Fertility Outcomes and Parental Well-being in Later Life: Evidence from India

Bilal Ahmad Bhat[*] Esha Chatterjee[†] and Sounak Thakur[‡]

Abstract

We study the effect of fertility outcomes on parental well-being in post-reproductive ages. The context is India, where the gender of the firstborn is plausibly random, and parents with firstborn daughters end up having more daughters. For both women and men, we find that having a firstborn daughter leads to lower subjective life satisfaction and a greater chance of labor force participation in their post-reproductive years. These results are plausibly driven by greater financial stress associated with marrying off daughters, and, for women, by the long-term effects of abortion and lower autonomy in households with firstborn daughters.

JEL Classification: I19, I31, J13, J14, J16

Keywords: older adults, post-reproductive, son preference, life satisfaction, fertility, gender

[*]Department of Economic Sciences, Indian Institute of Technology, Kanpur. E-mail: bilalah@iitk.ac.in

[†]Department of Humanities and Social Sciences and Department of Economic Sciences, Indian Institute of Technology, Kanpur. E-mail: eshachat@iitk.ac.in

[‡]Department of Economic Sciences, Indian Institute of Technology, Kanpur. E-mail: sounakt@iitk.ac.in

1 Introduction

Childbirth is a major life event one experiences over the course of one's reproductive years. In India, the context of the study, most couples bear more than one child (Anukriti et al. (2022b)). Indian parents are also known to have a preference for having sons — in a bid to have at least one son, parents with firstborn daughters end up having more daughters and more children than their counterparts with firstborn sons (Alfano (2017), Milazzo (2018), Anukriti et al. (2022b)). Relatively little is known about how fertility outcomes affect parental well-being. A few recent papers focus on outcomes of women in reproductive ages, and find mixed evidence. Heath and Tan (2018) find that women with more daughters enjoy greater autonomy, while contemporaneous works by Milazzo (2018) and Weitzman (2020) document that women with more daughters are more likely to be subjected to domestic violence and to be anaemic. However, the effect of fertility on different aspects of parental well-being in later life has remained relatively unexplored.

In this paper, we study the effect of fertility on parental well-being and labor supply in later life. We exploit the fact that Indian parents do not appear to attempt to actively manipulate the gender of their firstborn child. Therefore, the gender of the firstborn child is determined by nature, and is plausibly random (Almond and Edlund (2008), Abrevaya (2009), Bhalotra and Cochrane (2010), Rosenblum (2013), Alfano (2017), Anukriti et al. (2022b)). Son preference manifests in subsequent fertility choices in the following way: parents with firstborn daughters go on to have more children over their reproductive years, and end up, on an average, having more daughters. The exogeneity of the gender of firstborn child allows us to estimate the causal effect of having a firstborn daughter on parental outcomes in later life.

We use data from the first wave of the Longitudinal Ageing Study in India (LASI hereafter). Designed as a panel survey for the older population, the first wave of the LASI (conducted in 2017-19) provides, for the first time in the Indian context, nationally representative data on a rich set of outcomes for women and men in their post-reproductive years. We find

that having a firstborn daughter leads to lower subjective life satisfaction in later life for both women and men. Both older women and men with firstborn daughters are more likely to report that they are currently working for pay. These households are also less financially independent. Further, we find that the association between having a firstborn daughter and life satisfaction in later life is stronger in states and castes where dowry amounts are larger on average. Consistent with the literature (Anukriti et al. (2022a)), this indicates that the higher burden of outstanding debts used to finance expensive dowries to marry off daughters may be a potential mechanism driving our results. Further, women with firstborn daughters report experiencing more abortions in their reproductive years. Such women also enjoy lower autonomy in later life. Thus, greater financial stress associated with marrying off daughters, and, in the case of women, the long-term effects of abortion (Babu and Verma (1998), Singh et al. (2018)) and lower autonomy are plausible channels driving our findings.

This paper is related to a rich literature that has studied parental preferences for children. This literature documents strong parental preference for having sons rather than daughters in the Indian context (Clark (2000), Jensen (2003), Basu and De Jong (2010)). Parental preference for sons translates into discrimination against girls and women at every stage of life. Sen (1992) pointed out that the population sex ratio was male-biased. Subsequent research has documented that female disadvantage starts as early as the prenatal stage (Bharadwaj and Lakdawala (2013), Bhalotra and Cochrane (2010)), continues through early childhood (Jayachandran and Kuziemko (2011), Oster (2009), Rose (1999)), and persists through reproductive and post-reproductive years (Ackerson and Subramanian (2008), Jejeebhoy and Sathar (2001), Calvi (2020)).

Relatively little is known about the consequences of parental fertility choices on their own well-being, and most existing studies focus on women of reproductive age (Milazzo (2018), Heath and Tan (2018), Weitzman (2020)). While some of the consequences (like serial pregnancies) of bearing a firstborn daughter are gendered and disproportionately affect women, one can also think of consequences that affect both women and men. To the extent that women

and men hold similar religious beliefs, the socio-religious importance of having a son is likely to be salient for both genders. Further, the financial burden associated with having more daughters is likely to disproportionately affect men since they are typically regarded as the primary breadwinners in the Indian context. Surprisingly, very little is known about the effect of fertility outcomes on indicators of men's well-being. Moreover, given that the gender composition of children is not only imbued with socio-religious significance (Jayachandran and Pande (2017)) but also has salient financial ramifications (Alfano (2017), Bhalotra et al. (2020), Anukriti et al. (2022a)),[1] the consequences of fertility outcomes are likely to persist into the post-reproductive years of a couple. To the best of our knowledge, this question is addressed by only one recent paper. Rathore and Das (2022) find that having more daughters is associated with a greater incidence of (self-reported) chronic illness and hospitalization amongst parents in their old age. However, it is possible that the number of daughters may co-vary with unobservable parental characteristics which may affect their health in later life. For instance, women in families with a higher degree of son preference may have lower autonomy even before the birth of any children, and lower autonomy could affect health-seeking behaviors and culminate in greater incidence of chronic illness. But the very same households may also practise son-biased fertility stopping more intensely, and end up having more daughters. In that case, the association between the number of daughters and chronic illness may be driven by household-level norms rather than the number of daughters, per se. In other words, it is possible that, in the framework that Rathore and Das employ, the number of daughters is endogenous. Therefore, the findings in Rathore and Das may not be amenable to a causal interpretation.

The current paper speaks to this gap, and makes three contributions to the literature. First, this is, to the best of our knowledge, the first study that establishes a causal link between parental fertility choices and outcomes in post-reproductive ages. Our empirical strategy exploits plausibly exogenous variation in the gender of the firstborn child. Second, to the best

[1]Households with more daughters have a lower lifetime income because of the customary obligation to pay large dowries upon daughters' marriage.

of our knowledge, this is the first paper that documents effects of fertility outcomes on males. Third, we contribute to the growing literature that studies happiness and well-being. Beyond traditional economic indicators like real income and Gross Domestic Product, happiness and well-being are increasingly recognized as crucial contributors to societal progress in the context of both developed and less developed countries (Kahneman and Krueger (2006), Clark and Senik (2011), Frugoli et al. (2015)). We contribute by providing a comprehensive picture of how fertility outcomes affect well-being amongst older adults — a demographic that has remained understudied in the Indian context. The findings of this study are important for the design of policies relating to government transfers/pensions to older adults. These findings indicate that there may be a case for conditioning transfers on fertility history. Older couples who have a larger number of daughters may stand in greater need for both financial and psychosocial support, and such resources should target this demographic.

The remainder of the paper is structured as follows: Section 2 describes the data. Section 3 details the empirical strategy. Section 4 discusses results. Section 5 concludes.

2 Data

This study employs data from the first wave of the Longitudinal Ageing Study in India (2017-19). The Longitudinal Ageing Study in India (LASI hereafter) is the first nationally representative survey that collected rich information on the status of the older adults in India. LASI is designed to be a panel representative of India's older population (defined as individuals aged 45 years and above).[2] It is part of a network of studies on ageing around the world like the Health and Retirement Study (HRS) in the United States and its sister surveys in Asia, Europe, Mexico, and other regions (for example, the China Health and Retirement Longitudinal Study (CHARLS), the Japanese Study of Ageing and Retirement (JSTAR), the English Longitudinal Study of Ageing (ELSA), the Mexican Health and Aging Study (MHAS), etc.).

[2]Currently, only the first wave of the panel (conducted in 2017-19 is available.)

The LASI is the world's largest survey that collects data on the social, economic, health and psychological dimensions of the ageing process. The first wave of LASI surveyed more than 72,000 individuals across 36 Indian states and federally-administered union-territories. The LASI interviewed all individuals in the household who were above the age of 45 and their spouses, irrespective of their age. Therefore, we have a substantial number of respondents (about 15% of women and 4% of men) in the 40-45 year age bracket. In this paper, we restrict the sample to women and men between 40 and 100 years of age who have had at least one child.[3] All women and men who meet this criterion are included in the analysis regardless of their current marital status (i.e., married/divorced/widowed). Further details about data construction are presented in Appendix C.

Our outcomes of interest include both subjective and objective measures. The LASI provides us with rich information on subjective measures of well-being such as overall life satisfaction and quality of life. Overall life satisfaction is a binary indicator based on a single question that elicits the respondent's satisfaction with life while quality of life is a standardized index based on four questions pertaining the the respondent's perceived satisfaction with life. For the sake of robustness, we use information on several other subjective measures of well-being (including self-reported depression, sleep trouble, self-rated health, satisfaction with current living arrangements, etc.). Further, we report results on several objective outcomes such as current labor force participation, financial dependence on others, female autonomy and objective health outcomes (such as body mass index (BMI) and grip strength).

Descriptive statistics on selected important variables are presented in Table A1. The average woman was born in 1960 and married in 1978 and the average man was born in 1958 and married in 1980. Men are more likely (than women) to have attended school (69% of all men attended school vs 41% of women). About 50% of women and 52% of men are satisfied with their life as a whole. In this age bracket, men are more likely to work (65% of men report

[3]Biologically, human females can reproduce until their late 40s, though fertility declines dramatically in mid 30s. In the Indian context, few women (only 0.38% in NFHS-1) bear any children in their 40s. Similarly, human males remain fertile at least until their late 40s, but only 2.5% of men (in NFHS-3) father children after 40 years of age. Therefore, we consider individuals aged more than 40 as having attained post-reproductive age.

working as compared to 31% of women). On an average, women in the sample have about 3.5 children. About 75% of older women and men belong to the so-called lower caste categories, and about 35% of the sample is urban.

3 Empirical Strategy

Our empirical strategy aims to identify the effect of gender of first-born child on outcomes of parents in later life. The key identifying assumption is that the gender of the first-born child is determined at random. This assumption is supported by an extensive literature which documents that even after the introduction of technology that facilitates sex-selective abortion, Indian parents do not appear to sex select at birth order one (Gupta (1987), Dahl and Moretti (2008), Bhalotra and Cochrane (2010), Jha et al. (2011), Rosenblum (2013), Anukriti et al. (2022b), Heath and Tan (2018), Milazzo (2018)). This appears to be a plausible family-building strategy for Indian parents, most of whom desire to have at least one daughter.[4]

In order to validate our key identifying assumption (i.e., the randomness of the gender of the firstborn), we carry out two sets of balance tests. First, we check if there are statistically significant differences in predetermined observable characteristics (such as education, residence, religion, caste, etc.) between older women (men) who have firstborn sons and their counterparts who have firstborn daughters. To that end, we regress each of the predetermined characteristics on an indicator for firstborn girl, controlling for vectors of year of birth, year of marriage and district fixed effects. Figure 1 reports estimated coefficients along with 95% confidence intervals. As expected, all the estimated coefficients are statistically insignificant, indicating that our sample is balanced. Second, as a further placebo check, we test whether current self-reported pre-marital outcomes correlate with having a firstborn daughter. If there is no selection on unobservables, pre-marital outcomes (such as economic condition in childhood, health in childhood, etc.) should not be correlated with the gender of the firstborn child.

