

# Intergenerational Transmission of Gender Attitudes: Evidence from India

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## Abstract

This paper examines the intergenerational transmission of gender attitudes in India, a setting with severe discrimination against women and girls. We use survey data on gender attitudes (specifically, about the appropriate roles and rights of women and girls) collected from nearly 5500 adolescents attending 314 schools in the state of Haryana, and their parents. We find that when a parent holds a more discriminatory attitude, his or her child is about 11 percentage points more likely to hold the view. We find that parents hold greater sway over students' gender attitudes than their peers do, and that mothers influence children's gender attitudes more than fathers. Parental attitudes influence child attitudes more in Scheduled Caste communities and student gender attitudes are positively correlated with behaviors such as interacting with children of the opposite gender.

**Keywords:** Gender discrimination, Attitude formation, Intergenerational transmission, India.

**JEL Codes:** J12, J13, J16, O12.

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# 1 Introduction

Along many different dimensions, from life expectancy to educational attainment to decision-making power in the household, gender gaps favoring men are larger in poorer countries (Jayachandran 2015). Data on stated attitudes about gender equality follow the same pattern, with people in poorer countries more likely to endorse girls getting less education than boys and believing that violence against women is sometimes justified. Even against this backdrop, India stands out for its unequal opportunities and outcomes for women. The low status of women matters, both from a rights perspective and because of the potentially large economic consequences, for example due to lower human capital investment in the next generation (Duflo 2012).

One explanation for India's exceptionalism is that its religious and cultural institutions give families economic incentives to have fewer girls and to invest less in them. For example, under the system of patrilocal exogamy, girls join their husbands' family when they marry, while eldest sons provide for their parents and inherit the family land, providing incentives for parents to favor sons (Deininger et al. 2013; Jain 2014).

However, economic rationales seem unable to fully explain the level of gender discrimination in India. Investments in girls' health and education ought to have financial returns for parents in the form of lower dowry payments. Yet, dowry levels in most communities have not fallen despite major advances in women's educational achievement. This suggests that in addition to incentives, preferences might be systematically different in India - in line with Becker (1971)'s 'taste for discrimination'. A preference-based explanation might explain, for example, why Indians compared to other poor countries are more likely to agree that a university education is more important for a boy compared to a girl (Jayachandran 2015). Insofar as these preferences are deeply held and difficult to change through pro-girl policies such as financial incentives to have daughters and to educate them (see, for example, Anukriti (2018)), they may represent a significant challenge to erasing discrimination against women. At the same time, understanding the process of attitude formation and transmission offers the possibility that re-

forming basic gender-equality attitudes can produce long-lasting improvements in outcomes for women. Attitude formation among adolescents is particularly important to understand, since they are still at an age where attitudes are malleable compared to adults, but mature enough to reflect on complex moral questions (Kohlberg 1976).

Where do these preferences, or gender attitudes, come from? One line of research emphasizes the deep historical roots of gender attitudes. For example, they might be influenced by religious doctrine (Psacharopoulos and Tzannatos 1989; Seguino 2011), political-economic regimes (Giuliano 2017; Campa and Serafinelli 2017) as well as by the agricultural environment faced by the first settled farming communities (Alesina et al. 2013) and stability of the environment across generations (Giuliano and Nunn 2017). Bisin and Verdier (2001) and Doepke and Zilibotti (2017) argue that the parental transmission of cultural norms to their offspring can be motivated by a form of paternalistic altruism.

Other work, mostly in the context of developed countries such as the United States, Britain, the Netherlands and Australia, has focused on the transmission of attitudes from one generation to another (Thornton et al. 1983; Glass et al. 1986; Moen et al. 1997; Ex and Janssens 1998; Kulik 2002; Fernandez 2007; Grosjean and Khattar 2017). Parents' gender attitudes and behaviors have been found to have a significant impact on their children's fertility choices (Fernandez and Fogli 2006; Fernandez and Fogli 2009), education (Patacchini and Zenou 2011), household division of labor between men and women, and women's participation in the labor market (Cunningham 2001; Fernandez et al. 2004; Blau et al. 2011; Olivetti et al. 2013; Farre and Vella 2013; Johnston et al. 2014).

The parent-child correlation of gender attitudes might differ in the social context of developing countries compared to Western societies for a number of reasons. For example, intergenerational transmission might be especially strong in South Asia because of residence in large joint families and parents' control over when and whom their children marry. The endogamous Hindu caste system with its hereditary stratification, elaborate rules, rituals and sanctions is also an important feature of Indian social structure. As a result of lower social (Munshi and

Rosenzweig 2009; Sankaran et al. 2017) and marital mobility (Munshi and Myaux 2006), interaction primarily within social networks implies holding relatively un-diversified attitudes. Thus, differences in social structure imply that the strength and consequences of intergenerational transmission of gender attitudes in South Asia are potentially very different from what is reported in the literature on Western societies.

Relatively little research examines the formation of gender attitudes in developing countries, including India, despite the severity of gender inequality in these settings. Notable exceptions are studies of how female leadership of village councils affects attitudes in India (Beaman et al. 2009; Gangadharan et al. 2016) and raises aspirations (Beaman et al. 2012; Ghani et al. 2013) and how television influences female empowerment (Jensen and Oster 2009; La Ferrara et al. 2012). We add to this literature by examining how intergenerational transmission plays a role in the formation of gender attitudes in India. We examine whether parental gender attitudes influence children's and specifically girls' aspirations for higher education, which can be an important determinant of actual attainment.

Absent exogenous shocks or other means of definitively establishing causality, our estimates are best interpreted as correlations between parent and child attitudes, with a rich set of control variables and fixed effects allowing us to account for most of the obvious confounds such as community attitudes and the family's socioeconomic background.<sup>1</sup> Specifically, our sample comprises children from 314 schools in the Indian state of Haryana, plus their parents, and we examine the correlation between children's and parents' attitudes, controlling for school (i.e., village) fixed effects, as well as several household variables that might be correlated with parental attitudes. The survey measures a wide range of gender attitudes regarding, for example, education, working outside the home, and tolerance of violence.

Our main finding is that parent and child attitudes are strongly positively correlated, with mothers having greater influence than fathers. On average, when a parent holds a more discriminatory gender attitude, his or her child is 11 percentage points more likely to hold that attitude. Mothers are more influential than fathers. There is also some suggestive evidence that mothers

have relatively more influence than fathers on their daughters than on their sons. We regard these effect sizes as moderate. They point to the durability – but not complete persistence – of gender attitudes over generations.

To benchmark the magnitude of these effect sizes, we also construct the average gender index of the child's peers, specifically classmates in the same school, grade, and of the same gender, excluding herself or himself. We find that a students' peers, collectively, and therefore the broader classroom environment, exert a lower (and statistically insignificant) influence on a child's gender attitudes compared to the parents. Improving a parent's gender attitudes by a unit is associated with a greater progression in a child's gender attitudes than improving each of the child's peers by one unit.

We then examine whether family characteristics are associated with stronger or weaker transmission of gender attitudes between generations. We find that the intergenerational correlation is stronger in Scheduled Caste families, possibly since they face greater social exclusion. In addition, we find that the mother influences the children's attitudes relatively less in families with a working mother, compared to families with stay-at-home mothers. One might have expected the opposite pattern – that working mothers have more influence in shaping children's attitudes due to greater bargaining power and confidence. Mothers are also more influential than both working and non-working fathers. Our finding suggests that parental time spent with children might be an important channel for the transmission of gender attitudes, and offsets any influence of bargaining power in this context.

