	4	1
Odisha	12	9	3	3	5	-2	6	5	1	4	4	0	49	42	7	7	12	-5*
Punjab	49	37	12	27	24	3	40	33	7	18	13	5*	45	52	-7	8	9	-1
Rajasthan	42	34	8*	11	10	1	42	27	15*	7	8	-1	55	38	17*	3	4	-1
Tamil Nadu	48	42	6	10	8	2	31	3	28	6	5	1	65	54	11*	7	6	1
Uttar Pradesh	47	40	7*	27	27	0	50	47	3	22	22	0	68	65	3	8	10	-2
West Bengal	9	9	0	6	4	2*	4	4	0	4	3	1	17	8	9*	4	4	0
All India	29	25	4*	14	12	2*	28	24	4*	10	9	1*	48	41	7*	7	7	0

Source: Authors' own calculations from the raw NSS 52nd and 71st Rounds for 1995-96 and for 2014 respectively.

Note: The * signifies that the gender gap is statistically significant at 5% level

Table 4:

Conditional Educational Expenditure (i.e. on enrolled children only), by age group and gender

States	Age 5 to 9						Age 10 to 14						Age 15 to 19					
	2014			1995			2014			1995			2014			1995		
	Male	Female	t-value of Gap	Male	Female	t-value of Gap	Male	Female	t-value of Gap	Male	Female	t-value of Gap	Male	Female	t-value of Gap	Male	Female	t-value of Gap
Andhra Pradesh	960	908	0.4	131	116	1.1	1245	891	3.0*	367	341	1.2	5040	4391	1.5	1039	814	1.2
Assam	498	397	1.5	140	150	-0.7	633	609	0.4	288	296	-0.6	2324	1838	1.3	751	746	0.1
Bihar	609	540	1.1	155	140	1.2	1079	761	3.9*	331	331	0.0	5119	2345	6.3*	760	761	0.0
Gujarat	595	458	1.6	125	114	0.9	1011	722	2.3*	309	279	1.6	5026	4763	0.3	932	822	1.1
Haryana	1886	1365	1.9	677	528	1.1	2025	1231	2.4*	864	749	1.2	5191	4239	1.4	1403	1445	-0.2
Himachal Pradesh	1863	1688	0.5	384	360	0.9	1787	1739	0.2	697	687	0.3	5278	4346	1.0	1362	1183	2.0*
Karnataka	675	661	0.1	102	92	0.9	898	907	-0.1	306	315	-0.4	4181	3172	2.4*	764	726	0.4
Kerala	2157	1987	0.7	499	431	1.3	2101	1918	0.9	583	567	0.4	5654	6286	-0.7	1014	1236	-1.8
Madhya Pradesh	672	418	3.8*	143	129	1.4	762	476	4.6*	345	306	2.8*	3377	1901	4.9*	653	545	2.4*
Maharashtra	731	630	0.8	174	158	1.9	857	691	1.8	368	377	-0.6	4762	2865	5.4*	812	781	0.5
Odisha	515	453	0.7	119	123	-0.3	637	599	0.6	365	336	1.4	4641	3337	2.5*	900	709	2.5*
Punjab	2660	1794	2.5*	611	645	-0.5	2199	2043	0.5	1009	885	2.5*	5469	6749	-1.5	1788	2111	-2.2*
Rajasthan	894	701	2.4*	230	188	2.5*	1267	868	4.0*	424	339	4.1*	4789	2474	5.1*	877	815	0.4
Tamil Nadu	1871	1591	1.4	203	157	2.2*	1438	1320	0.7	416	406	0.4	7688	6051	2.6*	1191	1047	1.0
Uttar Pradesh	710	551	3.1*	245	225	1.4	947	761	3.2*	500	422	4.2*	3872	1871	8.1*	945	839	2.0*
West Bengal	575	522	0.8	165	128	2.4*	1055	955	1.4	544	530	0.6	3481	2043	4.4*	1247	1157	1.4
All India	854	708	5.4*	220	199	3.4*	1067	869	7.2*	447	428	2.8	4608	3188	11.8*	965	986	-0.9

Source: Authors' own calculations from the raw NSS 52nd and 71st Rounds for 1995-96 and for 2014 respectively.
Note: Expenditure is measured in rupees and figures of 2014 are converted to 1995 prices using aggregate deflator of CPI (Consumer Price index). The gender gap column shows the t-value of the gender gap. * means that the gap is statistically significant at the 5% level.

Table 5:

Unconditional Education Expenditure (i.e. on both non-enrolled and enrolled children), by age group and gender

States	Age 5 to 9						Age 10 to 14						Age 15 to 19					
	2014			1995			2014			1995			2014			1995		
	Male	Female	t of Gap	Male	Female	t of Gap	Male	Female	t of Gap	Male	Female	t of Gap	Male	Female	t of Gap	Male	Female	t of Gap
Andhra Pradesh	863	849	0.1	98	79	1.9	1189	842	3.0*	287	204	4.9*	4149	3222	2.6*	414	137	5.2*
Assam	465	367	1.5	87	94	-0.6	594	580	0.2	244	237	0.6	1576	1227	1.3	470	367	3.0*
Bihar	432	379	1.2	84	55	4.8*	997	690	4.0*	258	163	8.0*	3678	1504	6.9*	439	141	11.8*
Gujarat	525	412	1.4	93	75	1.9	926	647	2.4*	265	182	5.2*	3667	2457	2.5*	386	155	5.9*
Haryana	1480	1121	1.5	542	376	1.6	1918	1118	2.5*	793	593	2.4*	4261	3045	2.3*	707	352	3.6*
Himachal Pradesh	1690	1563	0.4	317	286	1.2	1754	1702	0.2	676	612	2.0*	4655	3709	1.2	979	666	4.2*
Karnataka	584	557	0.3	75	62	1.5	857	866	-0.1	238	184	3.5*	3144	2115	3.3*	283	132	4.6*
Kerala	1755	1658	0.4	465	393	1.5	2092	1918	0.9	556	548	0.2	5153	5632	-0.6	515	656	-1.9
Madhya Pradesh	517	324	3.6*	76	56	3.4*	697	424	4.8*	266	163	9.5*	2268	1165	5.4*	369	97	13.5*
Maharashtra	591	486	1.1	135	117	2.4*	829	656	1.9	317	276	3.2*	3656	1970	6.2*	419	219	6.1*
Odisha	474	404	0.9	83	74	1.0	606	552	0.9	278	204	4.5*	2858	1788	3.3*	467	171	8.1*
Punjab	2337	1624	2.2*	522	530	-0.1	2095	1999	0.3	919	716	4.4*	3935	4899	-1.5	821	657	1.9
Rajasthan	745	560	2.6*	156	78	7.6*	1161	708	5.2*	363	127	16.7*	3669	1237	8.1*	498	68	10.2*
Tamil Nadu	1789	1537	1.3	186	136	2.6*	1409	1293	0.7	363	314	2.3*	6289	4947	2.5*	494	246	4.6*
Uttar Pradesh	511	378	3.6*	163	118	5.0*	848	640	4.1*	423	225	14.5*	2568	1139	8.7*	543	152	17.0*
West Bengal	498	450	0.9	111	77	3.2*	976	926	0.7	451	396	2.6*	2259	1428	3.6*	661	413	6.1*
All India	690	563	5.6*	150	116	8.2*	993	791	7.9*	372	273	18.8*	3338	2079	14.4*	508	251	23.8*

Source: Authors' own calculations from the raw NSS 52nd and 71st Rounds for 1995-96 and for 2014 respectively
Note: Expenditure is measured in rupees. The figures of 2014 and 1995 are both converted to 1994 prices using aggregate deflator of CPI (Consumer Price index). The gender gap column shows the t-value of the gender gap. * signifies that the gender gap is statistically significant at the 5% level.

Table 6: Difference in marginal effect (DME) * 100 of gender variables by age group (household-level data) of 2014, NSS 71st round

States	DME for Ages 5-9				DME for Ages 10-14				DME for Ages 15-19			
	Probit of ANYEDEXP (positive ESHARE)	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**	**Probit of ANYEDEXP (positive ESHARE)**	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**	**Probit of ANYEDEXP (positive ESHARE)**	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**
	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)
Andhra Pradesh	0.000	5.91	5.91	5.17	0.000	-2.49	-2.49	-2.82	0.000	8.60	**8.60***	2.58
	(0.166)	(0.300)	(0.282)	(0.222)	(0.944)	(0.604)	(0.575)	(0.429)	(0.642)	(0.087)	(0.041)	(0.462)
Assam	0.000	-2.20	-2.20	-2.44	0.000	-0.05	-0.05	1.83	**0.000***	2.55	2.55	1.78
	(0.129)	(0.274)	(0.290)	(0.382)	(0.159)	(0.982)	(0.980)	(0.523)	(0.021)	(0.251)	(0.258)	(0.535)
Bihar	0.000	-0.83	-0.83	-0.92	0.000	2.41	2.41	0.652	0.020	**5.63***	**5.64***	**9.36***
	(0.856)	(0.751)	0.729	(0.722)	(0.524)	(0.320)	(0.297)	(0.791)	(0.088)	(0.047)	(0.030)	(0.000)
Gujarat	0.000	-0.60	-0.61	-3.41	0.010	2.51	2.51	2.35	0.010	**9.67***	**9.67***	**11.66***
	(0.459)	(0.839)	(0.825)	(0.426)	(0.219)	(0.349)	(0.350)	(0.542)	(0.181)	(0.000)	(0.000)	(0.001)
Haryana	0.000	17.16	17.16	1.42	0.000	5.98	5.98	3.71	0.000	18.33	18.33	8.95
	(0.698)	(0.168)	(0.128)	(0.865)	(0.594)	(0.579)	(0.563)	(0.618)	(0.902)	(0.094)	(0.081)	(0.214)
Himachal Pradesh	0.000	6.99	6.99	7.18	0.000	7.27	7.28	1.36	0.000	3.55	3.54	-2.76
	(0.584)	(0.392)	(0.398)	(0.310)	(N.A)	(0.335)	(0.294)	(0.836)	(0.071)	(0.629)	(0.507)	(0.644)
Karnataka	0.000	-1.55	-1.55	-3.38	0.000	-6.54	-6.54	-1.90	**0.000***	**14.09***	14.09	**16.66***
	0.638	0.799	(0.783)	(0.537)	(0.256)	(0.241)	(0.185)	(0.705)	(0.004)	(0.011)	(0.061)	(0.000)
Kerala	0.000	-7.42	-7.42	-1.98	0.000	-1.66	-1.66	3.20	0.000	-1.90	-1.90	-0.20
	(0.732)	(0.292)	(0.308)	(0.723)	(N.A)	(0.773)	(0.767)	(0.499)	(0.897)	(0.722)	(0.700)	(0.962)
Madhya Pradesh	0.010	-1.47	-1.47	2.10	0.010	4.02	4.02	2.75	0.010	2.22	2.22	3.69
	(0.749)	(0.564)	(0.541)	(0.474)	(0.915)	(0.073)	(0.055)	(0.298)	(0.600)	(0.368)	(0.340)	(0.166)
Maharashtra	0.000	3.32	3.31	-2.41	0.000	0.06	0.06	2.60	0.010	2.65	2.65	**8.61***
	(0.108)	(0.314)	(0.280)	(0.513)	(0.332)	(0.981)	(0.979)	(0.425)	(0.670)	(0.357)	(0.298)	(0.005)
Odisha	0.000	-5.53	-5.53	-6.94	0.000	4.12	4.12	0.58	0.000	5.16	5.16	**11.62***
	(0.937)	(0.179)	(.155)	(0.082)	(0.509)	(0.238)	(0.197)	(0.864)	(0.415)	(0.203)	(0.173)	(0.001)
Punjab	0.000	7.48	7.48	0.53	0.000	-14.76	-14.76	-14.00	**0.000***	-5.98	-5.98	-12.79
	(0.833)	(0.541)	(0.528)	(0.950)	(0.559)	(0.182)	(0.134)	(0.077)	(0.042)	(0.581)	(0.627)	(0.075)
Rajasthan	0.010	-0.15	-0.15	0.244	-0.020	3.27	3.27	7.00	**0.030***	**10.63***	**10.63***	**16.10***
	(0.555)	(0.972)	(0.968)	(0.955)	(0.344)	(0.394)	(0.402)	(0.069)	(0.006)	(0.014)	(0.014)	(0.000)
Tamil Nadu	0.000	-2.34	-2.34	-1.26	0.000	-3.61	-3.61	-1.68	0.000	-2.97	-2.97	0.44
	(0.014)	(0.753)	(0.741)	(0.808)	(0.246)	(0.554)	(0.492)	(0.697)	(0.101)	(0.639)	(0.561)	(0.919)
Uttar Pradesh	0.020	1.49	1.50	1.57	**0.050***	-1.71	-1.70	-0.352	-0.010	**6.08***	**6.07***	**5.49***
	(0.419)	(0.520)	(0.514)	(0.417)	(0.034)	(0.447)	(0.416)	(0.857)	(0.359)	(0.012)	(0.004)	(0.005)
West Bengal	0.000	3.08	3.08	-0.265	0.000	**-5.11***	**-5.11***	-2.51	0.000	-4.08	-4.08	-1.84
	(0.916)	(0.294)	(0.308)	(0.924)	0.629	(0.043)	(0.028)	(0.304)	(0.263)	(0.133)	(0.100)	(0.441)

Note: The probit of ANYEDEXP represents a probit of whether the household has a positive ESHARE (i.e. positive budget share of education). ESHARE in column 4 (in each age group) is the household's 'share of education expenditure in total household expenditure' (also called the education budget share). In the conditional OLS equation fitted only for households with positive education spending, the dependent variable is natural log of the education budget share (LNESHARE). The coefficients on the gender dummy variables were transformed so that the marginal effects reported in col. 2 are comparable to those in col. 4, where the dependent variable is in absolute ESHARE rather than log terms. Col. 4 shows the unconditional OLS of ESHARE, fitted on all households, including those with zero education budget shares. The table displays 100 times the difference in marginal effects (DME) of the variables 'proportion of males aged 5–9' and 'proportion of females aged 5–9', etc. The figures in parentheses are p-values of the t-test of the DME, where standard errors for the t-test in each cell of col. 3 were obtained by bootstrapping with 500 replications. * Statistically significant at 5% level.

