

# **Social Norms and Human Capital Investment: Examining the Educational Impacts of Dowry in Rural India**

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## **Abstract**

This paper examines the consequences of sticky social norms for investments in human capital in the context of dowry payments and educational attainment. Using data from rural India the paper tests for educational impacts of a change in dowry payments brought about by the 1985 amendment to the Dowry Prohibition Act. The empirical strategy uses a Difference-in-differences design along with variation in exposure to the amendment by religion. Findings document a 18% reduction in education as well dowry paid for exposed females post amendment. Households that experienced the most change in dowry payments exhibit the largest declines in years of education. Dowry and education are considered as signals communicating adherence to traditional norms to explain these results. Declines in educational attainment increase with increases in enforcement capacity, consistent with a backlash against challenged social norms.

## **1 Introduction**

Culture matters for economic outcomes, specifically as a determinant of values and beliefs (Guiso et al. (2006)) and has been shown to affect a wide range of outcomes (Becker and Woessmann (2009); Guiso et al. (2009); Nunn and Wantchekon (2011)). Within the Indian

context, there are two tenets of culture that help frame this paper. The first is the centrality and significance of marriage in a women's life (Srinivasan (2005)). The second is the role of marriage customs, not just as a way for households to mark celebrations, but importantly as a way for households to signal their type by engaging in conspicuous consumption in the form of elaborate wedding expenses (Bloch et al. (2004)). Social interactions are shaped both by informal constraints such as values and beliefs, as well as formal constraints enforced through institutions. How do social norms and behaviors interact with laws in ways that affect individual behavior?

This paper examines the interplay between institutions and culture and its consequent impact on an important economic outcome - educational attainment. Specifically, the paper explore how changes in enforcement capacity of laws in the form of an amendment to the anti-dowry law in India impact an established social norm - dowry payments and the gendered consequences on educational attainment. The empirical strategy uses a Difference-in-differences design combining spatial and temporal variation in exposure to the 1985-86 amendment to the anti-dowry law in India.

This paper documents three main categories of insights. First, changes in legal enforcement capacity is able to affect social norms. The findings suggest a 18% reduction in average dowry payments<sup>1</sup> in the post amendment period. Second, attempts to alter conservative social norms may result in undesirable behavior. This paper finds a 18% reduction in educational attainment for girls only, with strongest effects among girls in households most impacted by changes in dowry payments. Furthermore, heterogeneity analysis reveals that this effect is unlikely to be driven by changes in marriage match quality or differences in household wealth. Rather, households rely on dowry payments as a signal to communicate bridal adherence to traditional norms. By making dowry payments costlier the anti-dowry amendment causes households with greater traditional preferences to reduce female education to signal adherence. Third, declines in educational attainment are consistent with increases in enforcement capacity, suggesting presence of a backlash effect.

Dowry is a long standing cultural tradition in India thereby making it an interesting context to study how legal and cultural constraints interact (Alesina and Giuliano (2015)). Prior work

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<sup>1</sup>Dowry is a wealth transfer at the time of marriage from the bride's family to the groom's family, a custom that dates back to 200 C.E. Dowry transfers are sizable, typically exceeding household annual income and still widely prevalent (Chiplunkar and Weaver (2019))

in this area speak to enforcement capabilities of laws specially when they conflict with prevailing social norms (Barfield (2010); Parsons (2010)). Often such laws are difficult to enforce with enforcement rates showing negligible improvement over time (Collin and Talbot (2023)). Even when laws are enforced unintended consequences might arise such as spikes in child marriage rates in the case of the historic child marriage abolition law in India (Roy and Tam (2016)). By focusing on legal systems that govern marriage customs and specifically on laws to regulate dowry practices this paper provides evidence on successful legislation enforcement and the unintended consequences thereof in a more recent time frame.

In examining the link between dowry payments and educational investment, this paper explores household level financial management strategy with the potential to hurt long run earning capacities of children. Prior work examining the economic impacts of household level ceremonial expenditures by households finds evidence of increased borrowings and a rise in labor supply by mothers to finance quinceanera ceremonies in Mexico(Suzuki (2021)). Alternatively, ceremonial expenses may interact with government policies to mediate supply side educational interventions. Ashraf et al. (2020) examine the mediating role of bride price on the relationship between school construction programs and educational attainment . The practice of bride price and dowry differ in that dowry involves co-movement of the bride and payment. More importantly, the two practices are the outcome of distinct cultural contexts, thereby making this study distinct from (Ashraf et al., 2020).

This paper contributes to four areas. The first is the growing literature on culture and its impact on economic outcomes. Prior work in this area draws attention to changes across a host of behavior comprising agricultural productivity, sentencing and lending behavior and aggregate impacts (GDP) of culture in the form of religious festivals ((Campante and Yanagizawa-Drott, 2015; Mehmood et al., 2022; Montero and Yang, 2022)). This paper adds to the literature by studying the impact of a longstanding aspect of Indian culture - dowry payments, on a key input in the human capital production function. In doing so it considers long run behaviors through which which culture impacts economic outcomes over short-run changes from observance of religious festivals.

The second contribution is providing an empirical setting to study how laws interact with social norms resulting in unintended consequence. By identifying a context with differences in

scope of the law targeted towards a pervasive cultural practice, this paper provides a unique opportunity to examine causal effects. Most of the literature reviewed in this area is theoretical (Chen and Yeh (2014); Deffains and Fluet (2020)) and presents evidence from experimental designs in areas of tax evasion, corruption, substance abuse (Besley et al. (2014); Musick et al. (2008)). This study provides evidence beyond illegal behaviors by studying impacts on educational attainment. Furthermore, this paper highlights an unintended and harmful consequence of changes in legal frameworks to counter social norms.

Additionally, this paper builds on work that explores the possibility that laws intended to enhance women’s status yield perverse effects (Anderson and Genicot (2015); Bhalotra et al. (2020); Calvi and Keskar (2020)). By documenting a decline in female education this paper highlights the possibility that pro-women laws may worsen the condition of women along dimensions not targeted by the legislator. The findings of this paper caution against implementation of pro-women legislation without appropriate consideration of backlash effects on account of legal interactions with prevalent social norms. Last, it contributes to the well-established literature on gender gaps in education (Hausmann et al. (2012)) in developing countries. By exploring how policy interventions in marriage markets have the potential to generate gender gaps in educational attainment (Vogl (2013)), this paper identifies an alternate pathway through which cultural norms speak to gender gaps in education.

A related paper, Calvi and Keskar (2020), also examines the impact of amendments to the anti-dowry law on educational attainment for women in India. This study differs from Calvi and Keskar (2020), in a number of ways. First, contrary to the findings in this study, Calvi and Keskar (2020) find positive gains in educational attainment for women. Second, the two studies use different data sets with differences in features critical to the findings of this paper which speaks to the importance of social norms. Whereas Calvi and Keskar (2020) consider urban and rural areas, this study focuses on rural areas alone where traditional norms are more likely to operate and have stronger hold. Additionally Calvi and Keskar (2020) examine cohorts of women who are relatively younger as compared to the population examined in this study. Social norms take time to evolve and respond to changes in legal frameworks. Examining older cohorts is important since it provides insights from a time frame prior to changes in attitudes. Third, the studies vary in the treatment assignment. To account for this difference, this paper

implements the estimation strategy in Calvi and Keskar (2020) as a robustness check presented in Table 21. The results of this paper remain qualitatively unchanged however, the estimates become more imprecise.

## 2 Background

In the Indian context, dowry is closely tied with people’s representation of themselves and others. Anthropologists claim dowry as a central institution to define social prestige and status across castes (Roulet (1996)), thereby making it a widespread practice. Expectation and negotiation of dowry exchange dominates discussion regarding the arranging and establishing of a marriage. Furthermore, everything the bride brings is publicly displayed to the family and guests of the groom<sup>2</sup>, making it a visible exchange. Dowry thus becomes a public symbol of the status and prestige for households.

Existing economic models on dowry focus on bequest motives, market-clearing price for grooms and upward social mobility to explain the origin and persistence of dowry <sup>3</sup>. The idea of dowry as a way to signal adherence to social norms is largely ignored. In contexts where prestige building through adherence to social norms is an important manner in which households build social capital<sup>4</sup>, standard economic models fall short.

Responding to the extractive nature of contemporary dowry practices the Government of India enacted the Dowry prohibition Act of 1961 as the primary legal means of regulating and controlling dowry. Under this act, any dowry exchange was prohibited<sup>5</sup>. An important feature of this act was that Muslims were exempt from the purview of this law and subsequent amendments, since individuals to whom the Muslim Personal Law<sup>6</sup> applied are not covered under personal laws in India. This feature of the Indian legal system allows the use Muslim populations as a control group in the analysis.

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<sup>2</sup>Contemporary dowry comprises of costly items and cash, jewellery, trousseau and other household goods given to the family of the groom during the wedding ceremonies (Roulet (1996), Nishimura (1994)).

<sup>3</sup>(Anderson, 2003; Becker, 1973; Bhaskar, 2019; Botticini and Siow, 2003)

<sup>4</sup>This paper follows Putnam’s definition of social capital (1993, p. 167) as ‘the general forms of social organization, such as social norms and values, and social networks (especially social participation), that could facilitate coordinated actions and improve the efficiency of society.’ Households value individual level social skills that facilitate non-formal contracts or help navigate imperfect information problems. Examples of such skills could be trust Zak and Knack (2001) or association participation.

<sup>5</sup>Further details in Appendix section B.2.

<sup>6</sup>Shariat law based on the teachings of the Koran which prescribe retributive penalties for lawbreaking.

Anecdotal evidence suggests that the legal provisions were insufficient and poorly executed. Taking cognisance of what was widely perceived as a “failed” law, the Government of India amended the law in 1985 and introduced stricter penal provisions and expanded enforced capacity. This paper refers to the 1985-86 amendments as the policy shock or the amendment from here on. The amendments included a more inclusive definition of dowry <sup>7</sup>. The law also increased the scope of punitive actions and fines by categorising dowry offences in the same class as murder.

To improve enforcement of the law the amendment authorized state governments to appoint manpower in the form of Dowry Prohibition Officers with a responsibility to prevent dowry payments and collect evidence for prosecution of offenders. A new system of maintenance of a list<sup>8</sup> of presents exchanged during the marriage was established. The amendment also made illegal the demand for dowry which included advertisements in matrimonial sections of newspapers. Legal changes were accompanied by expanding the Indian Penal code to include dowry death<sup>9</sup>.

Alfano (2017) documents a phenomenal jump in reported dowry cases from 400 cases per year to 2000 cases per year across the pre and post-period. Apart from increases in dowry reporting, dowry cases under litigation also saw a marked increase during the 1980s (Menksi, 1998). Furthermore, the average number of dowry cases under trial at the Supreme Court in India doubled from 2 to 4 cases annually after the amendment (Alfano (2017)). Combining these insights suggest that the amendment had high expressive value <sup>10</sup>. Table 2 provides empirical evidence on the first stage impact of the amendment on dowry payments to support this claim.

### 3 Conceptual Framework

This section provides a conceptual framework that incorporates signaling in a theory of human capital formation to explain the decline in female educational attainment. Dowry and educa-

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<sup>7</sup> “any property of valuable security given or agreed to be given either directly or indirectly, by i) one party to a marriage to another party to a marriage, ii) by parents of either party to a marriage or by any other person to either party to the marriage or any other person (GOI 1986)

<sup>8</sup> Includes a description, estimated value of gifts, presenting individual and relationship to the couple.

<sup>9</sup> Further details are presented in Appendix section B.2.

<sup>10</sup> Expressive value is derived from the very act of passing a particular law which serves as a signal regarding a social norm.

tion are first discussed as inputs into the human capital formation production function. The discussion is then expanded to accommodate the potential of dowry and education to serve as signals to communicate adherence to traditional social norms.

### 3.1 Human Capital Production Function Model

The economic theory behind a human capital production function considers dowry and education as inputs into a production function. The returns on either of these inputs can be thought of as higher lifetime utility either through higher wages, matching with high quality spouses<sup>11</sup> or improvements in bargaining power (Calvi and Keskar (2020)).

The documented decline in female education is inconsistent with dowry and education as substitutes since a decline in dowry payments would show up as increases in educational attainment. Yet this paper finds scarce evidence to support gains in educational attainment across multiple specifications and sub-samples.

Alternatively, a strong price effect may obscure the substitute relationship between dowry and educational attainment. Under this scenario a decrease in dowry payments would lead to increases in education demand thereby making education more expensive. If the reduction in educational attainment is on account of increases in the price of education rather than the reduction in dowry then the results do align with a substitute story. However, this scenario is ruled out since for the poorest occupation type where dowry is least important, the evidence documents a gain in educational attainment (Table 6).

Taken together these evidence suggest, that if viewed from the human capital production approach, dowry and education are complements, particularly for women. This result is consistent with prior studies in the South-Asian context which find more educated brides trade off higher dowries and female education serves as a negative signal in the presence of gendered attitudes(Buchmann et al. (2021))<sup>12</sup>. The presence of gendered social attitudes motivates a discussion on the signaling potential of dowry and education.

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<sup>11</sup>Measured by either higher spousal income(Vogl (2013))or greater upward social mobility(Anderson (2003))

<sup>12</sup>Educated girls are perceived as more rebellious and less likely to be controlled (Karim et al. (2022)).

## 3.2 Signaling Model

In the presence of unequal gender norms, along with being inputs in the human capital production function, education and dowry investments may also serve as signals to communicate adherence to traditional norms. This paper modifies the signaling model presented in Buchmann et al. (2021) to consider dowry payments as the primary means for signaling unobservable bride attributes<sup>13</sup>. In the Indian context bride characteristics (adherence to traditional norms) are not fully observable to grooms given the widespread prevalence of arranged marriages (Vogl (2013)). If traditional norm adherence is valued in the marriage market then greater engagement with dowry payments, on account of being a long standing norm, are a potential way to signal a valued but hidden characteristic of the bride.