Finally, we examine whether parental gender attitudes have consequences for their children's and specifically girls' aspirations and behaviors. We do not find conclusive evidence that parent gender attitudes influence girls' intention to drop out of school earlier. However, we find that student gender attitudes are associated with behaviors such as comfort in interacting with the opposite gender.

## 2 Data

### 2.1 Sampling and data collection

We use data from a survey conducted between September 2013 and January 2014 covering 314 government secondary schools located in Rohtak, Sonapat, Panipat and Jhajjar districts of Haryana. Adjacent to Delhi, these districts have some of the most male-skewed sex ratios in all of India. We conducted in-school surveys of roughly 15,000 students who were in grades six and seven at the time. For a 40% random sample of these students, we visited the household to survey one of the parents, randomly choosing either the mother or the father.<sup>2</sup>

The survey was the first wave of a student-level panel dataset designed to evaluate a school-based intervention (that aims to reduce students' gender discriminatory attitudes through classroom discussions about gender equality). Decisions about sample size and school and respondent selection, among other considerations, were made based on the design of that evaluation to reduce sample attrition from the panel and ensure sufficient power to evaluate the intervention. From among the 607 government run secondary schools that offered grades six through nine in the study districts, we focused on 347 schools with medium to high enrollment based on District Information System for Education (DISE) 2011 data, and with low dropoff in enrollment between grades (as a proxy for attrition from the school). In villages with multiple schools, only one school per village was randomly selected.<sup>3</sup> We made initial visits to these 347 schools and then narrowed the list to 314 schools; we excluded the other 33 because of chronically low actual attendance, despite high official enrollment. The 314 schools form the sample used in this study. Of these, 59 schools enroll only girls and 40 schools enroll only boys, with the remaining 215 schools enrolling both boys and girls. Each school has an average of 84 students per grade.<sup>4</sup>

To select students within schools for the sample, we randomly chose among those whose parents gave consent for their child to participate in the study and who personally agreed to

participate, stratifying by gender and grade in the ratio Female 6th:Male 6th:Female 7th:Male 7th of 3:2:2:2. We surveyed more girls than boys because female enrollment is higher than male enrollment in government schools, as discussed below. We sampled more grade 6 girls than grade 7 girls because we expect lower attrition among them during our follow-up survey waves. An additional criterion was that the student attended school on the survey day. Students with chronically low school attendance or whose parents did not consent to the survey are under-represented in the data (though the consent rate was not lower for girls, suggesting that providing consent was not systematically related to parental gender attitudes).

One parent of a random 40% subsample of the surveyed students participated in a household survey. We selected at random whether to interview the father or the mother. Note that because whether we interview the mother or father in a household is random, cross-household comparisons are a valid way to identify how the influence of mothers' attitudes differs from that of fathers'. If after multiple visits and follow-up phone calls, we could not interview the selected parent, we randomly chose a replacement household. The completion rate of the household survey was higher for mothers (89.6%) than for fathers (70.2%) because fathers were more often away for work during the daytime hours when the survey was conducted. Our final dataset consists of 2439 boys and 3044 girls, and 2379 fathers and 3104 mothers, corresponding to 5483 parent-child pairs.

## **2.2 Descriptive statistics**

Table 1 summarizes some key variables for the sample. The average age for both boys and girls is between 11 and 12 years. The mean age is about 35 years for mothers and 40 years for fathers. What is striking is the difference in illiteracy between mothers (39.0%) and fathers (16.4%), reflecting large differences in school enrollment between boys and girls in the previous generation.

The table also reports differences in the number of other children in the household, with girls growing up in larger households than boys, consistent with son-biased fertility stopping

rules. Girls' siblings are also more likely to be boys, a pattern that could reflect, for instance, fertility stopping rules based on gender, sex-selective abortions by their parents, or the neglect of girls' health.

Because of selection into government versus private schools, boys in government schools are from systematically poorer families. Thus, despite growing up in smaller families, the boys in our sample are more likely to have illiterate parents and are less likely to have a flush toilet at home.

The survey included a number of questions on gender equity attitudes answered by both students and parents, covering topics such as gender roles within the household and in public life and whether girls and boys should have equal educational opportunities. We create a gender index that aggregates the responses for the nine questions listed in Table 2, which are the overlapping questions on the parent and student questionnaire. Surveyed parents and students were asked if they agree with these nine statements. We create a binary variable that equals one if the respondent answered "Agree" or "Strongly agree" (zero if "Disagree" or "Strongly disagree") if the statement was in favor of (opposed to) gender equality and female empowerment. The gender index is the weighted average value of the nine binary variables, with weights constructed by normalizing the variables to have the same standard deviation and then recovering the weights given by the inverse covariance matrix (Anderson 2008). A higher gender index means more gender equitable views. We further normalize the student and parent indices to be mean 0 with standard deviation 1 for the entire sample.<sup>5</sup>

The bottom of Table 2 shows the average Anderson weighted gender index for girls, boys, mothers and fathers, along with the unweighted gender index and a gender index based on a PCA. Fathers and mothers have relatively similar attitudes, with fathers being slightly more gender equitable. However, among the adolescents, girls are considerably more gender equitable (+0.262) than boys their age (-0.327). Figure 1 shows the full distribution of the weighted gender index variable, with girls' gender index shifted to the right of boys', while mothers' distribution is shifted slightly to the left (less progressive) compared to fathers and much to



the left compared to girls. These summary statistics suggest that girls’ attitudes might become less progressive over time, but we cannot conclude this definitively because the patterns could reflect cohort effects rather than age effects.

Columns 1 and 2 of Appendix Table 1, summarize the gender differences in attitudes in a regression framework. The lower gender index (less progressive views) of mothers compared to fathers is statistically significant, as is the higher index (more progressive attitudes) of girls compared to boys ( $p < 0.01$ ).

### 3 Empirical strategy

#### 3.1 Average influence of parental attitudes on child attitudes

The goal of the empirical analysis is to measure the strength of the intergenerational transmission of gender attitudes from parents to children. Our main specification to measure the average relationship is as follows:

$$ChildGA_{igcd} = \alpha_1 ParentGA_{igcd} + \gamma_s + \delta_{gcd} + \sigma X_{igcd} + \epsilon_{isd} \quad (1)$$

The outcome *ChildGA* is the gender attitude index or sub-index for student  $i$  of gender  $g$  in class (i.e., grade)  $c$  in school  $s$  in district  $d$ . The standard errors allow for non-independence (i.e., clustering) of the error term,  $\epsilon_{isd}$ , at the school level.

The key regressor is the gender attitude index or sub-index of the surveyed parent, *ParentGA*. One concern in interpreting  $\alpha_1$  as a causal effect is that *ParentGA* might be correlated with gender attitudes in the community. To control for community attitudes, we include school (i.e., village) fixed effects,  $\gamma_s$ . Thus, the comparisons are between students in the same school. Girls and boys might be affected differently by community attitudes, so we also include district-grade-gender fixed effects,  $\delta_{gcd}$ ; these also control for grade-specific characteristics that are common across schools in the district, such as the school curriculum.<sup>6</sup> Finally we include an extensive

set of household covariates,  $X_{igcsd}$ . These variables include indicators that represent housing quality, the household having a toilet, electricity, and piped water, household size, father's educational level, mother's educational level, father's work status, mother's work status, Scheduled Caste, Scheduled Tribe, radio ownership, television ownership, and others.