Table 6.1 Difference in marginal effect (DME) * 100 of gender variables by age group (household-level results) of 1995-96 (NSS 52nd Round)

	DME for Ages 5 to 9				DME for Ages 10-14				DME for Ages 15-19			
	Probit of ANYEDEXP (positive ESHARE)	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**	**Probit of ANYEDEXP (positive ESHARE)**	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**	**Probit of ANYEDEXP (positive ESHARE)**	**Conditional OLS of LNESHARE**	**Combined Probit +OLS**	**Unconditional OLS of ESHARE (Conventional Engel Curve)**
States	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)
Andhra Pradesh	1.200	-1.20	-1.11	-0.11	**4.810***	**3.98***	**4.25***	**3.43***	**4.390***	**5.10***	**5.34***	**8.45***
	(0.473)	(0.573)	(0 .636)	(0.949)	(0.000)	(0.026)	(0.017)	(0.028)	(0.004)	(0.051)	(0.052)	(0.000)
Assam	0.750	-2.11	-2.04	-1.61	1.640	-1.49	-1.35	-0.21	**4.150***	-0.60	-0.28	**8.26***
	(0.415)	(0.302)	(0.360)	(0.485)	(0.101)	(0.424)	(0.498)	(0.925)	(0.000)	(0.804)	(0.926)	(0.001)
Bihar	**14.21***	-2.59	-1.39	1.37	**43.450***	**5.03***	**7.84***	**5.35***	**41.570***	**19.94***	**21.61***	**15.83***
	(0.011)	(0.153)	(0.446)	(0.340)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Gujarat	0.270	3.64	3.64	1.24	1.620	1.13	1.22	**4.26***	**2.320***	4.56	4.68	**10.71***
	(0.774)	(0.130)	(0..164)	(0.629)	(0.081)	(0.567)	(0.576)	(0.049)	(0.006)	(0.079)	(0.093)	(0.000)
Haryana	-0.270	-0.36	-0.39	4.58	0.230	-0.38	-0.35	3.28	**0.570***	4.45	4.53	**11.72***
	(0.284)	(0.959)	(0.957)	(0.459)	(0.256)	(0.949)	(0.953)	(0.531)	(0.002)	(0.563)	(0.588)	(0.032)
Himachal Pradesh	0.000	-3.90	-3.90	-3.61	0.000	0.92	0.92	5.29	0.000	**12.25***	**12.25***	**14.00***
	(0.314)	(0.379)	(0.445)	(0.454)	(0.152)	(0.796)	(0.790)	(0.177)	(0.226)	(0.000)	(0.004)	(0.000)
Karnataka	1.570	**-10.56***	**-10.43***	-2.25	**2.220***	3.37	3.50	**6.16***	**1.910***	**5.39***	5.50	**7.96***
	(0.072)	(0.000)	**(0.000)**	(0.362)	(0.000)	(0.108)	(0.098)	(0.001)	(0.018)	(0.087)	(0.112)	(0.002)
Kerala	0.000	-4.36	-4.36	-2.96	0.000	-0.89	-0.89	-0.561	0.000	-1.08	-1.08	-0.267
	(0.345)	(0.271)	(0.326)	(0.438)	(0.836)	(0.752)	(0.741)	(0.842)	(0.727)	(0.754)	(0.752)	(0.929)
Madhya Pradesh	**8.040***	0.009	0.560	1.09	**17.330***	**3.54***	**4.67***	**5.70***	**14.050***	**7.87***	**8.69***	**12.60***
	(0.001)	(0.996)	(0.778)	(0.482)	(0.000)	(0.030)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Maharashtra	-0.070	3.27	3.27	-0.08	**0.530***	1.35	1.40	1.97	**0.770***	**7.36***	**7.43***	**8.64***
	(0.725)	(0.124)	(0.150)	(0.964)	(0.001)	(0.459)	(0.436)	(0.245)	(0.000)	(0.009)	(0.013)	(0.000)
Odisha	-3.190	2.98	2.58	1.61	**14.260***	5.14	**6.07***	**8.45***	**16.730***	**17.16***	**17.73***	**12.58***
	(0.678)	(0.333)	(0.437)	(0.516)	(0.042)	(0.051)	(0.021)	(0.000)	(0.015)	(0.000)	(0.000)	(0.000)
Punjab	0.030	2.81	2.81	4.94	**0.100***	4.30	4.31	**7.16***	-0.020	5.56	5.55	4.15
	(0.523)	(0.580)	(0.592)	(0.253)	(0.049)	(0.305)	(0.257)	(0.047)	(0.665)	(0.306)	(0.353)	(0.313)
Rajasthan	**1.690***	3.67*	3.79	3.22	**5.390***	**8.30***	**8.69***	**11.12***	**3.770***	**14.01***	**14.26***	**16.44***
	(0.008)	(0.139)	(0.173)	(0.110)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tamil Nadu	0.180	**6.28***	**6.30***	3.58	0.470	-2.64	-2.59	0.99	**0.800***	**8.73***	**8.80***	**13.27***
	(0.512)	(0.029)	(0.037)	(0.173)	(0.012)	(0.258)	(0.267)	(0.631)	(0.000)	(0.005)	(0.014)	(0.000)
Uttar Pradesh	**1.400***	2.46	2.59	**4.42***	**4.240***	**6.96***	**7.36***	**10.38***	**3.280***	**17.34***	**17.61***	**15.74***
	(0.000)	(0.222)	(0.250)	**(0.006)**	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Bengal	1.260	-2.32	-2.16	-0.87	0.240	5.55	**5.56***	2.17	**4.150***	8.00	**8.46***	**10.29***
	(0.081)	(0.520)	(0.576)	(0.714)	(0.747)	(0.075)	(0.048)	(0.318)	(0.000)	(0.054)	(0.031)	(0.000)

Note: Same as in Table 6.

Table 7: Marginal effect of the gender dummy variable MALE (individual-level data) of 2014, NSS 71st round

	Children aged 5 - 9				**Children aged 10-14**				**Children aged 15-19**			
	Probit of ANYEDEXP (positive EDEXP)	**Conditional OLS of LNEDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP (positive EDEXP)**	**Conditional OLS of LNEDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP (positive EDEXP)**	**Conditional OLS of LNEDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**
States	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)
Andhra Pradesh	0.000	99.54	**99.54***	87.91	0.000	0.062	0.062	46.10	**0.005***	91.26	104.80	**432.76***
	(0.844)	(0.228)	(0.018)	(0.446)	(0.646)	(0.999)	(0.706)	(0.636)	(0.018)	(0.742)	(0.105)	(0.049)
Assam	0.000	20.69	20.69	68.96	-0.000	32.30	32.30	70.54	-0.008	131.02	115.40	102.01
	(0.533)	(0.254)	(0.137)	(0.083)	(0.799)	(0.266)	(0.805)	(0.191)	(0.390)	(0.282)	(0.664)	(0.442)
Bihar	0 .003	**91.58***	**87.84***	**106.49***	0.000	**152.89***	**152.89***	**231.81***	**0.054***	**672.42***	**688.00***	**799.42***
	(0.757)	(0.000)	(0.000)	(0.003)	(0.566)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Gujarat	0.000	**40.43***	40.43	99.78	0.000	**64.35***	64.36	130.34	**0.207***	**859.80***	**1011.49***	**667.60***
	(0.940)	(0.036)	(0.323)	(0.155)	(0.270)	(0.037)	(0.053)	(0.132)	(0.000)	(0.000)	(0.000)	(0.002)
Haryana	-0.0004	178.92	178.58	-50.79	0.000	**306.05***	306.05	**484.77***	**0.011***	**937.17***	**963.14***	**962.70***
	(0.207)	(0.079)	(0.207)	(0.784)	(0.107)	(0.048)	(0.371)	(0.012)	(0.000)	(0.015)	(0.003)	(0.025)
Himachal Pradesh	0.000	189.49	189.49	102.64	0.000	95.04	95.04	220.35	0.000	376.35	376.65	400.86
	(0.440)	(0.092)	(0.596)	(0.634)	(0.998)	(0.307)	(0.649)	(0.278)	(0.190)	(0.153)	(0.484)	(0.239)
Karnataka	0.000	30.40	30.44	108.35	-0.000	65.15	65.15	166.47	**0.059***	**1119.23***	**1182.17***	**1031.68***
	(0.401)	(0.446)	(0.868)	(0.143)	(0.715)	(0.143)	(0.051)	(0.077)	(0.000)	(0.000)	(0.000)	(0.000)
Kerala	-0.000	322.47	322.67	190.83	(N.A)	-126.77	-126.77	42.62	0.000	-44.36	-44.32	-371.60
	(0.647)	(0.284)	(0.900)	(0.421)	(N.A)	(0.377)	(0.237)	(0.820)	(0.210)	(0.892)	(0.970)	(0.425)
Madhya Pradesh	-0.000	**33.93***	**33.78***	**106.91***	**0.000***	**83.43***	**83.43***	**186.75***	**0.052***	**422.89***	**418.52***	**605.66***
	(0.947)	(0.021)	(0.018)	(0.012)	(0.075)	(0.000)	(0.000)	(0.000)	(0.022)	(0.000)	(0.000)	(0.000)
Maharashtra	0.000	**63.33***	63.21	120.56	0.000	**49.47***	49.47	111.33	**0.039***	**321.59***	376.65	**598.00***
	(0.910)	(0.021)	(0.238)	(0.128)	(0.344)	(0.063)	(0.161)	(0.072)	(0.000)	(0.023)	(0.270)	(0.000)
Odisha	-0.000	3.19	3.19	-29.21	0.000	34.91	34.91	71.14	**0.114***	372.53	440.62	**610.35***
	(0.795)	(0.878)	(0.147)	(0.637)	(0.744)	(0.173)	(0.070)	(0.080)	(0.016)	(0.025)	(0.166)	(0.000)
Punjab	-0.000	247.13	247.12	48.12	-0.000	-35.54	-35.54	-342.67	-0.007	**-1052.9***	-1046.8	**-1437.7***
	(0.106)	(0.220)	(0.291)	(0.856)	(0.050)	(0.819)	(0.509)	(0.139)	(0.602)	(0.033)	(0.350)	(0.004)
Rajasthan	0.000	63.54	**63.91***	**124.82***	**0.0003***	**217.95***	**218.09***	**439.77***	**0.194***	**975.67***	**1202.39***	**1469.26***
	(0.171)	(0.095)	(0.012)	(0.036)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tamil Nadu	0.000	97.66	97.66	157.92	0.000	-57.35	-57.35	172.19	-0.002	**1580.55***	**1569.31***	**1199.31***
	(0.055)	(0.328)	(0.847)	(0.284)	(0.652)	(0.256)	(0.111)	(0.142)	(0.094)	(0.000)	(0.006)	(0.000)
Uttar Pradesh	0.005	**79.79***	**78.44***	**73.57***	**0.00004***	**110.77***	**110.79***	**189.07***	**0.056***	**527.86***	**532.59***	**670.13***
	(0.322)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Bengal	0.000	54.50	**54.51***	**91.53***	**-0.000***	-40.81	-40.81	28.18	**-0.045***	148.17	60.89	72.28
	(0.198)	(0.076)	(0.014)	(0.015)	(0.000)	(0.370)	(0.746)	(0.657)	(0.000)	(0.107)	(0.989)	(0.458)

Note. ANYEDEXP in column 1 implies whether the household incurred any positive education expenditure. "EDEXP" in columns 2 and 4 is "educational expenditure". In the conditional OLS fitted only for children with positive education spending, the dependent variable is the natural log of education expenditure (LNEDEXP). The coefficients on the gender dummy variables were transformed so that the marginal effects reported in col. 2 are comparable to those in col. 4, where the dependent variable is in absolute rather than log terms. Col. 4 relates to the unconditional OLS of absolute education expenditure, fitted on all children, including those with zero education expenditure. The table shows the marginal effect on the gender dummy variable MALE. The figures in parentheses are p-values of the t-test of the marginal effect of MALE.