The amendment increases the cost of engaging in dowry payments thereby making dowry payments a less preferred way to signal. Given the potential of lower female education as a viable signal, the amendment induces households to signal adherence to traditional norms by reducing female education. Prior literature suggests age at marriage as an alternate channel for signaling. While this is theoretically possible, changes in age at marriage are more likely to be a preferred strategy when households are able to use dowry payments to compensate for changes in age at marriage. In such a scenario, women can choose to marry late and increase schooling conditional on paying a higher dowry. However, in the absence of large magnitudes of dowry payment, as is the case post-amendment, adjustments along the education channel are a more credible signal of traditional norms.

In a perfect experiment the above conceptual framework can be tested using exogenous variation in the value placed by grooms on the social norm adherence by brides. Unfortunately, such an experiment is impossible and moreover secondary data to measure valuation of social norm adherence is unavailable. Instead, the paper examines how family level adherence to observable traditional norms mediates the impact on female education in the post reform period. This approach though imperfect provides valuable insights assuming that unobservable bride attributes that measure traditional norm adherence are correlated with family level traditional norm adherence.

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<sup>13</sup>Education as a means to signal is presumably more costly given the potential lifetime labor market impacts. However, it is important to acknowledge that in the presence of gender unequal norms, lower female education can serve as a signal to communicate greater adherence.



Measures of family level traditional norm adherence available in the data are importance of dowry payments, intensity of engagement with dowry norms and adherence to a patriarchal practice. Combining insights from the framework with available data generates the following testable predictions. The first, reduction in education is expected to be more pronounced for girls, within households most impacted by changes in dowry payments. Second, variation in importance of dowry payments is expected to mediate the impact on female education. Third, households that engage in other traditional social norms such as patriarchal norms are more likely to switch to using education as a signal.

## 4 Data

The data used in the analysis are part of the ARIS-REDS data (hereafter REDS data) collected by the National Council of Applied Economic Research in Delhi, India. The analysis uses data from the 1999 survey round which are a detailed survey of rural households spanning 17 major states in India. The REDS data are a nationally representative rural sample of Indian households and contains detailed retrospective information on individual characteristics of all household members provided by the household head.

The REDS data set is unique in that it records the monetary value of dowry payments. Close to 79% of the sample report a dowry payment (Table ??), providing evidence on the widespread and persistent nature of this social norm. Summary statistics reveal that average dowry payments are of large magnitude and exceed the annual household income. Along with dowry payments the data records educational attainment and demographic characteristics at the household level. This allows the empirical analysis on a matched dowry and educational attainment for the individual as well as the spouse, which is conducive to examining the first stage impact of the amendment cleanly.

The recall nature of dowry payments as well as its illegal nature post 1960 raises concerns around data quality. Dowry payments are a large expense and households are likely to remember these large financial transactions accurately (Chiplunkar and Weaver (2019)). The law did not penalise retrospectively and neither did the penalty vary by magnitude of dowry. These institutional features address concerns around reporting bias to an extent. However, this paper takes these concerns seriously and presents evidence on reporting bias in Appendix section C.1.

The evidence does not suggest changes in the variance of reporting relative to the amendment date across treatment (Non-Muslim) and control groups (Muslims).

The empirical investigation focuses on sons and daughters of the household head thereby eliminating concerns about confounding inter-generational impacts. All birth cohorts up till 1994 are included in the sample based on potential school enrollment in 1999. The final sample contains 21,095 observations comprising of 9,797 daughters and 11,298 sons. Sibling links are identified using birth rosters which contain detailed information on birth order, year of marriage as well as gender. Information on household land-holding, occupation and engagement with social norm is obtained from the household roster. Table 1 presents descriptive statistics. The sample contains around 7.5% individuals following Islam - an important variation for the empirical strategy.

Table 1: Descriptive statistics for REDS 99 dataset

Variable	(1) Mean	(2) SD	(3) Pre	(4) Post
Number of Households	7002			
Family Size	6.76	3.66		
Number of Boys	2.08	1.32		
Number of Girls	1.68	1.42		
Muslim	7.5%			
Years of education of household head	5.12	4.70		
Income (2015 Rs)	101,357	151,932		
Number of Marriages	11,063			
Marriages with Dowry	79%			
Dowry Amount (Rs)	136,127	287,133	1,54,894	79,673
Observations	21,095			

Notes: Columns 3) and 4) split reported dowry payments across pre and post periods only for ever married individuals.

## 5 Empirical Strategy

This paper aims to causally identify the impact of the amendment along two fronts - changes in dowry payments as a measure of social norms and changes in educational attainment as a measure of human capital formation. A cross-sectional comparison of children by birth parity across households is unable to credibly identify impacts due to presence of unobservables impacting both exposure to dowry payments and educational attainment. Comparison of children within households across time is also insufficient as educational attainment presumably increases mechanically as a function of time. To address these identification concerns the empirical strategy exploits both within, as well as across birth cohort variation in exposure to the amendment.

The following sections discuss details on challenges to identification, treatment assignment as well as empirical equations.

## 5.1 Identification

The identification strategy relies on the appropriateness of using Non-Muslim and Muslim groups as treatment and control. There are four conditions that should be satisfied for the estimation strategy to identify causal estimates. First, the definition of Muslim and Non-Muslim groups should be stable through the time period of analysis. Within India religious conversions are rare and inter-marriages comprise of 1% of the sample. Thus identification of family religion is equivalent to individual level exposure to the amendment.

Second, Muslim dowry practices should not have been affected by the amendment. Figure 3 provides supporting evidence that the amendment impacted Non-Muslim dowries only. Payments declined for Non-Muslim households with no discernible trend for Muslim households.

Third, educational attainment across treatment and control groups should trend in a similar manner prior to the amendment. The parallel trend assumption is verified through an empirical test complemented with institutional knowledge (Roth (2022)). Figure 8 & 9 suggest no significant differences across treatment and control groups in the pre-period<sup>14</sup>. Additionally, a robustness check accounting for the possibility of different states trending differently over the study period does not affect the findings (Table 13).

India's constitutionally mandated secular directive deems unconstitutional any religion based targeting for educational policy. Thus the institutional context rules out differential educational policy based on religion. Furthermore, across state time invariant differences in educational policy accounted for using state-level fixed effects.

Fourth, presence of contemporaneous policies that changed schooling costs over the time period of the study have the potential to bias estimates. The District Primary Education Program (DPEP) is the only policy with a potential overlap.<sup>15</sup> However, the DPEP was launched in 1994 and rolled out in a staggered manner targeting areas of low levels of mothers(Sunder

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<sup>14</sup>A joint test of significance for all pre-coefficients with reveals an F-stat of 8.10 and 9.23 for men and women respectively. This suggests that pre amendment differences were jointly significant, a visual inspection of coefficients provides reassurances for the parallel trends assumption

<sup>15</sup>The DPEP was among the first policy initiatives launched by the Government of India to achieve universal primary education.

(2018)). All the above insights are combined to provide support for the empirical strategy.

## 5.2 Treatment Assignment

Individuals vary in their exposure to the amendment based on household religion and if they were already likely to be married when the amendment was enacted. Treatment assignment within birth year cohorts is based on household religion. Individuals belonging to Non-Muslim households are considered treated. Across cohort exposure is determined using a reference age at marriage interval and birth year of individual.

Birth year cohorts older than the reference age at marriage interval at the time of amendment are considered as pre-cohorts. Post-cohorts consist of birth year cohorts that are below the reference age at marriage interval at the time of amendment. The use of birth year in defining across cohort exposure is deliberate and done to avoid endogeneity concerns associated with year of marriage<sup>16</sup>. The birth cohorts in between the pre and post assignment are partially treated and dropped to obtain clean estimates. Figure 1 details this process for men.

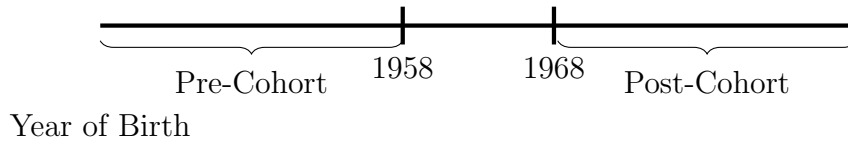


Figure 1: Cohort Assignment for men with reference age at marriage interval [16,26]. If year of birth is less than the upper limit on the age of marriage interval then individual is assigned to the pre-cohort. If the year of birth is greater than the lower limit on the marriage interval then the individual is considered as treated.

The reference age at marriage interval is determined using the data sample. Figure 4 plots a distributions of age at marriage by gender. On average women marry earlier with lower variance in the distribution. Whereas men typically marry later and experience greater variability in the age at marriage. The reference age at marriage incorporates these key differences and is defined as the median age plus minus one standard deviation. As per the definition, the interval of marriage for men is between 16-26 years and for women, it is 15-21 years. A robustness check using the legal age of marriage to define across cohort exposure (columns 4) through 6) of Table 13) presents comparable estimates.

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<sup>16</sup>Prior literature has used age of menarche as an instrument for marriageable age for girls (Field and Ambrus (2008)), however, the REDS survey does not collect information on the age of menarche. Moreover, age of menarche is not a valid instrument for boys.

### 5.3 Empirical Equation

The exposure of an individual is jointly determined by their religion as well as the age at the time of the amendment. Based on this definition, the exposure provides the necessary spatial as well as temporal variation required to identify the causal impact of the policy. The first stage equation is :

$$y_{icfst} = c_1 + \beta_{1ct} + \beta_2 Post_{ict} * NonMuslim_{fs} + \beta_3 NonMuslim_{fs} + X'_{ifs} \gamma + \alpha_s + \varepsilon_{icfst} \quad (1)$$

First stage impacts on dowry payments are examined along two dimensions, if any dowry is paid and the dowry amount paid. To study the extensive margin  $y_{icfst}$  is an indicator equal to one if any dowry was paid by individual  $i$  born in cohort  $c$  belonging to family  $f$  in state  $s$  and married in year  $t$ . To study the intensive margin and  $y_{icfst}$  captures the monetary amount of dowry<sup>17</sup> for individual  $i$  born in cohort  $c$  belonging to family  $f$  and state  $s$  and married in year  $t$ .  $Post_t$  is an indicator equal to one if the marriage occurred in the post amendment period and  $Non - Muslim_{fs}$  identifies the religion of the household  $f$  in state  $s$  to which the individual belongs.

The coefficient of interest is  $\beta_2$  which captures the impact of the amendment on difference in dowry payments for Non-Muslim girls in the pre versus post period as compared to differences in dowry payment for Muslim girls.  $\beta_{1ct}$  are cohort of birth fixed effects to absorb year specific shocks.  $X'_{ifs}$  are individual-family level controls that include total number of household members, reported household income, caste of individual as well as birth order.  $\alpha_s$  are state fixed effects to control for time invariant state characteristics. To study the impact on dowry payments the analysis sample is restricted to married girls. Results are reported in columns 1 (intensive) & 2 (extensive) of Table 2.

To estimate the impact of change in dowry practices on educational attainment the following difference-in-differences framework is employed :

$$y_{icfs} = c_1 + \beta_{1ct} + \beta_2 Post_{ic} * NonMuslim_{fs} + \beta_3 NonMuslim_{fs} + X'_{ifs} \gamma + \alpha_s + \alpha_g + \varepsilon_{icfs} \quad (2)$$

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<sup>17</sup>Dowry amounts are recorded in rupees and deflated to ease comparison across years

$y_{icfs}$  is the years of education for individual  $i$  born in cohort  $c$  and belonging to family  $f$  in state  $s$ . Equation 2 refers to the main estimation equation where  $\beta_{1ct}$  is a cohort of birth fixed effect equivalent to a year fixed effect and controls for year specific unobservables.  $Post_{ic}$  is a dummy equalling one when individual  $i$  belonged to the Post cohort based on the reference age at marriage definition.  $NonMuslim_{fs}$  is a dummy equalling one if family  $f$  in state  $s$  followed any religion except Islam. Finally,  $X_{ifs}$  is a vector of household co-variate including total household members and caste group fixed effects as well as birth order fixed effects. Caste group fixed effects are included to account for differences in household characteristics by caste group.  $\alpha_s$  include state-fixed effects to absorb time-invariant unobservable differences in educational policies across states and  $\alpha_g$  are gender fixed effects.

The coefficient  $\beta_2$  is the main coefficient of interest and provides the impact of the policy on the treated or Non-Muslim religious groups. The preferred specification uses birth order fixed effects to interpret coefficients as the effect of changes in dowry practices on the educational attainment of the average child in the cohort. The analysis estimates coefficients for the samples of girls, boys and a pooled sample. Results are reported in columns 1), 2) and 3) of Table 3.

## 6 Results

Figure 2 provides graphical evidence on the impact of the amendment on dowry payment practice using a local polynomial regression of dowry amounts on a time trend. This figure documents a decline in dowry payments over time with steeper declines in the post amendment period. The steeper post amendment slope is interpreted to indicate a greater reduction in dowry amounts in the post amendment period.

Graphical evidence on the first stage impact of the amendment on dowry practice is augmented with an empirical test. Changes in dowry payment practices are examined along the intensive as well as extensive margin in columns 1 and 2 respectively of Table 2. Findings indicate a decline of 18% in the log dowry paid amount. The estimates on the extensive margin, a measure of if any dowry was exchanged shows no significant difference in the post period for Non-muslim marriages. Given that social norms are slow to adjust and dowry is a widely prevalent phenomena India, these results suggest that the amendment had expressive value in that it impacted the average dowry amounts and was successful in communicating the chang-

ing institutional stance on the practice of dowry. Furthermore these results are in line with previous literature that examines the first stage impact of this amendment on dowry practices (Calvi and Keskar (2020)).

Raw data on educational attainment and dowry amounts plotted in Figure 6 suggests a positive correlation between educational attainment and dowry for both men and women. Higher educated men receive more dowry while families pay higher dowries to marry off more educated females. However, the relationship between dowry and educational attainment is stronger for women with a noticeably steeper slope.