Definitively identifying the causal effect of parent attitudes on children is difficult. Shared environmental characteristics might influence both parent and child attitudes and vary even within a village (for example, by neighborhood). Our extensive set of household control variables, and the fact that our point estimates are stable when we add additional control variables (as shown below) is suggestive of most shared environmental factors are being addressed.

Another concern is that the direction of causality could run from children to parents rather than from parents to children. Econometrically, we have no solution to this problem, but we would argue that parents are more likely to influence the views of their 11 to 12 year old children than vice versa.

### **3.2 Heterogeneity by parent and child gender**

Examining heterogeneity in the results helps to determine the pathways through which transmission occurs. First, we examine heterogeneity in the parent's gender by including the main effect *Mother* and the interaction term  $Mother \times ParentGA$  in equation (1). A positive coefficient on the interaction term implies that mothers are more influential than fathers. We also examine differences by parent gender combined with occupational status, for example, by estimating the model separately for those with working mothers, working fathers, non-working mothers and non-working fathers. Second, we examine heterogeneity by student gender by estimating the model separately for boys and girls and then comparing the coefficients across models.

We examine the relative influence of mothers compared to fathers, estimating the following specification separately for boys and girls.

$$\begin{aligned}
ChildGA_{icds} &= \alpha_1 ParentGA_{icsd} + \alpha_2 ParentGA_{igcsd} \times Mother_{icsd} \\
&+ \alpha_3 Mother_{icsd} + \gamma_s + \sigma X_{icsd} + \delta_{cd} + \epsilon_{isd}.
\end{aligned} \tag{2}$$

In this specification,  $\alpha_2$  represents the influence of mothers' attitudes on the child.

We also examine whether intergenerational transmission differs by caste status, estimating the same specification and looking at the coefficient on the interaction with *ScheduledCaste*.

$$\begin{aligned}
ChildGA_{icds} &= \alpha_1 ParentGA_{icsd} + \alpha_2 ParentGA_{igcsd} \times ScheduledCaste_{icsd} \\
&+ \alpha_3 ScheduledCaste_{icsd} + \gamma_s + \sigma X_{icsd} + \delta_{cd} + \epsilon_{isd}.
\end{aligned} \tag{3}$$

Finally, we also look at whether parent attitudes are associated with outcomes such as educational aspirations and discussion of education goals for boys and girls, and whether student attitudes correlate with behaviors such as interaction with the opposite sex and school attendance, to assess the influence of students' gender attitudes. We use the following specification, and estimate it separately for boys and girls:

$$GenderBehavior_{icds} = \alpha_2 StudentGA_{icsd} + \gamma_s + \sigma X_{icsd} + \delta_{cd} + \epsilon_{isd}. \tag{4}$$

## 4 Results

### 4.1 Main results on the intergenerational transmission of gender attitudes

Table 3 presents results on the intergenerational transmission of gender-equity attitudes using the weighted index. Column 1 includes school and district-grade-gender fixed effects, plus household covariates, specifically whether the house is pukka, has electricity, has a flush toilet, has a non-flush toilet; whether the family owns the house; whether the father and mother are illiterate, have finished primary school, and have finished middle school, whether they work part-time or full-time; and whether the family belongs to a Scheduled Caste or Tribe. The effect size of 0.11 implies that when a parent holds a more gender equitable view, his or her child is 11 percentage points more likely to hold that view.

Column 2 then adds additional controls such as whether the household has radio, television, and tap water. The coefficient on parental gender attitudes remains stable (0.110,  $p < 0.01$ ), which is suggestive that our set of control variables is capturing the environmental factors that jointly affect parents' and children's gender attitudes. This specification with "extended household controls" is our preferred specification for the remainder of the paper.

Column 3 adds additional control variables that could affect children's gender attitudes but are also potentially endogenous because they are affected by the parents' gender attitudes: mother's work status, family size, and the gender composition of children in the household. Because we regard these extra variables as over-controlling, we use the specification in column 2 as our main specification. The main coefficient of interest on parent gender attitudes is 0.106 ( $p < 0.01$ ), which is very close to that reported in column 2.<sup>7</sup> This result is qualitatively robust using the alternative unweighted gender index in Appendix Table 2 and PCA gender index in Appendix Table 3.

Columns 5 and 6 of Table 3 present results from regressions that use a gender attitudes

index constructed by using all five values of the Likert scale for the individual questions (i.e., the response to each question is treated as a cardinal value from 1 to 5). These results also show a positive and statistically significant correlation and corroborate our main finding.

Table 3 also reports the correlation of parental employment with student gender attitudes. The coefficients relating father's employment and education with gender attitudes are relatively small in magnitude and statistically indistinguishable from the null. This is consistent with fathers spending less time with their children, regardless of employment status. Mothers' full-time employment increases their children's gender equitable views (+0.095,  $p < 0.01$ ), perhaps due to role-model effects or direct vertical socialization (Bisin and Verdier 2011; Fernandez et al. 2004). In contrast, mother's part-time employment seems to negatively influence student gender attitudes (-0.147,  $p < 0.01$ ) compared to no maternal employment. Other factors that are negatively associated with students' gender attitudes include mothers' illiteracy (-0.116,  $p < 0.05$ ) and the number of male siblings (-0.052,  $p < 0.05$ ). Consistent with lower social mobility, a Scheduled Caste background lowers the student gender attitudes measure slightly by -0.068 ( $p < 0.10$ ).

Table 4 shows the main specification separately for each of the nine questions used to create the index. Students' attitudes are positively correlated with parent's attitudes in all cases, and statistically significant in most cases. The only insignificant coefficient is in response to "Girls should be allowed to study as far as they want", where there is very little variation in responses for either students or their parents.

Peers and the classroom environment might also influence adolescents' gender attitudes. As a way of gauging whether the effect of parents' attitudes is large or small, column 4 of Table 3 augments the specification in equation (1) with a measure of the average gender attitudes in the child's peer group. We define the peer group as the same-gender students in the same grade in the school.<sup>8</sup> The peer set is parsed by gender because most interaction is *de facto* gender segregated, even in co-ed schools. Because the estimates control for school fixed effects, the estimate of peer effects holds the school environment fixed, but there might be omitted

class-level factors (for example, teachers or textbooks). Thus, we interpret these coefficients as representing the effect of the classroom environment, including peer effects, rather than the pure effect of other students. In column 4 of Table 3, a unit increase in classmates' average gender index is associated with a 0.037 increase in a student's gender index ( $p > 0.10$ ), which is not statistically significant. Given that the estimate for parent's attitude is 0.11, we conclude that parental attitudes matter more than the collective effect of all peers (plus the classroom environment).

Though set in a developing country, our estimates are comparable to those obtained from data from the Netherlands, the United States and Israel. For instance, using data from mother-daughter pairs in the Netherlands, Ex and Janssens (1998) estimate a correlation between daughters' and mothers' attitudes about women's roles as 0.25. Moen et al. (1997)'s study compared women interviewed in upstate New York in 1956 and again in 1986, with their daughters in 1988, and report that a correlation of 0.22 ( $p < 0.001$ ) between mothers' gender role ideology in the 1950s as well as the same mothers' ideology in the 1980s with their daughters' gender role ideology as adults in 1980s. In many ways, it is surprising that the effect size in our context is no larger than that found in Western societies; one might expect there to have been a larger effect in India if children spend more time with their parents.<sup>9</sup>

Our findings also add to the existing evidence on the influence of mothers on sons versus daughters. Studies such as Fernandez, Fogli, and Olivetti (2004) report a strong influence of mothers on sons.<sup>10</sup> We find (see below) that mothers have the same influence on daughters as on sons, but that mothers might have more influence on daughters than sons, *relative* to fathers. Limited mobility in India for both daughters and their mothers means that they spend an especially large amount of time together.