Table 7.1: Marginal effect of the gender dummy variable MALE (individual-level data) of 1995-96 (NSS 52nd Round)

	Children Aged 5-9				**Children Aged 10-14**				**Children Aged 15-19**			
	Probit of ANYEDEXP (positive EDEXP)	**Conditional OLS of EDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP (positive EDEXP)**	**Conditional OLS of EDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP (positive EDEXP)**	**Conditional OLS of EDEXP**	**Combined Probit +OLS**	**Unconditional OLS of EDEXP**
States	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)	(1)	(2)	(3)=f(1,2)	(4)
Andhra Pradesh	**0 .034***	**11.88***	13.74	**20.90***	**0.074***	**45.91***	**62.37***	**94.86***	**0.029***	**99.48***	**17.36***	**202.19***
	(0.000)	(0.015)	(0 .409)	(0.033)	(0.000)	(0.000)	(0.012)	(0.000)	(0.000)	(0.163)	(0.000)	(0.000)
Assam	0.047	0.04	**5.78***	-5.86	**0.000***	13.33	13.39	22.37	**0.246***	26.52	**172.51***	**155.05***
	(0.053)	(0.994)	(0.033)	(0.566)	(0.003)	(0.131)	(0.431)	(0.052)	(0.000)	(0.387)	(0.000)	(0.000)
Bihar	**0.154***	**10.83***	**18.70***	**21.97***	**0.321***	**53.48***	**124.23***	**120.35***	**0.468***	**75.52***	**319.91***	**312.31***
	(0.000)	(0.039)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.158)	(0.000)	(0.000)
Gujarat	0.016	0.93	**2.23***	4.26	**0.032***	**33.67***	**40.85***	**67.82***	**0.074***	46.24	**46.42***	**229.67***
	(0.109)	(0.813)	(0.005)	(0.593)	(0.000)	(0.016)	(0.009)	(0.000)	(0.000)	(0.541)	(0.004)	(0.000)
Haryana	0.003	62.78	**64.10***	52.14	**0.000***	**70.29***	70.53	**182.29***	**0.273***	**285.60***	**385.98***	**453.20***
	(0.225)	(0.056)	(0.007)	(0.536)	(0.000)	(0.037)	(0.128)	(0.003)	(0.000)	(0.010)	(0.000)	(0.000)
Himachal Prad.	0.001	14.46	14.92	31.52	**0.000***	**52.43***	52.43	**124.50***	**0.113***	**149.01***	**257.08***	**318.33***
	(0.259)	(0.334)	(0.709)	(0.188)	(0.000)	(0.016)	(0.134)	(0.000)	(0.000)	(0.008)	(0.000)	(0.000)
Karnataka	0.023	-2.66	-1.06	11.00	**0.061***	10.39	25.23	**65.75***	**0.055***	-62.43	42.02	**136.20***
	(0.069)	(0.575)	(0.165)	(0.155)	(0.000)	(0.490)	(0.812)	(0.000)	(0.000)	(0.576)	(0.060)	(0.000)
Kerala	0.000	-3.04	-3.03	**97.01***	0.000	17.12	17.12	42.89	-0.030	-99.14	-82.15	-65.81
	(0.365)	(0.895)	(0.506)	**(0.024)**	(0.616)	(0.337)	(0.287)	(0.160)	(0.566)	(0.106)	(0.314)	(0.293)
Madhya Pradesh	**0.135***	**9.94***	**16.98***	**19.20***	**0.180***	**38.45***	**82.64***	**105.24***	**0.386***	**109.89***	**194.69***	**268.19***
	(0.000)	(0.043)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)
Maharashtra	0.001	**4.23***	**4.38***	7.36	**0.004***	6.67	8.13	**44.20***	**0.244***	48.80	**201.31***	**211.94***
	(0.724)	(0.518)	(0.004)	(0.260)	(0.000)	(0.539)	(0.421)	(0.000)	(0.000)	(0.415)	(0.013)	(0.000)
Odisha	**0.111***	-3.49	**8.45***	2.61	**0.112***	**36.65***	**65.44***	**80.68***	**0.199***	**150.60***	**107.23***	**275.17***
	(0.001)	(0.596)	(0.053)	(0.780)	(0.000)	(0.020)	(0.000)	(0.000)	(0.000)	(0.001)	(0.033)	(0.000)
Punjab	0.001	-9.35	-8.49	22.89	**0.000***	**96.00***	96.34	**155.10***	**0.211***	86.60	**325.93***	**140.26***
	(0.261)	(0.756)	(0.936)	(0.686)	(0.000)	(0.004)	(0.084)	(0.000)	(0.000)	(0.464)	(0.000)	(0.092)
Rajasthan	**0.405***	19.26	**94.27***	**64.44***	**0.475***	**119.08***	**251.34***	**243.45***	**0.383***	**174.29***	**286.75***	**434.23***
	(0.000)	(0.055)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.033)	(0.000)	(0.000)
Tamil Nadu	**0.000***	**18.17***	18.18	**47.88***	**0.000***	8.81	9.11	**45.27***	**0.076***	-51.78	57.78	**251.15***
	(0.003)	(0.020)	(0.288)	(0.012)	(0.000)	(0.594)	(0.397)	(0.025)	(0.000)	(0.641)	(0.181)	(0.000)
Uttar Pradesh	**0.191***	**19.91***	**48.46***	**51.78***	**0.139***	**89.59***	**136.30***	**212.96***	**0.494***	**105.41***	**415.16***	**415.17***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.013)	(0.000)	(0.000)
West Bengal	0.039	**18.27***	**19.04***	**27.93***	**0.004***	**70.49***	**72.45***	**65.18***	**0.286***	**171.92***	**334.94***	**264.66***
	(0.078)	(0.003)	(0.000)	(0.005)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)

Note. Same as in Table 7.

Table 8: Marginal effect of the gender dummy variable MALE in private school enrolment and in private school expenditure equations (individual-level data), 2014, NSS 71st round

	Children Aged 5-9			Children Aged 10-14			Children Aged 15-19		
	Probit of private school enrolment	**Conditional OLS of edexp on pvt. school**	**Unconditional OLS of edexp on private school**	**Probit of private school enrolment**	**Conditional OLS of edexp on pvt. school**	**Unconditional OLS of edexp on private school**	**Probit of private school enrolment**	**Conditional OLS of edexp on pvt. school**	**Unconditional OLS of edexp on private school**
States	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Andhra Pradesh	0 .007	468.23	94.62	-0.000	-78.70	45.820	0.108	166.99	321.38
	(0.242)	(0.084)	(0.415)	(0.278)	(0.717)	(0.654)	(0.129)	(0.684)	(0.281)
Assam	0.000	**836.29***	69.82	0.000	169.26	40.95	0.000	240.79	220.95
	(0.770)	(0.010)	(0.105)	(0.168)	(0.103)	(0.446)	(0.640)	(0.926)	(0.227)
Bihar	0.000	21.33	**173.04***	**0.000***	40.10	**260.85***	**0.000***	1372.26	**1168.74***
	(0.162)	(0.730)	(0.000)	(0.003)	(0.840)	(0.000)	(0.000)	(0.383)	(0.000)
Gujarat	0.000	628.21	107.96	-0.000	347.8	135.89	**0.000***	1077.27	**962.66***
	(0.175)	(0.306)	(0.171)	(0.832)	(0.652)	(0.167)	(0.014)	(0.652)	(0.007)
Haryana	0.100	-60.50	-10.65	**0.041***	-405.17	**442.45***	**0.046***	440.38	758.17
	(0.104)	(0.778)	(0.953)	(0.010)	(0.426)	(0.031)	(0.030)	(0.496)	(0.210)
Himachal Pradesh	0.002	203.05	264.23	**0.000***	597.99	276.59	0.000	-1912.19	338.70
	(0.212)	(0.674)	(0.100)	(0.040)	(0.272)	(0.185)	(0.304)	(0.658)	(0.407)
Karnataka	0.000	-18.91	92.23	0.000	572.54	**213.39***	**0.000***	-273.82	**1078.14***
	(0.454)	(0.988)	(0.236)	(0.099)	(0.607)	(0.032)	(0.001)	(0.624)	(0.000)
Kerala	0.012	605.48	365.29	0.000	463.71	81.49	0.005	-3383.16	-555.92
	(0.781)	(0.292)	(0.154)	(0.743)	(0.483)	(0.662)	(0.231)	(0.124)	(0.280)
Madhya Pradesh	**0.000***	284.49	**153.50***	**0.000***	192.16	**175.36***	**0.000***	**1825.59***	**749.48***
	(0.013)	(0.048)	(0.004)	(0.000)	(0.196)	(0.000)	(0.003)	(0.003)	(0.000)
Maharashtra	0.000	322.14	188.0	0.000	0.74	112.50	-0.000	**6438.62***	**573.09***
	(0.116)	(0.596)	(0.055)	(0.096)	(0.870)	(0.078)	(0.250)	(0.021)	(0.013)
Odisha	0.000	-49.50	2.08	0.000	22.97	75.07	**0.000***	1798.91	**794.05***
	(0.140)	(0.693)	(0.974)	(0.242)	(0.920)	(0.082)	**(0.002)**	(0.154)	**(0.005)**
Punjab	0.033	-86.85	181.75	**0.005***	-261.08	-272.47	-0.003	-306.55	-2359.68
	(0.469)	(0.830)	(0.460)	(0.031)	(0.639)	(0.251)	(0.400)	(0.864)	(0.002)
Rajasthan	**0.050***	**224.38***	125.4	**0.054***	**287.93***	**443.39***	**0.209***	**1122.24***	**1548.21***
	(0.007)	(0.025)	(0.076)	(0.000)	(0.003)	(0.000)	(0.000)	(0.029)	(0.000)
Tamil Nadu	0.005	186.50	219.07	-0.000	1094.28	178.21	**0.022***	2006.44	**1687.64***
	(0.094)	(0.409)	(0.146)	(0.549)	(0.214)	(0.135)	(0.000)	(0.235)	(0.000)
Uttar Pradesh	**0.039***	25.06	62.34	**0.034***	**214.38***	**162.12***	0.010	**395.86***	**919.30***
	(0.000)	(0.402)	(0.074)	(0.002)	(0.000)	(0.000)	(0.600)	(0.000)	(0.000)
West Bengal	-0.000	189.70	**84.56***	0.000	1117.242	68.64	**0.000***	**1307.05***	**313.13***
	(0.476)	(0.564)	(0.037)	(0.697)	(0.246)	(0.312)	(0.004)	(0.037)	(0.015)

Note. The probit in column 1 is fitted on the sample of all enrolled children, and it takes the value of 1 if the child is enrolled in a private school and of 0 otherwise. In the conditional OLS equation fitted only for children enrolled in private schools, the dependent variable is natural log of education expenditure in private schooling. Thus, the coefficient of the gender dummy variable was transformed so that the marginal effects reported in col. 2 are comparable to those in col. 3, where the dependent variable is in absolute rather than log terms. Col. 3 pertains to the unconditional OLS of absolute education expenditure, fitted on all children enrolled in any kind of school (private and non-private schools). The table shows the marginal effect on the gender dummy variable MALE in each equation for each state and age group.

Table 8.1 : Marginal effect of the gender dummy variable MALE in private school enrolment and private school expenditure equations (Individual-level data), 1995-96 (NSS 52nd Round)

	Children Aged 5-9			**Children Aged 10-14**			**Children Aged 15-19**		
	Probit of private school enrolment	**Conditional OLS of private school expenditure**	**Unconditional OLS of private school expenditure**	**Probit of private school enrolment**	**Conditional OLS of private school expenditure**	**Unconditional OLS of private school expenditure**	**Probit of private school enrolment**	**Conditional OLS of private school expenditure**	**Unconditional OLS of private school expenditure**
States	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Andhra Pradesh	**0.000***	-59.47	**35.97***	**0.000***	634.44	**68.56***	0.000	**-2920.04***	106.28
	(0.004)	(0.648)	(0.010)	(0.014)	(0.255)	(0.000)	(0.210)	(0.005)	(0.378)
Assam	-0.000	N.A	9.23	-0.000	316.57	9.98	0.000	N.A.	68.12
	(N.A.)	(N.A)	(0.315)	(0.317)	(N.A.)	(0.386)	(N.A.)	(N.A.)	(0.121)
Bihar	**0.000***	47.94	21.54	0.000	36.57	**79.83***	-0.992	701.95	135.48
	0.033)	(0.567)	(0.077)	(0.064)	(0.564)	(0.000)	(0.358)	(0.336)	(0.069)
Gujarat	-0.000	N.A	-6.57	0.000	N.A.	-1.86	0.000	N.A.	148.62
	(0.999)	(N.A.)	(0.496)	(0.993)	(N.A.)	(0.920)	(N.A)	(N.A)	(0.276)
Haryana	0.000	-154.10	68.22	0.000	135.92	66.63	0.000	-5.27	**401.23***
	(0.470)	(0.588)	(0.218)	(0.102)	(0.176)	(0.187)	(0.988)	(0.978)	(0.034)
Himachal Pradesh	0.000	523.00	15.64	**0.000***	334.29	**71.30***	0.000	-371.32	**206.11***
	(0.214)	(0.362)	(0.539)	(0.016)	(0.140)	(0.006)	(0.024)	(0.035)	(0.024)
Karnataka	0.000	N.A.	6.55	0.000	108.31	14.37	-1.000	-2319.30	6.29
	(1.000)	(N.A.)	(0.550)	(0.613)	(N.A.)	(0.434)	(0.964)	(N.A.)	(0.967)
Kerala	0.000	-28.16	**97.00***	-0.000	-0.02	47.94	-0.001	-174.01	-36.55
	(0.198)	(0.857)	(0.038)	(0.157)	(0.997)	(0.127)	(0.592)	(0.448)	(0.718)
Madhya Pradesh	0.000	80.80	15.29	0.000	9466.47	**48.20***	0.000	-72.22	**166.83***
	(0.998)	(0.098)	(0.143)	(0.395)	(0.310)	(0.000)	(1.000)	(0.426)	(0.001)
Maharashtra	0.000	N.A.	5.34	0.000	-161.02	-2.15	0.000	-3583.58	119.77
	(1.000)	(N.A.)	(0.475)	(0.258)	(0.186)	(0.861)	(N.A.)	(N.A.)	0.105
Odisha	0.000	1.39	-5.17	0.000	-51.45	**48.38***	0.000	**6356.73***	**266.06***
	(1.000)	(0.789)	(0.723)	(0.930)	(0.358)	(0.012)	(0.896)	(0.001)	(0.007)
Punjab	0.000	35.20	-23.27	0.000	24.43	80.78	0.000	-718.55	-13.84
	(0.295)	(0.713)	(0.728)	(0.087)	(0.919)	(0.056)	(0.800)	(0.096)	(0.937)
Rajasthan	0.000	-148.05	28.45	0.000	-62.11	**116.57***	-0.000	1484.86	276.12
	(0.241)	(0.087)	(0.056)	(0.865)	(0.745)	(0.000)	(1.000)	(N.A.)	(0.034)
Tamil Nadu	**0.000***	157.00	40.20	0.000	156.97	12.79	0.000	648.49	90.86
	(0.046)	(0.393)	(0.063)	(0.355)	(0.095)	(0.587)	(1.000)	(N.A.)	(0.656)
Uttar Pradesh	0.000	41.23	**29.49***	0.000	2.41	**94.01***	**-0.000**	-468.79	**140.59***
	(0.140)	(0.142)	(0.009)	(0.229)	(0.915)	(0.000)	(0.000)	(0.728)	(0.022)
West Bengal	0.000	-1174.29	**36.56***	0.000	200.02	**38.01***	-0.000	N.A.	**226.62**
	(0.978)	(N.A.)	(0.024)	(0.176)	(N.A.)	(0.054)	(0.998)	(N.A.)	(0.001)

Note. Same as in table 8. "N.A." denotes the non-availability of estimates due to insufficient observations.