[4] Jayachandran (2017) notes that most Indian parents desire to have more sons than daughters while ideally preferring to have at least one daughter.

As Table A2 shows, we find this to be the case in the LASI data that we use. These checks lend credibility to the identifying assumption that the gender of the firstborn is random.

Next, we measure the causal effect of having a first-born daughter on the outcomes of older women and men. We estimate the following regression:

$$Y_{ijbm} = \alpha + \beta FirstGirl_i + X'_{ijbm}\mathbf{\Gamma} + \theta_j + \gamma_b + \mu_m + \phi_j \times \lambda_b + \rho_j \times \omega_m + \epsilon_{ijbm} \tag{1}$$

Here, i indexes a parent, j indexes a district, b indexes a year of birth (of the parent), m indexes a year of marriage (of the parent). $FirstGirl_i$ is an indicator for the first child of parent i being female. X_{ijbm} denotes a vector of a rich set of controls for individual and household characteristics. θ_j, γ_b and μ_m denote vectors of district fixed effects, parent's birth year fixed effects, and parent's marriage year fixed effects, respectively. Further, in some of our stricter specifications, we include additional controls for the interaction of district fixed effects with birth year fixed effects ($\phi_j \times \lambda_b$) and the interaction of district fixed effects with year of marriage fixed effects ($\rho_j \times \omega_m$). Under the assumption that there is no sex selection at birth order 1, the estimate of the coefficient β from the equation 1 gives the causal effect of having a first-born girl on the relevant outcome of interest (denoted as Y_{ijbm}). As mentioned before, our outcomes of interest include both subjective measures of well-being (such as life satisfaction and quality of life) and objective outcomes (such as labor force participation, financial dependence and intra-household autonomy).

4 Results

4.1 Main Results

We begin by estimating the effect of having a firstborn daughter on subjective outcomes such as life satisfaction and quality of life for both women and men. Table 1 presents the results. As column 1 shows, for both women and men, having a firstborn daughter is associated with lower life satisfaction. Column 2 introduces controls for district fixed effects, year of birth and year of marriage fixed effects. Column 3 estimates an even richer specification, which includes interactions of district fixed effects with year of birth and year of marriage fixed effects, thus flexibly accounting for unobservable characteristics that may be trending differently for different birth and marriage cohorts. The coefficients of interest remain stable and statistically significant at the 1% level across specifications in columns 1, 2 and 3. Further, columns 4-6 check whether we obtain similar results if we re-define our outcome variable as quality of life, which is calculated as a standardized index from the aggregate score of responses to four questions that elicit information on the quality of the respondent's life. As columns 4-6 show, results for quality of life are consistent with those for life satisfaction presented in columns 1-3. In terms of magnitude, our estimated coefficients are substantial. For instance, the coefficients based on life satisfaction reported in column 1 indicate that women (men) with firstborn daughters are 1.7 (2.2) percentage points less likely to be satisfied with their lives as compared to their counterparts with firstborn sons. This roughly amounts to a 3.5% (4.3%) reduction in life satisfaction relative to its average level. To put these numbers into context, the estimated coefficients for women (men) amount to approximately 15% (18%) of the life satisfaction differential between the bottom and top quintiles of the distribution of current monthly per capita consumption expenditure.[5]

Next, we examine how gender of the firstborn child affects labor force participation in

[5]About 55% (58%) women (men) in the top quintile report being satisfied with life as compared to 44% (46%) women (men) in the bottom quintile. We divide the coefficient estimate for women (men), i.e., 1.7 (2.2) by $11 = 55 - 44$ ($12 = 58 - 46$) to arrive at the 15% (18%) figures reported in the text.

later life. Table 2 presents the results. Both women and men who have firstborn daughters are more likely to participate in the labor force as compared to their counterparts who have firstborn sons. On the intensive margin, women with firstborn daughters have more side jobs and spend longer hours on their current job. In terms of magnitude, our estimated coefficients, particularly those for women, are substantial. Women with firstborn daughters have a 1.7 percentage point higher chance of participating in the labor force. This corresponds to a 5.5% increase in the probability of labor force participation over the mean. Women with firstborn daughters have 0.01 more side jobs (roughly 20% of the mean) than their counterparts with firstborn sons. For men, our estimated coefficients are somewhat smaller in magnitude. Men who have firstborn daughters are 1.1 percentage point (roughly 1.7% of the mean) more likely to participate in the labor force.[6] We do not find statistically meaningful associations on the intensive margin for men.

The results presented in Tables 1 and 2 document robust correlations between gender of the firstborn child and outcomes in later life. A possible explanation for these correlations may be that, as reported in Table A3, individuals who have a firstborn daughter end up having more daughters. It is plausible that the number of daughters affects outcomes in later life through several channels. In that case, we must observe stronger results for parents with more daughters. We formally investigate this in Table 3. Amongst individuals who had at least two children, those who had two daughters in their first two births have lower life satisfaction, lower quality of life, and a greater chance of working at present than their counterparts who had at least one son in their first two births. For women (men), the coefficient on having two daughters in the first two births is roughly 1.5 (1.2) times the corresponding coefficient on having a firstborn female.[7] As a further check, in Figure B1 we document a negative (positive) relationship between the proportion of daughters and outcomes such as life satisfaction and quality of life (labor force participation) for both women and men. Table A4 confirms that

[6]The fraction of men who participate in the labor force is much larger than for women (64% versus 30%). The large base for men entails smaller percentage changes.

[7]We compare coefficients in column 3, panel A (B) in Table 3 with coefficients in column 3, panel A (B) in Table 1.

these patterns are robust to the inclusion of controls for district fixed effects, year of birth and year of marriage fixed effects, and household and individual characteristics such as residence (urban/rural), religion, caste, marital status, number of children, education, exposure to mass media, and monthly consumption expenditure per capita. These results indicate that the gender of the firstborn child possibly affects outcomes in later life by influencing the sex composition of children.

We further investigate channels through which having more daughters may affect life satisfaction and labor force participation in later life. The existing literature points to several plausible channels. First, the existing literature documents that high dowry amounts are the norm in Indian marriages (Anderson (2003), Alfano (2017), Bhalotra et al. (2020)). Therefore, parents who have more daughters would have experienced greater financial stress over their reproductive years due to greater burden of dowries paid to marry off daughters. In line with this, we find that the association between having more daughters and life satisfaction is greater in states and amongst caste groups that have higher average levels of dowry (see Table 4).[8] Consistent with a greater financial burden from high dowries, families with firstborn daughters report a greater financial dependence on sources other than their own household finances (see Table A5, columns 1 and 2). These results are robust to an alternative measure of financial dependence. As columns 3 and 4 in Table A5 show, families with firstborn daughters are more likely to be financially dependent on an external source for daily expenses as compared to their counterparts with firstborn sons. Second, consistent with Milazzo (2018), we find that older women who have firstborn daughters enjoy lower autonomy (see Table A5, columns 5 and 6).[9] Lower autonomy may be another channel through which women's life satisfaction may be affected. Third, we find that women with firstborn daughters report having had more abortions

[8]Caste groups are defined as broad caste categories (such as Scheduled Castes, Scheduled Tribes, Other Backward Castes and General). Following Anukriti et al. (2022a), we average real dowry amounts at the state-caste category level using retrospective information on dowries from the 1999 wave of the Rural Economic and Demographic Survey (REDS). The dowry information from the REDS is merged with the LASI data by state and caste category.

[9]Milazzo (2018) documents that women with more daughters enjoy less autonomy in their reproductive ages while Heath and Tan (2018) arrive at the opposite conclusion. To the best of our knowledge, this paper is the first to study the relationship for older women. Our results align with Milazzo (2018).

as compared to their counterparts with firstborn sons (see Table A5, columns 7 and 8). An extensive literature in public health has studied the link between abortions and reproductive health of women, both in the context of developed countries and less-developed countries like India (Dhall and Harvey (1984), Babu and Verma (1998), Duggal and Ramachandran (2004), Ganatra et al. (2017), Singh et al. (2018), Yokoe et al. (2019)). Unfortunately, about 97% of abortions performed in less developed countries (including India) are unsafe (Ganatra et al. (2017)), and unsafe abortions have been identified as a significant risk factor for maternal mortality and morbidity in India (Yokoe et al. (2019), Pradhan and Saikia (2023)). Thus, having experienced a greater number of abortions may be another potential channel explaining our results.

4.2 Potential Confounders

The analysis in this paper exploits plausibly exogenous variation in the gender of the firstborn child. As the balance tests reported in Figure 1 show, women and men who had firstborn daughters were similar (in terms of observable characteristics) to their counterparts with firstborn sons. Further, our regressions control for a rich set of covariates and fixed effects. While these specifications allow us to account for a host of unobserved characteristics that vary by district and birth/marriage cohort, one may still be concerned that there may be unobserved characteristics which are not fully accounted by our controls and fixed effects. For instance, Milazzo (2018) documents that women with firstborn daughters face a greater mortality risk than their counterparts with firstborn sons. Such differential selection into mortality would imply that we observe the relatively healthier mothers with firstborn daughters who survive, and this implies that our results are conservative lower bound estimates. Still, we conduct two sets of robustness checks. We describe these robustness checks in detail below.

First, we compute bias-adjusted coefficients proposed by Oster (2019) (popularly known as Oster bounds). Formally, the bias-adjusted coefficient β^* is defined as:

$$\beta^* \approx \tilde{\beta} - \delta[\mathring{\beta} - \tilde{\beta}]\frac{R_{\max} - \tilde{R}}{\tilde{R} - \mathring{R}} \tag{2}$$

where $\tilde{\beta}$ and $\tilde{R}$ ($\mathring{\beta}$ and $\mathring{R}$) are the coefficient and R^2 from the regression with observed controls (without observed controls), respectively. The parameter δ captures the strength of selection on unobservables (relative to selection on observables). $R_{\max}$ is the R^2 from a hypothetical regression of the outcome of interest on an indicator for treatment and all observable and unobservable controls. As recommended by Oster (2019), we define $R_{\max} = 1.3(\tilde{R})$ and estimate Oster bounds and Oster's δ for the corresponding value of $R_{\max}$. Table A6 presents the results. In both Panels (A and B), we reproduce the results (presented in Tables 1 and 2) for ease of comparison. Then, we present Oster bounds, which indicate how stable the estimated coefficient is if we assume that selection on unobservables is just as strong as selection on observables (i.e., $\delta = 1$). For both females and males, the Oster bounds we estimate indicate that our coefficient estimates are stable if we assume selection on unobservables is just as strong as selection on observables. We further proceed to calculate Oster's δ, which indicates how strong selection on unobservables would have to be (relative to selection on observables) to explain away our results. Conventionally, a value of δ greater than 1 (in terms of absolute magnitude) is considered as evidence against selection on unobservables. Our estimates of Oster's δ are greater than 1 in each case. In fact, in most cases the values of δ range between 3 and 10. These results indicate that selection on unobservables would have to be implausibly large to explain away our results.[10]

Second, we address the issue of selection on observable characteristics. We employ a matching approach which allows us to compare parents with firstborn daughters to their counterparts (with similar observable characteristics) with firstborn sons. We employ four different matching techniques — nearest neighbour, radius, kernel and entropy balancing. Figures B2 and B3 present the percentage bias across the covariates for both unmatched and matched sam-

[10]We also test the sensitivity of our results to the different values of δ and $R_{\max} = 1.3(\tilde{R})$. Results are presented in Table A7. In all the scenarios our coefficients of interest are significant and stable. This indicates that our results are not sensitive to unobserved confounding factors.

ples. We also present the distribution of propensity scores in "treatment" (i.e., women/men with firstborn daughter) and "control" (i.e., women/men with firstborn son) in Figures B4 and B5. As the distributions overlap in the matched sample in each case, the common support assumption is satisfied. These results imply that the treated and control group are as similar as possible in terms of characteristics used for matching. Results from each matching technique are presented in Tables A8 and A9. The estimated coefficients in all the cases are consistent with the results presented in Tables 1 and 2. These results increase our confidence in the validity of the main results presented in Tables 1 and 2.

4.3 Heterogeneity Analyses

This section reports results from the heterogeneity analyses designed to understand how the effects of gender of firstborn child on outcomes in later life vary across different sub-samples in our data. We investigate heterogeneity along different dimensions such as education, age, consumption expenditure, religion, caste and residence. First, we estimate the differential effects of gender of firstborn child on our main outcomes across different educational categories — no education (i.e., years of education=0), primary education (i.e., $1 <$years of education≤ 5), middle school education (i.e., $5 <$years of education≤ 8 years) and high school education and above (i.e., $8+$ years of education). Table A10 reports the results. For both older women and men, the effect of the gender of the firstborn child is larger on less educated individuals as compared to the corresponding effect on more educated individuals. These results are consistent with the literature indicating that more educated people are less likely to practice son preferring behaviours as compared to their less educated counterparts (Pande and Astone (2007), Robitaille (2013)).

Second, we carry out a heterogeneity analysis by monthly consumption expenditure per-capita (MPCE) quintile. The high MPCE (i.e., 5^{th} quintile) is taken as omitted category and is compared with the mid MPCE (3^{rd} and 4^{th}) quintiles and low MPCE (1^{st} and 2^{nd}) quintiles. Table A11 presents the results. For both older women and men, the effects of having a firstborn

daughter are more pronounced for lower quintiles of the MPCE distribution. These findings are consistent with evidence from the economic literature suggesting that son preference is more pronounced within lower-income groups in India, reflecting socio-economic factors influencing family dynamics and gender norms (Bhat and Zavier (2003), Gaudin (2011)).

Third, we investigate the heterogeneity of our estimated effects by age. Table A12 presents the results. As Panel A of Table A12 shows, effects on females are more prominent for 40-60 years olds. This holds not only for life satisfaction and quality of life but also for labor force participation. For males, this pattern is reversed. The estimated effects are larger for the 61-100 year age group, but they are small (and statistically insignificant) for the 40-60 year age group.

Finally, we estimate how the effects of the gender of firstborn child on outcomes for older adults vary by religion, caste category and residence at a rural or urban location. Results are presented in Tables A13, A14 and A15. As Table A13 shows, the effects do not appear to vary much by religion. For some variables (such as current work for women and life satisfaction for men), the effects appear slightly greater for Hindus. However, these results are not robust to the inclusion of district and birth year fixed effects. Results on heterogeneity by caste category are presented in Table A14. As the coefficients on the interaction terms show, the effects of the gender of the firstborn child do not appear to vary by caste category for females. However, the effect on higher caste males is slightly higher than on their lower caste counterparts. These results are consistent with previous research, which has documented that the higher castes have a greater degree of son-preference as compared to the lower castes (Gupta (1987), Chamarbagwala and Ranger (2006), Bhalotra et al. (2010)). This could be on account of prevalence of higher dowries among the higher castes (Rao (1993), Srinivasan and Lee (2004), Anukriti et al. (2022a)). Therefore, gender of firstborn child might be more salient for higher caste groups as compared to lower caste groups. Finally, we carry out a heterogeneity analysis by whether the older woman or man is located in a rural or urban area. Results are presented in Table A15. We do not find any statistically meaningful effects of the gender of

the firstborn child by location (i.e., urban or rural) in each case.

4.4 Alternate Measurements and Additional Outcomes

In this section, we conduct a battery of robustness checks on our main results. We begin by documenting that the association between the gender of the firstborn child and the well-being of older women and men is robust to the use of alternate outcomes as metrics for well-being. As Table A16 shows, having a firstborn daughter is associated with worse self-reported health for both women and men. For women, having a firstborn daughter is also associated with a greater incidence of anemia (self-reported) and poor vision (self-reported). Moreover, results in Table A17 show that, for older women, having a firstborn daughter is associated with worse objective health outcomes (such as body mass index (BMI) and grip strength). As further robustness checks, we use a different set of outcome variables (such as satisfaction with current living arrangements, self-reported depression, and sleep trouble). Table A18 presents the results. These results indicate that for both women and men, having a firstborn daughter is associated with lower satisfaction with current living arrangements. Women with firstborn daughters also have a greater chance of saying that they are depressed and that they have trouble sleeping. In terms of magnitude, these effects are sizeable. Women with firstborn daughters are about 1 percentage point (about 5.8% of the mean) more likely to report being depressed and about 2 percentage points (about 4.6% of the mean) more likely to report having sleep trouble.

Finally, we exploit the richness of our dataset and construct indicators of life satisfaction and quality of life using a different set of questions than the ones we used for our main results presented in Table 1. The LASI asked different sets of questions related to life satisfaction in different parts in the survey. One of these sets of questions elicited the respondent's agreement (on a scale of 1-5) with a few statements: that her/his life is ideal; that condition of her/his life is excellent; that she/he is satisfied with life; that she/he got important things in life; and that she/he wishes to live the life again unchanged. Based on respondents' responses

to these questions, we calculated an aggregate score for each respondent and constructed a standardized index based on this aggregate score. Results are presented in columns 1 and 2 of Table A19. These results indicate that, even with this alternate definition of life satisfaction, women with firstborn daughters have lower life satisfaction than their counterparts with firstborn sons. As a further robustness check, we use responses to a different question that elicited the respondent's perception of her/his position in society. Respondents were shown a ladder and told that rungs of the ladder corresponded to rungs in society. Respondents were told that those who had more money, more education or better jobs belonged to a higher rung of the ladder. Given this backdrop, respondents were asked to place themselves on an appropriate rung of the ladder. Responses to this question are numbers between 1 and 10. We used these responses to construct a standardized index of quality of life. Results are presented in columns 3 and 4 of Table A19. Both women and men with firstborn daughters perceive themselves to be on a lower rung of the social ladder as compared to their counterparts with firstborn sons. This is consistent with greater financial burdens due to a higher dowry (see Anukriti et al. (2022a)) on parents who have more daughters.

5 Conclusion

In this paper, we study the effect of fertility outcomes on the well-being of older women and men in India. Using India's first nationally representative dataset of the older population, we show that having a firstborn daughter leads to lower subjective life satisfaction in post-reproductive years for both women and men. Women and men with firstborn daughters are more likely to work in old age, and report being less financially independent. These results are plausibly driven by greater financial stress (on account of high dowries) associated with marrying off daughters, and, in the case of women, by the long-term effects of abortion and lower autonomy in families with firstborn daughters.

The share of older adults (60+ years) in the Indian population is projected to rise from

10.1% to 20.8% in the next 25 years. This forebodes a sharp increase in the dependency burden over this time horizon. In view of this prospect, public policy would need to provide for social security and other safety nets for this demographic. Our analysis indicates that older couples who have had a larger number of daughters may be particularly vulnerable, and that resources should specifically target this demographic.

References

Abrevaya, Jason, "Are there missing girls in the United States? Evidence from birth data," *American Economic Journal: Applied Economics*, 2009, *1* (2), 1–34.

Ackerson, Leland K and SV Subramanian, "Domestic violence and chronic malnutrition among women and children in India," *American Journal of Epidemiology*, 2008, *167* (10), 1188–1196.

Alfano, Marco, "Daughters, dowries, deliveries: The effect of marital payments on fertility choices in India," *Journal of Development Economics*, 2017, *125*, 89–104.

Almond, Douglas and Lena Edlund, "Son-biased sex ratios in the 2000 United States Census," *Proceedings of the National Academy of Sciences*, 2008, *105* (15), 5681–5682.

Anderson, Siwan, "Why dowry payments declined with modernization in Europe but are rising in India," *Journal of Political Economy*, 2003, *111* (2), 269–310.

Anukriti, S, Sungoh Kwon, and Nishith Prakash, "Saving for dowry: Evidence from rural India," *Journal of Development Economics*, 2022, *154*, 102750.

Anukriti, Sharma, Sonia Bhalotra, and Eddy HF Tam, "On the quantity and quality of girls: Fertility, parental investments and mortality," *The Economic Journal*, 2022, *132* (641), 1–36.

Babu, NP and RK Verma, "Abortion in India: what does the National Family Health Survey tell us?," *Journal of Family Welfare*, 1998, *44*, 45–54.

Basu, Deepankar and Robert De Jong, "Son targeting fertility behavior: Some consequences and determinants," *Demography*, 2010, *47*, 521–536.

Bhalotra, Sonia, Abhishek Chakravarty, and Selim Gulesci, "The price of gold: Dowry and death in India," *Journal of Development Economics*, 2020, *143*, 102413.

_ , **Christine Valente, and Arthur Van Soest**, "The puzzle of Muslim advantage in child survival in India," *Journal of Health Economics*, 2010, *29* (2), 191–204.

Bhalotra, Sonia R and Tom Cochrane, "Where have all the young girls gone? Identification of sex selection in India," *IZA Discussion Papers, No. 5381*, 2010.

Bharadwaj, Prashant and Leah K Lakdawala, "Discrimination begins in the womb: evidence of sex-selective prenatal investments," *Journal of Human Resources*, 2013, *48* (1), 71–113.

Bhat, PN Mari and AJ Francis Zavier, "Fertility decline and gender bias in northern India," *Demography*, 2003, *40* (4), 637–657.

Calvi, Rossella, "Why are older women missing in India? The age profile of bargaining power and poverty," *Journal of Political Economy*, 2020, *128* (7), 2453–2501.

Chamarbagwala, Rubiana M and Martin Ranger, "India's missing women: disentangling cultural, political and economic variables," *CAEPR Working Paper, No. 2006-021*, 2006.

Clark, Andrew and Claudia Senik, "Will GDP growth increase happiness in developing countries?," *IZA Discussion Paper No. 5595*, 2011.

Clark, Shelley, "Son preference and sex composition of children: Evidence from India," *Demography*, 2000, *37* (1), 95–108.

Dahl, Gordon B and Enrico Moretti, "The demand for sons," *The Review of Economic Studies*, 2008, *75* (4), 1085–1120.

Dhall, Sudesh Bahl and Philip D Harvey, "Characteristics of first trimester abortion patients at an urban Indian clinic," *Studies in Family Planning*, 1984, *15* (2), 93–97.

Duggal, Ravi and Vimala Ramachandran, "The abortion assessment project—India: key findings and recommendations," *Reproductive Health Matters*, 2004, *12* (sup24), 122–129.

Frugoli, PA, CMVB Almeida, F Agostinho, BF Giannetti, and D Huisingh, "Can measures of well-being and progress help societies to achieve sustainable development?," *Journal of Cleaner Production*, 2015, *90*, 370–380.

Ganatra, Bela, Caitlin Gerdts, Clémentine Rossier, Brooke Ronald Johnson, Özge Tunçalp, Anisa Assifi, Gilda Sedgh, Susheela Singh, Akinrinola Bankole, Anna Popinchalk et al., "Global, regional, and subregional classification of abortions by safety, 2010–14: estimates from a Bayesian hierarchical model," *The Lancet*, 2017, *390* (10110), 2372–2381.

Gaudin, Sylvestre, "Son preference in Indian families: absolute versus relative wealth effects," *Demography*, 2011, *48* (1), 343–370.

Gupta, Monica Das, "Selective discrimination against female children in rural Punjab, India," *Population and Development Review*, 1987, pp. 77–100.

Heath, Rachel and Xu Tan, "Worth fighting for: daughters improve their mothers' autonomy in South Asia," *Journal of Development Economics*, 2018, *135*, 255–271.

Jayachandran, Seema, "Fertility decline and missing women," *American Economic Journal: Applied Economics*, 2017, *9* (1), 118–139.

_ **and Ilyana Kuziemko**, "Why do mothers breastfeed girls less than boys? Evidence and implications for child health in India," *The Quarterly Journal of Economics*, 2011, *126* (3), 1485–1538.

_ **and Rohini Pande**, "Why are Indian children so short? The role of birth order and son preference," *American Economic Review*, 2017, *107* (9), 2600–2629.

Jejeebhoy, Shireen J and Zeba A Sathar, "Women's autonomy in India and Pakistan: the influence of religion and region," *Population and Development Review*, 2001, *27* (4), 687–712.

Jensen, Robert Todd, "Equal treatment, unequal outcomes?: Generating sex inequality through fertility behaviour," *Unpublished manuscript*, 2003.

Jha, Prabhat, Maya A Kesler, Rajesh Kumar, Faujdar Ram, Usha Ram, Lukasz Aleksandrowicz, Diego G Bassani, Shailaja Chandra, and Jayant K Banthia, "Trends in selective abortions of girls in India: analysis of nationally representative birth histories from 1990 to 2005 and census data from 1991 to 2011," *The Lancet*, 2011, *377* (9781), 1921–1928.

Kahneman, Daniel and Alan B Krueger, "Developments in the measurement of subjective well-being," *Journal of Economic Perspectives*, 2006, *20* (1), 3–24.

Milazzo, Annamaria, "Why are adult women missing? Son preference and maternal survival in India," *Journal of Development Economics*, 2018, *134*, 467–484.

Oster, Emily, "Does increased access increase equality? Gender and child health investments in India," *Journal of Development Economics*, 2009, *89* (1), 62–76.

_ , "Unobservable selection and coefficient stability: Theory and evidence," *Journal of Business & Economic Statistics*, 2019, *37* (2), 187–204.

Pande, Rohini P and Nan Marie Astone, "Explaining son preference in rural India: the independent role of structural versus individual factors," *Population Research and Policy Review*, 2007, *26*, 1–29.

Pradhan, Manas Ranjan and Daisy Saikia, "Patterns and correlates of post-abortion complications in India," *BMC Women's Health*, 2023, *23* (1), 97.

Rao, Vijayendra, "Dowry 'inflation'in rural India: A statistical investigation," *Population Studies*, 1993, *47* (2), 283–293.

Rathore, Udayan and Upasak Das, "Health consequences of patriarchal kinship system for the elderly: evidence from India," *The Journal of Development Studies*, 2022, *58* (1), 145–163.

Robitaille, Marie-Claire, "Determinants of stated son preference in India: are men and women different?," *The Journal of Development Studies*, 2013, *49* (5), 657–669.

Rose, Elaina, "Consumption smoothing and excess female mortality in rural India," *Review of Economics and Statistics*, 1999, *81* (1), 41–49.

Rosenblum, Daniel, "The effect of fertility decisions on excess female mortality in India," *Journal of Population Economics*, 2013, *26* (1), 147–180.

Sen, Amartya, "Missing women.," *BMJ: British Medical Journal*, 1992, *304* (6827), 587.

Singh, Susheela, Chander Shekhar, Rajib Acharya, Ann M Moore, Melissa Stillman, Manas R Pradhan, Jennifer J Frost, Harihar Sahoo, Manoj Alagarajan, Rubina Hussain et al., "The incidence of abortion and unintended pregnancy in India, 2015," *The Lancet Global Health*, 2018, *6* (1), e111–e120.

Srinivasan, Padma and Gary R Lee, "The dowry system in Northern India: Women's attitudes and social change," *Journal of Marriage and Family*, 2004, *66* (5), 1108–1117.

Weitzman, Abigail, "The sex of firstborn children and intimate partner violence in India," *Violence Against Women*, 2020, *26* (6-7), 590–613.

Yokoe, Ryo, Rachel Rowe, Saswati Sanyal Choudhury, Anjali Rani, Farzana Zahir, and Manisha Nair, "Unsafe abortion and abortion-related death among 1.8 million women in India," *BMJ Global Health*, 2019, *4* (3), e001491.

6 Tables

Table 1: Life satisfaction, quality of life and gender of firstborn child

	Life satisfaction			**Quality of life**		
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.0177***	-0.0143***	-0.0146***	-0.0228**	-0.0275***	-0.0283***
	(0.005)	(0.005)	(0.005)	(0.011)	(0.010)	(0.010)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes
$Mean\ of\ Dep.\ Variable$	0.501	0.501	0.501	0	0	0
N	36544	34597	34597	36446	34525	34525
R^2	0.0528	0.155	0.19	0.0693	0.219	0.25
			Panel B: Males			
First Girl	-0.0224***	-0.0174***	-0.0168**	-0.0374***	-0.0308**	-0.0299**
	(0.006)	(0.007)	(0.007)	(0.012)	(0.013)	(0.013)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes
$Mean\ of\ Dep.\ Variable$	0.521	0.521	0.521	0	0	0
N	28097	21919	21919	28026	21868	21868
R^2	0.0498	0.162	0.205	0.064	0.216	0.257

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table 2: Labor force participation and gender of firstborn child

	Currently work			Side jobs			Time current job		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
First Girl	0.0296***	0.0160***	0.0171***	0.0149***	0.0106***	0.00948**	0.834***	0.550***	0.489***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.192)	(0.176)	(0.180)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
$Mean\ of\ Dep.\ Variable$	0.311	0.311	0.311	0.0475	0.0475	0.0475	11.11	11.11	11.11
N	36865	34863	34863	29765	28148	28148	29330	27801	27801
R^2	0.0974	0.243	0.278	0.0144	0.0616	0.0951	0.148	0.325	0.366
Panel B: Males									
First Girl	0.0337***	0.0104*	0.0114**	0.00891	-0.00156	-0.00057	-0.0143	0.349	0.293
	(0.006)	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.217)	(0.232)	(0.240)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
$Mean\ of\ Dep.\ Variable$	0.647	0.647	0.647	0.154	0.154	0.154	27.52	27.52	27.52
N	28361	22119	22119	20821	16148	16148	20293	15759	15759
R^2	0.0635	0.354	0.391	0.0197	0.0902	0.156	0.0576	0.225	0.311

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Side jobs is the total number of side jobs woman/man has in addition to the main job. Time current job is the total number of years woman/man has been working on in the current job. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table 3: Heterogeneity by sex composition of children

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
Second Girl/G	-0.0277***	-0.0214***	-0.0215***	-0.0228*	-0.0335***	-0.0338***	0.0333***	0.0177***	0.0190***
	(0.007)	(0.006)	(0.007)	(0.013)	(0.013)	(0.013)	(0.006)	(0.006)	(0.006)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
$Mean\ of\ Dep. Variable$	0.502	0.502	0.502	0	0	0	0.312	0.312	0.312
N	34055	32262	32262	33967	32195	32195	34341	32503	32503
R^2	0.0509	0.154	0.191	0.0696	0.219	0.253	0.101	0.248	0.284
Panel B: Males									
Second Girl/G	-0.0274***	-0.0203**	-0.0185**	-0.0516***	-0.0495***	-0.0462***	0.0338***	0.0103	0.0117*
	(0.008)	(0.008)	(0.009)	(0.015)	(0.017)	(0.017)	(0.007)	(0.007)	(0.007)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
$Mean\ of\ Dep. Variable$	0.52	0.52	0.52	0	0	0	0.646	0.646	0.646
N	26251	20349	20349	26182	20300	20300	26500	20536	20536
R^2	0.0501	0.163	0.21	0.0643	0.217	0.259	0.0633	0.356	0.393

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey and have at least two children. Second Girl/G = 1 if the gender of second-born to a mother is female conditional on the previous birth being female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table 4: Heterogeneity by size of average dowry

	Female			**Male**		
	Life satisfaction	**Quality of life**	**Currently work**	**Life satisfaction**	**Quality of life**	**Currently work**
	(1)	(2)	(3)	(4)	(5)	(6)
First Girl	0.523***	-0.233	-0.0363	0.497***	-0.0156	0.0654
	(0.073)	(0.190)	(0.069)	(0.081)	(0.198)	(0.061)
ln(Dowry)*First Girl	-0.0586***	0.0228	0.00584	-0.0572***	-0.00204	-0.0059
	(0.008)	(0.021)	(0.008)	(0.009)	(0.022)	(0.007)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.483	-0.0711	0.303	0.502	-0.0696	0.665
N	21915	21871	22092	16868	16826	17032
R^2	0.0618	0.0729	0.155	0.0651	0.0647	0.314

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. ln(Dowry) is the natural logarithm of average net dowry paid by brides' family within the same caste category (SC/ST/OBC/Gen) and state. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

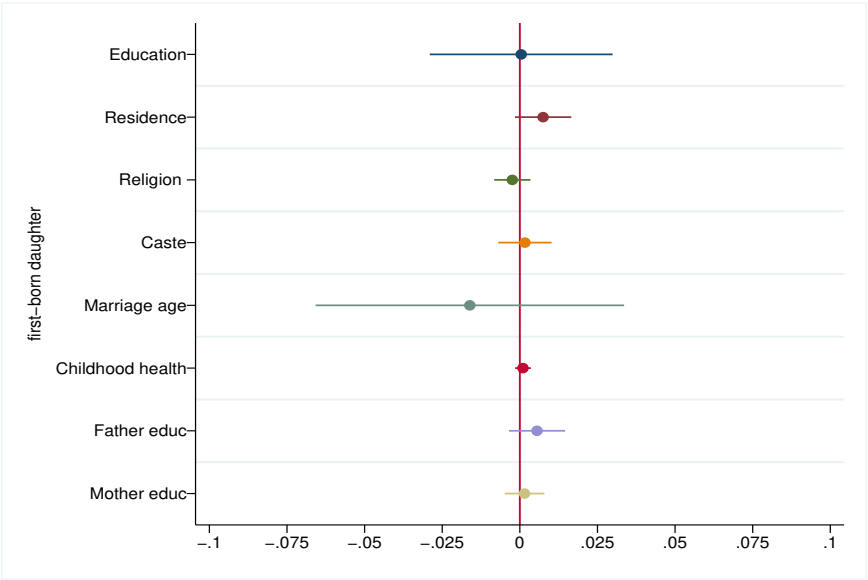
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from REDS-99 and LASI-1

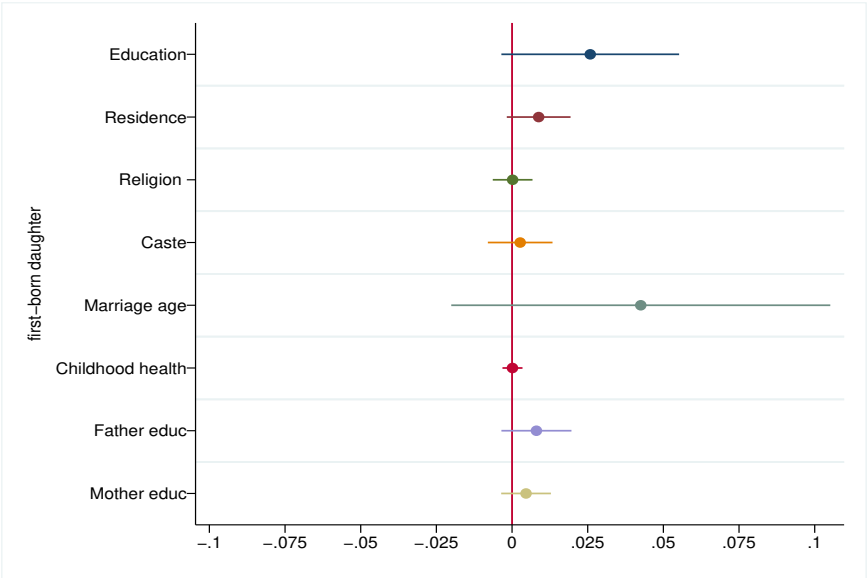
7 Figures

Figure 1: Balance Test (Randomness of the gender of the firstborn child)

(a) Females



(b) Males



Source: Authors' calculations from LASI-1

Appendices

A Appendix Tables

Table A1: Summary statistics

Variable	Mean	Std. Dev.	Min	Max
Panel A: Females				
Satisfied	0.501	0.5	0	1
Quality of life (standardized)	0	1	-1.385	1.961
Currently working	0.307	0.461	0	1
Depression (self-reported)	0.175	0.38	0	1
Total abortions	0.162	0.553	0	10
First Girl	0.413	0.492	0	1
Marriage Year	1978	12.841	1850	2018
Birth Year	1960	11.437	1917	1981
Caste Category	-	-	-	-
SC	0.175	0.38	0	1
ST	0.181	0.385	0	1
OBC	0.392	0.488	0	1
Gen	0.252	0.434	0	1
Hindu	.858	.349	0	1
Urban	0.354	0.478	0	1
Any School	0.41	0.492	0	1
Number of Children	3.517	1.807	0	18
Observations = 38391				
Panel B: Males				
Satisfied	0.522	0.5	0	1
Quality of life (standardized)	0	1	-1.415	1.928
Currently working	0.646	0.478	0	1
Depression (self-reported)	0.14	0.347	0	1
First Girl	0.416	0.493	0	1
Marriage Year	1980	12.494	1874	2017
Birth Year	1957	10.683	1917	1980
Caste Category	-	-	-	-
SC	0.171	0.376	0	1
ST	0.181	0.385	0	1
OBC	0.397	0.489	0	1
Gen	0.251	0.434	0	1
Hindu	.864	.343	0	1
Urban	0.341	0.474	0	1
Any School	0.689	0.463	0	1
Number of Children	3.466	1.761	1	14
Observations = 29529				

Notes: Authors' calculations from LASI-1

Table A2: Placebo Tests (Pre-determined outcomes and gender of firstborn child)

	Childhood health		**Height**		**Childhood eco condition**		**Work before marriage**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A: Females				
First Girl	0.00089	0.000952	-0.0604	-0.0675	0.00363	0.00298	9.64E-05	-0.0004
	(0.001)	(0.001)	(0.068)	(0.069)	(0.005)	(0.005)	(0.002)	(0.002)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0.014	0.014	150.266	150.266	0.373	0.373	0.03	0.03
N	34589	34589	31838	31838	34839	34839	34863	34863
				Panel B: Males				
First Girl	-0.00046	0.00101	0.00195	0.00748	0.00847	0.0106		
	(0.002)	(0.002)	(0.095)	(0.099)	(0.006)	(0.007)		
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes		
District FE	Yes	Yes	Yes	Yes	Yes	Yes		
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes		
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes		
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes		
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes		
$Mean\ of\ Dep.\ Variable$	0.015	0.015	162.291	162.291	0.4	0.4		
N	21910	21910	19893	19893	22099	22099		

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Childhood health is a dummy that equals 1 if the status of health of woman/man in her/his childhood was poor, and is 0 otherwise. Height is the measure of height (cm) of woman/man. Childhood eco condition is a dummy that equals 1 if the financial status of household during woman's/man's childhood was poor, and is 0 otherwise. Work before marriage is a dummy that equals 1 if the woman had worked before marriage, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A3: Sex composition of children and gender of firstborn child [First-Stage]

	Total daughters			**Proportion of daughters**			**Total children**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
First Girl	1.101***	1.129***	1.133***	0.318***	0.318***	0.319***	0.294***	0.352***	0.356***
	(0.015)	(0.015)	(0.015)	(0.003)	(0.003)	(0.003)	(0.022)	(0.020)	(0.020)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
$Mean\ of\ Dep.\ Variable$	1.897	1.897	1.897	0.452	0.452	0.452	4.009	4.009	4.009
N	36868	34866	34866	36868	34866	34866	36868	34866	34866

Notes: The sample comprises the women who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Total daughters is the total number of daughters born to a mother. Proportion of daughters for a parent is calculated as number of daughters upon total number of children. Total children is the total number of children born to a mother. Additional controls include dummy for urban residence, religion and caste of woman, marital status of woman, if the woman has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A4: Life satisfaction, quality of life, labor force participation and proportion of daughters

	Life satisfaction		**Quality of life**		**Currently work**	
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
Proportion of daughters	-0.0462***	-0.0454***	-0.0311*	-0.0330*	0.0352***	0.0356***
	(0.009)	(0.009)	(0.018)	(0.019)	(0.008)	(0.009)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.5	0.5	0	0	0.311	0.311
N	34597	34597	34525	34525	34863	34863
			Panel B: Males			
Proportion of daughters	-0.0432***	-0.0403***	-0.0506**	-0.0479**	0.0269***	0.0263***
	(0.011)	(0.012)	(0.023)	(0.023)	(0.009)	(0.010)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.519	0.519	0	0	0.64	0.64
N	21919	21919	21868	21868	22119	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. Proportion of daughters for a parent is calculated as number of daughters upon total number of children. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A5: Additional mechanisms

	Financial dependence (general)		**Financial dependence (daily needs)**		**Female autonomy**		**Abortions**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
First Girl	0.0155***	0.0146***	0.0110***	0.0101***	-0.0375***	-0.0365***	0.0143**	0.0145**
	(0.004)	(0.004)	(0.003)	(0.004)	(0.010)	(0.010)	(0.006)	(0.006)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep. Variable$	0.145	0.145	0.0994	0.0994	0	0	0.164	0.164
N	34825	34825	34825	34825	34866	34866	34185	34185

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Financial dependence (general) is a dummy that equals 1 if the household has received any financial support from outside, and is 0 otherwise. Financial dependence (daily needs) is a dummy that equals 1 if the household receives financial support for daily living expenses, and is 0 otherwise. Autonomy is an index from 5 decision making binary indicators of woman: marriage of child, buying or selling of property, gifts to children or relatives, education of family members, and arrangement of events. Abortion is the total number of abortions that the woman has had in her lifetime. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A6: Oster (2019) Test (robustness to selection on unobservables)

	Life satisfaction	**Quality of life**	**Currently work**
	(1)	(2)	(3)
		Panel A: Females	
First Girl	-0.0143***	-0.0275***	0.0160***
	(0.005)	(0.010)	(0.005)
Additional Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes
Oster-Bounds (δ=1, $R_{max} = 1.3 * R$)	(-0.0143, -0.0166)	(-0.0275, -0.0359)	(0.0160, 0.0133)
Delta[δ] ($R_{max} = 1.3 * R$)	-6.799	-3.416	5.658
N	34597	36446	34863
		Panel B: Males	
First Girl	-0.0174***	-0.0308**	0.0104*
	(0.007)	(0.013)	(0.006)
Additional Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes
Oster-Bounds (δ=1, $R_{max} = 1.3 * R$)	(-0.0174, -0.019)	(-0.0308, -0.0343)	(0.0104, 0.002)
Delta[δ] ($R_{max} = 1.3 * R$)	-9.029	-10.31	1.285
N	21919	21868	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses. Oster-Bounds are calculated using Stata code psacalc.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A7: Sensitivity to unobserved confounding factors (Oster (2019) Test)

	Life satisfaction	**Quality of life**	**Currently work**
	(1)	(2)	(3)
		Panel A: Females	
First Girl ($\delta = 0.3, R_{max} = 1.3 * R$)	-0.029***	-0.046***	0.032***
	(0.006)	(0.011)	(0.007)
First Girl ($\delta = 0.6, R_{max} = 1.3 * R$)	-0.040***	-0.069***	0.034***
	(0.005)	(0.011)	(0.003)
First Girl ($\delta = 0.9, R_{max} = 1.3 * R$)	-0.052***	-0.093***	0.036***
	(0.004)	(0.013)	(0.007)
Additional Controls	Yes	Yes	Yes
N	36544	36446	36865
		Panel B: Males	
First Girl ($\delta = 0.3, R_{max} = 1.3 * R$)	-0.035***	-0.064***	0.034***
	(0.007)	(0.009)	(0.007)
First Girl ($\delta = 0.6, R_{max} = 1.3 * R$)	-0.048***	-0.092***	0.034***
	(0.007)	(0.015)	(0.009)
First Girl ($\delta = 0.9, R_{max} = 1.3 * R$)	-0.061***	-0.120***	0.033**
	(0.008)	(0.016)	(0.011)
Additional Controls	Yes	Yes	Yes
N	28097	28026	28361

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses. The table reports the estimated coefficient, adjusted for omitted-variable bias, under different values of the coefficient of proportionality (δ) and $R_{max} = 1.3 * R$ (Oster (2019)). Bootstrap standard errors are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A8: Matching estimates (Nearest neighbour and Radius)

	Life satisfaction		**Quality of life**		**Currently work**	
	Nearest	Radius	Nearest	Radius	Nearest	Radius
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.0237***	-0.0170***	-0.0430***	-0.0331***	0.0237***	0.0205***
	(0.007)	(0.005)	(0.014)	(0.010)	(0.007)	(0.005)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.52	0.505	0	0	0.3	0.309
N	25232	34593	25176	34521	25433	34859
			Panel B: Males			
First Girl	-0.0114	-0.0190***	-0.0366**	-0.0352***	0.0178**	0.0113**
	(0.009)	(0.007)	(0.018)	(0.014)	(0.007)	(0.006)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.537	0.524	0	0	0.64	0.641
N	16493	21917	16447	21866	16635	22117

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Columns 1, 3 and 5 report the results from the nearest neighbour matching. Column 2, 4 and 6 report the results from the radius matching. The propensity scores are calculated using the additional controls mentioned in Equation 1. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A9: Matching estimates (Kernel and Entropy)

	Life satisfaction		**Quality of life**		**Currently work**	
	Kernel	Entropy	Kernel	Entropy	Kernel	Entropy
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.0165***	-0.0168***	-0.0323***	-0.0335***	0.0200***	0.0200***
	(0.005)	(0.005)	(0.010)	(0.010)	(0.005)	(0.005)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.504	0.504	0	0	0.31	0.309
N	34597	34597	34525	34525	34863	34863
			Panel B: Males			
First Girl	-0.0190***	-0.0179**	-0.0325**	-0.0329**	0.0119**	0.0113**
	(0.007)	(0.007)	(0.013)	(0.014)	(0.006)	(0.006)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE × District FE	Yes	Yes	Yes	Yes	Yes	Yes
$Mean\ of\ Dep.\ Variable$	0.524	0.522	0	0	0.644	0.646
N	21919	21919	21868	21868	22119	22119

Notes: The sample comprises the women who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Columns 1, 3 and 5 report the results from the kernel matching. We use default epanechnikov kernel with a default bandwidth of 0.06. Column 3, 6 and 9 report the results from entropy matching. The propensity scores are calculated using the additional controls mentioned in Equation 1. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A10: Heterogeneity by Education

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
First Girl*No Educ	-0.0685***	-0.0745***	-0.0730***	0.00761	-0.0254	-0.0309	0.0455***	0.0557***	0.0556***
	(0.012)	(0.012)	(0.012)	(0.026)	(0.025)	(0.026)	(0.012)	(0.011)	(0.011)
First Girl*Primary Educ	-0.0587***	-0.0697***	-0.0690***	0.0560*	0.0386	0.0343	0.00756	0.0246*	0.0238*
	(0.014)	(0.014)	(0.014)	(0.030)	(0.029)	(0.030)	(0.013)	(0.013)	(0.013)
First Girl*Mid Educ	-0.0384**	-0.0567***	-0.0517***	0.0509	0.019	0.0166	-0.0105	-0.00678	-0.00583
	(0.016)	(0.015)	(0.016)	(0.034)	(0.032)	(0.033)	(0.014)	(0.014)	(0.014)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	36544	34597	34597	36446	34525	34525	36866	34863	34863
Panel B: Males									
First Girl*No Educ	-0.0744***	-0.0492***	-0.0474***	0.00357	-0.0552**	-0.0613**	-0.0335***	0.0252**	0.0283**
	(0.013)	(0.015)	(0.015)	(0.026)	(0.028)	(0.029)	(0.012)	(0.012)	(0.012)
First Girl*Primary Educ	-0.0452***	-0.0310**	-0.0278*	-0.00483	-0.0382	-0.0397	-0.0182	0.0403***	0.0424***
	(0.013)	(0.015)	(0.015)	(0.027)	(0.028)	(0.029)	(0.012)	(0.012)	(0.012)
First Girl*Mid Educ	-0.0418***	-0.0268*	-0.0224	0.0133	-0.0278	-0.0401	0.0301**	0.0505***	0.0550***
	(0.015)	(0.015)	(0.016)	(0.030)	(0.031)	(0.032)	(0.013)	(0.012)	(0.013)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	28097	21919	21919	28026	21868	21868	28361	22119	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. No Educ, Primary Educ and Mid Educ are indicators for woman/man having 0, 1-5 and 6-8 years of education, respectively. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Heterogeneity by monthly per capita consumption expenditure (MPCE)

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
First Girl*Low MPCE	-0.0312**	-0.0454***	-0.0447***	-0.189***	-0.0823***	-0.0805***	0.0225**	0.0228**	0.0236**
	(0.012)	(0.012)	(0.012)	(0.027)	(0.025)	(0.025)	(0.011)	(0.010)	(0.010)
First Girl*Mid MPCE	0.00448	-0.0102	-0.0103	-0.112***	-0.0678***	-0.0674***	0.00709	0.00719	0.00658
	(0.011)	(0.011)	(0.011)	(0.025)	(0.023)	(0.024)	(0.010)	(0.009)	(0.009)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	36544	34597	34597	36446	34525	34525	36865	34863	34863
Panel B: Males									
First Girl*Low MPCE	-0.0481***	-0.0676***	-0.0657***	-0.234***	-0.108***	-0.108***	0.0482***	0.0151	0.0166
	(0.014)	(0.015)	(0.015)	(0.029)	(0.029)	(0.030)	(0.013)	(0.012)	(0.012)
First Girl*Mid MPCE	-0.00242	-0.0131	-0.00599	-0.154***	-0.0942***	-0.0943***	0.0379***	0.0236**	0.0237**
	(0.013)	(0.014)	(0.015)	(0.027)	(0.028)	(0.029)	(0.012)	(0.011)	(0.011)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	28097	21919	21919	28026	21868	21868	28361	22119	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Low MPCE and Mid MPCE are the indicators for the household's monthly per-capita consumption expenditure being in the $1^{st} - 2^{nd}$ quintile and $3^{rd} - 4^{th}$ quintile, respectively. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, and reads newspapers and watches TV. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A12: Heterogeneity by current age of parent

	Life satisfaction		**Quality of life**		**Currently work**	
	40-60	**61-100**	**40-60**	**61-100**	**40-60**	**61-100**
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.0233***	0.00282	-0.0284**	-0.0259	0.0242***	0.00057
	(0.007)	(0.010)	(0.013)	(0.018)	(0.007)	(0.007)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0.501	0.501	0	0	0.311	0.311
N	22088	12446	22047	12415	22147	12650
			Panel B: Males			
First Girl	-0.0101	-0.0227**	-0.026	-0.0380*	0.00873	0.0228**
	(0.010)	(0.011)	(0.019)	(0.022)	(0.007)	(0.010)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0.521	0.521	0	0	0.647	0.647
N	12102	9742	12078	9715	12141	9906

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Columns 1, 3 and 5 consist of women/men aged 40 to 60 years. Columns 2, 4 and 6 consist of women/men aged 61 to 100 years. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A13: Heterogeneity by religion

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
First Girl	0.000419	-0.0123	-0.00708	-0.0187	-0.0306	-0.023	-0.0083	-0.00104	0.00331
	(0.016)	(0.016)	(0.017)	(0.033)	(0.031)	(0.032)	(0.012)	(0.011)	(0.012)
First Girl*Hindu	-0.02	-0.00349	-0.00927	-0.00961	-0.00309	-0.0139	0.0457***	0.0205	0.0184
	(0.017)	(0.017)	(0.018)	(0.035)	(0.033)	(0.034)	(0.014)	(0.013)	(0.013)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	31190	29944	29944	31107	29880	29880	31463	30173	30173
Panel B: Males									
First Girl	0.00668	0.00143	-0.00109	-0.0537	-0.0619	-0.0586	0.0216	0.00442	0.00279
	(0.018)	(0.020)	(0.021)	(0.039)	(0.043)	(0.045)	(0.019)	(0.017)	(0.018)
First Girl*Hindu	-0.0328*	-0.0208	-0.017	0.0117	0.023	0.0215	0.0171	0.00648	0.00866
	(0.019)	(0.021)	(0.022)	(0.041)	(0.045)	(0.047)	(0.020)	(0.018)	(0.019)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	23897	18620	18620	23835	18575	18575	24113	18781	18781

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Hindu = 1 if the religion of woman/man is Hinduism, and is 0 if Muslim. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A14: Heterogeneity by caste

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Females									
First Girl	-0.0141**	-0.0141**	-0.0159**	-0.0204	-0.0232**	-0.0234*	0.0310***	0.0175***	0.0179***
	(0.006)	(0.006)	(0.006)	(0.013)	(0.012)	(0.012)	(0.006)	(0.006)	(0.006)
First Girl*High Caste	-0.0082	-0.00041	0.00556	-0.00778	-0.0162	-0.019	0.000968	-0.00518	-0.00216
	(0.012)	(0.012)	(0.012)	(0.024)	(0.023)	(0.023)	(0.011)	(0.010)	(0.010)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	36544	34597	34597	36446	34525	34525	36865	34863	34863
Panel B: Males									
First Girl	-0.0166**	-0.0105	-0.00988	-0.0168	-0.00411	-0.00209	0.0354***	0.0131**	0.0148**
	(0.007)	(0.008)	(0.008)	(0.014)	(0.015)	(0.016)	(0.007)	(0.006)	(0.006)
First Girl*High Caste	-0.0171	-0.0252*	-0.0256*	-0.0789***	-0.0997***	-0.104***	-0.00498	-0.0099	-0.0122
	(0.014)	(0.015)	(0.015)	(0.027)	(0.028)	(0.029)	(0.013)	(0.012)	(0.012)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	28097	21919	21919	28026	21868	21868	28361	22119	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. High Caste = 1 if woman/man belongs to the general caste category, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include dummy for urban residence, religion of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A15: Heterogeneity by residence (rural vs urban)

	Life satisfaction			Quality of life			Currently work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Panel A: Females				
First Girl	-0.0124	-0.011	-0.0102	-0.00433	-0.00827	-0.00538	0.0324***	0.0227***	0.0238***
	(0.009)	(0.009)	(0.009)	(0.018)	(0.017)	(0.018)	(0.008)	(0.007)	(0.007)
First Girl*Rural	-0.00811	-0.00518	-0.00675	-0.0286	-0.0298	-0.0354	-0.00432	-0.0103	-0.0104
	(0.011)	(0.011)	(0.011)	(0.023)	(0.021)	(0.022)	(0.010)	(0.010)	(0.010)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	36544	34597	34597	36446	34525	34525	36865	34863	34863
					Panel B: Males				
First Girl	-0.0244**	-0.0193*	-0.0199*	-0.0496**	-0.0352*	-0.0331	0.0410***	0.0180**	0.0182**
	(0.010)	(0.010)	(0.011)	(0.021)	(0.021)	(0.022)	(0.010)	(0.008)	(0.009)
First Girl*Rural	0.00314	0.00315	0.00503	0.0184	0.00734	0.00531	-0.011	-0.0126	-0.0111
	(0.012)	(0.013)	(0.014)	(0.026)	(0.027)	(0.027)	(0.012)	(0.011)	(0.011)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Marriage Year FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Birth Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
Marriage Year FE × District FE	No	No	Yes	No	No	Yes	No	No	Yes
N	28097	21919	21919	28026	21868	21868	28361	22119	22119

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Rural = 1 if the household is in a rural area, and is 0 otherwise. Life satisfaction is a dummy that equals 1 if woman/man is satisfied in her/his life, and is 0 otherwise. Quality of life is an index from the aggregate score of responses to 4 questions about the better life quality of woman/man: how frequently she/he feels peaceful, spiritually touched, thankful to life and selflessly caring. Current work is a dummy that equals 1 if the woman/man is working at the time of survey, and is 0 otherwise. Additional controls include religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A16: Alternate outcomes (self-reported health)
self-rated Health, anemia, poor vision and gender of firstborn child

	Self health Stz		**Anemia**		**Poor vision**	
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.0322***	-0.0323***	0.00463*	0.00465*	0.00910*	0.00884*
	(0.010)	(0.011)	(0.003)	(0.003)	(0.005)	(0.005)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0	0	0.0518	0.0518	0.472	0.472
N	34580	34580	34862	34862	34862	34862
			Panel B: Males			
First Girl	-0.0260**	-0.0268**	-0.00272	-0.00345	-0.00185	0.00218
	(0.013)	(0.013)	(0.002)	(0.002)	(0.007)	(0.007)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0	0	0.0251	0.0251	0.512	0.512
N	21912	21912	22117	22117	22118	22118

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Self health stz is a standardized index from the aggregate score of responses to 2 questions about the health conditions of woman/man. Anemia is a dummy that equals 1 if the woman/man has acute anemia (self-reported) in the past two years, and is 0 otherwise. Poor vision is a dummy that equals 1 if the woman/man has been ever diagnosed with eye or vision problem, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A17: Alternate outcomes (objective measures of health)
BMI, grip strength and gender of firstborn child

	BMI		**Grip Left**		**Grip Right**	
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.125**	-0.129**	-0.134***	-0.136***	-0.177***	-0.187***
	(0.052)	(0.053)	(0.051)	(0.053)	(0.054)	(0.056)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	23.38	23.38	16.51	16.51	18.47	18.47
N	31834	31834	31200	31200	31275	31275
			Panel B: Males			
First Girl	-0.0328	-0.0145	0.0597	0.066	0.0848	0.0956
	(0.056)	(0.058)	(0.090)	(0.094)	(0.095)	(0.099)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	22.52	22.52	25.29	25.29	27.69	27.69
N	19892	19892	19587	19587	19642	19642

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. BMI is the measure of body mass index (BMI) of woman/man. Grip Left (Right) is the strength of left (right) hand of the woman/man in a gripping action. Grip strength is measured with an instrument which results in a reading between 0 and 56. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A18: Alternate outcomes
satisfaction with current living arrangement, depression, sleep trouble and gender of firstborn child

	Satisfaction with living arrangement		**Depression (self-reported)**		**Sleep trouble**	
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Females			
First Girl	-0.00995**	-0.0106**	0.0104**	0.00853**	0.0188***	0.0193***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0.796	0.796	0.178	0.178	0.43	0.43
N	34596	34596	34577	34577	34862	34862
			Panel B: Males			
First Girl	-0.00892*	-0.00986*	-0.00042	0.000234	0.00352	0.00474
	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0.818	0.818	0.14	0.14	0.346	0.346
N	21919	21919	21892	21892	22118	22118

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Satisfaction with living arrangement is a dummy that equals 1 if woman/man is satisfied with the current living arrangement, and is 0 otherwise. Depression (self-reported) is a dummy that equals 1 if the woman/man reports feeling sad, blue or depressed for two or more weeks in a row, and is 0 otherwise. Sleep trouble is a dummy that equals 1 if the woman/man faces any trouble in falling asleep, and is 0 otherwise. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

Table A19: Alternate outcomes
life satisfaction, quality of life and gender of firstborn child

	Life satisfaction stz (Alternate questions)		**Quality of life stz (Ladder-based)**	
	(1)	(2)	(3)	(4)
	Panel A: Females			
First Girl	-0.0226**	-0.0217*	-0.0443***	-0.0419***
	(0.011)	(0.011)	(0.010)	(0.010)
Additional Controls	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0	0	0	0
N	34516	34516	34415	34415
	Panel B: Males			
First Girl	-0.0102	-0.0184	-0.0324**	-0.0315**
	(0.014)	(0.014)	(0.013)	(0.013)
Additional Controls	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	Yes	Yes
Marriage Year FE	Yes	Yes	Yes	Yes
Birth Year FE × District FE	No	Yes	No	Yes
Marriage Year FE × District FE	No	Yes	No	Yes
$Mean\ of\ Dep.\ Variable$	0	0	0	0
N	21865	21865	21833	21833

Notes: The sample comprises the women/men who are 40 to 100 years of age at the time of survey. First Girl = 1 if the gender of firstborn to a mother is female, and is 0 otherwise. Life satisfaction stz is an index from the aggregate score of responses to 5 questions about the life satisfaction of woman/man: strong agreement to strong disagreement about her/his life is ideal, condition of life is excellent, satisfied with life, got important things in life and live the life again unchanged. Quality of life stz is an index of quality of life based on a ladder question with a step scale ranging from 1 to 10. Additional controls include dummy for urban residence, religion and caste of woman/man, marital status of woman/man, number of children, if the woman/man has any schooling, reads newspapers and watches TV, and quintile of monthly per capita consumption expenditure. Standard errors (clustered at the PSU level) are in parentheses.

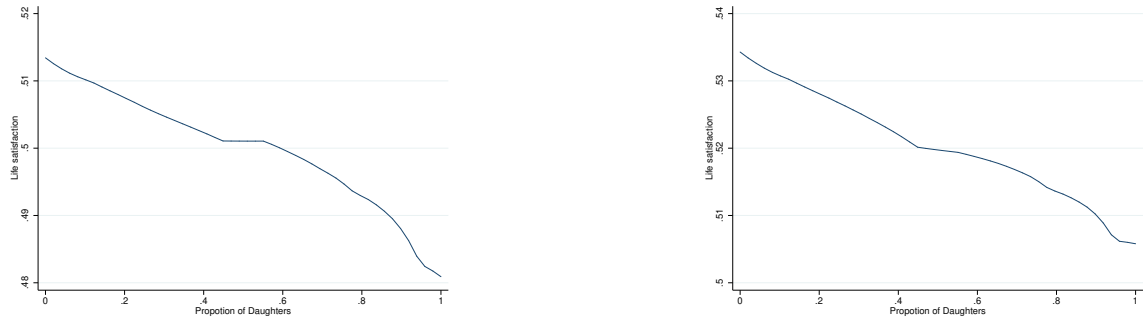
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations from LASI-1

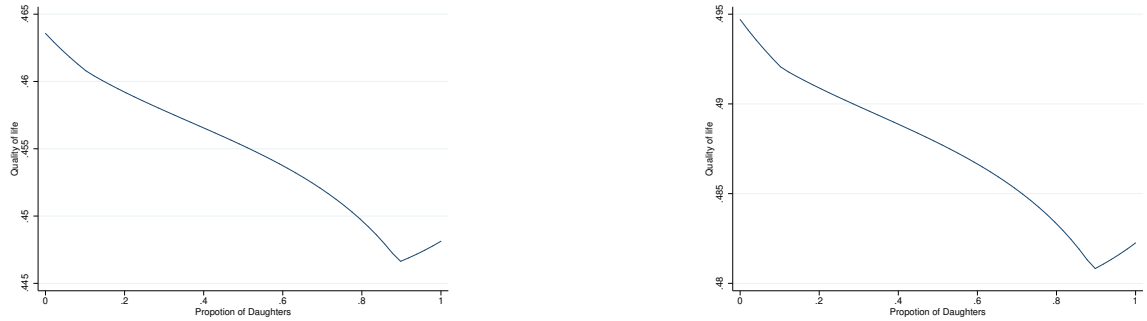
B Appendix Figures

Figure B1: Life satisfaction, Quality of life, Labour force participation and Proportion of daughters

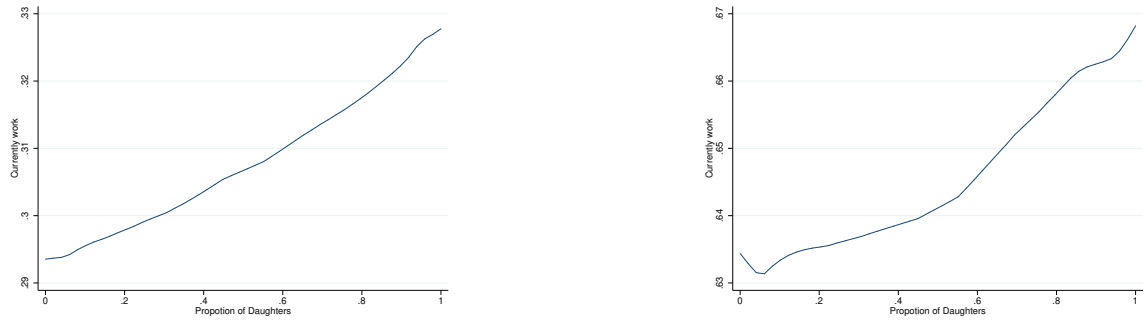
Panel A: Females **Panel B: Males**



(i) Life satisfaction



(ii) Quality of life

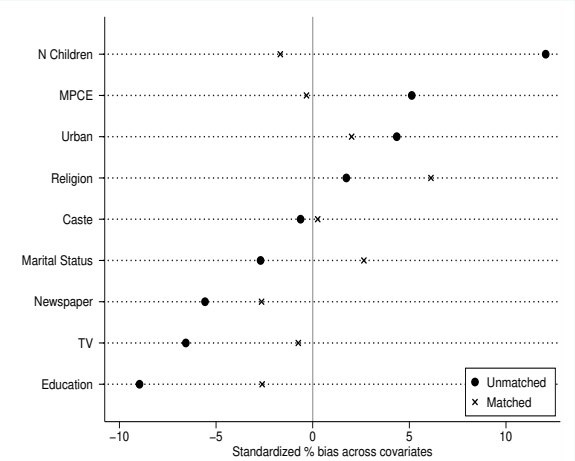


(iii) Currently work

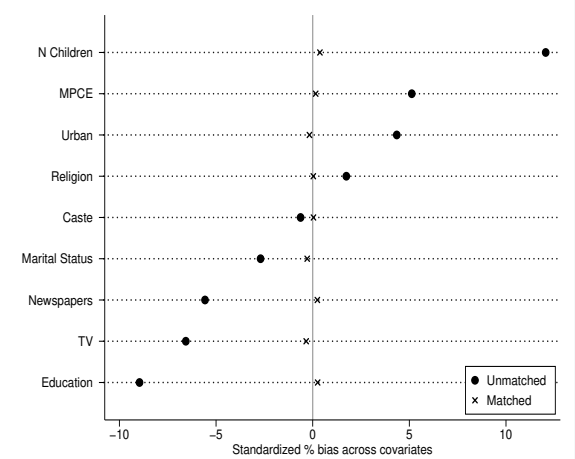
Source: Authors' calculations from LASI-1

Figure B2: Balance before and after matching (Female)

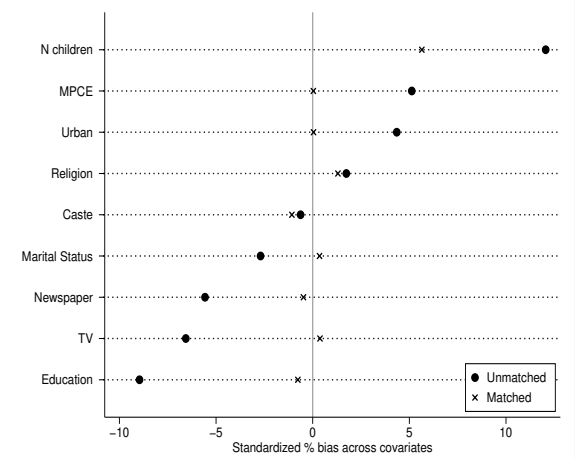
(a) Nearest neighbor



(b) Radius



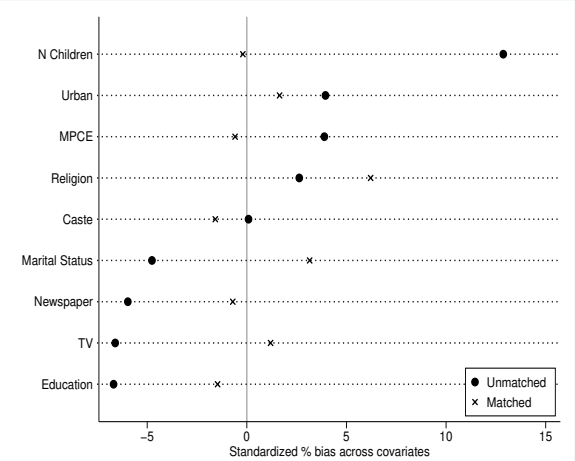
(b) Kernel



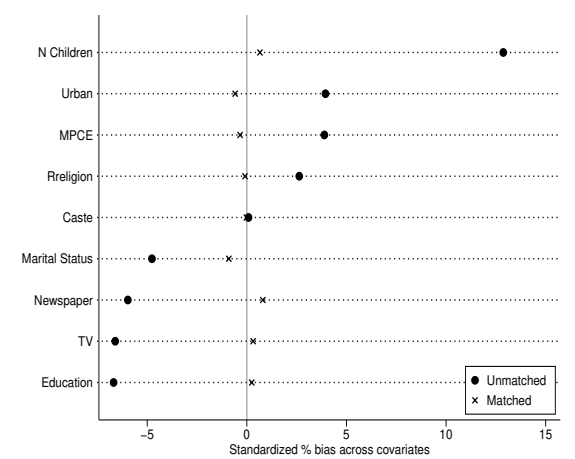
Source: Authors' calculations from LASI-1

Figure B3: Balance before and after matching (Male)

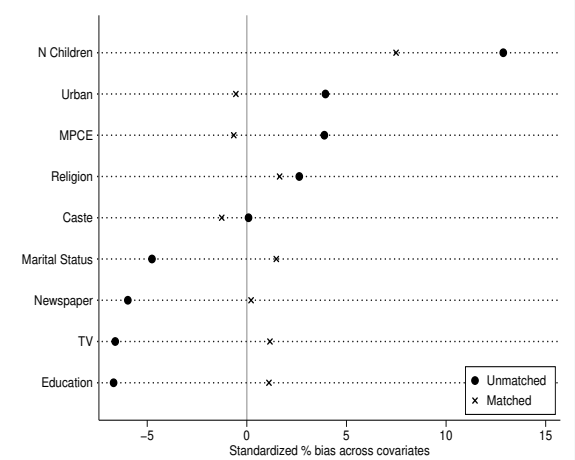
(a) Nearest neighbor



(b) Radius



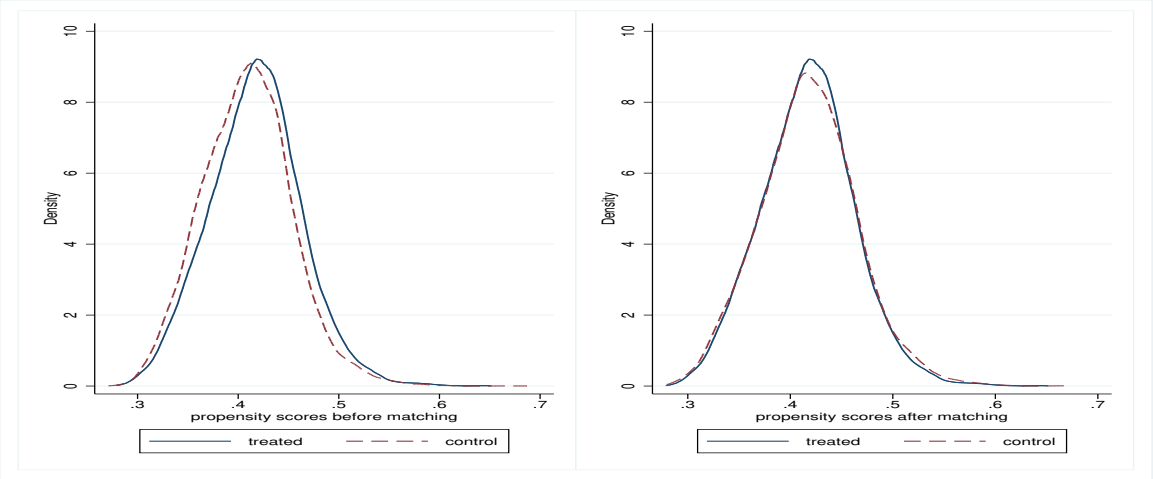
(b) Kernel



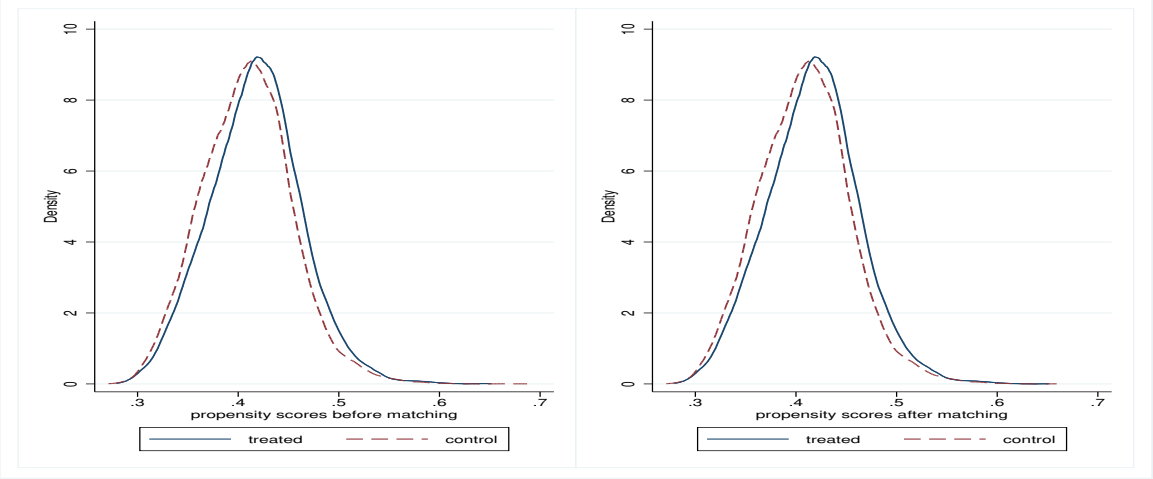
Source: Authors' calculations from LASI-1

Figure B4: Common Support (Female)

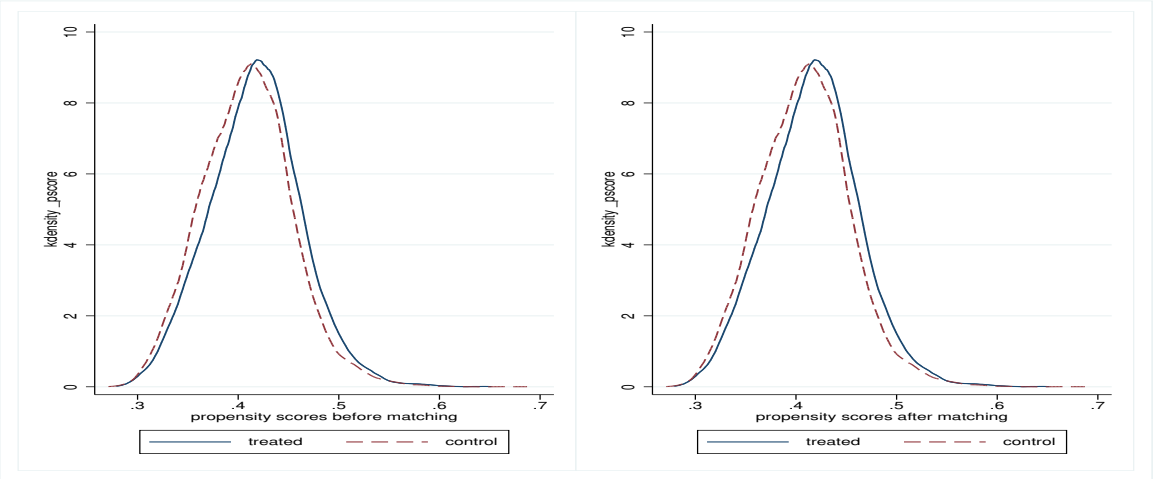
(a) Nearest neighbor



(b) Radius



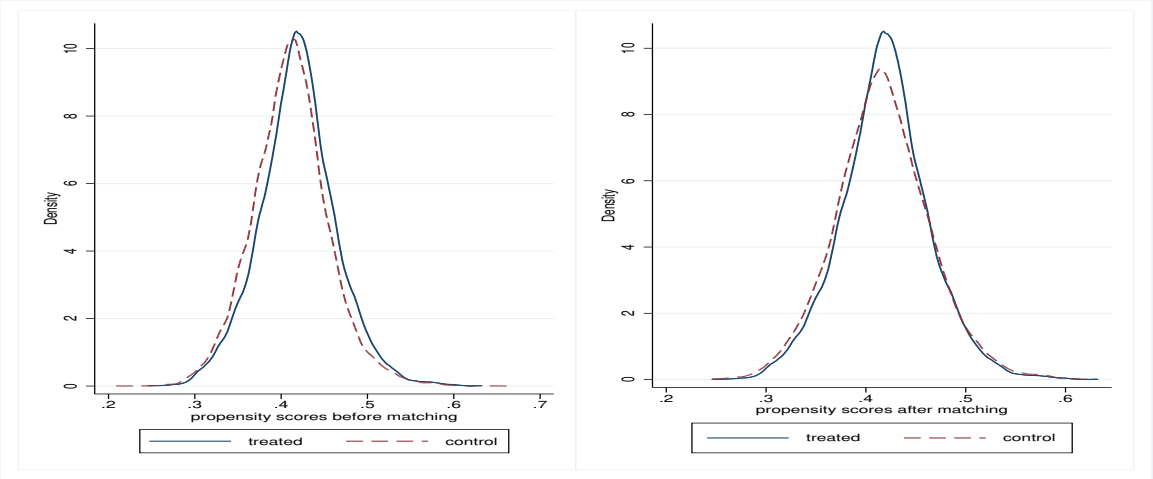
(b) Kernel



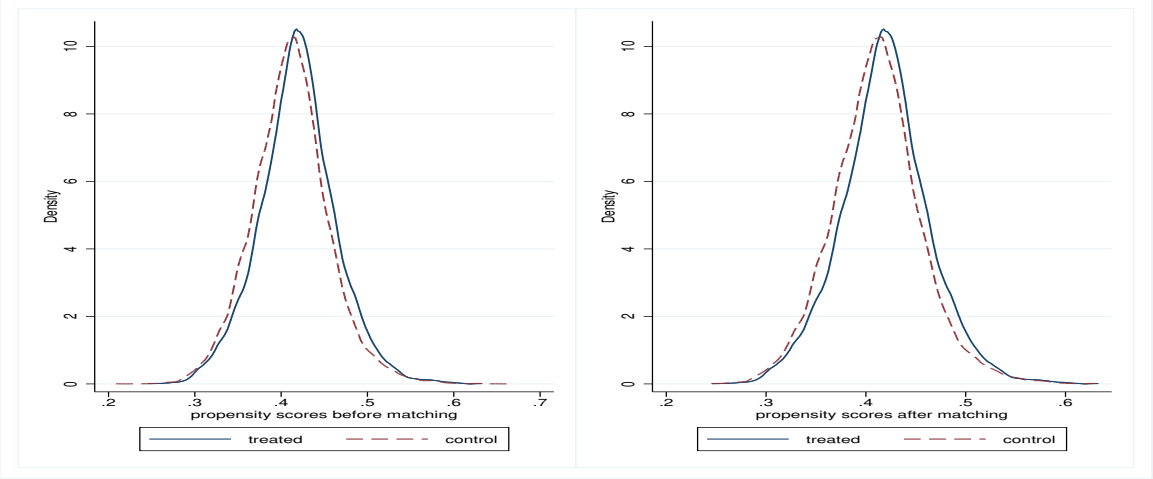
Source: Authors' calculations from LASI-1

Figure B5: Common Support (Male)

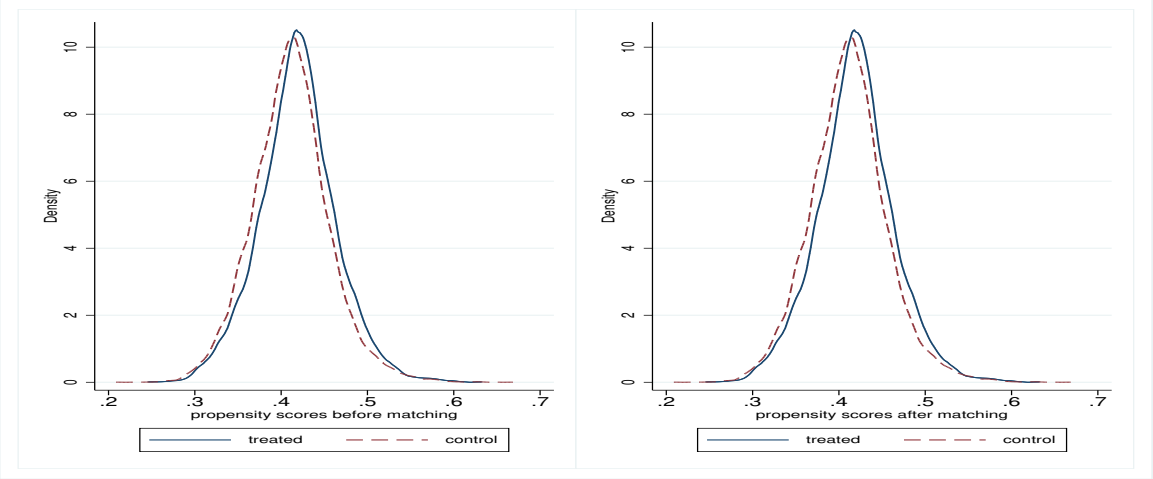
(a) Nearest neighbor



(b) Radius



(b) Kernel



Source: Authors' calculations from LASI-1

C Data Appendix

We used data from the first wave of the Longitudinal Ageing Survey of India (LASI) to study the effects of gender composition of children on the well-being of the older population in India. The first wave of LASI was conducted in 2017–19 and is India's first nationally representative data for its older population. The LASI interviewed all individuals who were above 45 years of age and their spouses (irrespective of age) in sampled households. The total sample size in the LASI comprises 73,396 individuals living in 42,951 households across 29 states and 6 federally administered union territories.

Since LASI interviewed all spouses (of individuals aged 45 and above) irrespective of age, there are a few respondents who are less than 40 years of age. As our focus is on the outcomes of women and men in their post-reproductive years, we drop all individuals under the age of 40. Similarly, we drop all individuals who are more than 100 years old. This leaves us with a sample of 40,014 females and 31,098 males. Further, we drop about 3,100 individuals (1,600 females and 1,500 males) for whom birth history information was missing. With these restrictions, we are left with a sample consisting of 67,920 individuals consisting of 38,391 females and 29,529 males.

For our analysis, most of the relevant information is available in the individual data file (referred to as the "individual schedule" in LASI distribution files). This data file contains rich information on the well-being (such as life satisfaction, quality of life, labour force participation, health status, depression, etc.). Since we focus on studying the effect of the gender of the firstborn child on the well-being of older women and men, information on birth history is crucial to our analysis. In the LASI, this information can be gleaned by combining the individual file with the household member file. For each surveyed individual, the individual file records (from eldest to youngest) each child that was born to the individual, along with information on the child's current status (dead/non-resident/resident). Whenever the child was dead or living but non-resident, the individual file also provides information on the gender of

Table C1: Firstborn children by gender and resident status

Panel A: Reported by Female Respondents			
Child category	Total	Son	Daughter
Non-Residents (alive and deceased)	21,989	9,942	12,047
Residents	18,429	13,584	4,845
Panel B: Reported by Male Respondents			
Child category	Total	Son	Daughter
Non-Residents (alive and deceased)	15,539	6,957	8,582
Residents	13,942	10,238	3,704

the child and her/his age at death or current age. For resident children, information on the child's gender is available from the household member file. We construct a detailed birth history by merging the individual file with the household member file. This allows us to back out the gender of the firstborn child for any given individual. Also, we are able to compute the total number of children, the total number boys and the total number of girls that an individual has borne. A breakdown of firstborn children by gender and residence (in the household) is presented in Table C1. Since Indian marriages are patrilocal, with adult daughters marrying out but married sons often co-residing with parents, a majority of resident children are male while a majority of non-resident children are female.