## 4.2 Heterogeneity by parent and child gender

Table 5 examines heterogeneity by parent and child gender. We find a smaller coefficient of parent attitudes on girls compared to boys. For example, the coefficient is 0.094 for girls in

column 1 compared to 0.126 for boys in column 3. The point estimates are, thus suggestive of smaller effects for girls.

In column 2, we find evidence that mothers' attitudes are more influential than fathers' attitudes for girls. The interaction coefficient of 0.081 ( $p < 0.05$ ) compared to the main effect of 0.048 implies that the effect for girls may be largely driven by their mothers. The relatively greater influence of mothers on their daughters is consistent with other studies that report mothers having greater influence on daughters in vocational choices (Steele and Barling 1996), political and religious socialization (Acock and Bengtson 1978) and gender attitudes (Smith and Self 1980).

Mother-daughter pairs might have particularly strong transmission of attitudes as they identify with their mothers, or alternatively, because they model and imitate their mothers (Boyd 1989). The point estimates also suggest that mothers have greater influence on their sons than fathers do, although the coefficient is not statistically significant and is smaller than the mother interaction term for girls (0.046,  $p > 0.10$ ).

These patterns corroborate qualitative responses during focus group discussions with students that were conducted in 15 schools. In these discussions, 75% of girls and 54% of boys reported that the mother was the largest source of influence. In contrast, 17% of girls and 32% of boys said their father is the most important influence.

This is consistent with the findings reported by Neisser (1967), who found that mother-daughter relationships in the US are stronger when women are systematically excluded from male recreational pursuits and when the mother and daughter live in families, rather than communal units. These conditions of women's exclusion exist in contemporary Haryana (Chowdhry 1994), and given limited mobility and social exclusion for women in India, mothers may spend more time and exert significant influence on their children.

### 4.3 Attitudes related to education, employment and gender roles

Table 6 disaggregates the consolidated gender index into weighted sub-indices which describe different types of attitudes to further examine this relationship. We find that parents' attitudes are more strongly correlated for attitudes towards traditional gender roles (+0.101,  $p < 0.01$ ), i.e., when a parent holds a more equitable view towards gender roles, the child is more likely to share that view. The relationship is also positive and statistically significant for attitudes towards education (+0.086,  $p < 0.01$ ) and employment (+0.068,  $p < 0.01$ ).

### 4.4 Heterogeneity by family characteristics

Examining heterogeneity by family characteristics helps illuminate the factors that facilitate or hinder the transmission of gender attitudes. We focus on two types of heterogeneity. First, we examine the effect of caste differences, testing if attitude transmission is stronger among castes lower in the social hierarchy. Second, the transmission might be weaker if parents work, leaving little time for interaction with their children, or stronger if they gain status and influence in the family by virtue of working. Hence, we test the effects of intergenerational transfer by the employment status of mothers and fathers.

In Table 7, Scheduled Caste (SC) parents have significantly stronger gender attitude transmission from parents to children compared to other parents. The coefficient on the interaction term *Parent gender index\*Scheduled caste* is 0.064 in column 2 and statistically significant at the 10% level. One potential explanation is that SC households face relatively greater social exclusion, and interact almost exclusively within caste networks (Chowdhry 1994). Therefore, parents might spend more time with their children, while the influence of other communities is muted.

Next, we examine differences in intergenerational transmission by parental employment status. Mothers working outside the home might have less time to interact with their children, lowering the strength of intergenerational transmission of attitudes.<sup>11</sup> Conversely, work-



ing mothers might gain both confidence to speak their views as well as clout within the family. In our sample, 37.6% of mothers work outside the home. The same dynamics might hold for fathers, although in our sample, 91% of fathers work outside the home.

Table 8 reports the results from examining the heterogeneous effects of parental work status. The coefficient associated with *Mother\*Parent gender index* is large and positive for non-working mothers (0.134,  $p < 0.01$ ) but not so for working mothers (-0.061,  $p > 0.10$ ). This result is consistent with working mothers having less time to influence their children, and also consistent with Milkie, Nomaguchi, and Denny (2015)'s finding using PSID data from the United States that more engaged maternal time, rather than just the accessibility of the mother, was more effective in positively influencing adolescent behavior. Meanwhile, the coefficients in columns 6 and 8 reiterate that mothers are more influential than fathers, which is consistent with fathers spending less time with children. This is true even when fathers do not work, perhaps because they spend the time looking for work.

#### **4.5 Association of attitudes with aspirations and behaviors**

We next examine the association of these attitudes with aspirations and behaviors, for both boys and girls. We examine whether parental gender attitudes seem to affect aspirations for education and discussion of education goals.<sup>12</sup> Table 9 examines whether parents' gender attitudes affect student desires to continue school beyond high school (grade 12). We find a positive association between the parent gender index and girls' plans for education (+0.026 in column 2,  $p < 0.10$ ). However, we find almost no evidence of a positive relationship with girls' discussion of educational goals with parents (+0.006, in column 4,  $p > 0.10$ ), and of a negative relationship for boys' education (-0.006 in column 6,  $p > 0.10$ ) and discussion of educational goals (-0.017 in column 8,  $p > 0.10$ ). Since most of the estimates are not statistically significant, conclusive statements are difficult to establish.

In Table 10 which examines the relationship between student attitudes and behavior, we find that male and female students with more progressive gender attitudes report being more

comfortable with children of the opposite gender (0.036,  $p < 0.01$  for girls; 0.019,  $p < 0.10$  for boys). We find almost no evidence of a positive association between the student gender index and girls' presence in school in the previous week (0.012,  $p > 0.10$ ), and similarly for boy's absence (0.014,  $p > 0.10$ )

## 5 Conclusion

This paper examines the intergenerational transmission of attitudes toward gender equality in the context of a developing country, and specifically one with especially large gender gaps in outcomes. Using survey data that directly and simultaneously measured these attitudes among school children and their parents in rural India, we find that child attitudes are influenced by parents' attitudes, especially mothers'. The effect sizes are moderate in size – parents are an important factor shaping adolescents' attitudes, but they transmit their views to their children far from perfectly, and no more so than previous studies find in developed, Western countries. We show that parental time with children is a potentially important channel through which transmission occurs. We also find a link between students' gender attitudes with their interaction with children of the opposite sex, which underlines the potentially important role that gender attitudes have on outcomes.

Our findings should be read with a few caveats. First, we do not address selection into school attendance, and both the degree of gender-discriminatory attitudes and their intergenerational transmission might be very different in the (small minority of) families that hold extremely conservative views and do not allow their children, especially girls, to study through grade six. Similarly, the degree of intergenerational transmission of gender attitudes might differ in other settings. Participants in our study in rural Haryana, which has one of the worst child sex ratios in India, might simultaneously hold conservative gender views and be particularly motivated to transmit those views to their children. Alternatively, the parents in our setting might have attitudes so far out of step with the messages that their children are hearing through

mass media and elsewhere that their children emulate their views less in this context than others.

Second, while we examine the effect of parent attitudes on child attitudes during adolescence, these might change as they get older. For instance, children may form their own opinions with age and greater exposure to social attitudes outside home and school, which would weaken the intergenerational correlation. Conversely, the correlation with parent attitudes might get stronger with age, as teens outgrow a rebellious phase and return to the traditional beliefs held in their families.