Appendix Table A1

Village Fixed Effects regressions of (a) the budget share of education (ESHARE); (b) binary probit of any (positive) education expenditure (ANYEDEXP); and (c) OLS of log of budget share of education (LNESHARE), conditional on positive education expenditure. Household level data, NSS 71st Round, 2014.

	Andhra Pradesh			**Assam**			**Bihar**			**Gujarat**		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.07***	0.00	0.53***	0.03***	0.00	0.14	0.06***	0.00	0.37***	0.10***	0.00	0.56***
	(0.01)	(0.00)	(0.15)	(0.01)	(0.00)	(0.11)	(0.01)	(0.00)	(0.09)	(0.01)	(0.00)	(0.13)
LNHHSIZE	0.08***	0.00	0.63***	0.05***	0.00	0.36***	0.06***	0.00	0.41***	0.04***	0.00	0.32***
	(0.01)	(0.00)	(0.17)	(0.01)	(0.00)	(0.12)	(0.01)	(0.00)	(0.09)	(0.01)	(0.00)	(0.12)
M0TO4	-0.25***	-0.00	-3.08***	-0.10*	0.00	-2.74***	-0.17***	-0.00	-3.09***	-0.13**	-0.00	-2.75***
	(0.07)	(0.00)	(0.86)	(0.06)	(0.00)	(0.76)	(0.05)	(0.00)	(0.70)	(0.07)	(0.00)	(0.70)
M5TO9	-0.10	0.00	-1.09	-0.07	0.00	-1.79**	-0.08	0.00	-1.74***	-0.07	0.00	-1.12*
	(0.06)	(0.00)	(0.74)	(0.05)	(0.00)	(0.69)	(0.05)	(0.00)	(0.66)	(0.06)	(0.00)	(0.66)
M10TO14	-0.07	0.00	-0.36	-0.00	0.00	-0.32	0.01	0.00	-0.28	0.03	0.00	0.46
	(0.06)	(0.00)	(0.71)	(0.05)	(0.00)	(0.70)	(0.05)	(0.00)	(0.65)	(0.06)	(0.00)	(0.61)
M15TO19	0.10*	-0.00	2.34***	0.10**	0.00	2.07***	0.11**	0.00	1.20*	0.17***	0.00	2.57***
	(0.06)	(0.00)	(0.72)	(0.05)	(0.00)	(0.69)	(0.05)	(0.00)	(0.66)	(0.06)	(0.00)	(0.63)
M20TO24	0.01	-0.00	0.77	-0.01	-0.00	-0.39	-0.04	-0.00	-0.18	-0.06	-0.00	0.65
	(0.06)	(0.00)	(0.81)	(0.05)	(0.00)	(0.76)	(0.05)	(0.00)	(0.72)	(0.06)	(0.00)	(0.71)
M25TO60	-0.09	-0.00	-1.27*	-0.08	0.00	-1.89***	-0.07	-0.00	-1.95***	-0.02	-0.00	-0.41
	(0.06)	(0.00)	(0.71)	(0.05)	(0.00)	(0.72)	(0.05)	(0.00)	(0.70)	(0.06)	(0.00)	(0.66)
M61MORE	-0.24***	-0.00	-2.27**	-0.07	0.00	-2.64***	-0.08	-0.00	-2.12**	0.01	-0.00	0.07
	(0.08)	(0.00)	(0.99)	(0.07)	(0.00)	(0.93)	(0.07)	(0.00)	(0.92)	(0.09)	(0.00)	(0.91)
F0TO4	-0.24***	-0.00	-2.79***	-0.10*	-0.00	-2.55***	-0.15***	-0.00	-3.07***	-0.09	-0.00	-2.76***
	(0.07)	(0.00)	(0.86)	(0.06)	(0.00)	(0.76)	(0.05)	(0.00)	(0.69)	(0.07)	(0.00)	(0.72)
F5TO9	-0.15**	0.00	-1.62**	-0.05	0.00	-1.40**	-0.07	0.00	-1.63**	-0.03	0.00	-1.03
	(0.06)	(0.00)	(0.75)	(0.05)	(0.00)	(0.69)	(0.05)	(0.00)	(0.66)	(0.06)	(0.00)	(0.66)
F10TO14	-0.04	0.00	-0.14	-0.02	0.00	-0.31	0.00	0.00	-0.58	0.00	0.00	0.09
	(0.06)	(0.00)	(0.70)	(0.05)	(0.00)	(0.69)	(0.05)	(0.00)	(0.67)	(0.06)	(0.00)	(0.62)
F15TO19	0.07	-0.00	1.57**	0.09	0.00	1.62**	0.02	-0.00	0.50	0.06	-0.00	1.14*
	(0.06)	(0.00)	(0.73)	(0.05)	(0.00)	(0.70)	(0.05)	(0.00)	(0.68)	(0.06)	(0.00)	(0.63)
F20TO24	-0.00	-0.00	-0.19	-0.01	0.00	-1.01	0.03	-0.00	-0.84	0.10	-0.00	1.03
	(0.07)	(0.00)	(0.89)	(0.06)	(0.00)	(0.77)	(0.06)	(0.00)	(0.78)	(0.06)	(0.00)	(0.68)
F25TO60	-0.00	-0.00	-0.16	-0.01	0.00	-1.27*	0.01	0.00	-1.11*	-0.06	-0.00	-0.05
	(0.05)	(0.00)	(0.71)	(0.05)	(0.00)	(0.68)	(0.05)	(0.00)	(0.68)	(0.06)	(0.00)	(0.62)
HEDYRS	0.00***	0.00	0.06***	0.01***	0.00	0.06***	0.00***	0.00	0.05***	0.00***	0.00	0.04***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.02**	-0.00	-0.36***	-0.00	-0.00	-0.01	-0.00	0.00	-0.16**	0.01	0.00	-0.05
	(0.01)	(0.00)	(0.12)	(0.01)	(0.00)	(0.15)	(0.01)	(0.00)	(0.08)	(0.01)	(0.00)	(0.12)
ST	-0.02	-0.00	-0.20	-0.02*	-0.00	-0.09	0.00	0.00	-0.14	-0.01	-0.00	-0.34*
	(0.02)	(0.00)	(0.21)	(0.01)	(0.00)	(0.14)	(0.01)	(0.00)	(0.15)	(0.02)	(0.00)	(0.18)
MUSLIM	-0.04**	-0.00	-0.33	-0.03***	-0.00	-0.33**	-0.01	-0.00	-0.10	-0.02	-0.00	-0.17
	(0.02)	(0.00)	(0.21)	(0.01)	(0.00)	(0.15)	(0.01)	(0.00)	(0.11)	(0.02)	(0.00)	(0.18)
CHRISTN	-0.05*	-0.00	-0.44	0.02	0.00	0.12	0.01	-0.00	-0.05	0.02	0.00	-0.17
	(0.03)	(0.00)	(0.36)	(0.02)	(0.00)	(0.31)	(0.02)	(0.00)	(0.25)	(0.05)	(0.00)	(0.51)
CONSTANT	-0.59***		-8.54***	-0.27***		-4.85***	-0.44***		-5.50***	-0.86***		-8.52***
	(0.12)		(1.54)	(0.09)		(1.28)	(0.08)		(1.03)	(0.13)		(1.41)
Observations	1,258	1,258	1,171	1,237	1,237	1,138	2,114	2,114	1,884	1,037	1,037	943
R-squared	0.43		0.51	0.46		0.60	0.40		0.50	0.47		0.63
Elasticity	1.42			0.95			1.09			1.36		

VARIABLES	Haryana			Himachal Pradesh			Karnataka			Kerala		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.11***	0.00	0.72***	0.05***	0.00	0.29*	0.06***	0.00	0.45***	0.06***	0.00	0.45***
	(0.02)	(0.00)	(0.20)	(0.02)	(0.00)	(0.16)	(0.01)	(0.00)	(0.15)	(0.01)	(0.00)	(0.15)
LNHHSIZE	0.10***	0.00	0.92***	0.05**	0.00	0.43	0.06***	0.00	0.40***	0.06***	0.00	0.40***
	(0.02)	(0.00)	(0.23)	(0.02)	(0.00)	(0.26)	(0.01)	(0.00)	(0.14)	(0.01)	(0.00)	(0.14)
M0TO4	-0.35***	-0.00	-2.95**	-0.18	-0.00	-2.38	-0.11	-0.00	-2.64***	-0.11	-0.00	-2.64***
	(0.13)	(0.00)	(1.32)	(0.14)	(0.00)	(1.53)	(0.08)	(0.00)	(0.88)	(0.08)	(0.00)	(0.88)
M5TO9	-0.14	-0.00	1.35	0.02	-0.00	0.54	-0.05	0.00	-1.26*	-0.05	0.00	-1.26*
	(0.12)	(0.00)	(1.23)	(0.10)	(0.00)	(1.03)	(0.07)	(0.00)	(0.73)	(0.07)	(0.00)	(0.73)
M10TO14	-0.09	0.00	1.01	0.05	0.00	1.14	-0.02	0.00	-0.60	-0.02	0.00	-0.60
	(0.11)	(0.00)	(1.17)	(0.09)	(0.00)	(0.96)	(0.06)	(0.00)	(0.69)	(0.06)	(0.00)	(0.69)
M15TO19	-0.03	-0.00	2.37**	0.11	-0.00	2.14**	0.33***	0.00	3.04***	0.33***	0.00	3.04***
	(0.11)	(0.00)	(1.18)	(0.09)	(0.00)	(0.95)	(0.06)	(0.00)	(0.70)	(0.06)	(0.00)	(0.70)
M20TO24	-0.10	-0.00	1.82	0.34***	0.00	3.14***	0.09	-0.00	1.00	0.09	-0.00	1.00
	(0.12)	(0.00)	(1.25)	(0.11)	(0.00)	(1.14)	(0.07)	(0.00)	(0.81)	(0.07)	(0.00)	(0.81)
M25TO60	-0.33***	-0.00	-1.01	-0.04	-0.00	-1.13	-0.05	-0.00	-1.85**	-0.05	-0.00	-1.85**
	(0.11)	(0.00)	(1.19)	(0.09)	(0.00)	(0.90)	(0.07)	(0.00)	(0.72)	(0.07)	(0.00)	(0.72)
M61MORE	-0.14	0.00	-0.22	-0.09	0.00	-1.21	-0.14	-0.00	-2.20**	-0.14	-0.00	-2.20**
	(0.17)	(0.00)	(1.72)	(0.13)	(0.00)	(1.34)	(0.09)	(0.00)	(0.97)	(0.09)	(0.00)	(0.97)
F0TO4	-0.30**	-0.00	-2.87**	-0.19*	-0.00	-3.10**	-0.14	-0.00	-2.45***	-0.14	-0.00	-2.45***
	(0.13)	(0.00)	(1.40)	(0.12)	(0.00)	(1.21)	(0.08)	(0.00)	(0.91)	(0.08)	(0.00)	(0.91)
F5TO9	-0.15	0.00	0.12	-0.06	0.00	-0.07	-0.01	0.00	-1.12	-0.01	0.00	-1.12
	(0.12)	(0.00)	(1.25)	(0.09)	(0.00)	(0.96)	(0.07)	(0.00)	(0.74)	(0.07)	(0.00)	(0.74)
F10TO14	-0.12	-0.00	0.58	0.04	0.00	0.50	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.11)	(0.00)	(1.16)	(0.10)	(0.00)	(0.98)	(0.06)	(0.00)	(0.69)	(0.06)	(0.00)	(0.69)
F15TO19	-0.12	-0.00	1.06	0.14	-0.00	1.83**	0.16**	-0.00	1.75**	0.16**	-0.00	1.75**
	(0.11)	(0.00)	(1.16)	(0.09)	(0.00)	(0.91)	(0.07)	(0.00)	(0.72)	(0.07)	(0.00)	(0.72)
F20TO24	0.10	-0.00	1.93	0.28***	0.00	2.24**	0.05	0.00	0.54	0.05	0.00	0.54
	(0.12)	(0.00)	(1.27)	(0.10)	(0.00)	(1.03)	(0.08)	(0.00)	(0.80)	(0.08)	(0.00)	(0.80)
F25TO60	-0.03	-0.00	0.52	-0.00	-0.00	0.07	-0.09	0.00	-1.58**	-0.09	0.00	-1.58**
	(0.11)	(0.00)	(1.15)	(0.09)	(0.00)	(0.98)	(0.06)	(0.00)	(0.65)	(0.06)	(0.00)	(0.65)
HEDYRS	0.00***	0.00	0.03**	0.00***	0.00	0.03**	0.00***	0.00	0.03***	0.00***	0.00	0.03***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.03*	0.00	-0.45***	-0.04**	0.00	-0.39**	-0.06***	-0.00	-0.76***	-0.06***	-0.00	-0.76***
	(0.02)	(0.00)	(0.16)	(0.02)	(0.00)	(0.17)	(0.01)	(0.00)	(0.13)	(0.01)	(0.00)	(0.13)
ST	0.10*	0.00	0.28	0.00	0.00	0.04	-0.03*	-0.00	-0.30*	-0.03*	-0.00	-0.30*
	(0.05)	(0.00)	(0.57)	(0.03)	(0.00)	(0.28)	(0.02)	(0.00)	(0.18)	(0.02)	(0.00)	(0.18)
MUSLIM	-0.09***	-0.00	-1.74***	-0.11	-0.25	-1.08	-0.01	0.00	-0.20	-0.01	0.00	-0.20
	(0.03)	(0.00)	(0.35)	(0.07)	(4.12)	(0.87)	(0.02)	(0.00)	(0.17)	(0.02)	(0.00)	(0.17)
CHRISTN	-0.03	0.00	-0.45	0.00		0.00	-0.03	0.00	-0.42	-0.03	0.00	-0.42
	(0.07)	(0.00)	(0.74)	(0.00)		(0.00)	(0.04)	(0.00)	(0.44)	(0.04)	(0.00)	(0.44)
CONSTANT	-0.87***		-10.58***	-0.39**		-5.78***	-0.50***		-8.30***	-0.50***		-8.30***
	(0.20)		(2.14)	(0.18)		(1.87)	(0.14)		(1.47)	(0.14)		(1.47)
Observations	469	469	427	401	401	386	987	987	926	987	987	926
R-squared	0.53		0.59	0.53		0.57	0.40		0.51	0.40		0.51
Elasticity	1.40			1.15			1.38			1.00		

