Intergenerational Effects of Improving Women's Property Rights: Evidence from India

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Abstract

This paper analyzes the intergenerational effects following the positive changes in women's inheritance rights in India. Using the Indian Human Development Survey data for rural India and a difference-in-differences strategy, we find that the property rights reform significantly increased women's education. However, we find no evidence of an intergenerational transmission of education to her children. We explore two potential mechanisms to explain these results: the role of status conflict among spouses and that of a child's birth-order and gender. Given that a woman's bargaining power may depend on her relative position to that of her husband's, we investigate this channel and find a significant decrease in her sons' education in households where fathers are less educated than mothers. Accounting for the child's birth-order and gender, we find no evidence of son preference through the education channel but we find suggestive evidence of older son preference in treated households.

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1 Introduction

Property and land rights play a vital role in the economic empowerment, poverty reduction, and welfare of women (Wang, 2014; Wiig, 2013). Secure property rights and greater land ownership can increase women's income and economic contribution to their households (Deere and Doss, 2006; Duflo, 2012). Better control over income or assets also gives women greater bargaining power over household decisions regarding consumption, investment and production (Duflo and Udry, 2004; Hoddinott and Haddad, 1995; Hoddinott and Skoufias, 2004; Quisumbing, 2003; Sraboni et al., 2014). Over the last 15 years, numerous countries have moved towards a more egalitarian system of property rights through legal changes, civil society interventions and increases in women's legal literacy programs. These changes may impact women's employment and earnings (Peterman, 2011), improve women's reproductive and sexual health and lead to better marriage market outcomes (Harari, 2016), change women's household decision-making (Mishra and Sam, 2016; Rangel, 2006; Wang, 2014) and may result in better health and education outcomes for children (Allendorf, 2007; Mishra and Sam, 2016; Rangel, 2006). Thus, increasing women's property rights is also a potential mechanism to break the intergenerational transmission of poverty.

We extend this literature to an Indian inheritance rights reform that improved women's access to property. The 2005 Hindu Succession (Amendment) Act (HSAA) is a national property rights reform that entitled women to an equal share of ancestral property as that of their brothers.[1] Prior to 2005, five states in India, namely Andhra Pradesh, Kerala, Karnataka, Maharashtra, and Tamil Nadu, had already passed a similar amendment allowing unmarried women to inherit ancestral property. While the amendment was a significant move towards gender equality, considerable bias in the actual implementation of the reform continues to exist (Agarwal, 1994; Sircar and Pal, 2014; Deininger, Goyal and Nagarajan, 2013; Roy, 2015). In fact, (FAO, 2011) reports that women in India own only about 10% of

[1] Ancestral property in India usually consists of land, henceforth in the paper ancestral property and agricultural land will be used interchangeably.

the land, while contributing to about 30% of the agricultural labor force. Nevertheless, post-reform, there is strong evidence of an increase in women's education (Deininger, Goyal and Nagarajan, 2013; Roy, 2015) and their household bargaining power (Anderson and Genicot, 2015; Heath and Tan, 2016). On the other hand, the reform has led to more male and female suicides due to increased disagreements amongst couples (Anderson and Genicot, 2015). Rosenblum (2015) documents the inadvertent increase in the costs of having daughters due to HSAA and argues that this created incentives for parents to decrease investment in their daughter?s health, thus increasing the probability of female mortality. In this paper, we study the following: First, using a new dataset, we reinvestigate whether property rights reform impacts a woman's well-being, measured through her educational attainment. Second, how does this translate to her children's education? Third, do the intergenerational effects vary by the position of the mother relative to the father? Lastly, we evaluate the effects in the context of the birth-order and the gender composition of children in these households. Our study combines two strands of literature by analyzing the impact of empowering women with more property rights and by determining the impact of maternal education on her children's education.

To identify the causal impact of the amended Hindu Succession Law, we take advantage of the state-cohort variation of women's exposure to the reform. Women unmarried at the time of the policy change in one of the 5 early reform states form our treatment group and the control group consists of women who were never exposed to the reform. We employ a difference-in-differences strategy using the 2004-2005 round of the nationally representative Indian Human Development Survey (IHDS-I), and restricting our sample to rural households. Our results indicate a significant increase in women's education by 0.63 years. We perform falsification tests to validate our empirical strategy and provide evidence that any differences in women's outcome can be attributed to the HSA amendment.

Improvements in women's income and education positively shift their household bargaining power (Handa, 1996; Duflo, 2003; Qian, 2008), which may result in positive and

significant intergenerational transfer of education and health outcomes (Currie and Moretti, 2003; Oreopoulos, Page and Stevens, 2006; McCrary and Royer, 2011; Carneiro, Meghir and Parey, 2013; Grépin and Bharadwaj, 2015). However, there is evidence that there may not be any maternal intergenerational transfer (Behrman and Rosenzweig, 2002). To evaluate if the positive impact of the HSAA for women translates to her children, we examine the age-adjusted educational attainment of children and find no evidence of mother's education being translated to her children.

One plausible explanation behind the lack of intergenerational impact is that what matters is not just maternal education but also the education level of the father. Studies have shown that once paternal education and income are controlled for, the positive effects of maternal education on children's outcomes disappear (Behrman and Rosenzweig, 2002; Plug, 2004; Chevalier et al., 2013). We reassess our findings by taking into consideration not just the paternal education but also woman's relative position in the household - measured by the educational differences amongst spouses. In households where mothers were impacted by the HSAA reform and are more educated than the child's father, there is a 0.63 standard deviation significant decrease in children's educational attainment. This negative result is mimicked for the sons but not for daughters in these households. However, we find no such negative impact in households where the father is at least as educated as the mother. Thus, in terms of education, reform mothers who were of higher status than their husbands are not using (or are not being able to use) their empowered status to positively impact their sons through the education channel. Our paper shows how certain intra-household status imbalances can affect the transmission channel across generations and adds to the literature that maternal education may not have the desired effect on children's education.

A growing literature has highlighted the importance of accounting for both the birth-order and sibling gender composition to explain within household differences in resource allocation among children (Black, Devereux and Salvanes, 2005; Haan, Plug and Rosero, 2014; Jayachandran and Pande, 2017; Kumar, 2016; Pande, 2003). We include both the

gender composition of the siblings, and the birth order of the children to further explain our results. We find no evidence that these factors play a role in the intergenerational transmission of education when women's property rights improved. However, we find greater evidence of older son preference among treated mothers than control mothers.