Third, while we examine the influence of parent attitudes on a number of proximate outcomes, the data do not allow us to estimate the impact of parent attitudes on long term child welfare measures such as educational achievement, occupational choice, marriage and fertility. The role of parent attitudes might be mitigated once children are older, are financially independent, and do not live with their parents.

Nonetheless, the findings suggest the importance of policies that address gender equality attitudes among both parents and children as an important pathway to improve women's outcomes in developing countries.

## Notes

<sup>1</sup> Washington (2008) and Oswald and Powdthavee (2010) document that the presence of daughters in the household changes voting behavior of legislator parents. However, they do not explore the role of children's attitudes on parent attitudes.

<sup>2</sup> Budget constraints were the reason why only 40% of parents were chosen.

<sup>3</sup> If these schools were adjacent to each other or shared a building, we considered them a single school.

<sup>4</sup> The sampling procedure implies that the schools included in the study deviate from the universe of schools in a number of ways. First, our survey does not cover the 731 private unaided schools which are disproportionately in urban areas; thus, urban and wealthier students are underrepresented. Second, among government schools, we excluded schools where grades six and seven had a combined average enrollment of less than 45 students; the government schools in our sample have higher enrollment and are in larger villages than the universe of government schools.

<sup>5</sup> We also present results for three other versions of the gender index: an unweighted index, an index based on principal components (PCA), and an index that uses all five values of the Likert scale responses.

<sup>6</sup> The results are also robust to including school-gender-grade fixed effects. The reason our main specification does not include school-gender-grade fixed effects is that we also include peer gender attitudes in Table 3, and this variable only varies at the school-gender-grade analysis.

<sup>7</sup> One concern in interpreting the effect sizes reported in Table 3 is that since parental gender attitudes are measured with error, the OLS coefficients could be biased. To help address measurement error, we also perform instrumental variables (IV) regressions, in which the eight other parental attitude variables (eight instruments) are used to predict the parent's attitude for a particular question. With this IV approach, we find effect sizes that are 50 percent larger in magnitude than using OLS. The detailed results are available from the authors.

<sup>8</sup> Most schools have one section per grade. We do not have data on which section the student is in in cases of multiple sections per grade.

<sup>9</sup> Other research papers examining the intergenerational transmission of gender attitudes and behavior include Escriche, Olcina, and Sanchez (2004), Fernandez, Fogli, and Olivetti (2004), Martin et al. (2002), Smith and Self (1980), Sholomskas and Axelrod (1986), Barak, Feldman, and Noy (1991) and Farre and Vella (2013). The broader literature also examines the intergenerational transmission of cultural, ethnic, racial and other types of social attitudes. Papers in this literature include Bisin and Verdier (2000) and Hoge, Petrillo, and Smith (1982) who examine the intergenerational transmission of ethnic and religious traits in the United States, and Sinclair, Dunn, and Lowery (2005) who examine the transmission of racial attitudes.

<sup>10</sup>Kulik (2002) reports a strong relationship between fathers' and sons' attitudes in Israel (0.42) that is greater than the correlation patterns between mothers and daughters, and mothers and sons (0.34 and 0.31, respectively).

<sup>11</sup> Such an explanation would be consistent with exchange theory, where a higher frequency of interaction with children explains greater maternal influence (Homans 1974).

<sup>12</sup> Fernandez (2013) develops a model where social attitudes on women's labor force participation can determine actual labor force participation.

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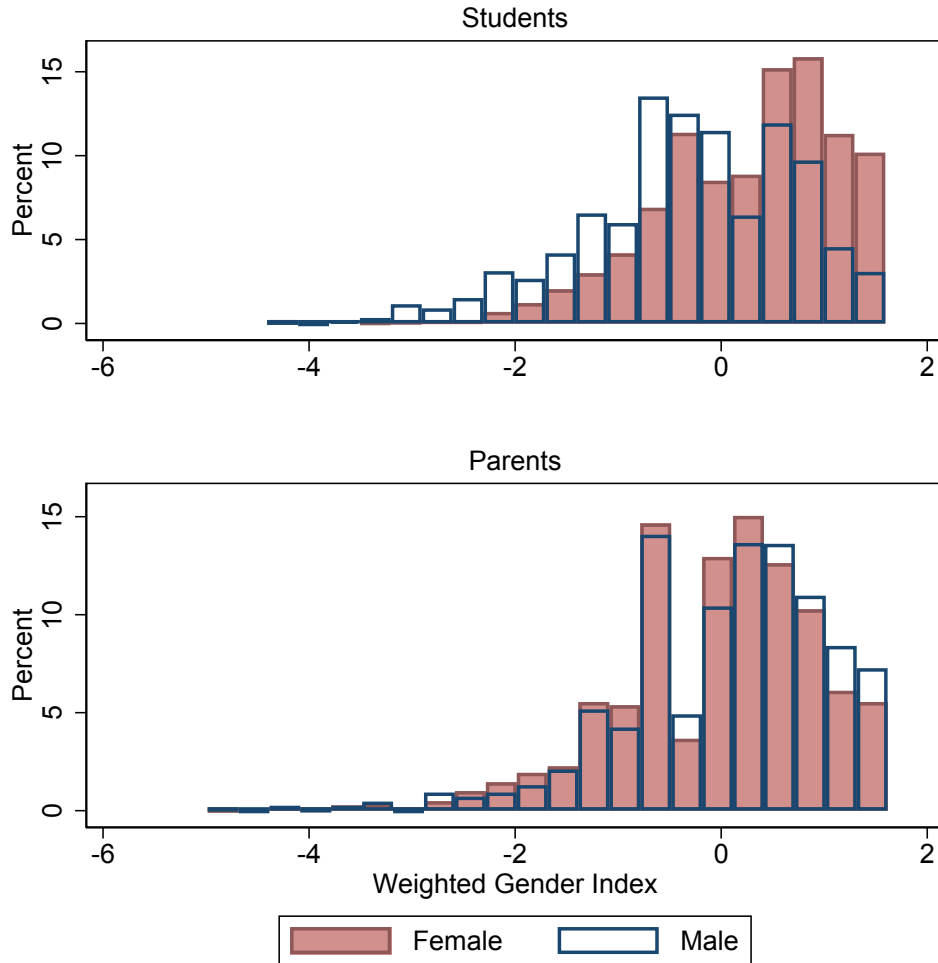
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**Figure 1: Distribution of weighted gender index for female versus male students and parents**



Notes. Surveyed parents and students were asked if they agree with nine statements regarding gender equality. The weighted gender index is constructed by the average value of nine indicator variables for answering "Agree" or "Strongly agree" ("Disagree" or "Strongly disagree") if the statement was seen as promoting (opposing) gender equality. Weights are constructed by normalizing the variables to have the same standard deviation and then recovering the weights given by the inverse covariance matrix. A higher value corresponds to more gender-equitable attitudes.