Table 3 finds evidence to support a decline in educational attainment for girls due to the amendment. Using equation 2 for estimation, Table 3 reports coefficients on *Non – Muslim* as well as the interaction term *PostXNon – Muslim*. The coefficient of interest is the interaction term *PostXNon – Muslim* which represents the change in years of education for Non-Muslim children belonging to cohorts exposed to the amendment as compared to exposed Muslim cohorts. The estimation result suggests a negative and significant reduction in the years of education for Non-Muslims girls in the exposed cohorts. On average Non-Muslim girls attain 0.65 fewer years of education which represents a 18% reduction over the mean. The data does not support any significant impacts on educational attainment for boys in the sample which is consistent with the stronger correlational evidence between educational attainment and dowry payments for females as documented in Figure 6. The second stage result suggests that dowry and educational attainment are complements in the human capital production function.

Figure 7 examines spousal gaps in education across pre and post amendment periods. Consistent with the decline in years of education for females, Figure 7 suggests that the spousal education gap increases between spouses specifically by 2-3 years. For males, the education gap distribution shifts rightward across all levels with greatest changes between 2-3 years. This evidence is interpreted to suggest that declines in female education carry forward to the marriage market and lead to increased spousal education gaps.

## 7 Mechanisms

### 7.1 Dowry and Education as Complements

To link the decline in education to changes in dowry payments, differences in gender based exposure to the amendment are utilized. The rotating capital fund view of dowry payments considers dowry as a flow of resources (Rajaraman (1983)). For the bride's family this is an outflow of resources whereas for the groom's family dowry is an inflow of resources. A crucial element is the differences in fungibility of this flow across bride and groom family. For the bride's family dowry is an expenditure outlay, whereas for the groom's family dowry is received as a sum of valuable goods and cash. Given differences in fungibility of dowry by gender, changes in dowry payments are more likely to affect the family of the bride.

Using plausibly exogenous variation in gender of the first born (Anukriti et al. (2018)) with the rotating capital fund view of dowry payments allows a causal analysis linking changes in dowry payments to educational attainment impacts. Families with first-born girls exposed to the amendment should see a differential impact on educational attainment as compared to families with first-born boy exposure. To test this hypothesis, the following triple difference estimation strategy is implemented :

$$\begin{aligned}
 y_{icfs} = & c_1 + \beta_{1ct} + \beta_2 Post_{ic} * NonMuslim_{fs} + \beta_3 FBFemale_{ifs} + \beta_4 NonMuslim_{fs} * FBFemale_{ifs} \\
 & + \beta_5 Post_{ic} * FBFemale_{ifs} + \beta_6 Post_{ic} * NonMuslim_{fs} * FBFemale_{ifs} \\
 & + X'_{ifs} \gamma + \alpha_s + \alpha_g + \varepsilon_{ifsc}
 \end{aligned} \tag{3}$$

$FBFemale_{ifs}$  is an indicator equalling one when the gender of the first born individual  $i$  in family  $f$  in state  $s$  is female. The test statistic  $\beta_2 Post_{ic} * NonMuslim_{fs} + \beta_6 Post_{ic} * NonMuslim_{fs} * FBFemale_{ifs}$  in equation 3 represents the overall effect of having a female firstborn exposed to the amendment as compared to a male first born. Estimation results for males, females and pooled samples are reported in columns 1) through 3) of Table 4 along with the test statistic of interest.

Findings in Table 4 suggest that the overall effect of having a female firstborn exposed to the amendment led to a significant reduction in the total years of education for females in the



sample by 0.68 years. No such change is reported for the males or overall sample. Additionally, for males belonging to households where the first-born female is exposed to the amendment leads to a significant reduction in years (-1.08) of educational attainment as compared to males belonging to households with the firstborn male is exposed to the amendment. Taken together, these results suggest that the amendment led to overall cutbacks in education for females and that these effects were driven by changes in dowry payments<sup>18</sup>.

## 7.2 Dowry and Education as Signals of Traditional adherence

For dowry and education to serve as signals, a decline in dowry payments should reduce education for females and this impact should be more pronounced within households with greater reliance on dowry payments, within communities with stricter dowry payment norms and for households with greater adherence to other traditional norms.

Pre-reform dowry payments are used as a measure of household reliance on dowry payments and changes in educational attainment are examined for households above or below pre-reform median dowry payments. Greater reduction in educational attainment for households with higher reliance on dowry payments provides evidence on the strength of association between education and dowry.

The empirical test implements equation 2 on sub-samples of above and below baseline median dowry payments. To tag households as above baseline median dowry payment states are first divided into regions corresponding to similar measures of social norms (Carranza (2014)). A region specific median dowry payment pre-reform is calculated. Households are then tagged as above or below this region specific measure of dowry payments. The sample is split into 4218 households belonging to above median and 2471 households belonging to below median. Table 5 reports the results of the estimation across males, females and a pooled sample of the data (columns 1), 2) and 3) respectively).

Females in households with greater dowry payments pre-reform experience a greater intensity in reduction in educational attainment as compared to the overall sample. Years of education declines by 0.85 years for treated females in the post-reform period, this represents a 18% decline. There are no effects on educational attainment for males in either type of

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<sup>18</sup>Additional analysis built on a more simplistic view of the rotating capital fund is presented in the Appendix. Results align with the findings reported in this section.

household and no effects on females in below median payment households.

Anthropological insights into the relative prevalence and importance of dowry (Madan (1975)) are utilized to identify communities with stricter dowry payment norms. Consistent with papers (Nishimura (1994); Roulet (1996)) that provide qualitative evidence on the low prevalence of dowry among daily wage earners and a high prevalence of dowry among salaried and wage earning occupation classes, households are categorized into “Agricultural wage” earners, “Self-employed farming” and “Non-farm salary & wage” based on the occupation of the household head<sup>19</sup>. “Agricultural wage” earners are the poorest income group in the sample. Estimates from a sub-sample analysis for each occupation category using equation 2 are presented in Table 6.

Occupational classes most invested in dowry payments (Nishimura (1994)) experience largest decreases in years of education for both male as well as female children (Table 6) . Children belonging to Non-farm salary and wage earners see a 4.85 and 2.35 decline in years of education for both males and females respectively. There are no significant changes in educational attainment for self-employed farming households. Consistent with lower prevalence of dowry payments for agricultural wage earners, Table 6 finds gains in educational attainment for treated females in the post reform period for this occupation group. The results suggest that the impact on educational attainment for agricultural wage earning households versus non-farm salary and wage earning households differs in a manner consistent with dowry payment norms.

To identify households with greater adherence to traditional norms, household proscription to a patriarchal norm - gender segregation during meals is used as a proxy. Households are classified as “traditional” and “non-traditional” based on if there is mixing by gender during meal time. “Traditional” households in the sample are those where men and women consume meals separately and men consume meals first suggesting presence of gendered social attitudes in these households((Ibnouf, 2009; Neogy, 2010)). In the absence of survey data on gender role attitudes, gender segregation in meal sharing is the closest proxy to traditional social norms that are often expressed as unequal gender norms. The specification in equation 2 is used to estimate coefficients for sub-samples of “Traditional” and “Non-traditional” households. Results are reported in Table 7 for males, females and overall samples (columns 1) & 4), 2)

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<sup>19</sup> “Self-employed farming” includes self employed farming and agricultural family worker. “Non-farm salary & wage” includes categories of self-employed, non-farming salary , non-agricultural wages and non-agricultural family worker.

& 5) and 3) & 6) for males, females and overall samples respectively). The results are at best suggestive evidence on greater reduction in educational attainment for females in more traditional households. The coefficient of interest is negative and higher for traditional as compared to non-traditional households. Both coefficients are imprecisely estimated which is unsurprising given the blunt and noisy method of capturing traditional behavior. Given the data constraints, this result is interpreted as correlational evidence that households with stronger traditional norms are more likely to consider using lower education to signal in the absence of dowry payments.

### 7.3 Competing Mechanisms

This section explores competing mechanisms that have the potential to confound the documented complementary relationship between dowry and education. Empirical evidence is presented to rule out price effect and differences in bequest ability as potential mechanisms.

A price effect, whereby dowry and education are substitutes and the amendment increases the demand and consequently price of education, is unlikely to be an alternate explanation for the observed decline in educational attainment . Under this scenario an increase in prices is most likely to hurt the poorest households and furthermore the effect on educational attainment should not vary by gender.

The analysis finds differential effects on education by gender through all specifications. Additionally, Table 6 suggests that for the poorest households in the sample - Agricultural Wage earners (Columns 7) through 9) ) females experienced gains in educational attainment. This result emphasises that for the poorest group for whom dowry practices are least important, female education increases substantially. This result lends support to the use of dowry payments to signal traditional adherence rather than the presence of a price effect.

In the absence of dowry payments, perhaps parents plan for increases in bequests, a more costly form of wealth transfer at the expense of educational attainment. Under this scenario, the relationship between education and dowry is expected to be mediated by a measure of bequest ability. For households more likely to use bequests, the reduction in educational attainment should be higher and more likely to impact females.

To examine this hypothesis land holding owning status of households is used as a proxy

for bequest ability. Households are classified into marginal and non-marginal land holding categories based on reported total landholding size of the households<sup>20</sup>. Using the estimation strategy in equation 2 impact on educational attainment is estimated by sub-samples based on landholding size (Table 8).

Table 8 suggests no difference in educational attainment across low or high bequest ability households. The estimated coefficient of interest for females is remarkably similar for marginal as well as non-marginal households. Further, there are no differences in educational attainment for males and females within bequest ability. These results help rule out an offsetting between education and bequest. This result is unsurprising given the extreme aversion to increasing female bequests in the Indian context (Roy (2015)). Appendix section A.2 presents additional analysis supporting the above result using irrigation status of households as an alternate proxy for bequest ability.

## 8 Secondary Outcomes

### 8.1 Age at Marriage

Impacts of the amendment on age at marriage are examined for documenting effects on the marriage market. Changes in age at marriage are an alternate margin of adjustment by households. Besides, large shifts in age at marriage has implications for treatment assignment considered in this paper.

Shifts in the distribution of age at marriage across pre and post periods are documented in figure 5. The age at marriage distribution shifts right in the post period across genders. The graphical evidence is consistent with an increase in age at marriage in the post amendment period. To examine these changes empirically, equation 1 is estimated for the sample of males, females and pooled sample. Estimation results are presented in Table 9.

Results reported in Table 9 corroborate the graphical evidence. Age at marriage increases by around 4% for both genders in the post period<sup>21</sup>. Similar gains in age at marriage suggest that matches in the post period take longer in the absence of dowry payments. However, the

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<sup>20</sup>Census definition of marginal landholding as a landholding size less than 2 hectares (or 5 acres) of land is followed

<sup>21</sup>This increase is moderate and lies within the interval of age at marriage thus does not pose threats to identification.

increase in age at marriage for females is puzzling given the reduction in educational attainment. To explore this result further the analysis is performed by birth orders.

Testing for heterogeneous impacts on age at marriage by birth order provides insights into household strategy as well household learning with respect to the matching process in the absence of dowry. Equation 1 is estimated for sub-samples of first born, second born and higher order births ( $\geq 3$ ) for males and females. Results are reported in columns 1) through 3) for males and 4) through 6) for females in Table 10. The overall increase in age at marriage can be attributed to younger siblings within households. For both genders later born children display significantly greater age at marriage. For males, higher order male children marry later while there is correlational evidence to support first and second born males rush marriages. For females, second born females delay marriages with higher order births also see a rise in the age at marriage though the coefficient is estimated imprecisely. These results maybe interpreted to suggest a greater time to match in the absence of dowry payments.

## 8.2 Variation in enforcement capabilities

To provide insights on the interaction between enforcement capacity and social norms, impacts on educational attainment are examined relative to spatial variation in enforcement of the amendment. Sub-national differences in institutional capacity, gender attitudes and existing state level policies create a reasonable variation in the enforcement of the amendment. In the absence of direct institutional measures of enforcement the analysis uses two complementary proxies.

The first proxy is the presence of prior state level legal procedures targeting dowry payments. Between the years 1975 and 1976, the states of Bihar, Haryana, Himachal Pradesh and Punjab implemented independent state amendments to the Dowry Prohibition Act (1961). This paper argues that the 1985 amendment had a lesser impact in terms of changes in enforcement in states with pre-existing amendments<sup>22</sup>. Thus the change in enforcement was higher in states with no pre-existing amendments.

States are classified as “Early State Level Amendment” and “No State Level Amendment” based on if there was a state level amendment effective at the time of the 1985 amendment

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<sup>22</sup>Alfano (2017) uses a similar argument to examine birth rates by gender

to the Anti-dowry law. Equation 2 is estimated for educational for the two sub-samples of states and estimates on years of educational attainment are reported in Table 11. The findings suggest that the decline in female education occurred primarily in states with no pre-existing state level amendments or the sub sample of states with the highest change in enforcement. The results do not support any significant changes in educational attainment for either gender in states with pre-existing state level amendments or for males in no amendment states. This result is interpreted to suggest that changes in enforcement directed at a longstanding cultural tradition led to decline in educational attainment for females.

The second proxy utilizes a within state variation in enforcement in the form of changes in the magnitude of dowry payments across pre and post amendment at the district level. Districts that experienced a magnitude of shift in dowry payments greater than the median district in the state are classified as “Above Median Exposure” and similarly for “Below Median Exposure” districts. Under the assumption that changes in enforcement brought about shifts in dowry payments, for districts with larger than median shift in dowry payments, enforcement is higher. To test the hypothesis relating greater enforcement to larger declines in female educational attainment, equation 2 is estimated for the two sub-samples and results are reported in Table 12.

Estimates in Table 12 suggest a significant decline in educational attainment for females in districts with above median exposure or greater enforcement of about 0.95 years. For districts with below median exposure and for males across both types of districts, there are no such effects. This result is interpreted to provide complementary evidence on the interaction of enforcement with social norms. Areas with higher enforcement are those that experienced a significant decline in female educational attainment. These results provide further support for the use of dowry and education as signals by substantiating a backlash against laws that conflict with social norms.