	Madhya Pradesh			Maharashtra			Odisha			Punjab		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.06***	0.00	0.40***	0.05***	0.00	0.38***	0.06***	0.00	0.24**	0.07***	0.00	0.59***
	(0.01)	(0.00)	(0.09)	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.12)	(0.02)	(0.00)	(0.15)
LNHHSIZE	0.04***	0.00	0.33***	0.05***	0.00	0.43***	0.04***	0.00	0.01	0.04*	0.00	0.28
	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.11)	(0.01)	(0.00)	(0.14)	(0.02)	(0.00)	(0.23)
M0TO4	-0.11**	-0.00	-2.39***	-0.23***	-0.00	-4.06***	-0.05	-0.00	-1.93**	-0.45***	0.00	-5.68***
	(0.05)	(0.00)	(0.70)	(0.06)	(0.00)	(0.66)	(0.07)	(0.00)	(0.77)	(0.14)	(0.00)	(1.42)
M5TO9	-0.00	0.00	-0.89	-0.09*	0.00	-1.60***	-0.05	0.00	-1.40**	-0.10	0.00	-1.45
	(0.05)	(0.00)	(0.65)	(0.05)	(0.00)	(0.58)	(0.06)	(0.00)	(0.71)	(0.12)	(0.00)	(1.18)
M10TO14	0.05	0.00	0.76	-0.02	0.00	-0.34	0.06	0.00	0.71	-0.22*	0.00	-2.29**
	(0.05)	(0.01)	(0.64)	(0.05)	(0.00)	(0.55)	(0.06)	(0.00)	(0.67)	(0.11)	(0.00)	(1.15)
M15TO19	0.11**	0.00	2.29***	0.16***	0.00	2.18***	0.24***	-0.00	2.26***	-0.07	0.00	-0.70
	(0.05)	(0.00)	(0.65)	(0.05)	(0.00)	(0.54)	(0.06)	(0.00)	(0.69)	(0.11)	(0.00)	(1.17)
M20TO24	0.11**	-0.00	1.31*	0.13**	-0.00	1.42**	0.07	-0.00	0.72	-0.14	-0.00	-1.33
	(0.05)	(0.00)	(0.72)	(0.05)	(0.00)	(0.61)	(0.06)	(0.00)	(0.77)	(0.11)	(0.00)	(1.20)
M25TO60	-0.08	0.00	-1.41**	-0.11**	-0.00	-1.77***	0.01	-0.00	-0.57	-0.35***	-0.00	-2.53**
	(0.05)	(0.00)	(0.70)	(0.05)	(0.00)	(0.58)	(0.06)	(0.00)	(0.72)	(0.12)	(0.00)	(1.19)
M61MORE	0.01	0.00	-0.70	-0.06	0.00	-1.30*	-0.00	-0.00	-0.45	-0.13	0.00	-1.35
	(0.07)	(0.00)	(0.96)	(0.07)	(0.00)	(0.75)	(0.08)	(0.00)	(0.97)	(0.15)	(0.00)	(1.57)
F0TO4	-0.12**	0.00	-2.91***	-0.17***	-0.00	-3.39***	-0.10	-0.00	-1.99**	-0.43***	-0.00	-5.77***
	(0.05)	(0.00)	(0.70)	(0.06)	(0.00)	(0.69)	(0.07)	(0.00)	(0.77)	(0.14)	(0.00)	(1.44)
F5TO9	-0.02	0.00	-0.67	-0.07	0.00	-2.02***	0.02	0.00	-0.80	-0.11	0.00	-1.98
	(0.05)	(0.00)	(0.65)	(0.05)	(0.00)	(0.60)	(0.06)	(0.00)	(0.71)	(0.12)	(0.00)	(1.23)
F10TO14	0.02	0.00	0.15	-0.05	0.00	-0.35	0.06	0.00	0.26	-0.08	0.00	-1.24
	(0.05)	(0.01)	(0.63)	(0.05)	(0.00)	(0.56)	(0.06)	(0.00)	(0.67)	(0.11)	(0.00)	(1.09)
F15TO19	0.07	0.00	1.96***	0.08	0.00	1.84***	0.12**	-0.00	1.70**	0.06	0.00	-0.28
	(0.05)	(0.00)	(0.63)	(0.05)	(0.00)	(0.56)	(0.06)	(0.00)	(0.69)	(0.11)	(0.00)	(1.12)
F20TO24	0.06	-0.00	0.63	0.15***	-0.00	1.10*	-0.03	-0.00	0.17	0.17	-0.00	-0.08
	(0.05)	(0.00)	(0.73)	(0.06)	(0.00)	(0.67)	(0.07)	(0.00)	(0.82)	(0.12)	(0.00)	(1.20)
F25TO60	0.03	-0.00	-0.50	-0.00	0.00	-0.61	0.00	-0.00	-0.60	-0.02	0.00	-0.37
	(0.05)	(0.00)	(0.63)	(0.05)	(0.00)	(0.54)	(0.06)	(0.00)	(0.69)	(0.11)	(0.00)	(1.11)
HEDYRS	0.00***	0.00	0.05***	0.00***	0.00	0.05***	0.00***	0.00	0.05***	0.01***	0.00	0.06***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.01*	0.00	-0.17*	-0.01	-0.00	-0.14	-0.01	-0.00	-0.19*	-0.05***	-0.00	-0.63***
	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.11)	(0.01)	(0.00)	(0.15)
ST	-0.02**	-0.00	-0.11	-0.02	0.00	-0.45***	-0.01	-0.00	-0.19	0.01	0.00	0.20
	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.13)	(0.01)	(0.00)	(0.13)	(0.08)	(0.00)	(0.75)
MUSLIM	-0.01	-0.00	0.16	-0.05***	-0.00	-0.45***	-0.03	0.00	-0.66	-0.07	0.00	-0.33
	(0.02)	(0.00)	(0.24)	(0.01)	(0.00)	(0.16)	(0.05)	(0.00)	(0.68)	(0.07)	(0.00)	(0.72)
CHRISTN	-0.00	-0.00	0.48	-0.07	0.00	-3.29***	0.01	-0.00	0.32	-0.02	-0.00	0.36
	(0.03)	(0.00)	(0.40)	(0.08)	(0.00)	(0.84)	(0.03)	(0.00)	(0.36)	(0.05)	(0.00)	(0.50)
CONSTANT	-0.44***		-6.50***	-0.42***		-6.13***	-0.53***		-4.62***	-0.37*		-6.88***
	(0.08)		(1.13)	(0.10)		(1.14)	(0.11)		(1.22)	(0.19)		(1.90)
Observations	1,947	1,947	1,729	1,770	1,770	1,609	1,181	1,181	1,080	481	481	439
R-squared	0.45		0.58	0.44		0.61	0.43		0.54	0.50		0.54
Elasticity	1.18			1.22			1.17			1.45		

	Rajasthan			Tamil Nadu			Uttar Pradesh			West Bengal		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.09***	0.00	0.70***	0.14***	0.00	1.08***	0.05***	0.00	0.35***	0.02***	0.00	0.04
	(0.01)	(0.00)	(0.11)	(0.01)	(0.00)	(0.15)	(0.00)	(0.00)	(0.07)	(0.01)	(0.00)	(0.08)
LNHHSIZE	0.05***	0.00	0.38***	0.12***	0.00	0.85***	0.05***	0.00	0.38***	0.04***	0.00	0.12
	(0.01)	(0.00)	(0.11)	(0.02)	(0.00)	(0.19)	(0.01)	(0.00)	(0.08)	(0.01)	(0.00)	(0.09)
M0TO4	-0.17**	-0.00	-2.80***	-0.14	0.00	-1.72*	-0.14***	-0.00	-1.82***	-0.17***	-0.00	-2.42***
	(0.07)	(0.00)	(0.72)	(0.09)	(0.00)	(0.95)	(0.04)	(0.00)	(0.51)	(0.05)	(0.00)	(0.53)
M5TO9	-0.09	0.00	-0.87	-0.10	0.00	-1.49**	-0.08**	0.00	-0.53	-0.10**	0.00	-1.39***
	(0.06)	(0.00)	(0.68)	(0.07)	(0.00)	(0.75)	(0.03)	(0.00)	(0.47)	(0.04)	(0.00)	(0.46)
M10TO14	0.01	0.00	0.08	-0.13*	0.00	-1.21*	-0.02	0.00	0.19	0.04	0.00	0.55
	(0.06)	(0.00)	(0.65)	(0.07)	(0.00)	(0.72)	(0.03)	(0.00)	(0.46)	(0.04)	(0.00)	(0.44)
M15TO19	0.08	0.00	1.19*	0.16**	0.00	1.74**	0.07**	-0.00	1.74***	0.06	-0.00	1.00**
	(0.06)	(0.00)	(0.66)	(0.07)	(0.00)	(0.73)	(0.03)	(0.00)	(0.47)	(0.04)	(0.00)	(0.44)
M20TO24	0.03	-0.00	0.53	0.14	0.00	0.68	0.00	-0.00	0.84	0.02	-0.00	0.45
	(0.06)	(0.00)	(0.70)	(0.09)	(0.00)	(0.94)	(0.04)	(0.00)	(0.51)	(0.04)	(0.00)	(0.50)
M25TO60	-0.04	-0.00	-1.12	-0.15**	0.00	-1.53**	-0.12***	-0.00	-1.41***	-0.06	-0.00	-0.81*
	(0.07)	(0.00)	(0.69)	(0.07)	(0.00)	(0.72)	(0.03)	(0.00)	(0.48)	(0.04)	(0.00)	(0.46)
M61MORE	-0.13	-0.00	-1.54	-0.21**	0.00	-2.74***	-0.10**	-0.00	0.19	-0.11**	-0.00	-1.16**
	(0.09)	(0.00)	(1.00)	(0.09)	(0.00)	(1.05)	(0.05)	(0.00)	(0.66)	(0.05)	(0.00)	(0.58)
F0TO4	-0.21***	-0.00	-2.59***	-0.21**	-0.00	-3.30***	-0.16***	-0.00	-2.19***	-0.16***	-0.00	-2.30***
	(0.07)	(0.00)	(0.71)	(0.08)	(0.00)	(0.93)	(0.04)	(0.00)	(0.50)	(0.05)	(0.00)	(0.51)
F5TO9	-0.09	0.00	-0.85	-0.09	0.00	-1.32*	-0.09***	0.00	-0.71	-0.10**	0.00	-1.70***
	(0.07)	(0.00)	(0.69)	(0.07)	(0.00)	(0.77)	(0.03)	(0.00)	(0.47)	(0.04)	(0.00)	(0.46)
F10TO14	-0.06	0.00	-0.25	-0.11*	0.00	-0.93	-0.02	0.00	0.39	0.07*	0.00	1.07**
	(0.06)	(0.00)	(0.64)	(0.07)	(0.00)	(0.71)	(0.03)	(0.00)	(0.46)	(0.04)	(0.00)	(0.43)
F15TO19	-0.09	-0.00	0.11	0.15**	0.00	1.96**	0.02	-0.00	1.02**	0.08*	-0.00	1.41***
	(0.06)	(0.00)	(0.68)	(0.07)	(0.00)	(0.77)	(0.03)	(0.00)	(0.47)	(0.04)	(0.00)	(0.45)
F20TO24	-0.08	-0.00	-0.14	-0.10	0.00	-1.25	-0.01	-0.00	0.16	-0.05	-0.00	-0.97*
	(0.07)	(0.00)	(0.77)	(0.08)	(0.00)	(0.91)	(0.04)	(0.00)	(0.54)	(0.05)	(0.00)	(0.53)
F25TO60	-0.10	-0.00	-0.51	0.03	0.00	0.30	-0.03	-0.00	-0.10	-0.05	0.00	-0.74
	(0.06)	(0.00)	(0.66)	(0.07)	(0.00)	(0.73)	(0.03)	(0.00)	(0.48)	(0.04)	(0.00)	(0.46)
HEDYRS	0.00***	0.00	0.03***	0.00***	-0.00	0.06***	0.00***	0.00	0.05***	0.00***	0.00	0.03***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
SC	-0.02**	-0.00	-0.42***	-0.04***	-0.00	-0.45***	-0.02***	0.00	-0.34***	-0.01	0.00	--0.08
	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.12)	(0.00)	(0.00)	(0.06)	(0.01)	(0.00)	(0.07)
ST	-0.00	0.00	-0.29**	0.03	0.00	-0.08	-0.01	-0.00	0.03	-0.01	-0.00	-0.16
	(0.01)	(0.00)	(0.15)	(0.04)	(0.00)	(0.47)	(0.01)	(0.00)	(0.19)	(0.01)	(0.00)	(0.12)
MUSLIM	-0.03	-0.00	-0.52***	-0.07***	0.00	-0.67**	-0.03***	-0.00	-0.31***	-0.01	-0.00	-0.06
	(0.02)	(0.00)	(0.20)	(0.03)	(0.00)	(0.30)	(0.01)	(0.00)	(0.09)	(0.01)	(0.00)	(0.10)
CHRISTN	0.00		0.00	0.04	-0.00	0.72**	-0.07	0.00	0.13	0.03	-0.00	0.31
	(0.00)		(0.00)	(0.03)	(0.00)	(0.29)	(0.10)	(0.00)	(1.28)	(0.03)	(0.00)	(0.29)
CONSTANT	-0.73***		-8.34***	-1.18***		-12.74***	-0.36***		-6.96***	-0.16**		-3.16***
	(0.12)		(1.36)	(0.14)		(1.53)	(0.06)		(0.86)	(0.08)		(0.89)
Observations	1,210	1,210	1,087	1,124	1,124	1,080	3,875	3,875	3,416	1,858	1,858	1,711
R-squared	0.45		0.55	0.49		0.52	0.45		0.52	0.39		0.52
Elasticity	1.24			1.90			1.12			0.88		