**Table 1: Descriptive statistics: Individual and household characteristics**

	Girls	Boys	Mothers	Fathers
Age	11.667 [1.247]	11.917 [1.257]	34.951 [5.595]	40.488 [6.750]
6th Grade	0.568 [0.495]	0.508 [0.500]	N/A	N/A
Illiterate	N/A	N/A	0.390 [0.488]	0.164 [0.371]
Finished primary	N/A	N/A	0.302 [0.459]	0.274 [0.446]
Finished secondary	N/A	N/A	0.202 [0.401]	0.270 [0.444]
Finished Class 10+	N/A	N/A	0.106 [0.308]	0.292 [0.455]
Hindu	0.945 [0.228]	0.947 [0.225]	0.940 [0.237]	0.953 [0.212]
Muslim	0.053 [0.223]	0.048 [0.214]	0.056 [0.231]	0.043 [0.203]
Scheduled caste	0.174 [0.339]	0.188 [0.344]	0.187 [0.346]	0.172 [0.335]
Scheduled tribe	0.009 [0.085]	0.011 [0.094]	0.010 [0.088]	0.010 [0.091]
Number of children	3.778 [1.293]	3.263 [1.227]	3.577 [1.306]	3.512 [1.266]
Percent sons among siblings/children	0.563 [0.299]	0.513 [0.356]	0.542 [0.325]	0.540 [0.328]
Mother is illiterate	0.379 [0.485]	0.405 [0.491]	N/A	N/A
Father is illiterate	0.154 [0.361]	0.177 [0.382]	N/A	N/A
Dwelling has flush toilet	0.165 [0.371]	0.123 [0.328]	0.148 [0.355]	0.145 [0.352]
Observations	3,044	2,439	3,104	2,379

Notes. Table reports variable means and standard deviations. Parents' religion is summarized based on students' answers. Schedule Caste and Tribe and whether the mother or father is illiterate are summarized based on parents' answers. *Percent sons among siblings/children* is calculated using siblings for the students (excluding themselves), so it is missing for the 2% of the sample in one-child families; for parents, it is calculated based on all of their children.

**Table 2: Descriptive statistics: Gender attitudes**

	Girls	Boys	Mothers	Fathers
Disagree: A woman's most important role is being a good homemaker	0.430 [0.495]	0.209 [0.407]	0.287 [0.452]	0.267 [0.442]
Disagree: A man should have the final word about decisions in his home	0.513 [0.500]	0.328 [0.470]	0.412 [0.492]	0.439 [0.496]
Disagree: A woman should tolerate violence to keep her family together	0.667 [0.472]	0.610 [0.488]	0.361 [0.480]	0.456 [0.498]
Disagree: Wives should be less educated than their husbands	0.744 [0.436]	0.564 [0.496]	0.528 [0.499]	0.560 [0.497]
Disagree: Boys should get more opportunities/ resources for education	0.428 [0.495]	0.181 [0.385]	0.469 [0.499]	0.491 [0.500]
Men and women should get equal opportunities in all spheres of life	0.924 [0.265]	0.904 [0.295]	0.933 [0.251]	0.953 [0.211]
Girls should be allowed to study as far as they want	0.959 [0.198]	0.875 [0.331]	0.962 [0.192]	0.955 [0.207]
Daughters should have a similar right to inherited property as sons.	0.875 [0.331]	0.820 [0.385]	0.875 [0.331]	0.882 [0.323]
It would be a good idea to elect a woman as the village Sarpanch	0.810 [0.392]	0.692 [0.462]	0.805 [0.396]	0.779 [0.415]
Anderson weighted gender index	0.262 [0.895]	-0.327 [1.028]	-0.039 [0.983]	0.051 [1.020]
Unweighted gender index	0.292 [0.923]	-0.365 [0.972]	-0.037 [0.979]	0.048 [1.024]
Gender index using PCA	0.300 [0.939]	-0.375 [0.947]	-0.032 [0.980]	0.041 [1.024]
Wishes to complete Class 13+	0.536 [0.499]	0.625 [0.484]	N/A	N/A
Discusses education goals with parents	0.795 [0.404]	0.845 [0.362]	N/A	N/A
Observations	3,044	2,439	3,104	2,379

Notes. Table reports variable means and standard deviations. Surveyed parents and students were asked if they agree with the nine statements specified, and the variables reported are indicators for answering "Agree" or "Strongly agree" ("Disagree" or "Strongly disagree") if the statement is in favor of (opposed to) gender equality. *Gender index* is the average of the 9 indicators. For *Weighted gender index*, the 9 indicators are averaged using weights calculated from the student sample and are rescaled so that its standard deviation matches that of the unweighted index. *Wishes to complete Class 13+* is child wishing to complete grade 13 or higher. The variable equals 0 if child wishes to complete less schooling or answer "Don't know". *Discusses education goals with parents* is a dummy for answering yes to "Have you ever discussed your education goals with your parents or adult relatives?".

**Table 3: Result on parental gender attitudes and child gender attitudes**

	Using binaries				Using Likert scales	
	Student gender index (1)	Student gender index (2)	Student gender index (3)	Student gender index (4)	Student gender index (5)	Student gender index (6)
Parent gender index	0.110*** [0.015]	0.110*** [0.015]	0.106*** [0.015]	0.109*** [0.015]		
Parent gender index (using Likert scales)					0.140*** [0.015]	0.140*** [0.015]
Classmates' avg gender index				0.037 [0.031]		
Classmates' avg gender index (using Likert scales)						0.044 [0.029]
Father is illiterate	-0.026 [0.047]	-0.016 [0.047]	-0.010 [0.047]	-0.016 [0.047]	0.002 [0.046]	0.002 [0.046]
Father is literate or finished primary school	-0.028 [0.036]	-0.021 [0.036]	-0.028 [0.035]	-0.022 [0.036]	-0.005 [0.037]	-0.005 [0.037]
Father finished middle school (Class 8)	-0.013 [0.038]	-0.008 [0.038]	-0.011 [0.038]	-0.007 [0.038]	-0.019 [0.037]	-0.018 [0.037]
Father works part-time	-0.088 [0.065]	-0.088 [0.065]	-0.045 [0.066]	-0.085 [0.064]	0.001 [0.062]	0.003 [0.062]
Father works full-time	-0.020 [0.046]	-0.023 [0.046]	-0.022 [0.046]	-0.023 [0.046]	0.037 [0.047]	0.039 [0.047]
Mother is illiterate	-0.149*** [0.045]	-0.136*** [0.045]	-0.116** [0.045]	-0.135*** [0.045]	-0.165*** [0.042]	-0.164*** [0.042]
Mother is literate or finished primary school	-0.094** [0.044]	-0.086* [0.045]	-0.072 [0.045]	-0.084* [0.045]	-0.127*** [0.041]	-0.125*** [0.041]
Mother finished middle school (Class 8)	-0.030 [0.050]	-0.025 [0.050]	-0.011 [0.050]	-0.024 [0.050]	-0.030 [0.045]	-0.029 [0.045]
Mother works part-time			-0.147*** [0.047]			
Mother works full-time			0.095*** [0.036]			
Scheduled caste	-0.072* [0.040]	-0.072* [0.040]	-0.068* [0.041]	-0.072* [0.040]	-0.037 [0.040]	-0.037 [0.040]
Scheduled tribe	-0.213 [0.163]	-0.212 [0.162]	-0.202 [0.159]	-0.210 [0.162]	-0.142 [0.158]	-0.140 [0.157]
Number of household members			-0.012 [0.008]			
Number of female siblings			0.014 [0.014]			
Number of male siblings			-0.052** [0.021]			
Mean of outcome	0.000	0.000	0.000	0.000	0.000	0.000
District-grade-gender & school FEs	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Basic	Extended	Extended + endogenous	Extended	Extended	Extended
R-squared	0.205	0.206	0.213	0.207	0.226	0.226
Observations	5,483	5,483	5,483	5,483	5,483	5,483
Cluster	314	314	314	314	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. "Basic controls" include: (student-reported) house is pukka, house has electricity, house has flush toilet, house has non-flush toilet, family owns the house, father is illiterate, father is literate or finished primary school, father finished middle school (Class 8), father works part-time, father works full-time, mother is illiterate, mother is literate or finished primary school, mother finished middle school (Class 8), (parent-reported) Scheduled Caste, Scheduled Tribe. "Extended controls" include: (parent-reported) HH has radio, HH has TV, HH gets newspaper daily and HH owns water pump, (student-reported) HH gets newspaper daily, HH has tap water as well as "basic controls". "Extended + endogenous controls" include: (student-reported) mother works part-time, mother works full-time, number of HH members, number of sisters, and number of brothers as well as "basic controls" and "extended controls". *Classmates' avg gender index* is the average *Gender index* of the students of the same gender and age as the respondent in his or her school, and is calculated excluding the respondent's own *Gender index*.