## 9 Robustness Checks

Robustness checks are implemented to address four broad concerns across treatment assignment, possibility of states trending differently over study period, within state correlation in idiosyncratic shocks and the parallel trend assumption which is necessary for identification.

Additionally, an alternate estimator is implemented to test the robustness of the main result De Chaisemartin and d'Haultfoeuille (2020).

The legal age of marriage is considered to address endogeneity concerns around sample derived marriage intervals to assign across cohort exposure. Columns 4) through 6) in Table 13 presents the results of estimation of regression Equation 2. The estimates corroborate a negative and significant reduction in years of education for females and are consistent with the exposure definition used in this paper. Despite the consistent results, the paper prefers using an age of marriage interval since legal marriage age is hard to enforce and descriptive evidence suggests that the legal age of marriage is often ignored in household decision making.

The possibility that different states were trending differently over time in a manner that impacted educational attainment would reduce the credibility of the estimates. Prior literature that studies the pro-women inheritance right reforms in India document impacts on a range of fertility, son preference, educational attainment and dowry ((Bhalotra and Cochrane, 2010; Roy, 2015)). The amendment studied in these studies was staggered across states and years<sup>23</sup> and impacted states in the sample. To account for difference in time paths across states, state time trends are included as controls in the main specification. Columns 1) through 3) in Table 13 presents the estimation results for the entire sample. No qualitative changes in results are observed at the overall level, rather the coefficient on the interaction term is of a larger magnitude, suggesting that the experience of states over the study period was meaningful. The inclusion of state time trends is also important to account for states that had pre-existing amendments at the time the 1985 amendment was enacted.

Educational policies in India are under state level jurisdiction. Each individual state has autonomy in designing educational policies as well as infrastructure spending. Such a set up suggests the presence of within state correlation in error terms while examining educational attainment of individuals. To account for this intra-cluster correlation, standard errors are clustered at the state level. Columns 7) through 9) in Table 13 present the result for the overall sample. The main results persist even with a change in clustering of standard errors with no changes in the significance on the decline in female educational attainment.

Given the Difference-in-differences estimation strategy used the outcome variable should

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<sup>23</sup>Kerala was one of the first states to amend the Hindu Succession Act (1976), followed by Andhra-Pradesh (1986), Tamil Nadu (1989), Maharashtra (1994) and last by Karnataka (1994).

ideally be trending similar across treatment and control groups in the pre-period to identify causal estimates. To provide empirical evidence on parallel trends assumption the following test is set up. Using a similar empirical equation as in equation 2, the interaction on year of birth with treatment status for the untreated cohorts is examined over the pre-period. Figure 8 and 9 plot the resulting interaction coefficients from this estimation for males and females respectively. Graphical evidence supports the conclusion that for both male as well as female, majority of the cohorts did not differ significantly in their educational attainment across treatment and control in the pre-period. This empirical evidence is combined with the institutional knowledge on state level educational policy to claim support for the parallel trends assumption.

The results presented till now assume treatment effect does not vary across states or time periods. Table 14 presents estimation results on educational attainment using the estimator proposed in De Chaisemartin and d’Haultfoeuille (2020) which is robust to heterogeneous and dynamic treatment effects. The decline in educational attainment is robust to the use of an alternate estimator and provides further confidence in the estimated effects.

## 10 Discussion

This paper attempts to disentangle the complex interaction between human capital production, culture and formal institutions by exploiting an institutional change in India. By drawing attention to the consequences of altering cultural norms, the paper provides an empirical setting to study the interaction of laws with social norms. The results of the paper document an adverse impact on educational attainment for women, with larger declines in years of education consistent with larger shifts in dowry payments. To explain these results, the paper highlights the role of dowry payments and female educational attainment as signals to communicate adherence to traditional norms. The paper also finds that changes in enforcement capacity are negatively related to declines in educational attainment for women.

The findings linking increases in enforcement capacity with stronger declines in educational attainment suggest the presence of a backlash effect. However, this result hinges on the appropriateness on using magnitude of changes in dowry payments as a proxy for enforcement capacity. The use of this specific proxy maybe misleading if changes in dowry payments are correlated with strength of social norms. If areas with weaker social norms on dowry experi-



enced larger changes in dowry payments than the measure of enforcement captures strength of norms. The presence of state fixed effects in the estimation alleviates these concerns insofar as time invariant social norms. Thus the estimates provide estimates conditional on controlling for state specific social norms. An additional concern that the analysis is unable to comprehensively rule out is the possibility of redistribution of public resources to support amendment implementation. While there is no anecdotal evidence to suggest a state level redistribution across public services to support implementation of the amendment, in the absence of fiscal expense data crowding out remains a possibility.

The increase in age at marriage as a result of the amendment is noteworthy considering the dowry amendment law did not directly target age at marriage. This suggests the potential of spillover impacts on age at marriage from policies that affect marriage markets. While most countries have legal age at marriage laws, such laws often go unenforced in developing countries (Collin and Talbot (2023)). With enforcement rates being stagnant over time the results of this paper suggest that laws targeting the marriage market on alternate dimensions might be a viable policy alternative.

Decline in educational attainment along with increase in age at marriage for females is a puzzling result. While impacts on age at marriage by birth order provide insights in the form of learning effects by families. Households delay marriages presumably with higher time to match in the absence of dowry payments. This effect is strongest for higher birth order children who are more likely across siblings to be impacted by parental learning based on elder sibling marriages. Data limitations prevent an examination of investment in non-school skill formation by females to increase bridal value. Such questions are beyond the scope of this paper but provide interesting avenues for further research.

The findings of this paper should be interpreted with certain caveats given the data limitations. First, to rule out price effects the narrative assumes that the price of schooling responds to increased demands in education. However, in the absence of measures of schooling costs this assumption is not testable. Second, land ownership is considered to be a proxy for bequest ability with greater landholding being more conducive to passing on land as inheritance. This assumption is not directly testable in the data, but rests on higher costs of transfer based on size of landholding. In the absence of appropriate measures of traditional adherence, such as

gender attitudes the estimated coefficients are imprecise. The analysis can be strengthened with supplementary information on social capital to examine heterogeneity in results relative to levels of social capital. In the absence of spousal age, the inferences drawn from examining age at marriage is incomplete to comment on the marriage market matching process.

Though the context of this study is specific, the broader takeaway is to acknowledge that social norms do respond to expansions in enforcement capacity. However, gender specific norms such as dowry when challenged have the potential to direct adverse changes. The results of this paper challenge prior beliefs on the relationship between different components of human capital formation and speaks to interactions between child specific and general investment in human capital in a gender unequal environment.

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## Figures & Tables

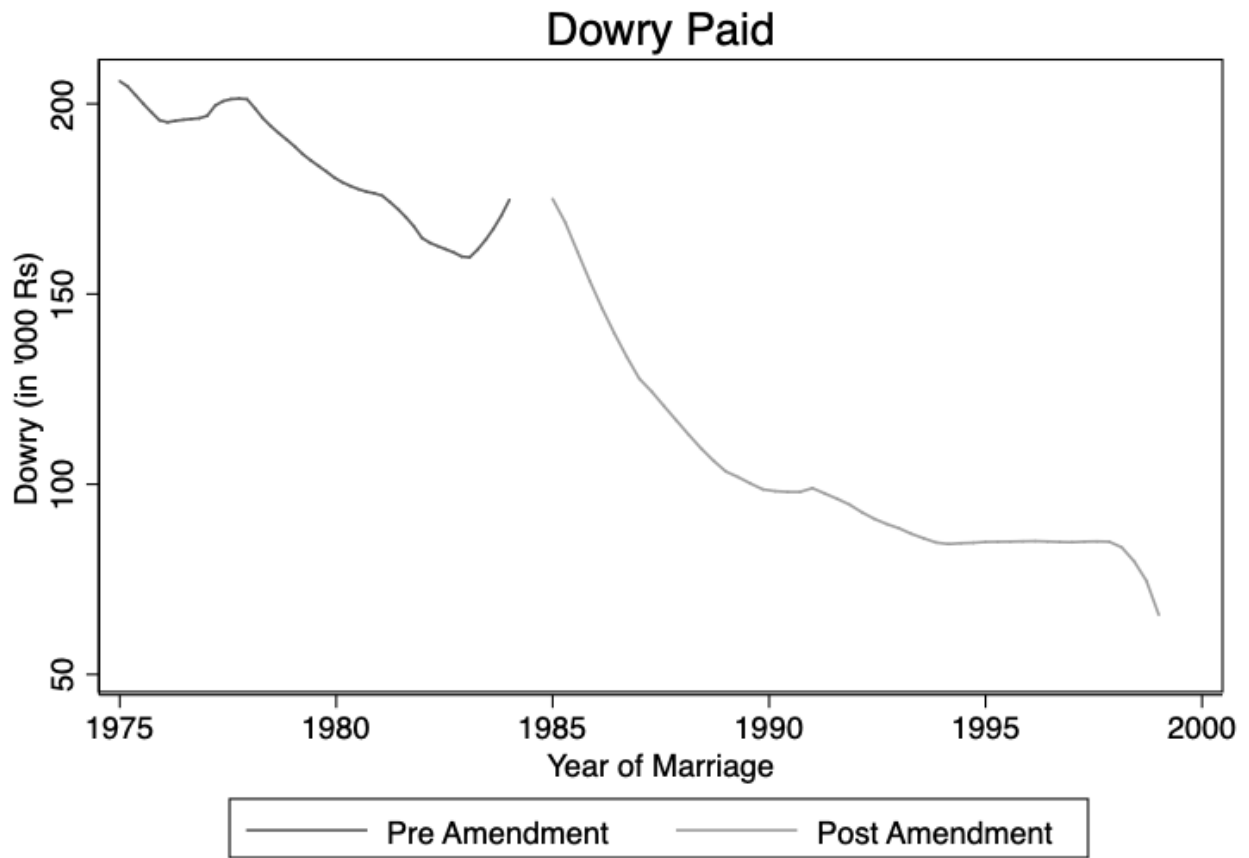


Figure 2: Trend in Dowry Amounts Pre and Post Amendment

The figure plots estimates from a kernel-weighted local polynomial regression of dowry paid amounts on year of marriage. Bandwidth is 5. Dowry paid is defined as net dowry paid. All dowry amounts are deflated using the year 2015 as baseline. Sample includes all marriages since 1975 and comprises of 10,014 observations. Source - REDS 1999

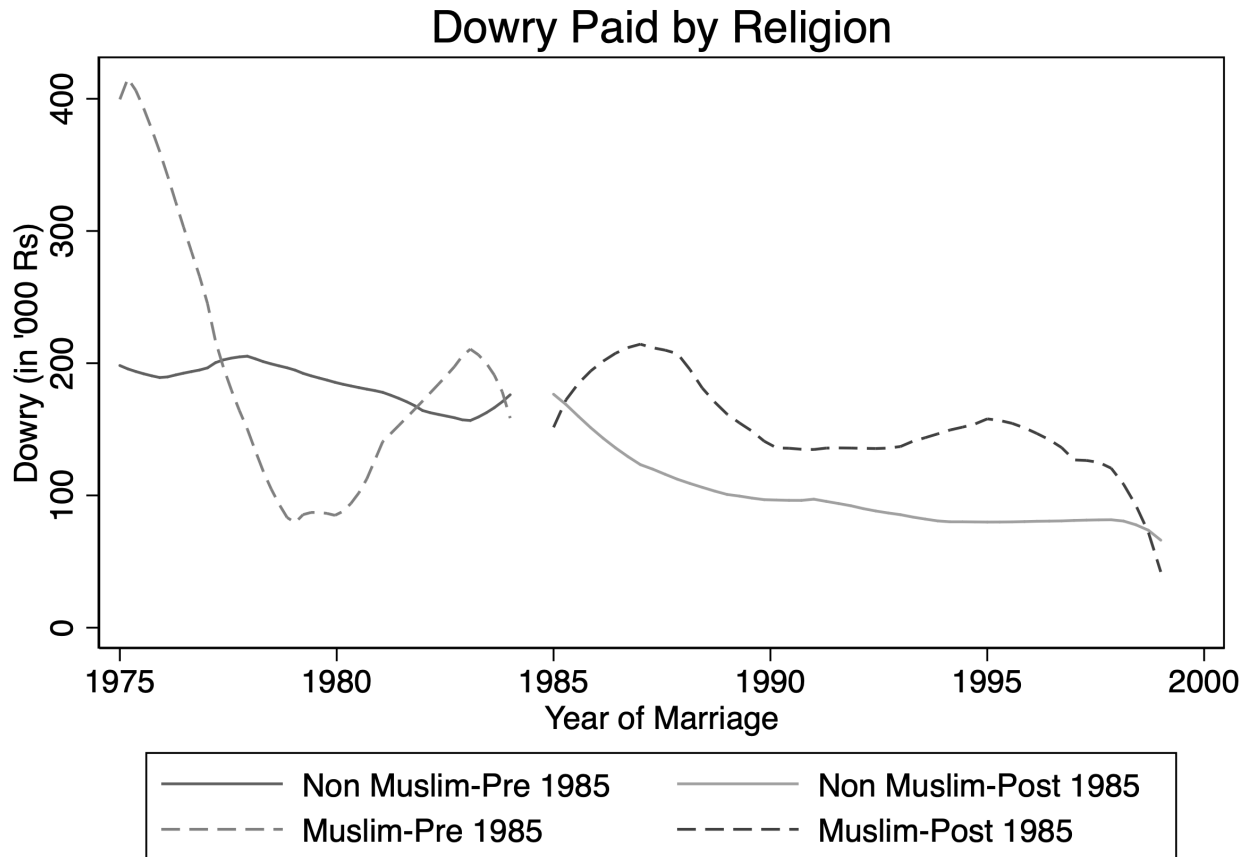


Figure 3: Trend in Dowry Amounts by Religion Pre and Post Amendment

The figure plots estimates from a kernel-weighted local polynomial regression of dowry paid amounts on year of marriage. Bandwidth is 5. Dowry paid is defined as net dowry paid. Dowry amounts in 2015 prices. Sample includes all marriages since 1975 and comprises of 10,014 observations. Source - REDS 1999



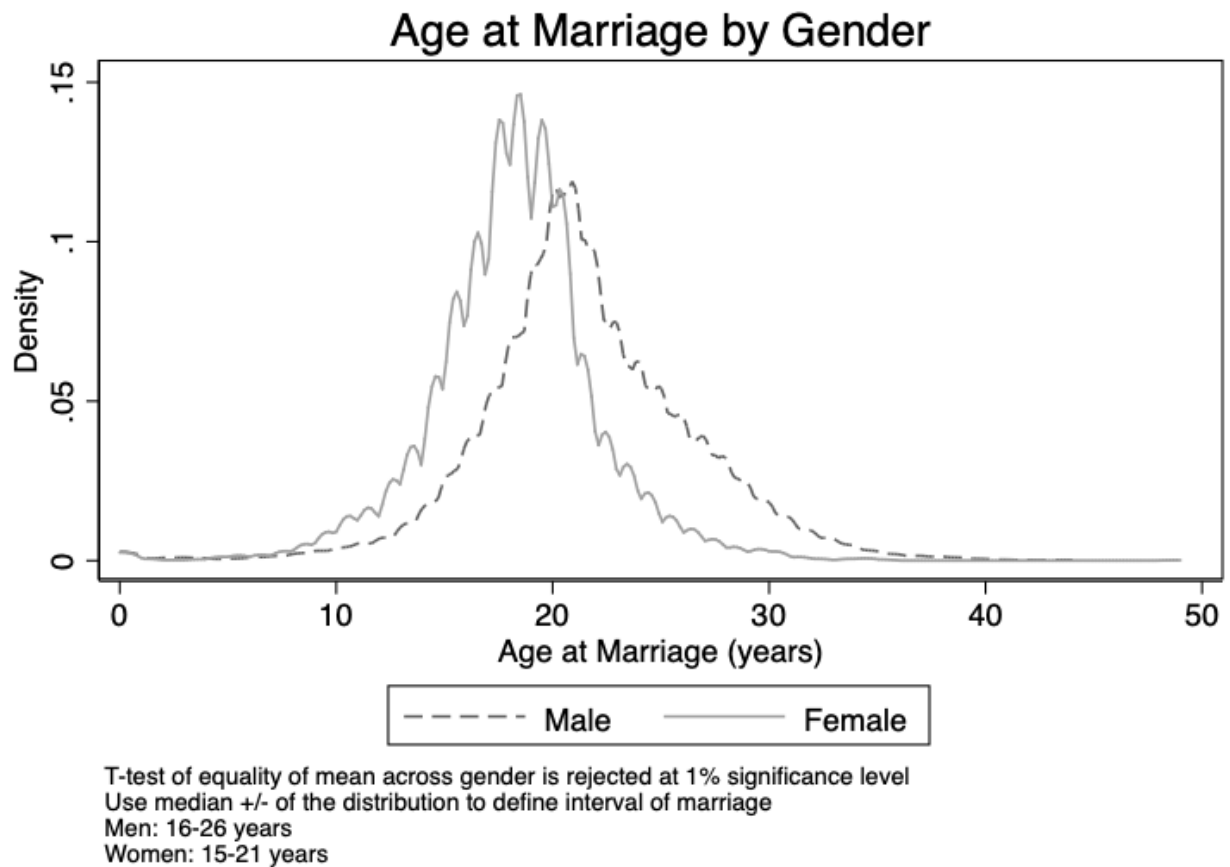


Figure 4: Marriageable age intervals

The figure plots the probability density for age at marriage using an Epanechnikov kernel function with optimal bandwidths. The sample comprises the entire married population and contains 11,054 observations over the time period 1960-1999. Source - REDS 1999.

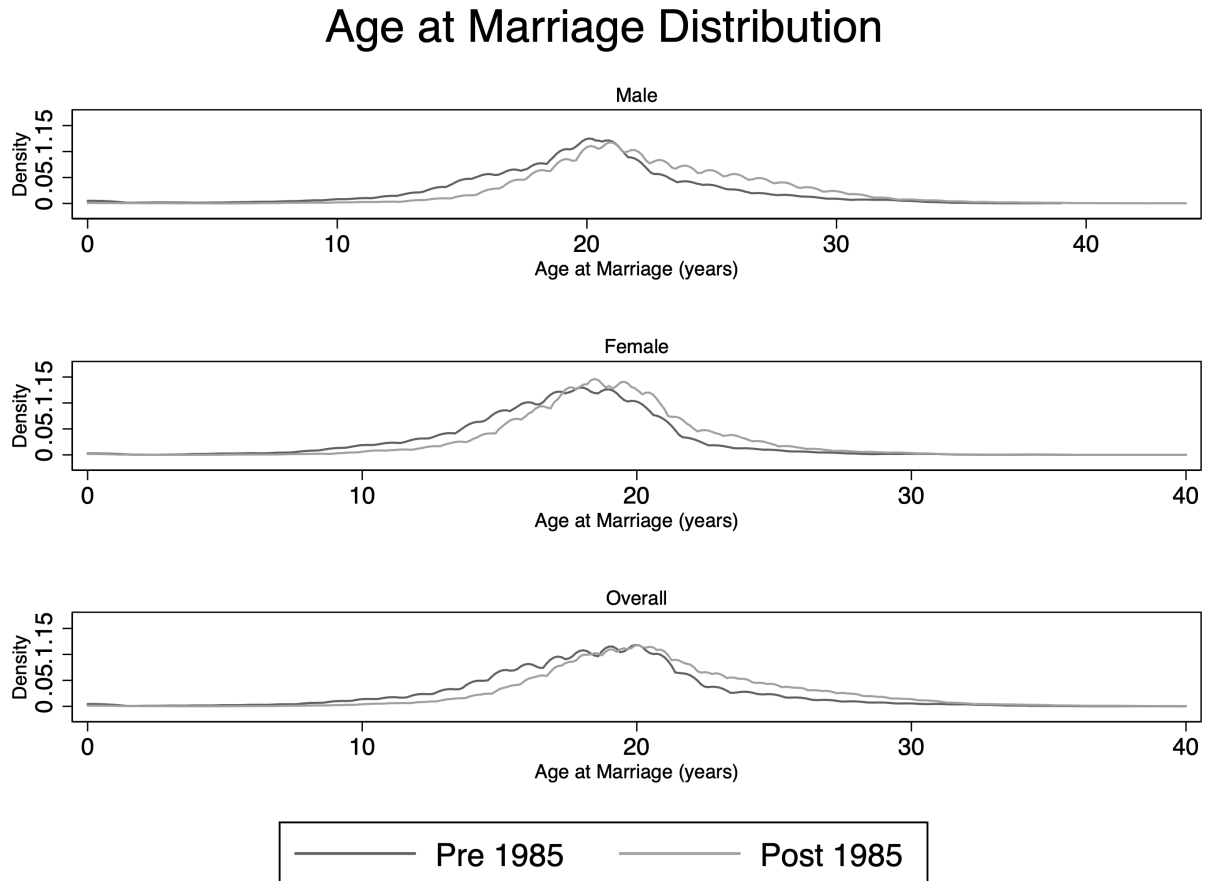


Figure 5: Age at Marriage Distribution by Gender and Time Period

The figure plots shifts in the probability density for age at marriage by gender across pre and post amendment periods. Probability densities are calculated using an Epanechnikov kernel function with optimal bandwidths. The sample comprises the entire married population and contains 11,054 observations over the time period 1960-1999. Source - REDS 1999.

## Education and Dowry

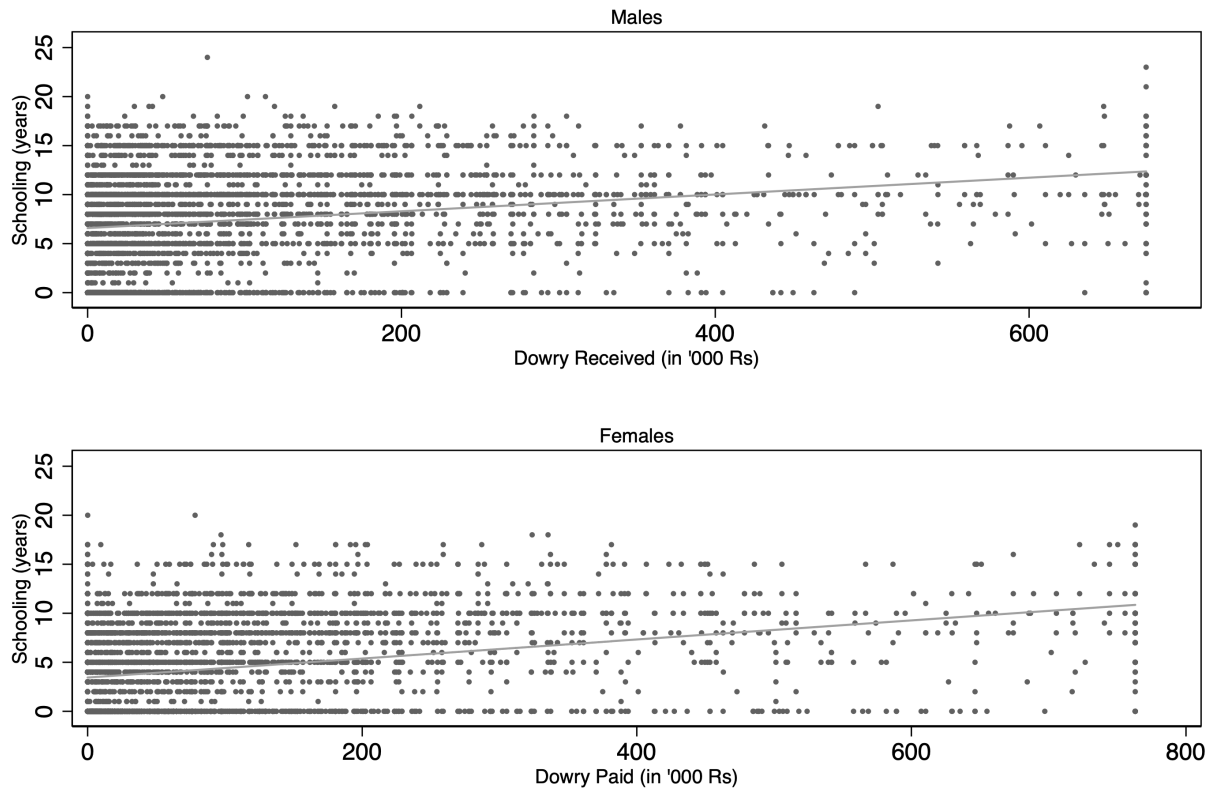


Figure 6: Correlation: Education and Dowry

The figure combines a scatter plot and a linear regression of years of education on dowry payments. The sample comprises the entire married population and contains 11,054 observations over the time period 1960-1999. Outliers are capped at the 99 percentile level. Dowry amounts in 2015 prices. For males the correlation coefficient is 0.214 and for females it is 0.341. Source - REDS 1999.

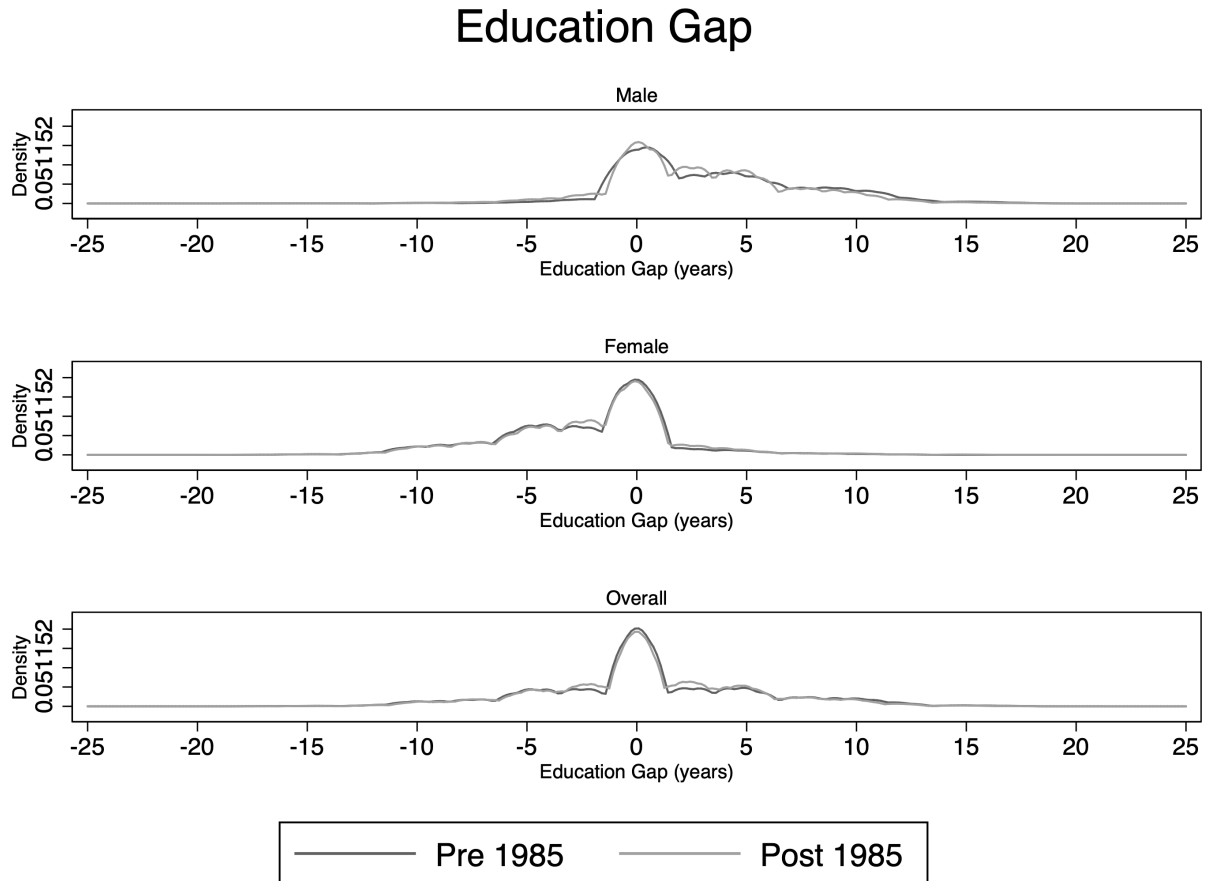


Figure 7: Shifts in Spousal Education Gap Pre and Post Amendment

The figure plots shifts in the probability density for the difference in spousal education by gender across pre and post amendment periods. Probability densities are calculated using an Epanechnikov kernel function with optimal bandwidths. The sample comprises the entire married population and contains 11,054 observations over the time period 1960-1999. Source - REDS 1999.

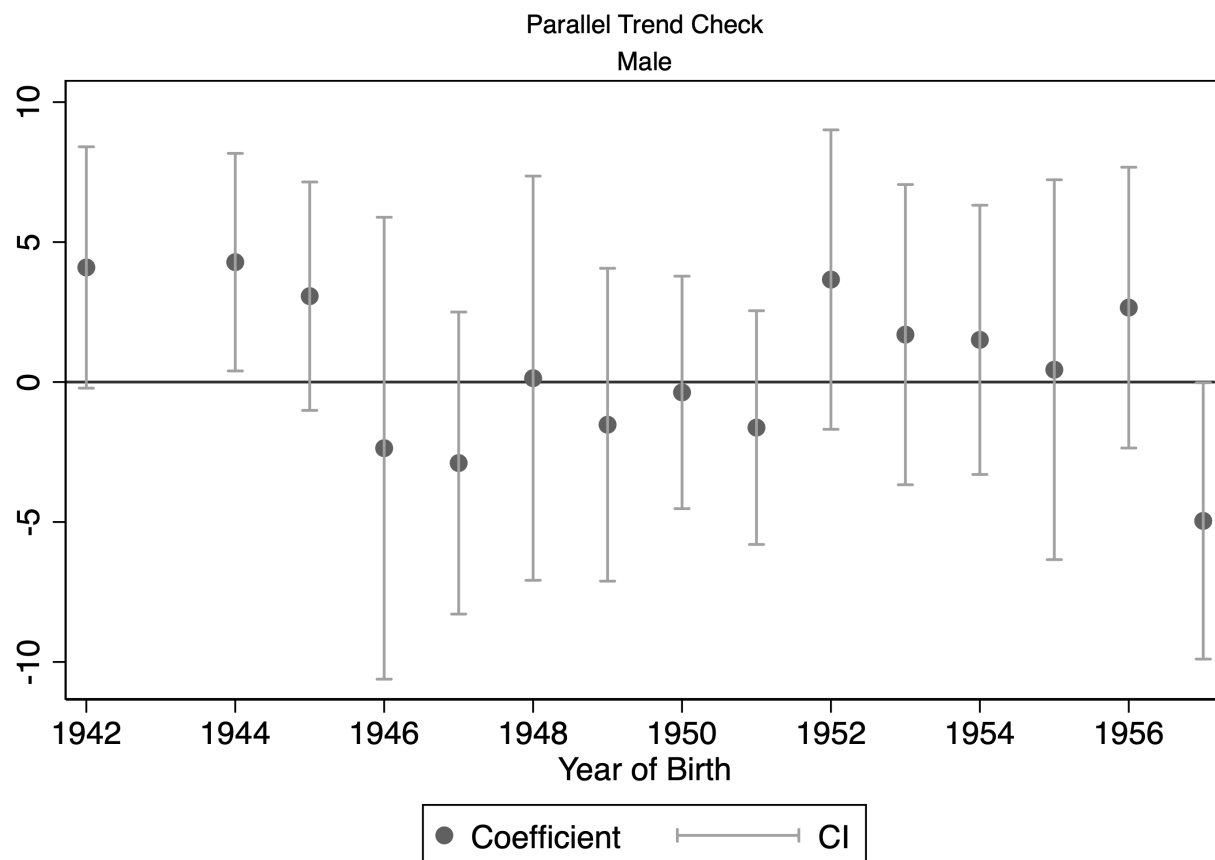


Figure 8:

The figure plots the regression coefficient on the interaction between individual birth cohort with religion using specification 2 for all pre exposure male cohorts. 95% confidence intervals are reported. The sample comprises of all pre-exposure males and contains 999 observations. Source - REDS 1999.

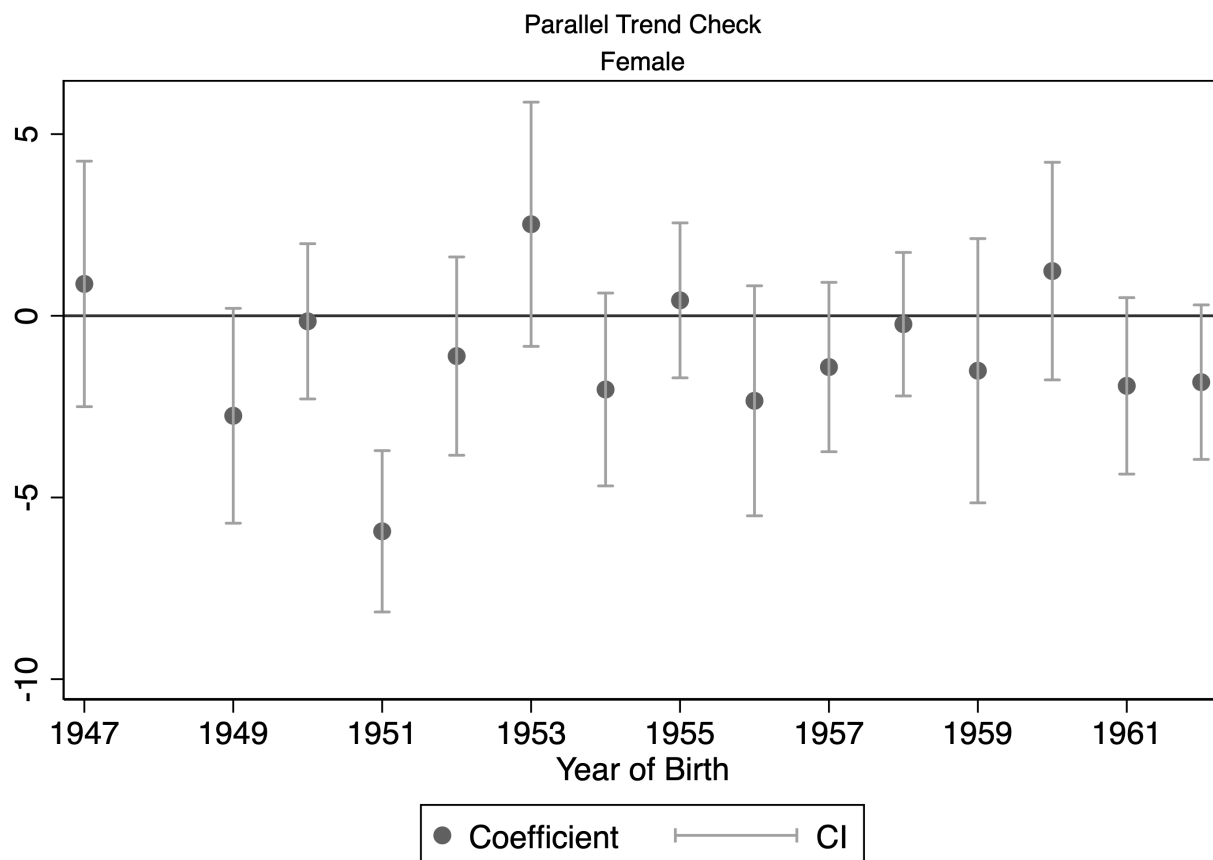


Figure 9:

The figure plots the regression coefficient on the interaction between individual birth cohort with religion using specification 2 for all pre exposure female cohorts. 95% confidence intervals are reported. The sample comprises of all pre-exposure females and contains 1496 observations. Source - REDS 1999.

Table 2: First Stage Impact

	Female	
	Log Dowry Amount (Rs) (1)	Dowry Paid (=1) (2)
Post X Non-Muslim	-0.18*** (0.06)	0.02 (0.02)
Non-Muslim (=1)	-0.09 (0.15)	-0.09** (0.04)
Control Mean	11.23	.75
Household Control	X	X
Birth Order Fixed Effect	X	X
Observations	4198	5446
$R^2$	0.38	0.25

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all daughters of household head. All regressions control for state fixed effects. Dowry amounts are deflated by price index. Household controls include reported income in 1999, caste and total number of members.

Table 3: Impact on Years of Schooling

	School-Yrs		
	Male (1)	Female (2)	ALL (3)
Post X Non-Muslim	0.17 (0.68)	-0.65* (0.34)	-0.16 (0.37)
Non-Muslim (=1)	0.85 (0.69)	2.37*** (0.39)	1.53*** (0.39)
Control Mean	6.91	3.6	4.92
Gender Fixed Effect			X
Household Control	X	X	X
Birth Order Fixed Effect	X	X	X
Observations	11298	9797	21095
$R^2$	0.28	0.29	0.29

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 4: Heterogeneity by First Born Gender

	School-Yrs		
	Male (1)	Female (2)	ALL (3)
Post X Non-Muslim X FB Female	-1.08* (0.58)	-0.11 (0.35)	-0.08 (0.28)
Post X FB Female	0.97*** (0.32)	-0.00 (0.28)	0.64*** (0.21)
Non-Muslim X FB Female	0.47 (0.48)	0.29 (0.20)	-0.27 (0.18)
Post X Non-Muslim	0.34 (0.69)	-0.57 (0.38)	-0.19 (0.39)
Non-Muslim (=1)	0.80 (0.69)	2.19*** (0.41)	1.66*** (0.40)
Control Mean	6.91	3.6	4.92
Gender Fixed Effect			X
Household Control	X	X	X
Post X Non-Muslim + Post X Non-Muslim X FB Female	-.73	-.68	-.27
P-value	.38	.07	.5
Observations	11298	9797	21095
R <sup>2</sup>	0.28	0.29	0.29

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. First Born Female is an indicator equal to one when the first born in a family is male.

Table 5: Heterogeneity by Baseline Dowry Payments

	Above Median Payment			Below Median Payment		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	-0.17 (0.83)	-0.85** (0.42)	-0.48 (0.46)	1.43 (1.29)	-1.05 (0.68)	0.12 (0.66)
Non-Muslim (=1)	0.92 (0.86)	2.43*** (0.48)	1.65*** (0.49)	-0.07 (1.25)	2.86*** (0.77)	1.49** (0.70)
Control Mean	7.640000000000001	4.55	5.84	5.62	2.17	3.46
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	6857	5862	12719	4441	3935	8376
R <sup>2</sup>	0.30	0.31	0.30	0.26	0.22	0.26

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Above median payments are all households in states with higher than the median region level pre-amendment dowry payment.



Table 6: Heterogeneity by Occupation Type

	Self-employed farming			Non-farm salary & wage			Agricultural wages		
	M (1)	F (2)	ALL (3)	M (4)	F (5)	ALL (6)	M (7)	F (8)	ALL (9)
Post X Non-Muslim	1.68 (1.04)	-0.31 (0.52)	0.90 (0.63)	-4.85*** (1.09)	-2.35*** (0.83)	-2.68*** (0.92)	2.81 (2.72)	2.63** (1.09)	2.85** (1.15)
Non-Muslim (=1)	-0.41 (1.07)	2.26*** (0.64)	0.54 (0.66)	5.76*** (1.19)	3.74*** (0.89)	3.78*** (0.97)	-3.08 (2.76)	-0.81 (1.29)	-2.03* (1.20)
Control Mean	6.5	3.33	4.49	6.21	3.07	4.21	3.93	2.09	2.71
Gender Fixed Effect			X			X			X
Household Control	X	X	X	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X	X	X	X
Observations	5651	4872	10523	2774	2362	5136	1526	1427	2953
R <sup>2</sup>	0.27	0.27	0.28	0.43	0.41	0.40	0.35	0.32	0.32

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Self-employed farming includes agricultural family workers, Non-farm salary and wage includes Non-agriculture family workers.

Table 7: Heterogeneity by Traditional Norms

	Traditional			Non-traditional		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	2.47 (2.02)	-1.13 (0.87)	0.04 (0.91)	-0.67 (0.95)	-0.82 (0.53)	0.04 (0.91)
Non-Muslim (=1)	-1.23 (2.03)	2.75*** (0.95)	1.45 (0.92)	1.01 (1.05)	2.81*** (0.69)	1.45 (0.92)
Control Mean	6.95	3.94	5.07	5.89	3.07	4.14
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	4396	3993	8389	4337	3796	8389
R <sup>2</sup>	0.35	0.31	0.33	0.29	0.31	0.33

Notes: Data consists of the 1999 wave of the REDS data. Standard errors are clustered at state level. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Traditional households are those for whom at least one member reported gender segregation while eating meals.

Table 8: Heterogeneity by Bequest Ability

	Marginal			Non-marginal		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	-0.43 (0.71)	-0.50 (0.38)	-0.36 (0.37)	1.00 (1.24)	-0.49 (0.89)	0.91 (0.96)
Non-Muslim (=1)	1.87** (0.73)	2.91*** (0.46)	2.28*** (0.42)	-1.22 (1.21)	0.95 (0.85)	-0.76 (0.92)
Control Mean	6.82	3.46	4.8	7.34	4.21	5.46
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	8239	7063	15302	3059	2734	5793
R <sup>2</sup>	0.26	0.29	0.28	0.37	0.33	0.34

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Marginal land holding households own less then 2.5 acres of land.

Table 9: Age at Marriage

	Age at Marriage		
	Male (1)	Female (2)	ALL (3)
Post X Non-Muslim	0.81** (0.40)	0.69* (0.41)	0.63** (0.30)
Non-Muslim (=1)	0.89 (0.58)	1.96*** (0.53)	1.66*** (0.40)
Post (=1)	1.70*** (0.39)	1.14*** (0.40)	1.57*** (0.29)
Control Mean	19.8	17.19	18.47
Gender Fixed Effect			X
Household Control	X	X	X
Birth Order Fixed Effect	X	X	X
Observations	5600	5434	11034
R <sup>2</sup>	0.34	0.24	0.36

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all married sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 10: Birth Order Effects

	Age at Marriage					
	Male (1) First-Born	Male (2) Second-Born	Male (3) Higher Order	Female (4) First-Born	Female (5) Second-Born	Female (6) Higher Order
Post X Non-Muslim	-0.05 (0.70)	-0.14 (0.83)	2.13*** (0.61)	-0.43 (1.01)	1.62** (0.69)	0.81 (0.52)
Non-Muslim (=1)	2.56** (1.10)	1.51* (0.89)	-1.07 (0.83)	3.23*** (1.22)	0.83 (0.91)	1.86*** (0.59)
Post (=1)	1.77*** (0.67)	2.66*** (0.80)	0.85 (0.57)	2.41** (0.98)	0.23 (0.66)	1.19** (0.50)
Control Mean	20.65	19.89	19.06	17.61	17.42	16.88
Household Control	X	X	X	X	X	X
Observations	1909	1335	2373	1422	1255	2769
R <sup>2</sup>	0.23	0.35	0.35	0.17	0.23	0.24

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all married sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 11: Heterogeneity by Enforcement Potential

	Early State Level Amendment			No State Level Amendment		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	0.02 (1.15)	0.11 (0.69)	0.08 (0.73)	0.24 (0.82)	-0.92** (0.39)	-0.28 (0.43)
Non-Muslim (=1)	0.73 (1.89)	2.58** (1.17)	1.67 (1.19)	0.74 (0.81)	2.49*** (0.43)	1.56*** (0.44)
Control Mean	6.94	3.72	5.33	6.91	3.58	4.87
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	1618	1253	2871	9680	8544	18224
R <sup>2</sup>	0.40	0.39	0.38	0.27	0.28	0.28

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Bihar, Haryana, Himachal Pradesh and Punjab are states that implemented state-level amendments in 1975.

Table 12: Heterogeneity by Enforcement Exposure

	Above Median Exposure			Below Median Exposure		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	0.29 (1.04)	-0.95* (0.57)	-0.39 (0.58)	0.01 (0.95)	0.51 (0.53)	0.42 (0.51)
Non-Muslim (=1)	1.52 (0.98)	3.25*** (0.64)	2.38*** (0.59)	-0.04 (1.04)	1.86*** (0.60)	0.74 (0.57)
Control Mean	7.92	4.43	5.84	6.17	2.93	4.21
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	3152	2888	6040	3607	3362	6969
$R^2$	0.18	0.29	0.26	0.16	0.27	0.24

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Above median exposure households are units that experienced a greater magnitude of change in dowry payments between the pre and post period as compared to the median district level change in dowry payments.

Table 13: Robustness

	State Time Varying			Legal Age			Clustering		
	M (1)	F (2)	ALL (3)	M (4)	F (5)	ALL (6)	M (7)	F (8)	ALL (9)
Post X Non-Muslim	-0.12 (0.70)	-0.87** (0.37)	-0.37 (0.38)				0.17 (0.60)	-0.65* (0.37)	-0.16 (0.39)
Post.Legal X Non-Muslim				-0.17 (0.88)	-0.74* (0.43)	-0.37 (0.45)			
Non-Muslim (=1)	1.02 (0.71)	2.33*** (0.42)	1.55*** (0.41)	1.20 (0.88)	2.51*** (0.46)	1.77*** (0.47)	0.85 (0.64)	2.37*** (0.36)	1.53*** (0.40)
Control Mean	6.91	3.6	4.92	7.16	3.57	4.71	6.91	3.6	4.92
Gender Fixed Effect			X			X			X
Household Control	X	X	X	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X	X	X	X
Observations	11298	9797	21095	12238	9984	22222	11298	9797	21095
$R^2$	0.29	0.30	0.29	0.27	0.28	0.28	0.28	0.29	0.29

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported unless specified. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 14: Difference-in-differences Estimator using de Chaisemartin and D’Haultfoeuille (2021)

	Estimate	SE	LB CI	UB CI	N	Switchers
School-Yrs	-.6994971	.3186149	-1.323982	-.075012	6118	4661

# Appendix

## A Supplementary Analysis

### A.1 Rotating Capital Fund - Net Payers and Net Receivers

Using an identical regression specification as in equation 2, the impact of the amendment on educational attainment is estimated for Net Payer and Net Receiver households. Table 15 reports the estimated coefficients on the coefficient of interest  $PostXNon - Muslim$  and  $Non - Muslim$ . Consistent with the evidence presented in Table 4, Net Payer households are the main drivers of the reduction in educational attainment with 1.34 years of lower education for females in Net Payer households. This is a decline of 25% over the mean as compared to 18% decline for the entire sample. No significant differences in educational attainment for Net Receiver households across females or males is recorded.

Though this result reinforces the impacts of the amendment on educational attainment through changes in dowry practice, it should not be viewed in isolation. Classifying households as Net Payers (Net Receivers) based on the relative number of females (males) raises endogeneity concerns given the literature documenting gender-based fertility-stopping rules practiced in developing countries ((Jayachandran and Kuziemko, 2011; Yamaguchi, 1989)). Households with a larger number of girls are more likely to have stronger son preferences and consequently practice stronger traditional social norms. The estimation strategy is able to provide causal evidence even in the presence of gender-based fertility rules assuming traditional social norms practiced by households are sticky and unlikely to vary over time. Furthermore, the estimation equation controls for the total number of household members thereby mitigating concerns around differences in family size driving results.

Table 15: Impact on Years of Schooling : Net Payers &amp; Receivers

	Net Payers			Net Receivers		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	-1.94 (2.36)	-1.34*** (0.47)	-1.42*** (0.49)	0.41 (0.72)	-0.16 (0.47)	0.37 (0.48)
Non-Muslim (=1)	3.28 (2.48)	2.93*** (0.56)	2.81*** (0.54)	0.60 (0.72)	1.97*** (0.53)	0.88* (0.49)
Control Mean	4.26	5.32	4.92	4.26	5.32	4.92
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	1957	5275	7232	9341	4522	13863
R <sup>2</sup>	0.31	0.30	0.30	0.28	0.29	0.29

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 16: Robustness: Net Payer Status

	State Time Varying			Legal Age			Clustering		
	M (1)	F (2)	ALL (3)	M (4)	F (5)	ALL (6)	M (7)	F (8)	ALL (9)
Post X Non-Muslim	0.90 (2.90)	-1.45*** (0.56)	-1.15** (0.57)				-1.94 (2.52)	-1.34** (0.59)	-1.42** (0.61)
Post_Legal X Non-Muslim				-6.91*** (1.39)	-1.55** (0.62)	-1.89*** (0.56)			
Non-Muslim (=1)	0.04 (3.00)	2.69*** (0.66)	2.26*** (0.64)	8.50*** (1.57)	3.18*** (0.67)	3.35*** (0.60)	3.28 (2.78)	2.93*** (0.86)	2.81*** (0.91)
Control Mean	6.86	3.76	4.26	6.61	3.77	4.09	6.86	3.76	4.26
Gender Fixed Effect		X	X			X			X
Household Control	X	X	X	X	X	X	X	X	
Birth Order Fixed Effect	X	X	X	X	X	X	X	X	X
Observations	1957	5275	7232	2094	5363	7457	1957	5275	7232
R <sup>2</sup>	0.33	0.31	0.31	0.31	0.30	0.30	0.31	0.30	0.30

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported unless specified. Sample comprises of all sons and daughter of household head for Net Payer households. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Table 17: Robustness: Net Receiver Status

	State Time Varying			Legal Age			Clustering		
	M (1)	F (2)	ALL (3)	M (4)	F (5)	ALL (6)	M (7)	F (8)	ALL (9)
Post X Non-Muslim	0.08 (0.74)	-0.57 (0.48)	0.05 (0.49)				0.41 (0.56)	-0.16 (0.42)	0.37 (0.39)
Post_Legal X Non-Muslim				0.36 (0.92)	-0.17 (0.55)	0.28 (0.59)			
Non-Muslim (=1)	0.84 (0.75)	2.18*** (0.52)	1.06** (0.51)	0.65 (0.92)	2.04*** (0.60)	1.00* (0.60)	0.60 (0.61)	1.97** (0.70)	0.88 (0.51)
Control Mean	6.92	3.41	5.32	7.25	3.34	5.14	6.92	3.41	5.32
Gender Fixed Effect			X			X			X
Household Control	X	X	X	X	X	X	X	X	
Birth Order Fixed Effect	X	X	X	X	X	X	X	X	X
Observations	9341	4522	13863	10144	4621	14765	9341	4522	13863
R <sup>2</sup>	0.29	0.30	0.29	0.27	0.28	0.27	0.28	0.29	0.29

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported unless specified. Sample comprises of all sons and daughter of household head for Net Receiver households. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

Net Payer households are more likely to have female household heads, more educated fathers and fewer number of household members. Differences on household size is likely driven by virilocal marriage practices. Controls for household size are used in the analysis.

Table 18: Balance Table : Net Payers &amp; Net Reciever Households

Variable	(1)	(2)	(3)
	Net Receivers	Net Payers	Difference
HH head male (=1)	0.939 (0.240)	0.926 (0.262)	-0.013* (0.007)
HH head marital status	1.103 (0.304)	1.105 (0.306)	0.001 (0.008)
HH income at time of survey ('000 Rs)	102.900 (162.288)	97.856 (124.621)	-5.043 (3.572)
Fathers years of education	5.055 (4.696)	5.283 (4.737)	0.229* (0.127)
Mothers years of education	2.596 (3.807)	2.629 (3.859)	0.033 (0.103)
Total number of household members	6.350 (3.513)	5.717 (2.727)	-0.633*** (0.078)
Observations	4,895	2,104	6,999

Notes: Data consists of the 1999 wave of the REDS data. Standard errors are clustered at state level. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

## A.2 Irrigation Access and Education

Access to irrigation at the household level is used as an alternate proxy for bequest ability. The choice is motivated by water allocation practices such as Warabandi - which entails an allocation of water for irrigation based on land-holding size (Bandaragoda and ur Rehman (1995)). Equation 2 is estimated for sub-samples of households based on household land-holding under irrigation. Households are tagged as “Irrigated” if area under irrigation is larger than the sample average area under irrigation. Estimates are presented in Table 19 and suggest no differences in educational attainment by irrigation status.

Table 19: Years of Schooling: Irrigation Status

	Non-irrigated			Irrigated		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	-0.26 (0.93)	-0.60 (0.39)	-0.49 (0.44)	0.73 (1.19)	-0.35 (0.68)	0.59 (0.70)
Non-Muslim (=1)	1.03 (0.94)	2.17*** (0.43)	1.66*** (0.46)	1.41 (1.18)	3.40** (1.33)	1.59* (0.82)
Control Mean	7.69	4.19	5.63	6.55	3.33	4.61
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	8347	7237	15584	2951	2560	5511
$R^2$	0.28	0.30	0.29	0.33	0.31	0.32

Notes: Data consists of the 1999 wave of the REDS data. Robust standard errors are reported. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. A household is classified as Irrigated if its irrigated land is more than the average irrigated land in the sample.



### A.3 Alternate Definition of Traditional Households

An alternate and more strict way to classify households as traditional households is to consider households as “Traditional” if *All* household members report gender segregation at meal time. Using such a classification equation 2 is estimated for sub-samples of households and results are presented in Table 20. Estimates suggest “Traditional” households saw a larger magnitude of decline as compared to “Non-Traditional” households, however these estimates are not significantly different from zero.

Table 20: Impact on Years of Schooling : Traditional Households

	Traditional			Non-traditional		
	Male (1)	Female (2)	ALL (3)	Male (4)	Female (5)	ALL (6)
Post X Non-Muslim	0.55 (1.27)	-0.72 (0.79)	0.20 (0.79)	-0.86 (0.90)	-0.69 (0.46)	0.20 (0.79)
Non-Muslim (=1)	0.42 (1.26)	2.32*** (0.82)	1.13 (0.79)	1.89* (0.98)	2.89*** (0.62)	1.13 (0.79)
Control Mean	7.850000000000001	4.01	5.54	6.02	3.2	4.27
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	5196	4517	9713	5556	4730	9713
$R^2$	0.34	0.30	0.31	0.27	0.30	0.31

Notes: Data consists of the 1999 wave of the REDS data. Standard errors are clustered at state level. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members. Traditional households are those for whom all members reported gender segregation while eating meals.

### A.4 Robustness

The estimation strategy is altered to match that of Calvi and Keskar (2020) who examine impacts on education for women using an alternate data set using the same policy shock. Two empirical specifications are considered with results reported in Table 21. The first specification retains cohort level exposure assignment relative to the age of marriage interval, but replaces cohort of birth fixed effects with a post indicator. The second specification alters the exposure assignment to consider all cohorts born post 1985 to be exposed to the amendment. Under both specifications the results of this paper remain qualitatively unchanged and the coefficient of interest retains a negative magnitude although it is now imprecisely estimated.