In a parallel study, Deininger, Goyal and Nagarajan (2013) also look at the intergenerational effects of the HSAA reform, but, through the patrilineal channel. The authors first identify the male head of the household and use the timing of his father's death, the event that triggers the division of property, to estimate the likelihood that the head of the household and his siblings (sisters included) inherit land. After establishing how land is bequeathed, the authors then focus on the education of the children of the household head. While this captures the reform's impact across generations, it does not look at the impact on the sisters' (daughter of the deceased father) children. Since the HSAA was meant to improve inheritance rights for women, it is important to analyze whether and how this empowerment translates to her children. We fill this crucial gap in the literature by approaching the intergenerational aspect through the channel of the woman who was a direct beneficiary of the property rights reform. We use a woman's year of marriage to identify whether she was eligible to receive the benefits of the reform (the law stipulated that unmarried women at the time of the reform could reap the benefits while those already married by the passage date were ineligible). After examining the reform's impact on the woman's level of education, we further the analysis by directly estimating her children's educational attainment. Thus, our papers focus on two entirely different treatment groups to study the intergenerational impact of the HSAA- Deininger, Goyal and Nagarajan (2013) use the patrilineal channel and focuses on the children of the head of the household and not his sisters', our study is through the matrilineal channel and focuses on the children whose mothers benefitted from the reform.

The rest of the paper is organized as follows. Section 2 details the Hindu Succession Act and the amendments to the Act. In Section 3, we describe our empirical strategy highlighting

the underlying mechanisms behind our estimations. We detail our data in Section 4. Section 5 presents the results of our analysis, including the validity tests of identification strategy and conclude in Section 6.

2 Hindu Succession Act of 1956 and Amendments

Before the Hindu Succession Act of 1956, property rights laws for Hindus were governed by two systems of doctrines, Dayabhaga, prevalent in West Bengal and Assam, and Mitakshara, prevalent in the rest of the country (Agarwal, 1994). The two systems differed in terms of how they categorized property. The Mitakshara doctrine distinguished between joint property and separate property. Joint family property includes property that has been inherited through generations patrilineally: property (such as ancestral homes and land) that has been passed from great grandfather to grandfather to father and so on. Separate property, on the other hand, is any property that is self-acquired or purchased outside of the patrilineally inherited property. Also, any asset inherited from people other than one's father or ancestors constitutes separate property (Agarwal, 1994).

The Mitakshara system specifically differentiated between these two types of properties; while sons had a birth right to joint property, women were not permitted to inherit this type property. For separate property, since the patriarch of the family had absolute control over it, he could decide how to distribute the property among his children. Under the Dayabhaga system, there was no distinction between joint and separate property, allowing the patriarch to divide the property according to his wishes. Although, all heirs, including daughters, could inherit property, preference was given to sons. It should be noted that even under the Dayabhaga system, daughters were still not able to inherit land. Thus, both systems were heavily biased against women inheriting property, especially land.

The Hindu Succession Act of 1956 (HSA), the governing inheritance laws for all Hindus,[2]

[2]For the purpose of the HSA, Hindus, Buddhists, Jains and Sikhs are all viewed as Hindus. Inheritance laws in India are based on religion, and Muslims and Christians have their own set of property laws.

sought to unite the two systems of inheritance and promote gender equality in property inheritance by mandating that daughters and sons were to be equal inheritors to their father's separate property. Under this law, sons were legally allowed to ask for partition of ancestral property.[3] The 1956 law specifically applies to inheritance in the case for males dying intestate (without a will or settlement), which is particularly important for rural Indian households where formal wills are rarely written.[4] While sons continued to be entitled to both ancestral and separate property under the 1956 HSA, the law did not give daughters the right to inherit joint property.

Over time, states amended the 1956 HSA to make it more gender equal.[5] Specifically, Kerala (in 1976), Andhra Pradesh (in 1986), Tamil Nadu (in 1989), Maharashtra and Karnataka (in 1994) had all amended the Act to allow women to have an equal share in ancestral property, as long as they were unmarried at the time of the reform. Kerala is particularly interesting, since its amendment to the HSA abolished the system of joint property altogether. These amendments were later on extended to the rest of the country in 2005, under the Hindu Succession (Amendment) Act (HSAA).

3 Empirical Strategy

Land constitutes one of the most valuable forms of property in rural India (Meinzen-Dick, 2009; Besley and Burgess, 2000). Approximately 60% of rural households are primarily engaged in agricultural activity.[6,7] Although the NSSO (2006) report shows that 10% of the rural households are landless and approximately 80% households survive on marginal and

[3]The HSA of 1956 applied to the entire country except for Jammu and Kashmir which has its own version of the Act. The Act also made special provisions for communities that were considered matrilineal. Further, tribal communities in the northeastern states are excluded from the Act since they are ruled by local customs and a few are matrilineal in nature.

[4]Agarwal (1994) reports that 65% of the population in India die without wills, and this percentage is presumed to be higher for rural households.

[5]In India, states have jurisdiction to amend inheritance laws.

[6]Approximately 70% of the Indian population live in rural areas (NSSO, 2006).

[7]Based on the NSSO Report on Key Indicators of Debt and Investment, 94% of the total value of assets in rural areas is from land and buildings (NSSO, 2014).

small land holdings, yet land remains essential for production, income generation, and a means of holding savings for the future in an agrarian society. Hence, we focus our study in the context of rural India, a setting that allows us to assess whether having greater land rights empower women and how it renders on to the next generation.

There are multiple channels through which parents (*Generation 0*) could have transferred wealth to their daughter (*Generation I*) as a result of this amendment. First, *Generation 0* could give their daughter their rightful share of ancestral property as dictated by the reform. However, post reform, evidence suggests that many families avoided giving daughters their rightful land inheritance (Agarwal, 1994; Deininger, Goyal and Nagarajan, 2013; Roy, 2015).[8] The second channel could be in the form of dowry payments since the reform may have induced parents to compensate their daughters with other forms of wealth transfer rather than part with the family land. Roy (2015) notes that while dowry payments decreased by 28% for girls below 10 years of age, they increased by 50% for those closer to marriageable age, i.e., between 11-15 years of age. A third channel may be through increased education investments for girls in order to avoid giving them their rightful inheritance. Deininger, Goyal and Nagarajan (2013) and Roy (2015) find an increase in the number of years of schooling for treated daughters after the implementation of the inheritance rights amendment. Additionally, parents may increase their daughters' education to equip her to effectively manage the property that she now is entitled to.

To establish the channel through which the intergenerational impact of the reform transpires, we first revisit the question of whether securing land rights improves women's educational attainment. There are two sources of variation in a woman's exposure to the property rights reform. Our first source of variation is the timing of a woman's marriage: the policy change is effective for women who were unmarried at the time of the reform in

[8]Sisters voluntarily gave up their claims to ancestral land in favor of their brothers (Saxena, 2013). Apart from cultural norms which discourage women from claiming their rights, the main reason for this is that women want to maintain access to their natal homes in case of "...economic, social, and physical vulnerability in case of marital discord, ill-treatment, marriage break-up or widowhood." (Agarwal, 1994). There is further evidence that instead of giving ancestral property to their daughters, sonless households often adopted sons to give them their property to keep the land under the family name (Agarwal, 1994).

their state. Our second source of variation is the group of four states (*HSAA state*) that passed the amendment prior to the 2005 national amendment.[9] While one could argue that women might migrate from a non-HSAA state to an HSAA state after marriage, Roy (2015) notes that this is not of concern since this percentage is close to being negligible (approximately 3%). Using these two sources of variation, we use a difference-in-differences strategy estimation method and estimate the following equation:

$$educ_{ist} = \alpha + \beta_1(HSAA_{ist}) + \lambda_d + \delta_t + X_{ist}\Pi + \epsilon_{ist} \tag{1}$$

where $educ_{ist}$ is the completed years of schooling of a woman i from state s married in year t. $HSAA_{ist}$ is a dummy variable that takes on the value 1 if a woman i belongs to reform state s and was unmarried in the reform year t in her state s, and takes on the value 0 if she was not exposed to the reform. X_{ist}, is a vector of individual and household characteristics which include caste, number of older women and men in her marital household, and the total land holding. Given that daughters-in-law take on the responsibility of looking after her in-laws, the presence of older men and women in the household may account for how early a woman got married and whether she was able to continue her education. Since women in rural India tend to stop their education post-marriage which also affects their educational attainment, we also account for their age at marriage as well. λ_d are district fixed effects that account for cross-place differences, and δ_t are year of marriage fixed effects. Given that districts are administrative divisions of states, including district fixed effects controls for unobservable variation at the state level. Finally ϵ_{ist} is the error term and all standard errors are clustered at the state-level.

Existing literature has established that a woman's bargaining power increases when her education and contribution to household wealth increases with significant intergenerational benefits (Afridi, Mukhopadhyay and Sahoo, 2016; Bruins, 2017; Duflo, 2003; Murthi, Guio

[9]Kerala is excluded from our main estimation since their reform was different than the rest of the country and was long before the rest of the country.

and Drèze, 1995; Lépine and Strobl, 2013; Lundberg, Pollak and Wales, 1997; Qian, 2008). While some studies suggest that mother's contribution to household decision-making is positively associated with resource allocation towards girls (Glick and Sahn, 2000; Rangel, 2006; Reggio, 2011), others find evidence of increased investments towards boys (Haddad and Hoddinott, 1994; Thomas, Contreras and Frankerberg, 2002; Quisumbing and Maluccio, 2003). Using the setting of the HSAA, we examine how a mother's exposure to the reform impacts her education and subsequently, her children's educational attainment (*Generation II*).[10]

If mothers with higher education place greater value on it, then they could use their bargaining power to increase her children's educational attainment (Afridi, 2010). With respect to the HSAA, if mothers impacted by the reform exhibit the same preferences as that of her parents (*Generation 0*), then she might allocate resources which increases her daughters' (*Generation II*) education. However, children's education could also decrease in the following scenario. If educated mothers in rural areas deem the opportunity cost of education to be high due to factors, such as, lack of work prospects outside agriculture and the perceived low quality of education in rural areas, they may consider it better to reduce formal education. This is especially true in the case for boys since cultural and social norms dictate that they are the rightful inheritors of land. Hence, boys may be forced to substitute formal schooling in favor of farming or non-farming related education skills. Thus, mothers may prefer to train boys in farming or skilled activities to secure future earnings. To analyze the intergenerational transfer of education, we estimate the following equation:

$$y_{ist} = \alpha + \beta_2(HSAA_{st}) + \lambda_d + \delta_t + X_{ist}\Pi + \epsilon_{ist} \tag{2}$$

where y_{ist} is the measure of age adjusted educational outcome of child i between the ages of 5-18, belonging to a mother in state s who was married in the year t. Following Quisumbing and Maluccio (2003) and Afridi (2010), we measure educational attainment

[10]It is important to note that since our data is a cross-section between 2004-2005, our results only capture the impact on children in the pre-2005 reform states. Given that the national amendment went into effect only after 2005, it does not play a role in our estimations.

as the deviation of the child's highest grade completed from the average grade attainment for the child's age and gender cohort. This accounts for incomplete years of schooling and provides a consistent measurement of grade attainment relative to her cohort. $HSAA_{st}$, λ_d and δ_t are the same as in Equation (1). X_i accounts for caste, household size, the age of the child, household land holding, total number of children and the education level of the child's parents. Children's educational attainment also depends on their gender and position amongst their siblings and we control for this by including the number of older and younger male and female siblings. [11]

There is widespread evidence of son preference in India, especially for the eldest son, that plays an important role in families' resource allocation decision towards their children (Jayachandran and Pande, 2017). In rural India, son preference stems from the patriarchal structure in which daughters leave their natal home and take with them their share of family assets in the form of dowry. On the other hand, sons in rural landowning households traditionally work on the family land and contribute to family assets. They also take on the responsibility of supporting parents in their old age. Bhalotra et al. (2016) find that changes to land tenure rights increased son-preference by improving survival rates of later born boys in families whose first-born is a girl relative to where the first-born was a boy. This pro-male bias negatively affects resource allocation towards daughters as parents are either diverting more resources towards sons or saving funds for future-born sons.

There has been considerable literature exploring the role gender and birth-order play in resource allocation towards children. The pro-son bias is often responsible for larger families that continue to grow until their desired gender mix of children is achieved (Clark, 2000). In addition to sibling composition, resource constraints also play an important role in families' allocation decisions amongst children (Haan, Plug and Rosero, 2014; Steelman and Mercy, 1980). If parents' time and finances are divided among a greater number of children, each child receives fewer resources towards their educational development. When girls do not have

[11] Controlling for a mother's total number of kids ensures that we include all her children including those below the age of 5 and above the age of 18.

an older brother, a pro-male bias may contribute to sibling rivalry in resources since parents may be saving some funds for when they have sons. Later-born daughters have a higher probability of having an elder brother which could also affect resource allocation towards her if the parents exhibit son-preference (Pande, 2003). Several studies have also shown that children, especially daughters in families without an older brother, are negatively impacted in terms of their health outcomes as parents may be saving resources for when they have sons (Haan, Plug and Rosero, 2014; Jayachandran and Kuziemko, 2011; Jayachandran and Pande, 2017).

In our study, if mothers with greater property rights exhibit son-preference, then in families without an older son, there could be a decrease in her daughter's education. If mothers exhibit older son preference, then in the presence of an older son, younger children (both sons and daughters) might experience a decrease in education. If these beneficiary mothers are gender neutral, then we might see no differences in education amongst siblings, irrespective of the sex of the children. Accounting for birth-order and gender composition of the children in the household, we modify Equation 2 in the following manner:

$$\begin{aligned} y_{ist} = \alpha + \beta_2(HSAA_{st}) + \beta_3(HSAA_{st} * 2^{nd}child_i) + \beta_4(HSAA_{st} * 3^{rd}child_i) + \\ \beta_5(HSAA_{st} * female_i) + \beta_6(2^{nd}child_i * female_i) + \beta_7(3^{rd}child_i * female_i) + \\ \beta_8(HSAA_{st} * 2^{nd}child_i * female_i) + \beta_9(HSAA_{st} * 3^{rd}child_i * female_i) + \\ \beta_{10}(2^{nd}child_i) + \beta_{11}(3^{rd}child_i) + \beta_{12}(female_i) + \lambda_d + \delta_t + X_{ist}\Pi + \epsilon_{ist} \end{aligned} \tag{3}$$

where $2^{nd}child_i$ and $3^{rd}child_i$ are indicators for the second and third child respectively, the omitted group is the eligible woman's first-born child. $female_i$ is a dummy variable that takes the value 1 for a girl child and 0 otherwise. All other variables are similar to the ones used in Equation 2. β_2 captures the gap between the first child (omitted group) in treatment households relative to control households. β_3 and $\beta 4$ capture the additional gap for the second and third child (relative to the first child), respectively. β_8 and β_9 are associated with the triple interaction of HSAA, gender, and birth order. These coefficients

capture whether there is a further gap in education due to gender.

4 Data

We use the 2004-2005 wave of the Indian Human Development Survey (IHDS) to conduct our analysis. IHDS is a nationally representative sample consisting of 41,554 households from 25 states and Union Territories of India and covers 1503 villages and 971 urban neighborhoods. The sample is restricted to Hindu households in rural areas reducing our main sample to 9094 households. The sample evaluating children's education includes individuals between the ages of 5 and 18 and includes only rural, Hindu, landowning households.

The IHDS contains information on household characteristics such as religion, caste, size of land holding, main household occupation, household income, and detailed demographic characteristics including years of schooling. A section of the survey is devoted to *eligible women*, those who are currently married and are between 15-49 years of age. Specifically, the survey records a woman's year of marriage, allowing us to identify women who were exposed to the reform versus those who were not. The IHDS does not collect information on women's natal household, thus one limitation of using this dataset is that we are restricted to information from her marital household. Using the detailed survey, we are, therefore, able to create the treatment and control group in the following manner. An unmarried women in Andhra Pradesh, for example, at the time of the reform (which passed it in 1986) is in our treatment group. Women already married by 1986 were excluded from the benefits of the property rights reform and thus are in our control group. We use this method for all 16 states to form our treatment and control groups. The reform states are Andhra Pradesh (1986), Karnataka (1994), Maharashtra (1994) and Tamil Nadu (1989).The non-HSAA states are Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Madhya Pradesh, Orissa, Punjab, Rajasthan, Uttaranchal, and Uttar Pradesh.[12]

[12]In addition to Kerala not being included in our sample, we also drop West Bengal, Assam, Jammu & Kashmir (J&K) and the Northeastern states. In the late 1970s, West Bengal passed a successful and highly

Descriptive statistics for eligible women are presented in Table 1; Column 1 presents summaries for the full sample, Column 2 for the non-reform states, and Column 3 for the reform states. Additionally, within the reform states, we look at the raw means between treated and control group of women, presented in Column 4 and 5 respectively. The raw data indicates that women in reform states, on average, are more educated than women in non-reform states; the gap is approximately 1 year. The majority of the sample belongs to historically disadvantaged caste groups (Scheduled Caste and Scheduled Tribes).

Approximately 52% of households in the reform states and 67% in non-reform states have some form of land holding. However, the size of land holding is smaller in the non-reform states, with an average size of 0.70 hectares compared to 0.73 hectares in the reform states. It is also important to note that the average land holding in a treated woman's household is 0.69 hectares, which is lower than the average land holding (0.77 hectares) in a control woman's household. The average household income is similar for both reform and non-reform states, however, the income levels of a treated woman's marital household is less than that of a control woman's marital household.

Women in reform states marry slightly later than those in non-reform. The raw differences suggest that women in reform states have fewer children compared to those in non-reform states. Both reform and non-reform states have more boys than girls in their households. Within reform states, women affected by the reform married later and had more children than those not affected by the reform. The pattern of more boys than girls continues to hold in the reform states for both treated and control groups of women.

ambitious redistributive land reform measure, which most likely affected the amount of land women inherited in the 1970s and 1980s. Since West Bengal's land reform coincided with the property rights amendment in the 5 treatment states, we exclude West Bengal from the control group. Additionally, West Bengal and Assam followed the Dayabhaga system of property rights, that allowed daughters to inherit all types of property, making them unsuitable as valid control groups. J&K is not in the sample since it was never part of the 1956 HSA. Union Territories are also not considered in our sample since they differ both politically and administratively from the rest of the states in India. We also exclude Delhi since we focus only on the rural areas.

5 Results

In Table 2, we assess if the reform lead *Generation 0* to compensate their daughters with human capital via more education and in Table 3, we conduct falsification tests to assess the validity of the difference-in-differences strategy. Tables 4, and 5 focus on the intergenerational effects of the reform.

5.1 Impact of Inheritance Laws on Women's Education (*Generation I*)

The results from Equation 1 are presented in Table 2. We divide our sample into two kinds of households; the first group is the full sample that includes households that owned some land and those who did not (Columns 1-4 present). Since land is an important asset in rural India, the inheritance reform is likely to play a greater role in landed households. Thus, we also look at land-owners (woman's marital family) to examine the effect of the HSAA for these families (Columns 5-8). The first row in each of the columns gives the differences-in-difference impact of the HSA reforms on women's education. Column 1 (5) presents results with basic controls including age at marriage, year of marriage fixed effects and district fixed effects. Column 2 (6) controls for caste to help explain a woman?s socio-economic background.[13] In Column 3 (7), we include the number of older men and women in the household. Due to the lack of data on a woman's natal land ownership, we try to proxy for her landholding with information from her marital household. In Column 4 (8), we include the total land holding of the woman's marital family to account for the asset holding of the household.[14]

[13]Below Poverty Line (BPL) status is highly correlated with the historically disadvantaged castes hence we do not include them in our control variables. Including BPL instead of caste in the regressions generates similar results

[14]Regressions with variables controlling for differences between the spouses' economic status at the time of marriage, couples' caste differences, land dowry practice and whether her husband is her blood relative were also estimated. The results are robust to these inclusions. Since the type of spousal matches could depend on whether the woman will be inheriting ancestral property, these estimates may be biased. Hence, we do not include these regressions in our main study.

In the full sample, we find positive and significant results in all of our aforementioned specifications. Women impacted by the HSA reforms completed an average of 0.50 years of schooling more than women who were not. Examining land-owning households, our results using basic controls, indicate an increase of 0.66 years of education, significant at the 5% level. Adding socio-economic caste control variables, we find a significant increase of 0.65 years of education. Including total land holding, we find results that are similar in magnitude and significant as the previous specifications.

Overall, we find that the amendments to the Hindu Succession Amendment Act significantly increased women's educational attainment. While we are unable to determine if women were compensated with more human capital in lieu of physical capital, our results provide some suggestive evidence towards this channel of wealth transfer.

5.2 Parallel Trend and Sensitivity Analysis

The identifying assumption in a difference-in-differences analysis is that the parallel trend assumption holds true; that the educational outcomes of the treatment and control group would have been the same in the absence of the reform. The estimated coefficients capture the true causal effect of the reform only if the variation in the reform's timing is not related to unobserved shocks and trends that differentially affected women who were unmarried at the time the reform was introduced in her state. In our study, one challenge to our difference-in-differences analysis is that there are substantial differences between the reform and non-reform states (Table 1). For instance, women in treated groups tend to be married at a later age compared to those in control groups, potentially influencing their time in school. Due to these baseline differences between the treated and control group, we use district fixed effects and time fixed effects that account for cross-place and cross-time differences. Nevertheless, it is important for us to test the validity of the difference-in-differences strategy.

In Table 2, we estimate the effect of HSAA on women's education and find evidence in support of the immediate impact of the reform. However, this does not allow us to capture

the more dynamic impact of the reform. Using an equation that similar to Equation 1 to estimate a dynamic model,

$$educ_{ist} = \beta_0 + \sum_{\tau=-5}^{\geq 5} \beta_\tau HSAA_{ist+\tau} + \lambda_d + \delta_t + X_{ist}\Pi + \epsilon_{ist} \tag{4}$$

we capture the immediate impact of the reform, and in years following the reform was see whether the impact stabilizes, accelerates, or reverts to the mean. In the years preceding the reform, an anticipatory effect might lead families to increase their daughter's human capital. To capture these effects, we include lags and leads (τ) by focusing on years before and after the reform was introduced in the difference-in-difference analysis. We focus on five years prior to the reform and five years post reform by introducing appropriate dummy variables. For the year of the reform ($\tau = 0$), the variable $HSAA_{ist+\tau}$ takes on the value 1 if a woman i belongs to reform state s and was unmarried in the reform year t in her state s, and takes on the value 0 if she was not exposed to the reform. For the years prior to reform ($\tau < 0$), $HSAA_{ist+\tau}$ takes on the value 1 if a woman i belongs to reform state s and was unmarried in the year $t + \tau$ in her state s, and takes on the value 0 otherwise. Similarly, for years post-reform ($\tau > 0$), $HSAA_{ist+\tau}$ takes on the value 1 if the woman i belongs to reform state s and was unmarried in the year $t + \tau$ in her state s, and takes on the value 0 otherwise.

The estimated coefficients from the dynamic model in Equation 4 are plotted in Figure 1. The values -5 to -1 represent the number of years prior to the reform and values 5 to 1 correspond the number of years after the reform. We find that before HSAA was introduced, there was no significant impact on women's education. However, for the year corresponding the reform and the subsequent year, there is a positive and significant impact on women's education. The impact continues to be positive in years 4 and beyond. Although, these effects are not always significant, the results are consistent with the baseline estimates that only focused on the year of the reform to assess the impact of HSAA.

Additionally, we conduct a falsification test by examining the education patterns of *Gen-*

eration I women that should not have been affected by the changes to property rights. Since the Hindu Succession Act does not affect Muslims, we should not expect women in Muslim households to be impacted by the reform. In our data, we have 11% rural Muslim households in the non-reform states and approximately 4% rural Muslim households in the reform states. In Table 3, we estimate Equation 1 for only the Muslim population, Column 1 presents results for the full sample, and Column 2 for landed households. We find that the coefficient for the treatment variable HSA reform is not statistically significant. These findings lend confidence to the validity of the difference-in-differences strategy detailed in the previous section.

5.3 Intergenerational Impact of Property Rights Reform

5.3.1 Impact on Children's Education (*Generation II*)

Does the positive impact of the HSA reform on women translate to her children? Empirical analysis of the relationship between mothers' increase in education (due to better property rights) and her children's educational attainment is presented in Table 4. All the results focus on landed rural households where children are between ages 5-18. We concentrate on households with up to three children since this is typical of a family in rural India in our dataset. Results presented in Column 1 show no significant differences in the educational attainment between children belonging to mothers impacted by the reform compared to those not. We also assess the intergenerational impact by gender of the child. The coefficients suggest a decrease in education for both girls and boys, however the results are not significant. One reason we find no significant differences in girls' education between treated and untreated households could be due to the introduction of numerous programs since the 2000s that incentivize families to educate girls. The NSSO (2010) report for Education in India shows a significant increase for rural females in all education categories between 1995-96 to 2007-08. Given this nudge in the demand for education, mothers who were empowered by the land reform most likely did not find it necessary to further increase their contribution towards

their daughters' education.

At first glance, the results indicate no evidence of intergenerational transmission of property rights reform. To correctly evaluate a woman's bargaining power in the household, particularly in a patriarchal society like India, it is important to consider her position in the household relative to that of her husband's. For example, if a woman's husband has a lower status, either in terms of education or income, then an increase in women's assets may not allow her to significantly impact household decisions due to existing social norms. This could foster an environment of conflict of status among spouses. On the other hand, if husbands are more educated than their wives, then in the absence of status conflict, a woman's increase in education maybe permitted to have a positive impact on her household well-being. Our paper adds to the intra-household bargaining literature in the context of this understudied phenomenon of status conflict. Exploiting the educational differences among spouses as a source of conflict, we re-evaluate our findings for children's outcomes.

In this context, we re-estimate Equation (2) between two groups of households: one where the father's education is less than that of the child's mother (Column 2) and the other where the father is equally or more educated than the mother (Column 3). We categorize education into three groups - primary, middle, secondary, higher secondary, and tertiary education.[15] In the full sample, where mothers are more educated than fathers, there is a 0.625 standard deviation significant decrease in children's educational attainment. Dividing the sample by the gender of the child presents a few surprising results. While we do not see any impact of father's relative education for the sample of daughters, we see the negative result mimicked for sons. Among households where mothers are more educated than fathers, boys see a significant decrease of 0.824 standard deviations in their education. For households where fathers' education level is greater than or equal to that of the mothers, we see no significant

[15]Primary education is classified as up to 5 years of education, *middle* as 6 to 8 years of education, secondary as 9 to 10 years of education, higher secondary as 11 to 12 years of education, and tertiary as greater than 12 years of education. Using this classification, a father is less educated than the mother if the father belongs to a lower education category relative to the mother. Similarly, a father is at least as educated as the mother if the father belongs to a similar or higher education category compared to the mother.

results for girls or boys.[16]

The above results suggest that in evaluating the effects of women's empowerment, it is important to conduct the study accounting for a woman's relative standing in her family. As seen in our analyses, mothers who were of higher status in terms of education than their husbands, are choosing not to use their higher decision-making power to increase sons' education. It could also be that these mothers are not being able to allocate more resources towards sons' education due to conflict. We argue that in such households the sons' education follows the fathers' education. Since these results are restricted to landed households, sons' might be taken out of schools to teach more farming skills so that they are well-equipped to maintain their family's land. Furthermore, recent reports from the Census of India indicate a rapid decline in education statistics.[17] NSSO (2015) reports that approximately 39% of rural students in 2011-12 were no longer enrolled in school. The survey highlights that one of the primary reasons for children dropping out of school was that education was deemed unnecessary. This is in part due to the rising wages in India, making the opportunity cost of education higher, especially for boys in rural households. We continue to find no significant impact on girls. Additionally, women might not think it worth investing in their children's education based on their own learning, which could explain why we see no effect on girls' education and a negative effect on boys' education. There could also be a bequest motive: in a model where parents are altruistic and their utility function depends on both their consumption and that of their children they might choose to make a transfer to their girls in the form of dowries as opposed to investment in their human capital, so our results indicate a substitution away from education.

[16] Alternatively, we define the gap in education among spouses as the raw difference between them and re-evaluate their children's education. Our results are robust to this definition as well.

[17] `http://www.livemint.com/Opinion/h9bmbiINg0iH0BcrbZ7gg0/Why-students-in-India-drop-out.html`

5.3.2 Role of Birth-Order and Gender Composition of Children

In Table 5, we explore the role of gender and birth-order in assessing the intergenerational impact of the property rights reform. In Columns 1 and 2, we focus on gender homogenous households: households with only girls or only boys, respectively. If households were gender neutral, then for only girls households, one might not see a difference between the older and younger daughters. However, if son preference exists and treated mothers viewed education as an asset, then one would see a difference in age-adjusted educational attainment between the older and younger daughters with a negative effect on the older girl child's educational attainment. We find no significant differences for the oldest child between a treated and control household and the gap in education between siblings is not statistically significant. Thus, in households with only daughters, we find that empowered mothers are not using their bargaining power to exhibit son preference through the education channel.

If only-boys households had son preference or exhibited gender neutrality, then one would see no difference between the younger and older child. In the event that families are resource constrained, they may choose to invest more in the older sons. In Column 2, we find no evidence that the older boy child in treated households receives significantly more education than in control households. Thus, mothers have most likely assessed the opportunity cost of education to be high and may have invested in their sons through another channel. However, there is a significant gap in educational attainment between the oldest son and second oldest son. This may indicate that while mothers might not place value on education, they still choose to endow the older son with more educational resources than the younger sibling.

In Column 3, we shift focus towards gender heterogeneous households where at least one child is a girl and at least one child is a boy. If treated mothers exhibit son preference then the coefficient corresponding to HSAA should be positive and significant. However, we find no evidence of eldest sons in HSAA households receiving more education than their counterparts in control households. We also find no significant difference between eldest son and daughter in treated household. However, we continue to observe a significant gap in

educational attainment between the oldest son and second oldest son indicating preference for the older son. Adding birth-order and gender to our analysis reveals that treated mothers are not translating their increased education to their sons' educational outcome and that they are not using their power to increase their son's years of schooling. While we are unable to establish son-preference for treated mothers through the channel of education, we are able to establish existence of older son preference.

6 Conclusion

In this study, we examine the impact of improving women's access to property motivated by the amendments to the Hindu Succession Act. The changes allowed unmarried women to be equal shareholders of ancestral and property as their brothers. With widespread and persistent gender discrimination in land rights, this amendment was a significant move towards gender equality. By the early 1990s, five states in India had passed these reforms, and we use this natural experiment to evaluate its impact on women's education. We further look at the intergenerational outcomes of the reform by examining the education outcomes of the children of women affected by the reform. We find that years of schooling are significantly higher for women directly impacted by the reform (Generation I). However, we find no evidence of an intergenerational impact of the property rights reform. We explore two mechanisms to investigate into our results through the lens of conflict of status among spouses, measured by their education levels and through the role of birth-order and gender of the siblings. While we find no impact on the education of daughters of women exposed to the reform, our results indicate that educational attainment for boys decreases significantly in households where the father is less educated than the mother. Additionally, accounting for the birth-order and the gender composition of the siblings, reveal no significant educational gaps among treated and control households, and among siblings.

One of the main contributions of our paper is that we highlight the need for accounting

for the relative position of a woman with respect to her husband's to evaluate the effects of her bargaining power. While we unable to formally test the link between status conflict and bargaining power, our results provide evidence that this is an important channel to consider. Increases in a woman's income or education might have no impact in her household if she cannot assert her decision making power. Moreover, empowering women, especially in a patriarchal society, may also increase marital discord within the family thus negating any improvements we might expect.

Additionally, it should be noted that the property rights reform has not really translated to women receiving their rightful inheritance under the HSA amendment. A large proportion of women in rural India lack knowledge of their rights to property (Sircar and Pal, 2014). Moreover, there are several barriers including existing social norms, gender bias, and family pressure that prevent the implementation of the law (Deo, 2017; Sircar and Pal, 2014). Some ways that other countries have addressed these challenges and moved to a more egalitarian system of property rights are through legal changes, civil society interventions, land-titling projects, gender sensitization training of officials, and an increase in women's legal literacy. Given the general lack of awareness and the will to implement the HSA amendment, there is a need for well-designed policies that will incentivize officials at the local level to enforce these land rights. Researchers need to revisit the topic of intergenerational outcomes of a gender-equal property rights reform after the amendments are truly implemented.

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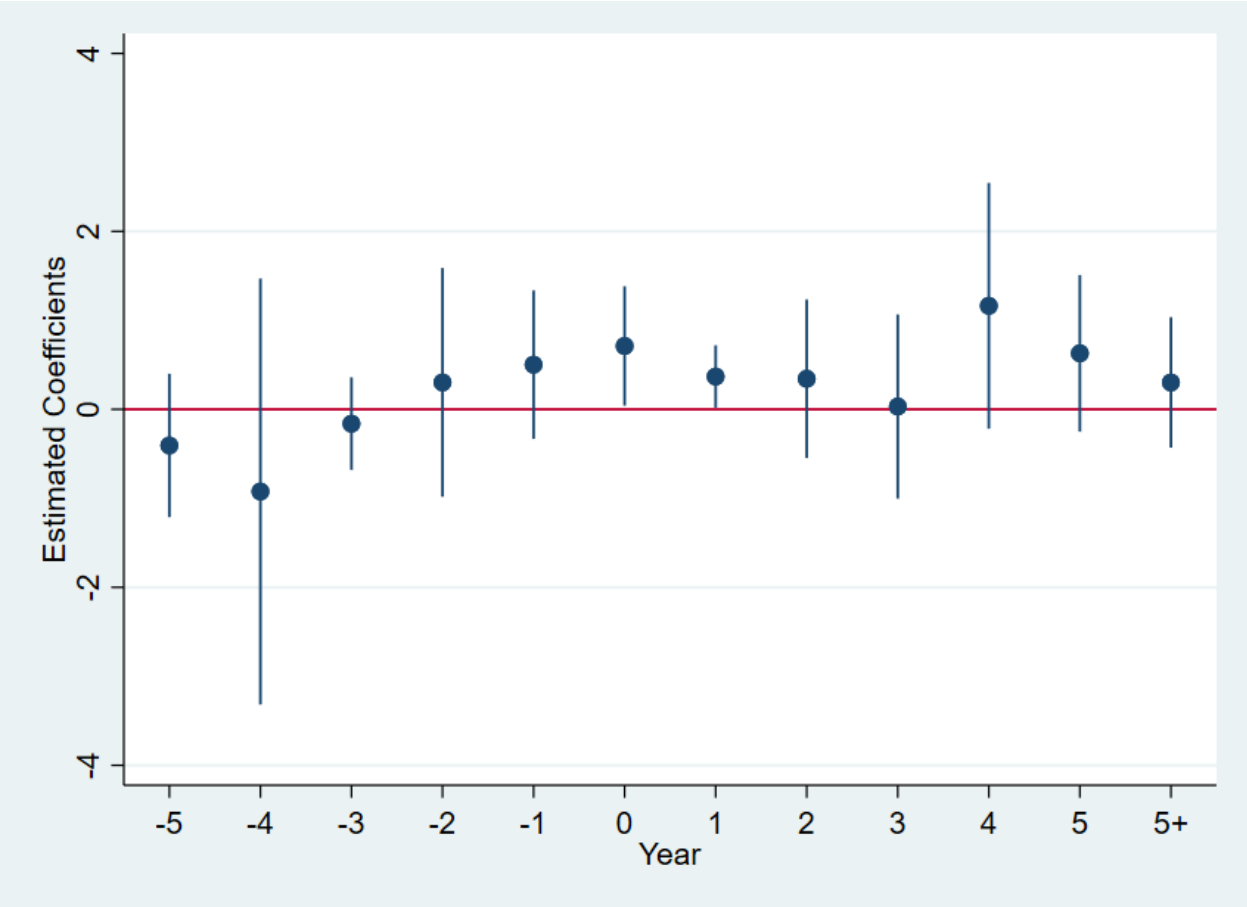
Figure 1: Dynamic Differences-in-Difference Estimates of the Effect of HSAA on Women's Education



Notes: Dynamic difference-in-differences estimates from Equation 4. Standard errors are clustered at the state level and 95% confidence intervals are shown. Data set is from IHDS-I are from IHDS.

Table 1

Descriptive Statistics for Eligible Women

	Full Sample	Non-Reform States	Reform States		
			All	Treated	Control
	(1)	(2)	(3)	(4)	(5)
Woman's Years of Education	2.72	2.38	3.34	4.22	2.59
	(3.81)	(3.64)	(4.01)	(4.38)	(3.51)
Husband's Years of Education	5.44	5.59	5.17	5.88	4.56
	(4.60)	(4.63)	(4.54)	(4.84)	(4.19)
Woman's Age	32.95	32.97	32.89	26.76	38.07
	(7.65)	(7.68)	(7.59)	(4.69)	(5.39)
Age at Marriage	16.29	16.07	16.71	17.23	16.28
	(3.06)	(3.16)	(2.83)	(2.73)	(2.84)
Scheduled Caste/Tribe	0.82	0.81	0.83	0.83	0.83
	(0.39)	(0.39)	(0.38)	(0.38)	(0.37)
Household Size	5.94	6.34	5.22	5.23	5.22
	(2.24)	(2.35)	(1.81)	(1.87)	(1.75)
Number of Children	2.25	2.54	1.72	2.06	1.42
	(1.51)	(1.56)	(1.24)	(1.00)	(1.33)
Number of Boys	1.44	1.61	1.14	1.16	1.12
	(1.07)	(1.12)	(0.89)	(0.86)	(0.92)
Number of Girls	1.33	1.48	1.04	1.07	1.02
	(1.17)	(1.23)	(0.99)	(0.94)	(1.03)
Number of Old Men	0.18	0.19	0.16	0.18	0.14
	(0.39)	(0.29)	(0.37)	(0.39)	(0.35)
Number of Old Women	0.20	0.21	0.19	0.19	0.18
	(0.41)	(0.42)	(0.39)	(0.40)	(0.39)
Land Owner	0.62	0.67	0.52	0.48	0.56
	(0.44)	(0.47)	(0.49)	(0.49)	(0.49)
Total Land (in hectares)	0.71	0.70	0.73	0.69	0.77
	(1.67)	(1.56)	(1.87)	(2.23)	(1.49)
Household Income	32592.85	32510.18	32742.92	31838.18	33507.66
	(28002.31)	(28213.40)	(27617.60)	(27163.83)	(27978.76)
No. of Observations	**12523**	**8360**	**4163**	**1726**	**2437**

Notes: The data set is from the 2004-05 round of IHDS. Standard errors are in parentheses. Column 1 presents summary statistics for the full sample, Column 2 for the non-reform states. We then report the descriptive statistics for reform states, divided between the full sample (Column 3), for treated group of women (Column 4), and for control group of women (Column 5). Sample is restricted to Hindu, rural households.

Table 2

Difference-in-Differences Estimates of Hindu Succession Amendment Act on Mothers' Education

	Full Sample				**Land Owning Families**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HSAA policy	0.545**	0.487*	0.503*	0.491*	0.662**	0.655**	0.654**	0.632**
	(0.257)	(0.262)	(0.258)	(0.264)	(0.319)	(0.306)	(0.310)	(0.319)
Age at Marriage	0.206***	0.158***	0.157***	0.156***	0.191***	0.144***	0.143***	0.141***
	(0.026)	(0.027)	(0.025)	(0.026)	(0.036)	(0.033)	(0.031)	(0.032)
Other Backward Caste		-2.400***	-2.293***	-2.218***		-2.333***	-2.186***	-2.111***
		(0.181)	(0.165)	(0.172)		(0.194)	(0.185)	(0.179)
Scheduled Caste		-3.575***	-3.439***	-3.307***		-3.364***	-3.216***	-3.106***
		(0.243)	(0.228)	(0.239)		(0.206)	(0.211)	(0.221)
Scheduled Tribe		-4.204***	-4.068***	-3.963***		-3.968***	-3.796***	-3.695***
		(0.267)	(0.256)	(0.255)		(0.341)	(0.333)	(0.317)
Other Caste		-1.331***	-1.254***	-1.274***		-1.228***	-1.111***	-1.102***
		(0.264)	(0.257)	(0.260)		(0.381)	(0.377)	(0.365)
Number of Older Men			0.649***	0.564***			0.615***	0.552***
			(0.129)	(0.135)			(0.142)	(0.148)
Number of Older Women			0.224*	0.172			0.306***	0.267**
			(0.134)	(0.129)			(0.136)	(0.131)
Total Land in Hectares				0.184***				0.142***
				(0.027)				(0.026)
No. of Observations	**12523**	**12523**	**12523**	**12523**	**7855**	**7855**	**7855**	**7855**

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the state level and are reported in parentheses. The dependent variable is the level of education (measured in number of years) completed by the mother. Sample of states does not include Jammu & Kashmir and the North Eastern states. All regressions include district fixed effects, year of marriage fixed effects and household weights provided by IHDS. Brahmins form the omitted caste group.

Table 3

Falsification Test

	Muslims	
	All	Landed
	(1)	(2)
HSAA	0.092	-0.412
	(0.649)	(0.467)
Age at Marriage	0.009	0.012
	(0.062)	(0.076)
Total Land in Hectares	0.234	0.237
	(0.187)	(0.165)
No. of Observations	**935**	**438**
R^2	0.41	0.54

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. The dependent variable is the level of education (measured in number of years) completed by the mother. The sample is restricted to households in rural areas. Sample of states does not include Jammu & Kashmir and the North Eastern states. The regressions include district fixed effects, year of marriage fixed effects, all control variables described in our empirical specification and sample weights

Table 4

Intergenerational Impact of HSAA on Children's Education

	Overall Impact	$Educ_{father} < Educ_{mother}$	$Educ_{father} \geq Educ_{mother}$
	(1)	(2)	(3)
Full Sample	-0.131	-0.625***	-0.103
	(0.158)	(0.204)	(0.149)
No. of Observations	**7974**	**691**	**7283**
R^2	0.228	0.547	0.232
Girls	-0.133	-0.383	-0.048
	(0.204)	(0.434)	(0.176)
No. of Observations	**3387**	**319**	**3068**
R^2	0.326	0.567	0.346
Boys	-0.125	-0.824*	-0.115
	(0.143)	(0.467)	(0.121)
No. of Observations	**4587**	**372**	**4215**
R^2	0.241	0.713	0.24

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the state level and are reported in parentheses. The dependent variable is the level of education measured in terms of z-scores. In addition to the restrictions described in the previous tables, we also limit the sample to children between 5-18 years of age and include women who have no more than three children. Regression includes district fixed effects, year of marriage fixed effects and a full set of controls as described in the empirical strategy section. Regressions also include household weights provided by IHDS. Column 1 reports results for all households in our sample, Column 2 reports results for households where the father's education level is less than that of the mother's and Column 3 for those where the father's education is more than or equal to that of the mother's.

Table 5

Birth Order and Gender Composition of Siblings

	Only Girls	**Only Boys**	**Girl-Boy**
	(1)	(2)	(3)
HSAA* 2^{nd} child * Female			0.158
			(0.237)
HSAA* 3^{rd} child * Female			-0.458**
			(0.188)
HSAA* Female			0.087
			(0.190)
Female * 2^{nd} child			0.006
			(0.114)
Female * 3^{rd} child			0.085
			(0.109)
HSAA* $2^{nd}child$	-0.143	-0.252**	-0.264***
	(0.126)	(0.126)	(0.099)
HSAA* $3^{rd}child$	-0.483	-0.083	0.054
	(0.145)	(0.347)	(0.065)
HSAA	-0.263	-0.152	0.133
	(0.267)	(0.191)	(0.132)
2^{nd} child	-0.257	0.371**	-0.002
	(0.289)	(0.172)	(0.129)
3^{rd} child	-0.359	0.529*	-0.038
	(0.574)	(0.315)	(0.229)
Female			-0.092
			(0.106)
No. of Observations	**664**	**1476**	**4234**
R^2	0.538	0.424	0.308

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the state level and are reported in parentheses. The dependent variable is the level of education measured in terms of z-scores. Sample used is the same as that used in Table 4. Regression includes district fixed effects, year of marriage fixed effects and a full set of controls as described in the empirical strategy section. Regressions also include household weights provided by IHDS. Column 1 & 2 report results for gender homogenous households and Column 3 for gender heterogenous households