**Table 4: Disaggregated results by gender attitude question**

	Disagree: A woman's most imp't role is being a good home- maker (1)	Disagree: A man should have final word about decisions in home (2)	Disagree: A woman should tolerate violence to keep family together (3)	Disagree: Wives should be less educated than their husbands (4)	Disagree: Boys should get more op- portunities for education than girls (5)	Men & women should get equal op- portunities in all spheres (6)	Girls should be allowed to study as far as they want (7)	Daughters should have similar right to inherited property as sons (8)	It would be a good idea to elect a woman as the village Sarpanch (9)
Parent's attitude	0.123*** [0.016]	0.115*** [0.015]	0.092*** [0.015]	0.074*** [0.014]	0.120*** [0.013]	0.033* [0.020]	0.028 [0.022]	0.035** [0.017]	0.044*** [0.016]
Student attitude mean	0.332	0.431	0.641	0.664	0.318	0.915	0.921	0.850	0.758
DGG & school FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.200	0.156	0.099	0.142	0.193	0.076	0.101	0.077	0.112
Observations	5,483	5,483	5,483	5,483	5,483	5,483	5,483	5,483	5,483
Clusters	314	314	314	314	314	314	314	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. DGG stands for *District\*Grade\*Gender* fixed effects.

**Table 5: Results by parent and child gender**

	<i>Girls</i>		<i>Boys</i>	
	Student gender index (1)	Student gender index (2)	Student gender index (3)	Student gender index (4)
Parent gender index	0.094*** [0.018]	0.048* [0.027]	0.126*** [0.022]	0.102*** [0.030]
Mother*Parent gender index		0.081** [0.035]		0.046 [0.042]
Mother		0.020 [0.033]		-0.015 [0.043]
DGG & school FEs	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes
Mothers have same effect on girls and boys				0.530
R-squared	0.167	0.169	0.186	0.186
Observations	3,044	3,044	2,439	2,439

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

**Table 6: Effects of parent attitudes on student gender sub-indices**

	Student education attitudes sub-index (1)	Student employment attitudes sub-index (2)	Student attitudes towards gender roles sub-index (3)
Parent gender sub-index	0.086*** [0.015]	0.068*** [0.015]	0.101*** [0.015]
District-Grade & school FEs	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes
R-squared	0.209	0.149	0.147
Observations	5,483	5,483	5,483
Clusters	314	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.



**Table 7: Heterogeneity results by caste**

	Student gender index (1)	Student gender index (2)
Parent gender index	0.105*** [0.016]	0.095*** [0.016]
Scheduled caste	-0.054* [0.033]	-0.024 [0.033]
Parent gender index*Scheduled caste	0.067* [0.034]	0.064* [0.035]
DGG & school FEs	Yes	Yes
Extended HH controls	No	Yes
R-squared	0.197	0.206
Observations	5,483	5,483
Clusters	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

**Table 8: Heterogeneity results by mother's and father's occupational status**

	Student gender index (Non- working mothers) (1)	Student gender index (Non- working mothers) (2)	Student gender index (Working mothers) (3)	Student gender index (Working mothers) (4)	Student gender index (Non- working fathers) (5)	Student gender index (Non- working fathers) (6)	Student gender index (Working fathers) (7)	Student gender index (Working fathers) (8)
Parent gender index	0.108*** [0.017]	0.032 [0.025]	0.091*** [0.024]	0.123*** [0.035]	0.131* [0.073]	-0.012 [0.095]	0.104*** [0.014]	0.072*** [0.021]
Mother		-0.012 [0.033]		0.026 [0.046]		-0.196 [0.121]		0.016 [0.027]
Mother*Parent gender index		0.134*** [0.032]		-0.061 [0.047]		0.284** [0.127]		0.058** [0.027]
District-Grade & school FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No difference between working & non-working parent			0.588	0.039			0.691	0.403
Mothers have same effect for working & non-working parent				0.001				0.079
R-squared	0.253	0.257	0.307	0.308	0.605	0.618	0.216	0.217
Observations	3,410	3,410	2,057	2,057	489	489	4,979	4,979

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

**Table 9: Results on parent gender attitudes and educational aspirations**

	<i>Girls</i>				<i>Boys</i>			
	Wishes to complete Class 13+ (1)	Wishes to complete Class 13+ (2)	Parent gender index (3)	Parent gender index (4)	Wishes to complete Class 13+ (5)	Wishes to complete Class 13+ (6)	Parent gender index (7)	Parent gender index (8)
Parent gender index	0.015 [0.010]	0.026* [0.015]	0.010 [0.008]	0.006 [0.012]	0.003 [0.010]	-0.006 [0.014]	-0.009 [0.008]	-0.017 [0.011]
Mother		0.015 [0.019]		-0.004 [0.015]		0.017 [0.020]		-0.018 [0.015]
Mother*Parent gender index		-0.018 [0.019]		0.006 [0.016]		0.019 [0.020]		0.016 [0.015]
DGG & school FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mothers have same effect on girls & boys						0.155		0.668
R-squared	0.169	0.170	0.148	0.148	0.184	0.184	0.181	0.182
Observations	3,042	3,042	3,044	3,044	2,438	2,438	2,439	2,439

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects. *Wishes to complete Class 13+* is the child's response to how much schooling he or she wished to obtain and equals 0 if he or she wishes to complete less than 13 years or answered "don't know". *Discusses education goals with parents* is a dummy for answering yes to "Have you ever discussed your education goals with your parents or adult relatives?".

**Table 10: Effect of student gender attitudes on behaviors**

	<i>Girls</i>		<i>Boys</i>	
	Comfortable with children of the opposite sex (1)	During last week student was not absent from school (2)	Comfortable with children of the opposite sex (3)	During last week student was not absent from school (4)
Student gender index	0.036*** [0.010]	0.012 [0.010]	0.019* [0.011]	0.014 [0.010]
District-Grade-Gender, School FEs	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes
Students' attitudes have same effect on girls & boys			0.282	0.924
R-squared	0.168	0.139	0.182	0.156
Observations	3,038	3,042	2,385	2,439

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

# Appendices

## A Correlation between stated and revealed attitudes

A concern with self-reported attitudes, of both children and parents, is strength with which they represent underlying attitudes. This might happen, for instance, if respondents report to surveyors the attitudes that they feel are socially desirable to please the surveyor or themselves. Therefore, we check whether the gender attitudes index is a good proxy for underlying attitudes by correlating with two alternate measures.

We investigate self-reported parent attitudes by correlating the parent gender attitude index with the fraction of boys versus girls in the household, which is a revealed preference measure of gender attitudes. Relatively more boys in the house could indicate more pro-boy attitudes, and vice versa. Appendix Table 5 shows that the parent gender index is negatively correlated with the fraction of sons in the household ( $-0.055$ ,  $p < 0.01$ ), which implies that the gender attitudes index reflects underlying gender preferences.