Table 21: Impact on Years of Schooling

	School-Yrs			Male (4)	Female (5)	ALL (6)
	Male (1)	Female (2)	ALL (3)			
Post X Non-Muslim	0.42 (0.72)	-0.43 (0.33)	0.11 (0.38)			
Non-Muslim (=1)	1.06 (0.73)	2.20*** (0.40)	1.54*** (0.40)	1.02*** (0.30)	1.86*** (0.30)	1.39*** (0.22)
Post (=1)	-0.56 (0.70)	1.80*** (0.32)	0.64* (0.37)			
Born after 1985 (=1)				-3.23*** (0.25)	-1.03*** (0.24)	-2.33*** (0.18)
Born after 1985 X Non-Muslim				-0.35 (0.26)	-0.39 (0.25)	-0.27 (0.19)
Control Mean	6.91	3.6	4.92	7.22	4.66	6.100000000000001
Gender Fixed Effect			X			X
Household Control	X	X	X	X	X	X
Birth Order Fixed Effect	X	X	X	X	X	X
Observations	11298	9797	21095	13624	10934	24558
$R^2$	0.10	0.20	0.16	0.20	0.22	0.22

Notes: Data consists of the 1999 wave of the REDS data. Standard errors are clustered at state level. Sample comprises of all sons and daughter of household head. All regressions control for state fixed effects. Household controls include reported income in 1999, caste and total number of members.

## B Dowry and Legislation Context

### B.1 Dowry

The historical emergence of dowry in the Indian context can be traced back to the practice of *stridhan* - “woman’s property” as mentioned in the *Manu-smriti*<sup>24</sup>. Dowry began as an exclusive practice associated with Brahmanic (priestly) cases and has since evolved to a near universal social norm across caste and class (Chiplunkar and Weaver (2019)). British rule in India altered the practice considerably. First through institution of property rights which made land and its produce a privately owned commodity (Tambiah et al. (1989)) and later with the creation of white-collar jobs in the British bureaucracy which resulted in high-quality grooms in urban marriage market (Srinivas (1984))<sup>25</sup>.

Traditionally dowry composition could be broadly classified under three categories. The first, personal clothes and ornaments for the bride, usually transferred on her person after marriage. Second component comprises gifts for the groom, as well as his family and close kin. Third component comprises of articles of household use including cooking and eating utensils (Madan,1975).

The process of dowry valuations which are often based on factors beyond groom and bride characteristics. The most important of these are household characteristics with limited emphasis on groom characteristics outside of a groom’s future ability to provide for the bride (Rao (1993))<sup>26</sup>.

<sup>24</sup>A prescriptive code of behaviors compiled around 200 C.E

<sup>25</sup>The data is unable to capture changes in urban groom quality given the exclusive coverage of rural areas in my sample.

<sup>26</sup>Within the entire arranged marriage process, the last stage is usually when the bride and groom see each other for the first time.

## B.2 Details on 1985 Amendment

Along with expansions in the pecuniary and penal provisions, the amendment was followed by changes to the Indian Penal Code. The definition of dowry deaths were included as part of the Indian Penal code. Dowry deaths covered situations “where the death of a woman is caused by any burns or bodily injury or occurs otherwise than under normal circumstances within seven years of her marriage and it is shown that prior to her death she was subjected to cruelty or harassment by her husband or any relative of her husband for, or in connection with, any demand for dowry, such death shall be called dowry death, and such husband or relative shall be deemed to have caused her death. The slew of legal measures also included amendment of the Indian Evidence Act, 1871 to allow for the presumption of guilt in cases of dowry deaths.

## C Data

### C.1 Dowry Reporting

Concerns about under-reporting issues associate with dowry are examined. Despite the law having no provisions for retrospective penalty associated with dowry payments, households may systematically under-report dowry for marriages in the post period. To test for under-reporting variance in reporting amounts are explored. Dowry payments are modeled using the following equation :

$$y_{it} = \Delta_i + \Delta_t + \Delta_{it}$$

$\Delta_t$  captures the recall bias,  $\Delta_i$  are family characteristics and comprise the observable components of reported dowry  $y_{it}$ . The observable components are partialled out and a measure of dispersion for the error terms is calculated for the overall, treatment and control sub-samples. The empirical test checks association between variance in dowry reporting with treatment status. If the variance in dowry reporting is associated with treatment then there is evidence of systematic misreporting which is problematic for the first stage estimation. To test for systematic misreporting the distribution of the variance of errors across years for the treatment (Figure 12) and control (Figure 11) populations are created. A visual inspection of the graphs suggests that the distribution of errors remains pretty consistent across treatment and control populations. Additionally the error distribution does not seem to vary across years and thus is presumably uncorrelated with the timing of the amendment. These insights are interpreted to suggest that the amendment timing is not salient for households while recalling dowry payments.

### C.2 Sampling methodology for REDS-1999

The sampling strategy follows a variable probability sampling with oversampling of households residing in areas with high yielding variety (HYV) of seeds. The sampling strategy is inline with the objective of the original study which sought to examine the impact of HYV seeds. The data comes from three stratum of villages based



Figure 10:

The figure plots the mean and two standard deviation of a measure of dispersion of the reported dowry payments across years. The measure of dispersion captures the standard deviation of the error term from a regression of dowry payments on co-variates to control for recall period and individual level characteristics. The sample comprises of all married women over the time period 1970 - 1999. Source - REDS 99.

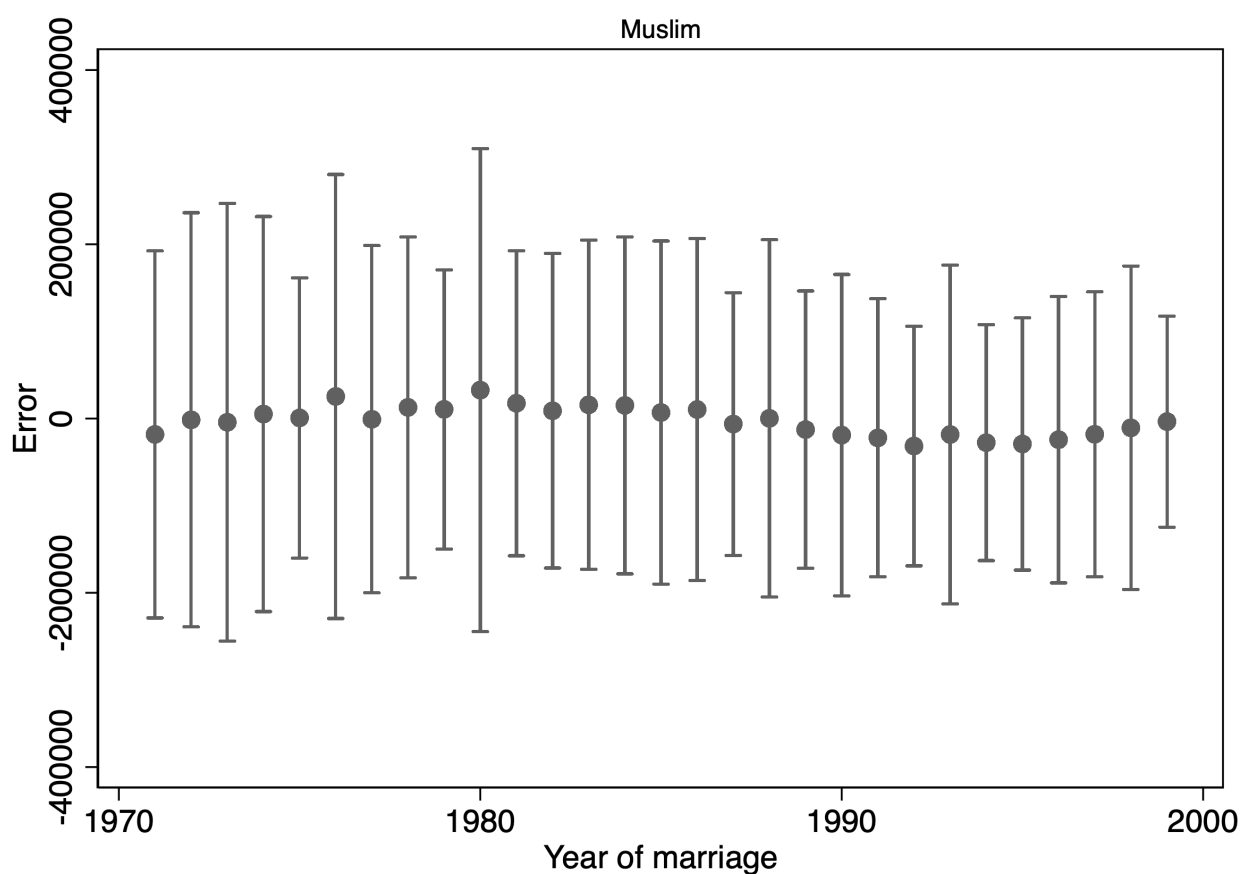


Figure 11:

The figure plots the mean and two standard deviation of a measure of dispersion of the reported dowry payments across years. The measure of dispersion captures the standard deviation of the error term from a regression of dowry payments on co-variables to control for recall period and individual level characteristics. The sample comprises of all muslim married women over the time period 1970 - 1999. Source - REDS 99.

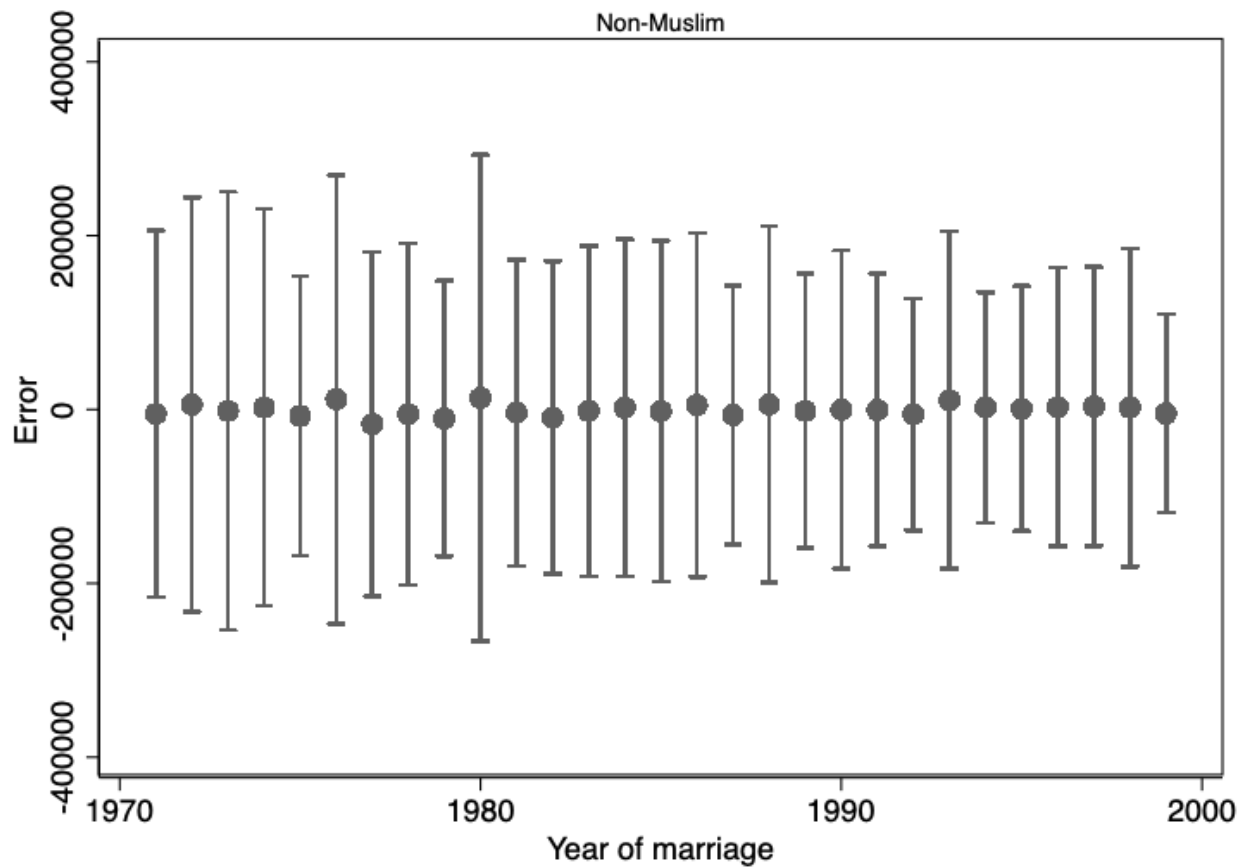


Figure 12:

The figure plots the mean and two standard deviation of a measure of dispersion of the reported dowry payments across years. The measure of dispersion captures the standard deviation of the error term from a regression of dowry payments on co-variables to control for recall period and individual level characteristics. The sample comprises of all non-muslim married women over the time period 1970 - 1999. Source - REDS 99.

on different agricultural development programs operational across the country<sup>27</sup>. The sampling design varied across strata. For the first stratum (IADP villages) for each village a stratified random sample of 20-30 households were selected with oversampling of households in the high and middle income groups relative to low income households. This oversampling implied greater households belonging to cultivators. For stratum two (IAAP) and three the selection of households was based on a three-stage sample design based on block, village and household comprised the three units. The survey documentation suppresses the 1999 weights and prevents their use in the final analysis.

### C.3 Occupation Classes

Figure 13 presents the correlation across occupation classes used in the analysis. The Figure documents variation in the occupation class across households.

	Marginal	Irrigated	Self-employed farming	Non-farming & Salary	Agricultural Wages
Marginal	1				
Irrigated	-0.1105	1			
Self-employed farming	0.0041	0.2764	1		
Non-farming & Salary	-0.0363	-0.1579	-0.5449	1	
Agricultural Wages	-0.0068	-0.2011	-0.3962	-0.222	1

Marginal is an indicator (=1) if household landholding is less than 1 hectare of land

Irrigated is an indicator (=1) if households have above average irrigated land

Self-employed farming is an indicator (=1) if households are engaged in self employed farming or are agricultural family workers

Non-farming & Salary is an indicator (=1) if households are self-employed on non-farm activities, salaried, non-agricultural wage earners or non-agricultural family workers

Figure 13: Correlation across Occupation Types

<sup>27</sup>Intensive Agricultural Development Program - IADP and the Intensive Agriculture Area Program - IAAP