Note: The elasticity of education expenditure with respect to log of per capita expenditure (LNPCE), the proxy for smoothed income, is greater than unity for all the states except Assam (0.95), Kerala (1.00) and West Bengal (0.88), i.e. education is a luxury good in rural India in most of the major states. Standard errors are reported in parenthesis. The p-values of the difference in marginal effect between the male and female demographic variable in each of the above equations has been calculated using bootstrapping with 500 iterations, and these p-values have been reported in Table 6.

Appendix Table A2

Village Fixed Effects regressions of (a) the budget share of education (ESHARE); (b) binary probit of any (positive) education expenditure (ANYEDEXP); and (c) OLS of log of budget share of education (LNESHARE), conditional on positive education expenditure. Household level data, NSS 52nd Round, 1995-96

	Andhra Pradesh			Assam			Bihar			Gujarat		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.05***	0.03	0.69***	0.06***	0.03	0.06	0.06***	0.23	0.29***	0.03***	0.01	0.07
	(0.01)	(0.04)	(0.12)	(0.01)	(0.02)	(0.12)	(0.01)	(0.18)	(0.09)	(0.01)	(0.01)	(0.15)
LNHHSIZE	0.01**	0.03	0.03	0.05***	0.03	0.02	0.03***	0.28	0.08	0.02***	0.02	0.05
	(0.01)	(0.05)	(0.10)	(0.01)	(0.02)	(0.09)	(0.00)	(0.22)	(0.06)	(0.01)	(0.01)	(0.11)
M0TO4	-0.13***	-0.11	-2.41***	-0.08	-0.00	-1.61**	-0.08**	-0.17	-1.32**	-0.05	-0.01	-0.84
	(0.03)	(0.18)	(0.64)	(0.05)	(0.02)	(0.63)	(0.03)	(0.18)	(0.53)	(0.04)	(0.02)	(0.69)
M5TO9	-0.13***	0.05	-3.56***	-0.11**	0.06	-2.84***	-0.16***	0.17	-3.58***	-0.05	0.03	-1.88***
	(0.03)	(0.07)	(0.55)	(0.05)	(0.04)	(0.61)	(0.03)	(0.18)	(0.51)	(0.04)	(0.02)	(0.63)
M10TO14	-0.06*	0.06	-1.40**	0.02	0.09	-0.94	-0.03	0.73	-1.46***	0.04	0.06	-0.32
	(0.03)	(0.08)	(0.55)	(0.05)	(0.06)	(0.60)	(0.03)	(0.59)	(0.50)	(0.04)	(0.04)	(0.61)
M15TO19	-0.08***	-0.02	-1.57***	0.08	0.05	-0.26	0.02	0.25	-0.20	0.08*	0.02	0.24
	(0.03)	(0.05)	(0.57)	(0.05)	(0.04)	(0.61)	(0.03)	(0.24)	(0.51)	(0.04)	(0.02)	(0.63)
M20TO24	-0.16***	-0.17	-1.75**	-0.05	0.01	-0.23	-0.14***	-0.33	-1.72***	-0.07	-0.04	-0.24
	(0.04)	(0.26)	(0.70)	(0.06)	(0.02)	(0.67)	(0.03)	(0.29)	(0.58)	(0.05)	(0.03)	(0.81)
M25TO60	-0.12***	-0.08	-1.76***	0.03	0.03	-0.50	-0.08**	-0.19	-1.44***	-0.01	-0.03	0.93
	(0.03)	(0.13)	(0.60)	(0.05)	(0.03)	(0.62)	(0.03)	(0.20)	(0.52)	(0.04)	(0.02)	(0.67)
M61MORE	-0.07*	-0.11	-1.11	-0.04	0.02	-0.48	-0.03	-0.03	-1.04	0.08	-0.00	1.01
	(0.04)	(0.17)	(0.87)	(0.07)	(0.03)	(0.76)	(0.04)	(0.17)	(0.69)	(0.06)	(0.02)	(0.93)
F0TO4	-0.14***	-0.09	-2.82***	-0.04	0.01	-0.78	-0.09***	-0.23	-1.45***	-0.06	-0.01	-1.20*
	(0.03)	(0.15)	(0.65)	(0.05)	(0.02)	(0.63)	(0.03)	(0.22)	(0.51)	(0.04)	(0.02)	(0.71)
F5TO9	-0.13***	0.04	-3.38***	-0.09*	0.05	-2.56***	-0.17***	0.02	-3.22***	-0.06	0.02	-2.50***
	(0.03)	(0.06)	(0.56)	(0.05)	(0.04)	(0.61)	(0.03)	(0.13)	(0.50)	(0.04)	(0.02)	(0.64)
F10TO14	-0.09***	0.01	-2.01***	0.02	0.08	-0.75	-0.08**	0.30	-2.16***	-0.00	0.05	-0.51
	(0.03)	(0.03)	(0.56)	(0.05)	(0.05)	(0.60)	(0.03)	(0.27)	(0.51)	(0.04)	(0.03)	(0.62)
F15TO19	-0.17***	-0.07	-2.36***	-0.01	0.01	-0.18	-0.14***	-0.16	-2.97***	-0.03	-0.01	-0.53
	(0.03)	(0.12)	(0.60)	(0.05)	(0.02)	(0.62)	(0.03)	(0.18)	(0.53)	(0.04)	(0.02)	(0.65)
F20TO24	-0.14***	-0.09	-1.97**	0.07	0.03	0.12	-0.05	-0.04	-0.50	-0.07	-0.03	0.20
	(0.04)	(0.15)	(0.81)	(0.06)	(0.03)	(0.70)	(0.04)	(0.15)	(0.59)	(0.05)	(0.03)	(0.82)
F25TO60	-0.08***	-0.06	-1.18**	0.01	0.03	-0.62	-0.06**	0.15	-0.98**	-0.03	0.01	-0.62
	(0.03)	(0.10)	(0.55)	(0.05)	(0.03)	(0.62)	(0.03)	(0.17)	(0.50)	(0.04)	(0.02)	(0.66)
HEDYRS	0.00***	0.00	0.05***	0.00***	0.00	0.05***	0.00***	0.01	0.03***	0.00***	0.00	0.04***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.02***	-0.01	-0.26***	0.01	0.00	-0.02	-0.01**	-0.06	-0.11*	0.01	0.00	0.16
	(0.00)	(0.02)	(0.09)	(0.01)	(0.00)	(0.09)	(0.00)	(0.05)	(0.06)	(0.01)	(0.00)	(0.11)
ST	-0.03***	-0.10	-0.61***	0.00	0.00	-0.05	-0.00	-0.01	-0.00	-0.02	-0.01	0.02
	(0.01)	(0.12)	(0.21)	(0.01)	(0.00)	(0.11)	(0.01)	(0.03)	(0.13)	(0.01)	(0.01)	(0.15)
CONSTANT	-0.26***		-6.66***	-0.44***		-1.85	-0.38***		-3.79***	-0.23**		-4.45***
	(0.07)		(1.23)	(0.10)		(1.19)	(0.06)		(0.97)	(0.09)		(1.52)
Observations	2,244	2,244	1,694	1,475	1,475	1,121	3,292	3,292	2,221	1,160	1,160	917
R-squared	0.47		0.59	0.53		0.71	0.45		0.56	0.45		0.64
Elasticity	1.68			1.06			1.29			1.08		

	Haryana			Himachal Pradesh			Karnataka			Kerala		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.01	0.00	-0.18	0.00	0.00	-0.17	0.01	0.01	-0.01	0.00	0.00	-0.23***
	(0.01)	(0.02)	(0.13)	(0.02)	(0.00)	(0.10)	(0.01)	(0.02)	(0.14)	(0.01)	(0.00)	(0.09)
LNHHSIZE	0.04***	0.00	0.07	0.05***	0.00	0.04	0.00	0.01	-0.16	0.04***	0.00	-0.02
	(0.01)	(0.03)	(0.13)	(0.01)	(0.00)	(0.07)	(0.01)	(0.02)	(0.11)	(0.01)	(0.00)	(0.09)
M0TO4	-0.07	0.00	-1.97**	-0.10	-0.00	-0.49	-0.15***	-0.02	-2.99***	-0.09	0.00	-1.61***
	(0.09)	(0.02)	(0.85)	(0.07)	(0.00)	(0.48)	(0.05)	(0.02)	(0.85)	(0.06)	(0.00)	(0.51)
M5TO9	-0.07	0.01	-2.70***	-0.12*	0.00	-1.81***	-0.17***	0.04	-5.15***	-0.16***	0.00	-3.02***
	(0.09)	(0.07)	(0.81)	(0.06)	(0.00)	(0.41)	(0.04)	(0.04)	(0.78)	(0.05)	(0.00)	(0.45)
M10TO14	0.01	0.01	-1.79**	0.15***	0.00	0.31	-0.00	0.06	-1.45*	-0.03	0.00	-1.56***
	(0.09)	(0.14)	(0.77)	(0.06)	(0.00)	(0.39)	(0.04)	(0.06)	(0.77)	(0.05)	(0.00)	(0.41)
M15TO19	-0.10	0.00	-2.31***	0.15**	0.00	0.57	-0.05	0.01	-1.45*	-0.06	0.00	-1.27***
	(0.09)	(0.04)	(0.81)	(0.06)	(0.00)	(0.40)	(0.04)	(0.02)	(0.77)	(0.05)	(0.00)	(0.43)
M20TO24	-0.16*	-0.00	-2.54***	-0.01	-0.00	0.34	-0.10**	-0.03	-1.55*	-0.19***	-0.00	-0.93*
	(0.09)	(0.02)	(0.91)	(0.07)	(0.00)	(0.47)	(0.05)	(0.03)	(0.87)	(0.05)	(0.00)	(0.52)
M25TO60	0.00	-0.00	-0.62	-0.01	0.00	-0.11	-0.10**	-0.01	-1.55*	-0.04	-0.00	-0.80*
	(0.09)	(0.01)	(0.86)	(0.06)	(0.00)	(0.40)	(0.04)	(0.02)	(0.79)	(0.05)	(0.00)	(0.42)
M61MORE	0.07	0.00	-0.49	0.01	0.00	0.31	-0.06	0.00	-1.76*	-0.09	-0.00	-0.99
	(0.13)	(0.04)	(1.14)	(0.08)	(0.00)	(0.52)	(0.06)	(0.02)	(1.05)	(0.07)	(0.00)	(0.61)
F0TO4	-0.21**	-0.00	-2.78***	-0.04	0.00	-0.24	-0.13***	-0.02	-2.99***	-0.11*	0.00	-2.01***
	(0.10)	(0.04)	(0.92)	(0.07)	(0.00)	(0.44)	(0.04)	(0.02)	(0.82)	(0.06)	(0.00)	(0.54)
F5TO9	-0.12	0.01	-2.68***	-0.08	0.00	-1.55***	-0.15***	0.02	-3.44***	-0.13**	0.00	-2.67***
	(0.09)	(0.10)	(0.81)	(0.06)	(0.00)	(0.41)	(0.04)	(0.03)	(0.76)	(0.05)	(0.00)	(0.46)
F10TO14	-0.02	0.01	-1.76**	0.10	0.00	0.25	-0.07	0.03	-1.99***	-0.02	0.00	-1.49***
	(0.09)	(0.11)	(0.85)	(0.06)	(0.00)	(0.41)	(0.04)	(0.04)	(0.75)	(0.05)	(0.00)	(0.42)
F15TO19	-0.22**	-0.00	-2.63***	0.01	0.00	-0.24	-0.13***	-0.01	-2.33***	-0.06	0.00	-1.18***
	(0.09)	(0.03)	(0.86)	(0.06)	(0.00)	(0.40)	(0.04)	(0.02)	(0.80)	(0.05)	(0.00)	(0.42)
F20TO24	-0.03	0.00	-1.20	0.04	0.00	0.37	-0.09*	-0.03	-1.16	-0.19***	-0.00	-1.48***
	(0.12)	(0.03)	(1.11)	(0.08)	(0.00)	(0.53)	(0.05)	(0.04)	(0.90)	(0.06)	(0.00)	(0.57)
F25TO60	0.02	0.00	-0.63	0.09	0.00	0.41	-0.11***	-0.02	-1.91**	-0.03	0.00	-0.98**
	(0.09)	(0.03)	(0.87)	(0.06)	(0.00)	(0.40)	(0.04)	(0.03)	(0.79)	(0.05)	(0.00)	(0.45)
HEDYRS	0.00**	0.00	0.02**	0.00	0.00	0.01	0.00***	0.00	0.05***	0.00***	0.00	0.04***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.02	-0.00	-0.14	-0.01	0.00	-0.12*	-0.01	0.00	-0.33***	-0.03***	-0.00	-0.05
	(0.01)	(0.00)	(0.10)	(0.01)	(0.00)	(0.07)	(0.01)	(0.00)	(0.11)	(0.01)	(0.00)	(0.09)
ST	0.00		0.00	-0.00	-0.01	0.11	-0.01	-0.01	-0.36**	-0.03	-0.00	-0.63***
	(0.00)		(0.00)	(0.03)	(0.10)	(0.23)	(0.01)	(0.01)	(0.14)	(0.03)	(0.00)	(0.22)
CONSTANT	0.00		0.95	-0.06		-1.54	0.08		-0.44	-0.03		0.10
	(0.14)		(1.29)	(0.14)		(0.98)	(0.08)		(1.49)	(0.11)		(0.95)
Observations	504	504	411	757	757	667	1,218	1,218	954	1,099	1,099	953
R-squared	0.39		0.39	0.41		0.56	0.42		0.62	0.45		0.58
Elasticity	0.84			0.79			1.03			0.73		

	Madhya Pradesh			Maharashtra			Odisha			Punjab		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.04***	0.10	0.14	0.01	0.00	-0.07	0.05***	0.18	0.40***	0.08***	0.00	0.28**
	(0.01)	(0.10)	(0.10)	(0.01)	(0.00)	(0.09)	(0.01)	(0.15)	(0.12)	(0.01)	(0.00)	(0.13)
LNHHSIZE	0.03***	0.10	0.25***	0.03***	0.00	0.19**	0.05***	0.23	0.21**	0.07***	0.00	0.35***
	(0.00)	(0.10)	(0.07)	(0.01)	(0.00)	(0.07)	(0.01)	(0.19)	(0.09)	(0.01)	(0.00)	(0.12)
M0TO4	-0.02	-0.12	-0.14	-0.09**	-0.00	-0.70	-0.06	-0.17	0.40	-0.10	-0.00	-1.25*
	(0.03)	(0.14)	(0.52)	(0.03)	(0.00)	(0.46)	(0.04)	(0.19)	(0.70)	(0.08)	(0.00)	(0.70)
M5TO9	-0.09***	0.09	-1.95***	-0.09***	0.01	-1.46***	-0.08**	0.28	-1.37**	-0.04	0.00	-1.43**
	(0.03)	(0.10)	(0.48)	(0.03)	(0.01)	(0.42)	(0.04)	(0.26)	(0.61)	(0.07)	(0.00)	(0.62)
M10TO14	0.04	0.27	0.34	0.03	0.02	0.21	0.05	0.52	0.33	0.08	0.00	-0.06
	(0.03)	(0.29)	(0.47)	(0.03)	(0.02)	(0.40)	(0.04)	(0.45)	(0.60)	(0.07)	(0.00)	(0.62)
M15TO19	0.06**	0.09	0.98**	0.02	0.01	0.48	0.06	0.20	1.78***	-0.02	0.00	-0.28
	(0.03)	(0.11)	(0.48)	(0.03)	(0.01)	(0.42)	(0.04)	(0.21)	(0.63)	(0.07)	(0.00)	(0.63)
M20TO24	-0.06*	-0.15	0.36	-0.08**	-0.01	0.20	-0.07*	-0.21	-0.07	-0.17**	-0.00	-0.63
	(0.03)	(0.17)	(0.58)	(0.04)	(0.01)	(0.50)	(0.04)	(0.22)	(0.73)	(0.08)	(0.00)	(0.74)
M25TO60	0.01	-0.04	0.57	-0.02	0.00	0.20	-0.02	-0.05	0.54	-0.06	0.00	0.09
	(0.03)	(0.06)	(0.52)	(0.03)	(0.00)	(0.42)	(0.04)	(0.13)	(0.65)	(0.07)	(0.00)	(0.66)
M61MORE	0.07*	-0.08	1.31*	-0.05	-0.00	0.25	-0.02	-0.05	1.12	-0.04	0.00	-0.25
	(0.04)	(0.11)	(0.73)	(0.04)	(0.00)	(0.56)	(0.05)	(0.16)	(0.84)	(0.10)	(0.00)	(0.86)
F0TO4	-0.04	-0.08	-0.25	-0.08**	-0.00	-1.02**	-0.09**	-0.17	-0.87	-0.10	-0.00	-0.99
	(0.03)	(0.10)	(0.52)	(0.03)	(0.00)	(0.46)	(0.04)	(0.19)	(0.70)	(0.08)	(0.00)	(0.73)
F5TO9	-0.10***	0.01	-1.96***	-0.09***	0.01	-1.84***	-0.09**	0.32	-1.74***	-0.09	0.00	-1.64**
	(0.03)	(0.05)	(0.49)	(0.03)	(0.01)	(0.42)	(0.04)	(0.29)	(0.64)	(0.07)	(0.00)	(0.65)
F10TO14	-0.01	0.10	-0.18	0.02	0.01	0.06	-0.04	0.38	-0.30	0.01	0.00	-0.38
	(0.03)	(0.11)	(0.48)	(0.03)	(0.01)	(0.40)	(0.04)	(0.34)	(0.64)	(0.07)	(0.00)	(0.61)
F15TO19	-0.06**	-0.05	-0.18	-0.07*	-0.00	-0.36	-0.07*	0.04	-0.32	-0.07	0.00	-0.69
	(0.03)	(0.07)	(0.51)	(0.03)	(0.00)	(0.46)	(0.04)	(0.12)	(0.66)	(0.07)	(0.00)	(0.63)
F20TO24	0.03	-0.08	0.93	-0.02	-0.00	0.26	-0.03	-0.28	0.57	-0.11	-0.00	-0.31
	(0.03)	(0.10)	(0.61)	(0.04)	(0.01)	(0.59)	(0.05)	(0.27)	(0.77)	(0.07)	(0.00)	(0.71)
F25TO60	0.03	0.02	1.01**	0.00	0.00	0.04	0.02	0.12	0.79	-0.04	-0.00	0.45
	(0.03)	(0.05)	(0.50)	(0.03)	(0.00)	(0.42)	(0.04)	(0.15)	(0.62)	(0.07)	(0.00)	(0.67)
HEDYRS	0.00***	0.00	0.04***	0.00***	0.00	0.02***	0.00***	0.01	0.04***	0.00***	0.00	0.04***
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
SC	-0.00	0.00	-0.02	0.00	0.00	0.04	-0.01	0.01	-0.04	-0.00	0.00	-0.10
	(0.00)	(0.01)	(0.07)	(0.01)	(0.00)	(0.06)	(0.01)	(0.02)	(0.09)	(0.01)	(0.00)	(0.08)
ST	-0.01**	-0.04	-0.00	-0.01**	-0.00	-0.04	-0.01	-0.11	-0.19*	-0.10	-0.98***	0.00
	(0.00)	(0.04)	(0.08)	(0.01)	(0.00)	(0.09)	(0.01)	(0.09)	(0.11)	(0.10)	(0.01)	(0.00)
CONSTANT	-0.32***		-4.84***	-0.03		-2.16**	-0.41***		-6.59***	-0.63***		-4.61***
	(0.06)		(1.05)	(0.07)		(0.98)	(0.09)		(1.40)	(0.15)		(1.38)
Observations	2,475	2,475	1,782	1,914	1,914	1,527	1,462	1,462	1,014	987	987	821
R-squared	0.49		0.60	0.47		0.58	0.49		0.61	0.42		0.50
Elasticity	1.13			0.94			1.37			1.26		

	Rajasthan			Tamil Nadu			Uttar Pradesh			West Bengal		
	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)	Unconditional OLS(ESHARE)	Probit (ANYEDEXP)	Conditional OLS(LNESHARE)
VARIABLES	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient	Coefficient	Marginal Effect	Coefficient
LNPCE	0.02***	0.02	-0.04	0.06***	0.01	0.37***	0.03***	0.01	0.10	0.14***	0.03	1.13***
	(0.01)	(0.01)	(0.12)	(0.01)	(0.02)	(0.11)	(0.01)	(0.03)	(0.06)	(0.01)	(0.02)	(0.12)
LNHHSIZE	0.03***	0.02	0.06	0.04***	0.01	0.09	0.05***	0.02	0.20***	0.06***	0.03	0.39***
	(0.01)	(0.02)	(0.08)	(0.01)	(0.02)	(0.10)	(0.00)	(0.04)	(0.05)	(0.01)	(0.02)	(0.09)
M0TO4	-0.04	-0.00	-1.22**	-0.08	-0.00	-1.29**	-0.08***	-0.02	-1.29***	-0.09*	-0.02	-1.42**
	(0.04)	(0.01)	(0.62)	(0.05)	(0.01)	(0.61)	(0.03)	(0.04)	(0.38)	(0.05)	(0.02)	(0.63)
M5TO9	-0.09**	0.04	-2.78***	-0.05	0.02	-1.81***	-0.13***	0.01	-2.96***	-0.20***	0.03	-2.84***
	(0.04)	(0.03)	(0.59)	(0.04)	(0.06)	(0.53)	(0.03)	(0.03)	(0.36)	(0.04)	(0.02)	(0.56)
M10TO14	0.02	0.07	-1.38**	0.01	0.02	-0.74	0.02	0.05	-1.23***	0.01	0.05	-0.34
	(0.04)	(0.06)	(0.58)	(0.04)	(0.06)	(0.53)	(0.03)	(0.09)	(0.35)	(0.04)	(0.03)	(0.54)
M15TO19	0.04	0.04	-0.64	0.02	0.00	-0.05	0.03	0.02	-0.48	-0.04	0.01	-0.44
	(0.04)	(0.03)	(0.59)	(0.04)	(0.01)	(0.54)	(0.03)	(0.04)	(0.36)	(0.04)	(0.02)	(0.55)
M20TO24	-0.07*	-0.03	-1.20*	-0.05	-0.01	0.26	-0.13***	-0.03	-1.92***	-0.24***	-0.05	-1.86***
	(0.04)	(0.02)	(0.69)	(0.05)	(0.03)	(0.61)	(0.03)	(0.06)	(0.43)	(0.05)	(0.04)	(0.66)
M25TO60	-0.03	-0.02	-1.05*	-0.04	0.00	-0.78	-0.07***	-0.01	-1.36***	-0.09*	-0.03	-0.31
	(0.04)	(0.02)	(0.60)	(0.04)	(0.00)	(0.55)	(0.03)	(0.03)	(0.37)	(0.05)	(0.03)	(0.59)
M61MORE	-0.00	0.00	-1.33	-0.08	-0.00	-0.44	-0.03	-0.01	-0.69	-0.10*	-0.03	-0.43
	(0.05)	(0.02)	(0.87)	(0.06)	(0.01)	(0.76)	(0.04)	(0.02)	(0.49)	(0.06)	(0.02)	(0.80)
F0TO4	-0.07*	-0.01	-1.75***	-0.09**	-0.00	-1.79***	-0.09***	-0.01	-1.66***	-0.11**	-0.04	-2.01***
	(0.04)	(0.01)	(0.63)	(0.05)	(0.02)	(0.60)	(0.03)	(0.03)	(0.37)	(0.05)	(0.03)	(0.62)
F5TO9	-0.12***	0.02	-3.26***	-0.09**	0.02	-2.45***	-0.18***	-0.00	-3.21***	-0.19***	0.02	-2.64***
	(0.04)	(0.02)	(0.61)	(0.04)	(0.05)	(0.53)	(0.03)	(0.01)	(0.36)	(0.04)	(0.02)	(0.55)
F10TO14	-0.09**	0.02	-2.48***	0.00	0.01	-0.47	-0.09***	0.00	-1.94***	-0.01	0.04	-0.81
	(0.04)	(0.02)	(0.60)	(0.04)	(0.04)	(0.52)	(0.03)	(0.01)	(0.36)	(0.04)	(0.03)	(0.55)
F15TO19	-0.12***	0.00	-2.50***	-0.11**	-0.01	-0.95*	-0.12***	-0.01	-2.24***	-0.14***	-0.03	-1.12*
	(0.04)	(0.01)	(0.64)	(0.04)	(0.02)	(0.54)	(0.03)	(0.03)	(0.38)	(0.04)	(0.02)	(0.57)
F20TO24	-0.01	0.00	-0.85	-0.07	-0.01	-0.37	-0.01	-0.01	0.03	-0.11**	-0.05	-0.04
	(0.04)	(0.01)	(0.73)	(0.05)	(0.03)	(0.68)	(0.03)	(0.03)	(0.45)	(0.05)	(0.04)	(0.70)
F25TO60	-0.01	0.00	-0.74	0.00	-0.01	0.20	-0.01	-0.00	-0.44	-0.05	-0.02	0.26
	(0.04)	(0.01)	(0.60)	(0.04)	(0.02)	(0.54)	(0.03)	(0.01)	(0.36)	(0.04)	(0.02)	(0.59)
HEDYRS	0.00***	0.00	0.02***	0.00***	0.00	0.03***	0.00***	0.00	0.03***	0.00***	0.00	0.03***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
SC	-0.00	-0.00	-0.04	-0.00	-0.00	0.03	-0.01**	-0.00	-0.11**	0.00	0.00	-0.05
	(0.00)	(0.00)	(0.08)	(0.01)	(0.00)	(0.07)	(0.00)	(0.00)	(0.04)	(0.01)	(0.00)	(0.08)
ST	-0.01	-0.00	-0.10	-0.10**	-0.00	-0.89*	-0.00	-0.00	-0.47**	0.01	-0.01	0.09
	(0.01)	(0.00)	(0.10)	(0.04)	(0.01)	(0.48)	(0.02)	(0.00)	(0.23)	(0.01)	(0.01)	(0.15)
CONSTANT	-0.17**		-1.22	-0.25***		-4.05***	-0.14**		-1.92**	-1.01***		-11.41***
	(0.08)		(1.43)	(0.09)		(1.08)	(0.06)		(0.75)	(0.09)		(1.20)
Observations	1,532	1,532	1,183	1,733	1,733	1,394	4,135	4,135	3,236	2,205	2,205	1,690
R-squared	0.45		0.51	0.42		0.57	0.42		0.52	0.47		0.53
Elasticity	0.96			1.39			1.07			2.12		

Note: In the 1995-96 (52nd round) NSS data, no information was available on religion. The elasticity of education expenditure with respect to LNPCE (log of per capita expenditure, the proxy for smoothed income), is close to unity or greater than unity for all the states except Haryana (0.84), Himachal (0.79), Kerala (0.73), Maharashtra (0.94) and Rajasthan (0.96), i.e. education expenditure is a luxury good in rural India in almost all the major states. However, in many states it has become less of a luxury good over time, i.e. the responsiveness of education expenditure to household income was high in 1995 in West Bengal (elasticity of 2.12) but fell to below unity by 2014. Standard errors are reported in the parenthesis and p-values of DME of Age 5-9, Age 10-14 & Age 15-19 are reported in Table 6.1.

Appendix Table A3(a)

Coefficient of MALE dummy in the Family Fixed Effects probit of enrolment and in the OLS of education expenditure (Individual level), NSS 2014

	Children Aged 5-9			Children Aged 10-14			Children Aged 15-19		
	Probit of ANYEDEXP	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP**	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP**	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**
States	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Andhra Pradesh	0.000	**152.30***	160.71	0.000	21.32	89.62	**0.010***	-191.49	580.61
	N.A.	(0.000)	(0.407)	(0.111)	(0.620)	(0.447)	(0.012)	(0.525)	(0.063)
Assam	-0.000	15.28	92.52	0.000	5.01	17.59	**-0.099***	186.22	55.60
	(0.799)	(0.217)	(0.162)	(0.959)	(0.787)	(0.655)	(0.020)	(0.296)	(0.730)
Bihar	**-0.008***	**64.72***	**69.56***	0.000	**96.17***	**173.64***	**0.049***	**946.89***	**977.38***
	(0.027)	(0.000)	(0.026)	(0.181)	(0.000)	(0.000)	(0.014)	(0.000)	(0.000)
Gujarat	-0.000	**32.94***	**123.59***	0.000	32.54	12.89	**0.284***	**978.54***	**902.84***
	(0.080)	(0.031)	(0.015)	(0.110)	(0.267)	(0.829)	(0.000)	(0.000)	(0.001)
Haryana	0.000	61.59	94.59	**-0.000***	106.53	**367.09***	**0.012***	**886.67***	959.27
	(1.000)	(0.219)	(0.479)	(0.000)	(0.261)	(0.012)	(0.000)	(0.019)	(0.158)
Himachal Pradesh	-0.000	27.70	-244.32	0.002	**323.43***	445.62	0.000	**981.02***	430.18
	(0.999)	(0.567)	(0.597)	(0.998)	(0.012)	(0.100)	(0.147)	(0.004)	(0.263)
Karnataka	0.000	30.46	59.23	**-0.000***	**111.11***	**311.51***	**0.023***	515.62	**1419.62***
	(1.000)	(0.106)	(0.356)	(0.035)	(0.025)	(0.018)	(0.000)	(0.081)	(0.000)
Kerala	-0.000	377.98	-193.70	0.000	-101.68	-222.62	0.000	49.30	213.38
	(1.000)	(0.178)	(0.614)	N.A.	(0.302)	(0.288)	(0.097)	(0.923)	(0.745)
Madhya Pradesh	0.000	**28.82***	**131.36***	**0.000***	**39.00***	**127.13***	**0.080***	**329.73***	**660.78***
	(0.765)	(0.047)	(0.014)	(0.010)	(0.005)	(0.003)	(0.000)	(0.002)	(0.000)
Maharashtra	-0.000	29.89	107.39	-0.000	29.55	75.90	**0.016***	235.46	**561.06***
	(0.275)	(0.229)	(0.344)	(0.225)	(0.266)	(0.278)	(0.001)	(0.230)	(0.009)
Odisha	-0.000	**29.86***	26.50	0.000	42.88	82.31	0.072	**730.83***	**480.56***
	(0.277)	(0.004)	(0.298)	(0.542)	(0.092)	(0.056)	(0.605)	(0.005)	(0.006)
Punjab	0.000	123.4	133.69	-0.000	183.91	330.09	0.005	-758.36	-782.25
	(1.000)	(0.206)	(0.472)	N.A.	(0.172)	(0.108)	(0.301)	(0.072)	(0.240)
Rajasthan	**0.000***	**43.28***	**125.58***	**0.0002***	**120.93***	**350.41***	**0.275***	**1066.10***	**1784.05***
	(0.048)	(0.039)	(0.018)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Tamil Nadu	-0.000	34.88	26.52	-0.454	16.40	140.92	-0.000	**1787.00***	**2284.67***
	(0.999)	(0.373)	(0.800)	N.A.	(0.617)	(0.312)	(0.934)	(0.000)	(0.000)
Uttar Pradesh	**0.005***	**46.10***	**74.43***	**0.000***	**100.15***	**170.90***	**0.095***	**393.97***	**613.82***
	(0.026)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Bengal	-0.000	12.91	-7.75	**-0.000***	-93.21	**-161.75***	-0.019	186.09	**399.60***
	(0.057)	(0.641)	(0.807)	(0.000)	(0.120)	(0.016)	(0.535)	(0.101)	(0.003)

Note. The first column shows the marginal effect on the MALE dummy variable in the probit equation of enrolment (any positive educational expenditure, ANYEDEXP). The regression includes, inter alia, age of student. In the conditional OLS equation fitted only for children with positive education spending, the dependent variable is the natural log of education expenditure (LNEDEXP). The coefficients on the gender dummy variables were transformed so that the marginal effects reported in col. 2 are comparable to those in col. 3, where the dependent variable is education expenditure (EDEXP) in absolute rupee rather than log rupee terms. Col. 3 pertains to the unconditional OLS of absolute education expenditure (EDEXP), fitted on all children, including those with zero education expenditure. The table shows the marginal effect on the gender dummy variable MALE. The figures in parentheses are p-values.

Appendix Table A3(b)

Coefficient on the MALE dummy variable in the Family Fixed Effects probit of enrolment and in the OLS of education expenditure (Individual level), NSS 1995

	Children Aged 5-9			**Children Aged 10-14**			**Children Aged 15-19**		
	Probit of ANYEDEXP	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP**	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**	**Probit of ANYEDEXP**	**Conditional OLS of LNEDEXP**	**Unconditional OLS of EDEXP**
States	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Andhra Pradesh	**0.033***	**11.34***	**23.84***	**0.190***	22.25	**112.99***	**0.004***	**95.04***	**255.71***
	(0.000)	(0.000)	(0.005)	(0.000)	(0.130)	(0.000)	(0.000)	(0.018)	(0.000)
Assam	0.013	-1.19	0.325	**0.0003***	14.08	**29.62***	**0.177***	28.88	**182.16***
	(0.447)	(0.807)	(0.976)	(0.000)	(0.088)	(0.011)	(0.000)	(0.294)	(0.000)
Bihar	**0.481***	6.55	**26.90***	**0.511***	**51.98***	**168.03***	**0.398***	-13.04	**258.83***
	(0.000)	(0.107)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.822)	(0.000)
Gujarat	0.000	2.87	-2.84	**0.024***	15.89	**91.23***	**0.029***	98.80	**268.01***
	(0.686)	(0.234)	(0.564)	(0.000)	(0.275)	(0.000)	(0.000)	(0.384)	(0.000)
Haryana	0.013	40.91	**66.81***	**0.000***	**117.37***	**191.97***	**0.297***	174.39	**451.57***
	(0.289)	(0.057)	(0.045)	(0.000)	(0.001)	(0.000)	(0.000)	(0.358)	(0.002)
Himachal Pradesh	-0.000	18.27	37.58	**0.000***	20.56	**87.07***	**0.062***	93.40	**224.66***
	(0.560)	(0.162)	(0.069)	(0.001)	(0.351)	(0.011)	(0.004)	(0.069)	(0.028)
Karnataka	0.0087	1.63	8.97	**0.125***	12.81	**67.95***	**0.003***	42.20	**112.77***
	(0.476)	(0.564)	(0.104)	(0.000)	(0.282)	(0.000)	(0.003)	(0.748)	(0.027)
Kerala	0.000	-10.24	22.40	0.000	-13.23	-5.58	-0.425	-82.90	-84.57
	(0.997)	(0.485)	(0.529)	(0.095)	(0.403)	(0.769)	(0.041)	(0.447)	(0.216)
Madhya Pradesh	**0.377***	0.68	9.40	**0.241***	**18.52***	**116.13***	**0.363***	**182.91***	**251.23***
	(0.000)	(0.838)	(0.071)	(0.000)	(0.003)	(0.000)	(0.000)	(0.003)	(0.000)
Maharashtra	**0.001***	11.14	**14.08***	**0.001***	14.11	**37.57***	**0.317***	**126.04***	**265.45***
	(0.005)	(0.051)	(0.041)	(0.000)	(0.227)	(0.035)	(0.000)	(0.041)	(0.000)
Odisha	**0.113***	0.63	**13.33***	**0.067***	15.88	**82.47***	**0.382***	101.80	**249.03***
	(0.001)	(0.891)	(0.043)	(0.000)	(0.210)	(0.000)	(0.000)	(0.180)	(0.001)
Punjab	**0.000***	29.79	105.59	**0.000***	**130.08***	**168.19***	**0.147***	104.13	**248.57***
	(0.035)	(0.307)	(0.056)	(0.000)	(0.000)	(0.000)	(0.000)	(0.525)	(0.013)
Rajasthan	**0.687***	**16.79***	**72.08***	**0.716***	**81.13***	**239.92***	**0.531***	223.28	**476.50***
	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.076)	(0.000)
Tamil Nadu	-0.000	-2.71	23.67	**0.0005***	20.79	**70.57***	**0.008***	-45.47	**305.60***
	(0.738)	(0.627)	(0.203)	(0.000)	(0.230)	(0.002)	(0.000)	(0.319)	(0.001)
Uttar Pradesh	**0.329***	6.25	**46.86***	**0 .151***	**62.13***	**215.06***	**0.432***	91.75	**452.01***
	(0.000)	(0.076)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.143)	(0.000)
West Bengal	**0.209***	5.48	9.04	**0.0009***	**51.69***	**73.79***	**0.378***	**165.08***	**262.67***
	(0.002)	(0.256)	(0.494)	(0.000)	(0.009)	(0.000)	(0.000)	(0.003)	(0.000)

Note: Same as Appendix Table A3(a).