To assess self-reported child attitudes, we draw on scores from an Implicit Association Test (IAT) that was administered to a 40% subsample of students. The IAT is a computer-based psychometric tool designed to detect the strength of automatic association between different ideas and concepts, in this case between the target concepts of ‘male’ and ‘female’ with the attributes ‘good’ and ‘bad’.<sup>13</sup> The IAT is considered to be difficult to manipulate, and therefore useful for eliciting underlying attitudes (Greenwald, McGhee, and Schwartz 1998). In the IAT that we administered, the D-measure represents implicit preference for boys, with a greater (positive) score implying pro-boy attitudes. Appendix Table 6 shows that the D measure is negatively correlated with the student gender index ( $-0.098$ ,  $p < 0.01$ ), suggesting that the gender equality attitudes captured by the gender index are also reflected in the IAT.

**Appendix Table 1: Gender attitude differences by parent and child gender**

	Parent gender index (1)	Student gender index (2)	Student gender index (3)
Mother	-0.095*** [0.029]		
Girl		0.510*** [0.054]	0.538*** [0.052]
District-Grade & school FEs	Yes	Yes	Yes
Extended HH controls	Yes	Yes	No
R-squared	0.133	0.188	0.175
Observations	5,483	5,483	5,483
Clusters	314	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level.

**Appendix Table 2: Results on parental gender attitudes and child gender attitudes (Unweighted gender index)**

	<i>Girls</i>		<i>Boys</i>	
	Student gender index (1)	Student gender index (2)	Student gender index (3)	Student gender index (4)
Parent gender index	0.114*** [0.018]	0.060** [0.026]	0.175*** [0.021]	0.151*** [0.029]
Mother*Parent gender index		0.096*** [0.035]		0.047 [0.040]
Mother		0.028 [0.034]		0.010 [0.040]
DGG & school FEs	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes
Mothers have same effect on girls and boys				0.350
R-squared	0.192	0.195	0.228	0.229
Observations	3,044	3,044	2,439	2,439

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

**Appendix Table 3: Result on parental gender attitudes and child gender attitudes**

	Using binaries				Using Likert scales	
	Student gender PCA	Student gender PCA	Student gender PCA	Student gender PCA	Student gender PCA	Student gender PCA
	(1)	(2)	(3)	(4)	(5)	(6)
Parent gender PCA	0.154*** [0.015]	0.152*** [0.015]	0.149*** [0.015]	0.150*** [0.015]		
Parent gender PCA (using Likert scales)					0.145*** [0.014]	0.144*** [0.014]
Classmates' avg gender PCA				0.079*** [0.028]		
Classmates' avg gender PCA (using Likert scales)						0.054** [0.027]
Father is illiterate	-0.059 [0.044]	-0.049 [0.045]	-0.046 [0.044]	-0.050 [0.045]	-0.041 [0.045]	-0.041 [0.045]
Father is literate or finished primary school	-0.040 [0.034]	-0.033 [0.034]	-0.040 [0.034]	-0.033 [0.034]	-0.012 [0.036]	-0.012 [0.036]
Father finished middle school (Class 8)	0.013 [0.035]	0.018 [0.035]	0.014 [0.034]	0.018 [0.034]	0.005 [0.035]	0.006 [0.035]
Father works part-time	-0.007 [0.063]	-0.008 [0.063]	0.035 [0.065]	-0.006 [0.063]	0.023 [0.061]	0.024 [0.061]
Father works full-time	-0.016 [0.047]	-0.020 [0.047]	-0.017 [0.047]	-0.018 [0.047]	0.012 [0.046]	0.014 [0.046]
Mother is illiterate	-0.165*** [0.044]	-0.148*** [0.044]	-0.129*** [0.044]	-0.146*** [0.044]	-0.166*** [0.042]	-0.165*** [0.042]
Mother is literate or finished primary school	-0.153*** [0.044]	-0.141*** [0.045]	-0.128*** [0.045]	-0.138*** [0.045]	-0.156*** [0.041]	-0.154*** [0.041]
Mother finished middle school (Class 8)	-0.076 [0.049]	-0.071 [0.049]	-0.059 [0.049]	-0.069 [0.049]	-0.064 [0.046]	-0.063 [0.046]
Mother works part-time			-0.149*** [0.045]			
Mother works full-time			0.094*** [0.036]			
Scheduled caste	-0.091** [0.037]	-0.091** [0.037]	-0.088** [0.038]	-0.090** [0.037]	-0.061 [0.038]	-0.060 [0.038]
Scheduled tribe	-0.179 [0.142]	-0.184 [0.142]	-0.180 [0.140]	-0.185 [0.141]	-0.130 [0.146]	-0.130 [0.145]
Number of household members			-0.009 [0.008]			
Number of female siblings			0.009 [0.014]			
Number of male siblings			-0.043** [0.021]			
Mean of outcome	-0.000	-0.000	-0.000	-0.000	0.000	0.000
District-grade-gender & school FEs	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Basic	Extended	Extended + endogenous	Extended	Extended	Extended
R-squared	0.265	0.267	0.273	0.269	0.267	0.267
Observations	5,483	5,483	5,483	5,483	5,483	5,483
Cluster	314	314	314	314	314	314

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. "Basic controls" include: (student-reported) house is pukka, house has electricity, house has flush toilet, house has non-flush toilet, family owns the house, father is illiterate, father is literate or finished primary school, father finished middle school (Class 8), father works part-time, father works full-time, mother is illiterate, mother is literate or finished primary school, mother finished middle school (Class 8), (parent-reported) Scheduled Caste, Scheduled Tribe. "Extended controls" include: (parent-reported) HH has radio, HH has TV, HH gets newspaper daily and HH owns water pump, (student-reported) HH gets newspaper daily, HH has tap water as well as "basic controls". "Extended + endogenous controls" include: (student-reported) mother works part-time, mother works full-time, number of HH members, number of sisters, and number of brothers as well as "basic controls" and "extended controls". *Classmates' avg gender pca* is the average *Gender index* of the students of the same gender and age as the respondent in his or her school, and is calculated excluding the respondent's own *Gender pca*.



**Appendix Table 4: Results by parent and child gender**

	<i>Girls</i>		<i>Boys</i>	
	Student gender PCA (1)	Student gender PCA (2)	Student gender PCA (3)	Student gender PCA (4)
Parent gender PCA	0.110*** [0.018]	0.053** [0.027]	0.192*** [0.020]	0.170*** [0.028]
Mother*Parent gender PCA		0.101*** [0.035]		0.044 [0.038]
Mother		0.033 [0.034]		0.021 [0.038]
DGG & school FEs	Yes	Yes	Yes	Yes
Extended HH controls	Yes	Yes	Yes	Yes
Mothers have same effect on girls and boys				0.266
R-squared	0.203	0.206	0.249	0.249
Observations	3,044	3,044	2,439	2,439

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are clustered at the school level. *DGG* stands for *District\*Grade\*Gender* fixed effects.

**Appendix Table 5: Correlation between Anderson weighted parent gender index and proportion of sons in the household**

	Percent sons among children	Parent gender index
Percent sons among children	1	
Parent gender index	-0.0548***	1

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

**Appendix Table 6: Correlation between Anderson weighted student gender index and Implicit Association Test**

	D measure	Student gender index
D measure	1	
Student gender index	-0.0978***	1

Notes. Asterisks denote significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .