Dowry:
Household Responses to Expected Marriage Payments*

S Anukriti† Sungoh Kwon‡ Nishith Prakash§

This draft: October 2017
First draft: October 2016

Abstract

Dowry is a ubiquitous feature of South Asian marriage markets. However, empirical research on dowry has been limited by the lack of data. We utilize retrospective information on gifts exchanged at the time of marriage for 39,544 marriages during 1960-2008 (a) to describe dowry trends and (b) to examine the impact of dowry expectations on households' financial and child-bearing decisions in contemporary rural India. Average real net dowry has been remarkably stable over time; although there is considerable heterogeneity across castes, religions, and states. We also test if credit-constrained parents respond to the "lumpy" nature of dowry payments at the time of marriage by saving in advance. We find that, relative to parents of firstborn-boys, parents of firstborn-girls increase per capita household saving and fathers work more after the child's birth if expected future dowry payment is higher.

JEL Codes: J12, J16, D10

Keywords: Dowry, Marriage, India, Savings, Education, Fertility, Sex Ratio, Employment

*We thank Achyuta Adhvaryu, Prashant Bharadwaj, Sonia Bhalotra, Lucas Coffman, Mausumi Das, Anusar Farooqui, Andrew Foster, Delia Furtado, Parikshit Ghosh, Rachel Heath, Rob Jensen, Adriana Kugler, Hyun Lee, Arthur Lewbel, Annemie Maertens, Subha Mani, J.V. Meenakshi, Mushfiq Mobarak, Krishna Pendakur, Laura Schechter, Chris Udry, Shing-Yi Wang, David Weil, and seminar and conference participants at the AEA-Econometric Society Joint Meetings, Boston College, Delhi School of Economics, Fordham University, Georgetown University, IFPRI, Indian Statistical Institute, NEUDC, New Frontiers in Development Economics Conference, SEA Meetings, University of British Columbia, and University of Connecticut for their helpful comments and suggestions.

†Department of Economics, Boston College and IZA. anukriti@bc.edu.

‡Department of Economics, University of Connecticut. sungoh.kwon@uconn.edu.

§Department of Economics and Human Rights Institute, University of Connecticut, IZA, HiCN, and CReAM. nishith.prakash@uconn.edu.

1 Introduction

Marriage matters a great deal for individuals' well-being everywhere, but especially in countries, such as India, where it is nearly universal. Historically, marriage has been an arranged, economic agreement between the bride, the groom, and their families, and it continues to be so in many contemporary societies.[1] A key feature of these marriages is bride-to-groom (*dowry*) or groom-to-bride (*bride price*) payments at the time of marriage. These marriage payments are widely prevalent in several developing countries and can be large enough to affect the welfare of households and a society's distribution of wealth. Like any custom or cultural norm, in the very long-run, societies have witnessed complete disappearance of marriage payments (e.g., in Europe) as well as transformations from one type to another (e.g., in Bangladesh). Nevertheless, in most contexts, the expected direction of marriage payments is quite stable over an individual's lifetime, even if the exact amount is unknown prior to and is negotiable at the time of marriage. We seek to answer the following question in this paper: how do families and individuals respond to these expected future marriage payments?

We focus on dowry payments in contemporary India. Despite being illegal since 1961, dowry is almost universal in India, often amounting to several years of household income. According to the 2006 Rural Economic Demographic Survey (REDS), dowry was paid in X percent of rural Indian marriages. Moreover, dowry is paid in a lump-sum manner at the time of the wedding.[2] According to Becker (1981), the "lumpy" nature of dowry could be due to the couple's inability to divide marital output during the course of a marriage due to the presence of public goods, or cultural norms that dictate a fixed sharing rule. If the wife's economic contribution to the marital surplus is lower than that of the husband's, a positive dowry will need to be given by the bride's family to the groom's family.

Another reason why dowries are paid as a lump-sum amount at the time of marriage could be the custom of *virilocality* or *patrilocality* which dictates that, upon marriage, a daughter leaves her natal home to move in with her husband's family, while a son continues to live with his parents. According to Botticini and Siow (2003), parents may make a large dowry transfer to the daughter at the time of marriage (and a small bequest) to mitigate a free-riding problem between male and female siblings. Due to virilocality, sons have a comparative advantage in working with parents' assets, such as a family farm. If parents divide their wealth equally between a coresident son and a non-coresident daughter at the time of inheritance or bequest, it weakens the incentive for the son to put in effort into the family assets in the meantime. The family structure in rural India is still highly virilocal. Daughters almost never live their parents after marriage, and Y percent of the parents live with their sons who are primarily responsible for working on the family assets.[3] Thus,

[1] In the 2012 Human Development Survey of India, only 5 percent of ever-married women aged 25-49 reported that they had a self-arranged or "love" marriage.

[2] The groom's family often receives further transfers from the bride's family after marriage (Bloch and Rao (2002)) but these tend to be substantially smaller in magnitude.

[3] In fact, the equalization of inheritance rights has only resulted in higher dowries and strategic gifting of family

lumpy dowries at the time of marriage continue to be the norm.

Faced with a lumpy expense, one way parents of daughters could fund dowries is through borrowing around the time of marriage. However, individuals in a low-income country such as India face substantial credit constraints. Moreover, the illegal nature of dowry prevents formal sector lending for the purpose of dowry. An alternative way to raise the required liquidity is through savings. Therefore, in this paper, we test if parents of a daughter save more than parents of a son after the child's birth in order to meet the higher future dowry expenditure for the former. We also examine if parents of a daughter adjust their labor supply after her birth to finance the higher savings. We expect dowry-induced savings to be higher among families with daughters that are less income constrained.

There are two major challenges to estimating the causal effect of expected dowry payments on the outcomes of interest after the birth of a child. First is the likely endogeneity of the dowry variable. We assume that parents form expectations about dowry amounts by observing dowries paid by brides or received by grooms in their marriage market. Thus, for a child born in a given year, we define expected dowry as the average net dowry paid by brides or received by grooms from the same caste and state as the child and who married during the year of the child's birth or the prior four years. While our dowry variable is pre-determined, it is not exogenous if it is correlated with unobservables that also affect the outcome variables. We address this concern by utilizing the fact that dowry affects parents of boys and girls in the same marriage market in the opposite manner—the former expect to receive and the latter expect to pay dowry.

The second issue arises because boy families and girl families are likely to be different along other dimensions that are correlated with the outcomes. This is especially true as selective abortion of girls is widespread in contemporary India. To address this concern, we distinguish between households that differ by firstborn sex. Despite access to prenatal sex-determination technology, the sex ratio at first parity has remained unbiased in India and is frequently used as an exogenous shock in related literature (Das Gupta and Bhat (1997), Visaria (2005), Bhalotra and Cochrane (2010), Anukriti et al. (2016)). While parents of a firstborn girl (FG) may be more likely to have a subsequent birth and to sex-select due to a desire for at least one son (or to compensate for the negative dowry-income shock due to a FG), they should still have more girls on average than firstborn boy (FB) households.[4] Therefore, the first child's gender can be reasonably considered an imperfectly anticipated permanent income shock at the time of birth.[5] Thus, we estimate the causal impact of dowry expectations by interacting randomly determined firstborn sex with pre-determined expected dowry payments.

We implement this empirical strategy by using the 2006 Rural Economic and Demographic Survey (REDS) of India. This dataset contains several questions that are not commonly asked

property to sons (Roy (2015)).

[4]This would not be the case if FB parents abort subsequent male fetuses in order to have a daughter. However, there is no empirical evidence to support this claim.

[5]The income shock will however be anticipated at the time of child's marriage.

in most Indian household surveys. First, unlike other Indian datasets that record total marriage expenditure by families *similar* to the respondent's family (such as the India Human development Survey (IHDS)), REDS reports actual payments by brides and grooms in the surveyed households. Using retrospective information on gifts given and received at the time of marriage, we compute the net real payment by the bride ("dowry") for 39,544 marriages that took place during 1960-2008. Second, REDS collects rich information on various forms of savings at the household level, such as, savings in financial institutions, in jewelry, in livestock, and in durable goods.

Our main findings are as follows. *First*, as expected dowry increases, FG families significantly increase per capita savings overall and relative to FB families. *Second*, the increased savings in FG families take the form of formal savings in financial institutions and they do not invest more in jewelry or precious metals that are traditionally considered an integral part of dowry in India. *Third*, FG fathers work more days in a year relative to FB fathers as expected dowry burden goes up. However, dowry does not seem to be a significant explanatory factor for differential fertility and sex-selection in FG and FB families. On the whole, we find that the custom of dowry significantly alters the financial decisions of a household, and parents respond in a manner that suggests that they are credit constrained.

Our results contribute to several literatures. While dowries have received considerable attention in the economics literature, a lot of it is theoretical (e.g., Botticini and Siow (2003), Anderson (2007b), Anderson and Bidner (2015)). While dowry trends in India have been the subject of a lively debate (Anderson (2003), Anderson (2007a)), the empirical arguments have relied upon a small sample collected by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) that is not nationally representative and is outdated (Rao (1993), Edlund (2006), Arunachalam and Naidu (2015)).[6] Other recent papers that study dowry in India using alternate data (e.g., Maertens and Chari (2012), Chakraborty (2015), Roy (2015), Bhalotra et al. (2016)) do not analyze dowry trends. As such, our first contribution is that we describe the evolution of and the heterogeneity in dowry by caste, religion, and state in contemporary India.

Second, we contribute to the growing body of work on the effects of marriage payments.[7] We are unaware of any study that estimates the causal impact of dowry on household savings, labor supply, and expenditure on children. While Deolalikar and Rose (1998) and Rose (2000) have examined, using ICRISAT data, the association between female birth, savings, and parents' time allocation in India, they do not use dowry data and thus do not explicitly show that dowry is the underlying mechanism for their findings. Moreover, their analyses are less relevant for post-1980 India where sex-selection has made child gender endogenous. Our analyses of fertility and sex-selection are related to Alfano (2015) and Bhalotra et al. (2016), but our results differ.

We also make a modest contribution to the large literature on income and consumption smooth-

[6] More details are in Section 3.

[7] See Ashraf et al. (2016) for brideprice and Bloch and Rao (2002), Alfano (2015), and Bhalotra et al. (2016) for dowry.

ing (Morduch (1995)). Our finding that households use savings and adjust labor supply to smooth negative income shocks is consistent with classical life-cycle and permanent income models (Franco and Brumberg (1954), Friedman (1957), Campbell (1987)). The lack of smoothing in response to positive income shocks is also consistent with the empirical literature on liquidity or credit constraints (Jappelli and Pistaferri (2010)). Lastly, our work is tangentially related to the research on the impact of sex ratios on savings (Wei and Zhang (2011), Horioka and Terada-Hagiwara (2016)).

2 Data

We use the most recent 2006 round of REDS, which is a nationally representative survey of rural Indian households first carried out in 1968. In addition to detailed information on savings, labor supply, and other economic and demographic variables, REDS includes retrospective questions on marriage histories of household members.[8] Unlike other datasets, e.g., the Indian Human Development Survey (IHDS), that record total marriage expenditure by families similar to the respondent's family as reported in the year of survey, REDS collects data on actual payments by brides and grooms in the surveyed households. Specifically, it reports the value of gifts received or given at the time of marriage in addition to the year of marriage and demographic information of spouses (e.g., caste, age, and years of schooling).

Our primary outcomes of interest are different measures of saving, father's days worked, and expenditure on children's education. Using the detailed information available in REDS, we construct the following measures of household saving in per capita terms: total savings, formal savings, savings in jewelry, savings in livestock, and savings in durable goods.[9] The saving variables are constructed based on the value of each item purchased (deposits) and sold (withdrawals) during the year before the survey, i.e., we only have information on savings at one point in time. The employment history in REDS 2006, however, provides the number of days worked each year between 1982 and the year of survey, which we use to construct a panel data set of fathers' labor supply.

Columns (1) and (2) of Table 1 provides some summary statistics that describe the socioeconomic characteristics of our sample. An average household expects to pay or receive Rs. 26,300 as dowry. Educational attainment is low—the years of schooling for an average father and mother are, respectively, 7 and 4. OBCs are the largest caste group in the sample (46 percent), followed by other "upper" castes (28 percent), SCs (17 percent), and STs (9 percent). In terms of religion, Hindus are the majority (88 percent). The mean number of children at the time of survey is 2.09. The year of birth for the firstborn child ranges from 1992 to 2008. We restrict the child age to less than 15 before constructing birth order. We restrict our sample to nuclear households since savings data in REDS are available only at the household level.

Recall bias. Like most survey data, one may be concerned about the recall bias in the reported dowry variable, especially when the year of marriage is too far back in time. To examine the extent

[8]The 2006 REDS collected marriage histories of a household head's sons, daughters, brothers, sisters, and non co-resident parents.

[9]A detailed description of variable definitions is available in Section 8.

of recall error, we utilize data from the 1999 round of REDS and compare average dowry by year of marriage for years that are available in both rounds. Figure 9 shows that, for the sample period of our savings analysis (1991-2008), the two rounds report similar dowry amounts. Thus, recall bias is unlikely to be a significant issue for our regression estimates.

Savings. There is very limited literature that describes the variation in saving behavior of households in developing countries. We start by examining the distribution of per capita household savings in financial institutions in Figure 1. An average household in our data saves about INR 759 (or $12) in a year, with close to 50 percent of the families saving $\leq$ INR 100. Figure 2 shows that the distribution across castes while Figure 3 plots the average per capita saving in financial institution across states for various caste groups. Average saving decreases as one moves down the caste hierarchy and there is substantial cross-state heterogeneity in saving amounts. Among upper castes, the states of Gujarat, Kerala, and Punjab have the higher savings; as we will see later, these states rank high in terms of average dowries.

3 Dowry in Contemporary Rural India

The first objective of this paper is to document the trends in dowry payments in contemporary rural India. There has been a lively debate in the literature on whether India (and the rest of South Asia) has been experiencing dowry inflation, and, if so, whether it has been caused by an excess supply of women on the marriage market, referred to as the "marriage squeeze" (e.g., Rao (1993), Edlund (2006), Anderson (2007b)).[10] Remarkably, this debate has been based on data from an extremely small sample that is not nationally representative. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) sample used in Rao (1993) and Edlund (2006) comprises 141 households from six villages in three districts of rural South Central India collected in 1983 through a retrospective survey on marriage.[11] This is likely due to lack of data on dowries during the time period examined by these studies, roughly 1923-1978. Other papers on this topic (e.g., Anderson (2007b)) have been theoretical and have assumed the presence of dowry inflation and have sought to test if marriage squeeze is a credible explanation for it. Moreover, these studies do not inform us about trends in more recent years that have witnessed remarkable economic and social changes.

Recently, Logan and Arunachalam (2014) use data from Bangladesh, India, Nepal, and Pakistan to assess this prior research, and conclude that there is no dowry inflation in South Asia. For India, in addition to the 1983 ICRISAT survey used by the aforementioned studies, they use the SWAF survey conducted in 1993-94. While SWAF data is more recent than ICRISAT data, a key shortcoming of it, that the authors acknowledge, is that it does not report specific dowry amounts and instead provides five ordinal categories that nominal dowries fall into.

[10] Logan and Arunachalam (2014) provide a detailed and comprehensive discussion of this debate.

[11] The six ICRISAT villages belong to two states: Andhra Pradesh (Aurepalle and Dokur villages of Mahbubnagar district) and Maharashtra (Shirapur and Kalman under Solapur district, Kanzara and Kinkhed under Akola district). The total number of surveyed households was 240, but the regression analysis sample in Rao (1993) and Edlund (2006) comprises 141 and 160 households, respectively, due to missing data.

We supplement this literature by utilizing another data source—REDS 2006—that is more recent, is larger, is more representative, and provides retrospective information on the nominal value of gifts received or given at the time of marriage for each year during 1960 and 2009. While some recent papers have used this dowry data (Chakraborty (2015), Roy (2015), Bhalotra et al. (2016)) for part of their analyses, none have used it to describe the cross-sectional and temporal variation in dowries.[12]

In this section, we describe the evolution of (i) gross payments by the bride's family to the groom or his family, (ii) gross payments by the groom's family to the bride's family, and (iii) net dowry computed as the difference between (i) and (ii). We deflate the nominal amounts using the 2005 Consumer Price Index (CPI) and plot 5-year moving averages in most graphs.

Figure 4 shows that average dowry has been remarkably stable over time, with some dowry inflation during 1960-73 and 2000-09. The trend in net dowry is mimicked by the trend in gross payments by the bride's family to the groom's family. The flow of payments in the opposite direction, i.e., from the groom to the bride, is also positive throughout, but substantially smaller. While an average groom's family spends about INR 5,000 on gifts to the bride's family, gifts from the bride's family cost seven times more, i.e., about INR 35,000. Thus, the real net dowry fluctuates around INR 27,000 during 1973-1995 in our sample.[13] As per capita incomes have risen in India during our study period, these stable trends imply that, on average, dowry as a share of household income has gradually declined at the national level. The bottom figure in Figure 4 shows that average net real dowry per marriage in 2007 was equivalent to 14 percent of annual household income, as compared to 40 percent during early 1970s. Figure 5 plots the distribution of net and gross marriage payments. The proportion of marriages with a negative net dowry, i.e., where the groom's family paid more to the bride's family than the other way around, is non-zero, but quite small. The vast majority of the marriages involved positive net dowry payments to the groom's family. We do not observe any marriages where the value of gifts was reported to be zero.[14]

It is well-known that the Indian marriage market imposes significant barriers on marriage across castes and religions. Thus, caste- and religious-groups can, in a sense, be considered distinct marriage markets. In Figure 6 we therefore examine the trends in net real dowry separately for Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Class (OBC), and other or upper caste households in the top panel, and for four religious groups—Hindus, Muslims, Sikhs, and Christians. Dowry is positively correlated with higher caste status and the caste hierarchy of dowry payments has not changed over time. Upper caste marriages have the highest dowries, followed by OBCs, SCs, and STs.

[12]Since the beginning of this study, we have become aware of another paper (Chiplunkar and Weaver (2017)) that also examines dowry trends using REDS data; however, they use an earlier round of REDS from 1999 and the focus of that paper is on explaining the dowry variation where as we study the effects of dowry.

[13]The INR 27,000 amount is roughly similar to the dowries reported in Figure 1 of Logan and Arunachalam (2014) during 1923-78.

[14]However, our data does contain marriages with missing information on gifts. A detailed discussion of this issue and how we deal with it is in Appendix B.

The trend for Hindus is similar to the national trend, which is not surprising as Hinduism is the majority religion in India (89 percent of our sample is Hindu). It is also quite clear from the graph that dowry is not just a Hindu phenomenon in India. In fact, Christians and Sikhs exhibit a remarkable increase in dowry in recent years. Moreover, average net dowry payments in Muslim marriages are only slightly lower than Hindu dowries. The prevalence of dowry among Indian Muslims is consistent with the evidence from Bangladesh, a Muslim country where brideprice is rarely observed in recent decades (Ambrus et al. (2010)). The dowry inflation in post-2000 years appears to be driven by upper castes and non-Hindus.

We corroborate the cross-sectional patterns by caste and religion using dowry data from the 2004-05 IHDS. Unlike REDS, IHDS elicits dowry data indirectly by asking respondents how much money is usually spent at the time of the marriage by a groom's or a bride's family that is similar to the respondent's family; this information is only collected for the survey year. Table A.1 shows the sample means of the net dowry paid by the bride's family calculated using these responses for various castes and religions. Although our paper focuses on rural India because REDS does not cover urban areas, we also report urban dowries from the IHDS for comparison. Reassuringly, the patterns in Table A.1 are identical to those in the REDS data in 2004-05. The similarities between REDS and IHDS also assuage concerns about differential under- or over-reporting of dowry payments and receipts by the sampled households.

Figure 7 explores geographical variation in dowry trends. While the trend is quite flat for several states, there are some noticeable exceptions. Kerala exhibits stark and persistent dowry inflation since the 1970s, and has the highest average dowries in recent years. Given Kerala's religious composition—26 percent Muslims, 18 percent Christians, and 55 percent Hindus—this trend is compatible with the differential trends by religion described earlier. Similarly, the inflationary trend in Punjab—a majority Sikh state—is also consistent with the rise in Sikh dowries. Other states with less dramatic inflationary trends are Haryana and Gujarat, although the latter exhibits a sharp rise during 2000-09. On the other hand, dowry decreased in Orissa (with a slight recent increase),[15] West Bengal, Tamil Nadu, and in one of the two ICRISAT states, Maharashtra. The second ICRISAT state, i.e., Andhra Pradesh, displays deflation since mid-1990s and a more volatile trend before that. Note, however, that the studies by Rao (1993) and Edlund (2006) focus on the 1923-1978 time period.

Lastly, Figure 8 shows how dowry varies by the educational attainment of brides and grooms. More educated brides pay higher dowry and more educated grooms receive higher dowry. These patterns could reflect the positive correlation between parental income and education, as well as assortative matching on the marriage market.

[15]The high level of average dowry in Orissa aligns well with the high prevalence of dowry-related crimes in the state. In 2013, Orissa had the highest dowry-related crime rate among Indian states, accounting for 16.5 percent of the total dowry-related cases recorded in the country during 2012. Source: `http://www.newindianexpress.com/states/odisha/State-tops-the-chart-in-dowry-cases/2013/08/08/article1723732.ece`.

4 Identification Strategy

Our second goal is to estimate the causal effect of expected future net dowry payments on parents' current saving behavior, current labor supply, and investments in children. However, this is not straightforward because of two concerns about our dowry variable. First, does it accurately measure expectations and second, is it exogenous? Note that our dowry variable differs by the child's year of birth, parents' caste, and state of residence. Specifically, we define expected dowry as the average net dowry paid by brides or received by grooms from the same caste and state as the child and who married during the year of the child's birth or the prior four years.

The accuracy of the dowry variable depends on how correctly we define marriage markets and capture expectation formation. We assume that the relevant marriage markets are based on caste (and religion) and state. This is a reasonable assumption given the highly endogamous nature of the Indian marriage market. According to the 2005 IHDS, only 4.4 percent of women were married to a spouse from a different caste. Using responses to matrimonial advertisements in a Bengali newspaper, Banerjee et al. (2013) find evidence in favor of a strong preference for in-caste marriage – e.g., the bride's family is willing to trade-off the difference between no education and a master's degree in the prospective husband to avoid marrying outside their caste. In addition to this "horizontal" preference for same-caste marriages, inter-subcaste marriages are governed by strict rules of hierarchy. Although caste is primarily a Hindu phenomenon, the notion of caste-based hierarchy remains well-preserved among many other religious groups in India. In the 2009 National Sample Survey, 31 percent of Sikh households identified themselves as belonging to a Scheduled Caste (SC). Lastly, inter-religious marriages are far less common than inter-caste marriages. Moreover, while patrilocal exogamy is widely practiced, most people marry within their state. To illustrate, less than 4 percent of the population in 2001 had moved across states in the last ten years according to the Census data. We also assume that parents form expectations about future dowries based on recent dowries within their caste and state of residence.

We also try two alternate definitions of dowry by changing the years over which the average is calculated and by using both caste and religion to define the marriage market to modify how expectations are formed. In ongoing work, we examine if other moments of dowry, such as its variance, also matter. Moreover, we plan to test if dowry around the year of survey is a more relevant explanatory factor for savings in the survey year.

As mentioned in the introduction, we utilize the fact that dowry affects parents of boys and girls in the opposite manner—the former expect to receive and the latter expect to pay dowry upon marriage. However, fertility and child composition may be endogenous. Before sex-selection was possible, girls were born in relatively larger families as compared to boys, and larger family size would mechanically have lower savings per capita, irrespective of dowry expectations. Moreover, if son-biased stopping rules or sex-selective abortions are more prevalent among groups with certain socioeconomic characteristics that are also correlated with savings, for example, we are also likely to encounter the omitted variables bias. Therefore, interacting expected dowry with the number or the sex ratio of children is also not ideal.

In order to address the endogeneity, we interact expected dowry with firstborn sex. Despite access to sex-selection, the sex ratio at first parity has remained unbiased in India and is frequently used as an exogenous shock in related literature (Bhalotra and Cochrane (2010), Rosenblum (2013), Anukriti et al. (2016), Milazzo (2017)). Figure 10 shows that there has been no change in the proportion of females among first births in India over time. Table 1 provides summary statistics of the key variables used in our analysis by the gender of the first child. Reassuringly, there are no significant differences between FB and FG families in terms of socioeconomic characteristics such as expected dowry, caste, religion, mother's years of schooling, except for small differences in father's schooling and belonging to a SC. Nevertheless, we control for all these covariates in our specifications. For given expected dowry per marriage, we expect FG families to save more that FB families.

Ideally, we would focus on households that recently had their first child and compare FB families with FG families. However, due to sample size concerns, we first use the entire sample regardless of the number and the composition of children. While FG parents may be more likely to have a subsequent birth and sex-select due to son preference or to compensate for the negative dowry-related income shock from the first birth, FG families should still have more girls on average (unless parents of the first boy want to have a girl and abort male fetuses, which is unlikely), and hence we expect them to save more relative to FB families. Later, we examine heterogeneity in our results by the number of children.

4.1 Savings

To investigate whether FG parents save more than FB parents during 2008 due to expected future dowry payment, we estimate the following specification for household i from caste c in state s and whose first child was born in year t:

$$\begin{aligned} Saving_{icst}^{2008} = \alpha &+ \beta_1 FirstGirl_i \times Dowry_{cst} + \beta_2 Dowry_{cst} + \beta_3 FirstGirl_i \\ &+ \pi_{st} + \phi_{ct} + \psi_{sc} + \eta_c FirstGirl_i + \eta_s FirstGirl_i + \eta_t FirstGirl_i \\ &+ \omega_c + \delta_s + \theta_t + \mathbf{X}_i^{'}\gamma + \epsilon_{icst}, \end{aligned} \tag{1}$$

where $Saving_{icst}^{2008}$ denotes various flow measures of per capita household saving in 2008; $FirstGirl_i$ indicates that the firstborn child in household i is female; $Dowry_{cst}$ is expected dowry defined as the average dowry paid by brides from caste c in state s who were married during the year of the child's birth or the prior four years (i.e., during $t, t-1, t-2, t-3, t-4$);[16] $\mathbf{X}_i$ is a vector of covariates comprising parents' years of schooling, indicators for religion and the month of survey. We report unweighted regressions in the main set of tables. However, our results remain the same when we use weights.[17] Standard errors are clustered at the state level. We also compute standard

[16]The robustness checks using alternate definition of dowry expectation are provided in Section 7.

[17]The 2006 REDS data does not provide sampling weights, hence we construct them in the following manner. Using the village listing data which includes all households in REDS villages, we create an indicator for the households

errors that are wild-cluster bootstrapped by state.

The coefficient β_2 captures how savings in FB families respond to expected dowry receipts, while β_1 captures the differential response of FG families to expected dowry, relative to the response of FB families. The coefficient β_3 describes the difference between savings behavior of FB and FG families when expected dowry is zero. Thus, the inclusion of the FG main effect allows us to control for any changes in per capita saving that could result for factors unrelated to dowry, for instance, higher fertility among FG families due to the desire for at least one son. To exclude other confounding factors related to the caste, state, gender, and year of birth of the firstborn child, we control for all main and interaction fixed effects for these factors (i.e., $\omega_c, \delta_s, \theta_t, \pi_{st}, \phi_{ct}, \psi_{sc}$, $\eta_c FirstGirl_i, \eta_s FirstGirl_i, \eta_t FirstGirl_i$).

Thus, any remaining threats to identification come from caste-state-year specific factors that may be correlated with $Dowry_{cst}$ and that differentially affect FG and FB parents. If this is so, the coefficient of interest, β_1, would then be contaminated by these omitted variables, and would not capture the causal effect of dowry expectations. To address the former concern, we replace the main effect of $Dowry_{cst}$ with caste x state x year fixed effects in specification (2) to estimate an even stricter specification that non-parametrically controls for everything that varies at the caste-state-year level and is correlated with household savings:

$$\begin{aligned} Saving_{icst}^{2008} = \alpha &+ \beta_1 FirstGirl_i \times Dowry_{cst} + \delta_{cst} + \beta_3 FirstGirl_i \\ &+ \pi_{st} + \phi_{ct} + \psi_{sc} + \eta_c FirstGirl_i + \eta_s FirstGirl_i + \eta_t FirstGirl_i \\ &+ \omega_c + \delta_s + \theta_t + \mathbf{X}_i^{'}\gamma + \epsilon_{icst}, \end{aligned} \tag{2}$$

This leaves us with confounding factors that differ within caste-state-year and that differentially affect FG and FB parents. One such factor could be fertility. If dowry changes in a caste-state-year are correlated with changes in, say, the degree of son preference, the likelihood and the sex ratio of higher parity births may differ by firstborn sex. Additionally, if dowry is more prevalent in regions with stronger son preference, we would expect FG families to be more likely to have subsequent births if they are following son-biased stopping rules with or without sex-selection, and that is likely to *lower* per capita savings. Therefore this bias would go against us. A higher sex ratio may eventually also reduce dowry due to scarcity of women on the marriage market (although there is currently no evidence that this has happened in India). However (1) our variable of interest is *expected* dowry, which is what determines parents' financial decisions when the child is young and (2) a lower expected dowry should make parents less likely to save.

Fertility could also be directly affected by expected dowry if FG families respond to dowry

that are actually sampled and regress it on the observables in the listing data. These inverted predicted probabilities serve as weights, assuming that the observables capture differential reasons for being surveyed. The observables in the listing sheet data used to construct weight are household size, number of earners in the household, head's age, head's years of schooling, indicators of head's caste (SC, ST, OBC, OC), religion (Muslim), and gender, and state fixed effects.

expectations by increasing sex-selection for subsequent births (to have a compensating son who would receive dowry), that could lower fertility (and household size), and thereby increase per capita savings. To test if this the case, we re-estimate equation (1) by using fertility and the proportion of sons in second and higher parity births as the dependent variables.

Lastly, we examine how our results change when we restrict the sample to households with specific number of children. A strict test for our story comes from one-child families. Since these families have not yet had a second child, any saving response to firstborn sex and expected dowry cannot be due to endogenous fertility change.[18] Restricting to a short time horizon after the birth of the first child shuts down the re-optimization that takes place in response to the revelation of the first child's gender.

4.2 Labor Supply

The birth of a son or a daughter can affect parents' time allocation in the following ways. If FG parents are income-constrained, they may increase labor supply in an attempt to supplement their income to finance the higher savings needed for the future dowry expense. Moreover, the permanent income shock is a pure lottery and doesn't change the reward or wage from working, i.e., there is no substitution effect. However, the income effect implies that in the absence of credit constraints, FB parents should increase leisure, i.e., decrease labor supply and FG parents should increase labor supply. When the household is credit constrained, the inability to borrow implies that current leisure may not increase, i.e., current labor may not decrease, when permanent income goes up for FB parents.[19]

Using the employment history between 1982 and 2008, we estimate the labor supply response for father i from caste c in state s in year t' and whose first child was born in year t. The following specification estimates the impact on labor supply:

$$\begin{aligned} L_{it'} = \alpha &+ \beta_1 FirstGirl_i \times Post_{t'>t} \times Dowry_{cst} \\ &+ \beta_2 Post_{t'>t} \times Dowry_{cst} + \beta_3 FirstGirl_i \times Post_{t'>t} \\ &+ \delta_{st'} + \theta_{ct'} + \pi_{tt'} + \gamma_i + \omega_{t'} + \epsilon_{it'}, \end{aligned} \tag{3}$$

where $L_{it'}$ are the the number of days worked in year t'; $Post_{t'>t}$ equals 1 if $t' > t$, and 0 otherwise; and $FirstGirl_i$ and $Dowry_{cst}$ are defined as before. We include the time interaction fixed effects

[18] Note that we implicitly take into account duration since the first birth through the year of first birth fixed effects.

[19] The predictions for mothers are not as straightforward. While child rearing may involve some decline in market work irrespective of child gender, returns to investment of women's time in child-care on the marriage market may be an additional consideration while allocating time. If sons with higher human capital investment (HKI) obtain higher dowry, FB mothers may decrease labor supply even more, if there are no credit constraints. Similarly, if daughters with higher HKI pay smaller dowries, FG mothers may also work less outside the home to invest in daughters' HKI; however, in that case FG fathers would work even more to compensate for the loss of mothers' income. In any case, 89 percent of the mothers in our dataset report being a housewife as their primary occupation. Since the data does not report days worked separately for primary and secondary occupations, we cannot credibly estimate the effect on market- and non-market work for mothers, and hence focus only on fathers.

(i.e., $\delta_{st'}, \theta_{ct'}, \pi_{tt'}$) as well as time fixed effects ($\omega_{t'}$) in this specification. The coefficient β_2 captures how expected dowry affects father's number of days worked after the birth of a firstborn boy and β_1 captures the differential response of parents of a firstborn girl after her birth. The panel nature of the labor supply variable allows us to control for father fixed effects (γ_i).

4.3 Children's Education

ONGOING.

5 Results

5.1 Savings

In Table 2 we present results from equations (1) and (2) that estimate the impact of expected future dowry payments on parents' current saving behavior. Note that the expected dowry variable is in Rs. 10,000. We expand the definition of the savings variable as we move from column (1) to column (6). In the first two columns, we examine the effect on per capita saving in financial institutions; in the next two columns we add per capita cash saving to per capita saving in financial institutions; and in the last two columns we also add the per capita interest earned by the household on its savings. The coefficient of *Firstborn girl* is negative and always insignificant, implying that, in the absence of dowry expectations, there is no difference between the saving amount in FG families and FB families. However, as the interaction coefficient demonstrates, when expected dowry is positive, FG families save significantly more than FB families, and, within FG families, savings increase with the amount of expected dowry. The specifications without caste-state-year fixed effects show that FB families do not have a significant effect on savings when anticipated dowry receipts are higher as the coefficients are largely insignificant. These results suggest that the impending future lump-sum dowry expense induces FG families to start saving more in advance. The interaction coefficient in column (6) (= Rs. 617.54) translates into 71 percent higher savings in FG families for a given expected dowry amount, relative to average annual savings in FB families of Rs. 874.69.

To address the endogeneity concerns related to differential fertility in FG and FB families, we first show that our results survive controlling for indicators for the number of children (see column (1) of Table 3). In the second column of Table 3, we show that the interaction coefficient remains positive and significant when we control for the stock of savings at the beginning of 2008.

In Table 4, we re-estimate the effects on savings for families that only have one child. The sub-sample of one child families offers a strict test for our story since the saving behavior of these families has not yet been affected by the differential likelihood of higher parity births or sex-selection of these births by firstborn sex (given that we flexibly control for duration since first birth effects). We find that families that have only a girl child also save significantly more than families that have only a boy child for given expected dowry. For given positive expected dowry, FG families in column (6) save 4.6 times FB families' average annual per capita savings. The higher magnitude of the savings effect in Table 4 relative to Table 2 suggests that per capita savings fall as the number of children increases.

The higher savings in FG families take the form of higher per capita formal saving in financial institutions. As Table 5 shows, contrary to conventional beliefs about dowries in India, we do not find a significant difference in jewelry saving (in precious stones and metals) among FG and FB families.[20] This pattern of saving behavior is consistent with greater access to financial institutions and instruments in rural India and the less liquid nature of jewelry relative to cash savings in bank accounts during our study period. Similarly, there is no significant difference in terms of saving in livestock (although the coefficient is positive) and saving in durable goods.

Bhalotra et al. (2016), on the other hand, find that an unexpected increase in the price of gold leads to immediate rise in fetal and infant mortality of girls, which suggests that families neither switch to alternate forms of dowry nor wait to realize if the price shock is permanent before withholding investments in girls. If parents selectively eliminate daughters that become more expensive due to gold inflation, then the gold price shock, of course, does not have to translate into higher savings. However, by that reasoning, FG families should also be more likely to practice sex-selection at higher parities as expected dowry rises. However, we do not find this to be true in our data.[21] Table 6 shows that FG families have higher fertility and practice greater sex-selection even if expected dowry is zero (although the coefficients are insignificant), and that there is no differential effect of dowry on future childbearing and sex-selection.

The findings in Table 6 not only assuage concerns about endogenous fertility, but are also important in their own right. It is frequently claimed that dowry is an underlying cause of son preference and discrimination against girls in India. While the desire for at least one son is real and affects childbearing decisions, it leads to higher fertility and more male-biased sex ratios *even in the absence of dowry*, and dowry does not seem to be an additional significant explanatory factor. In fact, our results also contradict the findings of Alfano (2015) who finds that an amendment that made the Indian anti-dowry law stricter in 1985 led to decreases in male-biased fertility behaviors as it potentially made the dowry cost of daughters smaller. Both Alfano (2015) and Bhalotra et al. (2016) do not directly estimate the effect of dowries on excess female child mortality, male-biased fertility, and the sex ratio at birth.

However, we acknowledge that the REDS data is not the most suitable for analyzing fertility and sex ratios; therefore, in ongoing work we combine the expected dowry variable with data from the National Family Health Surveys of India to check the robustness of these findings.

Heterogeneity by income constraints. Next we test the role of income constraints in the ability of parents to alter current saving in response to future dowry expenditure. Table 7 shows that the higher savings for FG relative to FB families for given positive expected dowry is driven by above poverty line households. The coefficient of *Firstborn girl * Expected dowry* is also positive for below poverty line families but is small and is insignificant, suggesting that income constraints

[20] This is true irrespective of whether the family has only one child or more children.

[21] We differ from Bhalotra et al. (2016) in the other ways: they use data from the 1999 REDS, while we use the 2006 REDS. They define dowry as the gross value of gifts from the bride's side to the groom's side, whereas we use net dowry.

limit poor parents' ability to save for future dowry.

5.2 Father's Labor Supply

Future dowry expenditure also causes FG fathers to work more relative to FB fathers; the latter do not exhibit a significant change after the birth of their first child (column (1) in Table 8). The triple-interaction coefficient translates into a 2.33 percent increase in FG fathers' days worked relative to the average days worked by FB fathers (= 156.30). Note that, when expected dowry is zero, FG fathers do not work more than FB fathers. These results suggest that parents attempt to finance the higher savings through higher earnings. As before, the increase in father's labor supply is larger for above poverty line households as compared to BPL families for whom the effect is insignificant.

6 Other Robustness Checks

We perform a battery of additional robustness checks that include using two alternative definitions of expected dowry, replacing net dowry with two separate gross marriage payment variables, and treatment of missing observations and outliers. Our findings remain the same.

6.1 Alternate Definitions of Expected Dowry

We use two alternate definitions of expected dowry to test the sensitivity of our results. First, we reconstruct the expected dowry variable by incorporating both religion and caste (column (1) of Table A.2). Specifically, we split Hindus by caste and use other religions as it is (i.e., our seven groups are: Hindu SCs, Hindu STs, Hindu OBCs, Hindu OCs, Muslims, Sikhs, Other religions) and then separately define expected dowry for these groups (while using state and year of birth as before).[22] Second, instead of using the average of net dowries paid in marriages that occurred during the year of the child's birth (YOB) or the prior four years, in column (2) of Table A.2 we use the average of net dowries paid *around* the YOB of the child (i.e., during $YOB + 2, YOB + 1, YOB, YOB - 1, YOB - 2$). In both columns, the interaction coefficient remains positive and significant. In ongoing work, we also explore how other moments of dowry, such as its variance, affect savings.

6.2 Missing Observations

In REDS 2006, we observe 40,623 marriages for which the year of marriage is available and is during 1960-2008.[23] In the analysis so far, we have excluded marriages where data on both gifts given and received is missing (1,079 observations). Among the rest, while 18,275 (46 percent) observations have information on both gifts, the remaining 21,269 (54 percent) have one of them missing. In the latter case, when only one of the two is missing, we have calculated net dowry by assuming that the

[22] Hinduism is the majority religion in India, and although other religions also exhibit caste, our sample size prevents us from splitting non-Hindus into further groupings by caste.

[23] Our data also reports several marriages that took place before 1960, but due to the lack of CPI data for pre-1960 years, we omit them from our analysis.

missing value equals zero. In doing so (i.e., by replacing missing data with zeros), we are primarily underestimating gifts from the groom's side, and in turn overestimating net dowry, since in 95 percent of the cases where one of the gifts is missing, the missing data is for gifts from the groom's side. Therefore, we test if our findings are driven by our treatment of missing data.[24]Reassuringly, our results remain the same if we construct expected dowry only using marriages where both gifts are non-missing (see column (2) of Table A.2).

6.3 Expected Gross Marriage Payments

Several economists have modeled dowry as net dowry following Becker (1981). Anthropologists, on the contrary, define dowry as the gross assets brought by the bride to the groom's family at the time of marriage. Edlund (2006) has argued that net dowry is likely to overstate the relative contribution of the bride's family to the groom's family due to marriage market factors, especially among wealthier families, if dowries also comprise pre-mortem bequest to daughters. The only evidence on the relative importance of the bequest motive of dowries, that we are aware of, comes from Arunachalam and Logan (2016) who find that, in Bangladesh, bequest dowries have declined in prevalence and amount over time. Since the majority of Indian states did not equalize inheritance rights between sons and daughters until as recently as 2005, bequest may, however, be a crucial component of Indian dowries during our sample period.

We check how replacing net dowry with its two component variables, i.e., gross payments by the bride's and the groom's family in specification (1) alters the impact on savings. Since payments by the groom are much smaller than those by the bride, we do not expect this to matter. Table A.3 confirms our intuition. The coefficient of *Firstborn girl * Expected gross payment by bride* continues to be positive and significant, albeit is slightly larger in magnitude than the coefficient of *Firstborn girl * Expected net dowry* in Table 2.

7 Conclusion

Marriage payments have the potential to affect the wealth distribution across generations and families. Although recent work, e.g., Ashraf et al. (2016), has begun to examine these issues in the context of brideprice, similar empirical investigations of the welfare consequences of dowry have been hampered by the lack of data. We attempt to fill this gap. Using nationally representative data from rural India, we document dowry trends in contemporary India and then estimate its causal impact on savings, father's labor supply, fertility, sex ratio, and expenditure on children's education. Our results so far imply that parents of daughters respond to expected lump-sum dowry expenditure in the future by saving more in advance and fathers work more to finance the savings. However, our study is entirely based on rural data, and the findings may not apply to urban India.[25]

[24]We discuss missing observations in more detail in Appendix Section B.

[25] Although we show that the cross-sectional patterns in dowry amounts in rural India are similar to those in urban India but the average levels are higher in the latter.

References

Alfano, M. (2015): "Daughters, Dowries, Deliveries: The Effect of Marital Payments on Fertility Choices in India," *CReAM Discussion Paper*.

Ambrus, A., E. Field, and M. Torero (2010): "Muslim Family Law, Prenuptial Agreements, and the Emergence of Dowry in Bangladesh," *Quarterly Journal of Economics*, 125, 1349–1397.

Anderson, S. (2003): "Why Dowry Payments Declined with Modernization in Europe but Are Rising in India," *Journal of Political Economy*, 111, 269–310.

——— (2007a): "The Economics of Dowry and Brideprice," *Journal of Economic Perspectives*, 21, 151–174.

——— (2007b): "Why the Marriage Squeeze Cannot cause Dowry Inflation," *Journal of Economic Theory*, 137, 140–152.

Anderson, S. and C. Bidner (2015): "Property Rights over Marital Transfers," *The Quarterly Journal of Economics*.

Anukriti, S., S. Bhalotra, and H. Tam (2016): "On the Quantity and Quality of Girls: New Evidence on Abortion, Fertility, and Parental Investments," *IZA Discussion Paper*.

Arunachalam, R. and T. D. Logan (2016): "On the Heterogeneity of Dowry Motives," *Journal of Population Economics*, 29, 135–166.

Arunachalam, R. and S. Naidu (2015): "Price of Fertility: Marriage Markets and Family Planning in Bangladesh," *Working Paper*.

Ashraf, N., N. Bau, and A. Voena (2016): "Bride Price and Female Education," *NBER Working Paper*.

Banerjee, A., E. Duflo, M. Ghatak, and J. Lafortune (2013): "Marry for What? Caste and Mate Selection in Modern India," *American Economic Journal: Microeconomics*, 5, 33–72.

Becker, G. (1981): "A Treatise on the Family," *Harvard University Press*.

Bhalotra, S., A. Chakravarty, and S. Gulesci (2016): "The Price of Gold: Dowry and Death in India," *IZA Discussion Paper 9679*.

Bhalotra, S. and T. Cochrane (2010): "Where Have All the Young Girls Gone? Identification of Sex Selection in India," *IZA Discussion Paper No. 5381*.

Bloch, F. and V. Rao (2002): "Terror as a Bargaining Instrument: A Case Study of Dowry Violence in Rural India," *American Economic Review*, 92, 1029–1043.

Botticini, M. and A. Siow (2003): "Why Dowries?" *American Economic Review*, 93, 1385–1398.

Campbell, J. Y. (1987): "Does Saving Anticipate Declining Labor Income? An Alternative Test of the Permanent Income Hypothesis," *Econometrica*, 55, 1249–73.

Chakraborty, T. (2015): "Impact of Industrialization on Relative Female Survival: Evidence from Trade Policies," *World Development*, 74, 158–170.

Chiplunkar, G. and J. Weaver (2017): "Marriage Markets and the Rise of Dowry in India," *Working Paper*.

Das Gupta, M. and P. Bhat (1997): "Fertility Decline and Increased Manifestation of Sex Bias in India," *Population Studies*, 51, 307–315.

Deolalikar, A. and E. Rose (1998): "Gender and Savings in Rural India," *Journal of Population Economics*, 11, 453–470.

Edlund, L. (2006): "The Price of Marriage: Net vs. Gross Flows and the South Asian Dowry Debate," *Journal of European Economic Association*, 4, 542–551.

Franco, M. and R. H. Brumberg (1954): "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," *In Post-Keynesians Economics, ed. K Kurihara. New Brunswick: Rutgers University Press*, 388–436.

Friedman, M. (1957): "A Theory of the Consumption Function," *Princeton, NJ: Princeton University Press.*

Horioka, C. Y. and A. Terada-Hagiwara (2016): "The Impact of Pre-marital Sex Ratios on Household Saving in Two Asian Countries: The Competitive Saving Motive Revisited," *NBER Working Paper.*

Jappelli, T. and L. Pistaferri (2010): "The Consumption Response to Income Changes," *Annual Review of Economics*, 2, 479–506.

Logan, T. D. and R. Arunachalam (2014): "Is there Dowry Inflation in South Asia," *Historical Methods*, 47, 81–94.

Maertens, A. and A. Chari (2012): "Learning your Child's Price: Evidence from Anticipated Dowry Payments in Rural India," .

Milazzo, A. (2017): "Why Are Adult Women Missing? Son Preference and Maternal Survival in India," *Working Paper.*

Morduch, J. (1995): "Income Smoothing and Consumption Smoothing," *Journal of Economic Perspectives*, 9, 103–114.

Rao, V. (1993): "The Rising Price of Husbands: A Hedonic Analysis of Dowry Increases in Rural India," *Journal of Political Economy*, 101, 666–77.

Rose, E. (2000): "Gender Bias, Credit Constraints and Time Allocation in Rural India," *Economic Journal*, 110, 738–758.

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

Roy, S. (2015): "Empowering Women? Inheritance Rights, Female Education and Dowry Payments in India," *Journal of Development Economics*, 114, 233–251.

Visaria, L. (2005): "Female Deficit in India: Role of Prevention of Sex Selective Abortion Act," *mimeo.*

Wei, S.-J. and X. Zhang (2011): "The Competitive Saving Motive: Evidence from Rising Sex Ratios and Savings Rates in China," *Journal of Political Economy*, 119, 511–564.

8 Variable Definitions

1. Dowry

The dowry variables are constructed based on the retrospective information on the nominal value of gifts received or given at the time of marriage for marriages during 1960 and 2009.

Real net dowry paid by bride's family: "Gifts paid by bride's family" − "Gifts paid by groom's family"

Gifts paid by bride's family: The real value of gifts given by bride's family at the time of marriage

Gifts paid by groom's family: The real value of gifts given by groom's family at the time of marriage

Expected dowry: the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years.

The first alternate definition of expected dowry: the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married around the year of birth (YOB) of the child (i.e., during $YOB+2, YOB+1, YOB, YOB-1, YOB-2$)

The second alternate definition of expected dowry: the average dowry paid (received) by brides (grooms) from the same social group and state as the child and who married during the year of the child's birth or the prior four years. We construct 7 social groups based on the caste and religion. Specifically, we split Hindus by caste and use other religions as it is (i.e., Hindu SCs, Hindu STs, Hindu OBCs, Hindu OCs, Muslims, Sikhs, Other religions).

Expected gross payment by bride (groom): the average value of gifts given by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years.

2. Saving

The saving variables are constructed based on the value of each item purchased (deposits) and sold (withdrawals) during 2005-06.

Household per capita saving: total per capita household saving in financial institutions, jewelry, livestock, and durable goods.

Formal saving (saving in financial institutions) : saving in Commercial Banks; Private Banks; Post Office; Chit Funds; Self Help Groups; Co-operative Society / Bank; Stock market; Mutual fund; Life insurance

Saving in jewelry: saving in Precious stones; Precious Metals other than gold and silver; Gold and Silver jewelry

Saving in livestock: saving in Cow (local bred); Cow (cross bred); Buffalo (local bred); Buffalo (cross bred); Bull/Bullock/Ox; Male-Buffalo; Camel; Horse/donkey; Goat; Sheep; Pigs; Hen; Chicken; Guinea fowl; Fowl; Bees; Elephants; Fish; Silk worm

Saving in durable goods: saving in Wrist watch; Clock / time piece; Radio; Transistor; Cassette Recorder/ player; Walkman; TV; VCR; CD Player; Camera; Video camera; Fan; Washing machine; Mixer /Grinder; Electric Iron; Geyser; Refrigerator; LPG Stove; Chula; Kerosene Stove; Pressure Cooker; Metal Utensils; Tumblers etc; Buckets; Water Boiler; Sewing Machine; Almirah; Steel Box; Wooden Box; Lanterns/lamps; Steel Furniture; Wooden furniture; Plastic furniture; Cots; Pillows and bed sheets; Futon (thick blanket, quilt); Electric Shaver; Storage Bin; Bicycle; Scooter; Motor Cycle; Car/LMV; Communication facility (phone set, cell phone set, etc); Metal box/steel trunk; Earthen pots

HH wealth (Total wealth per capita): per capita household wealth in land, assets, livestock, formal savings, jewelry, and durable goods.

3. Number of days worked

The employment history in REDS 2006 provides the number of days worked each year between 1982 and 2006, which we use to construct a panel data set of parents, labor supply.

4. Sex selection

Fraction of sons for birth orders ≥ 2: the proportion of male births from the second child.

5. Number of children

No. of children: No. of children under age 15 in the household

No. of sons: No. of sons under age 15 in the household

No. of daughters: No. of daughters under age 15 in the household

Net no. of girls: is "No. of sons" − "No. of daughters"

6. Expenditures on children

Expenditures on child's education: expenditures on fees, uniforms, books/stationery, transport, hostel, private coaching/tuition

7. Etc.

Nuclear family: household where all the children under age 15 have the same mother.

Parents' education: father's years of schooling and mother's years of schooling

SC: scheduled castes

ST: scheduled tribes

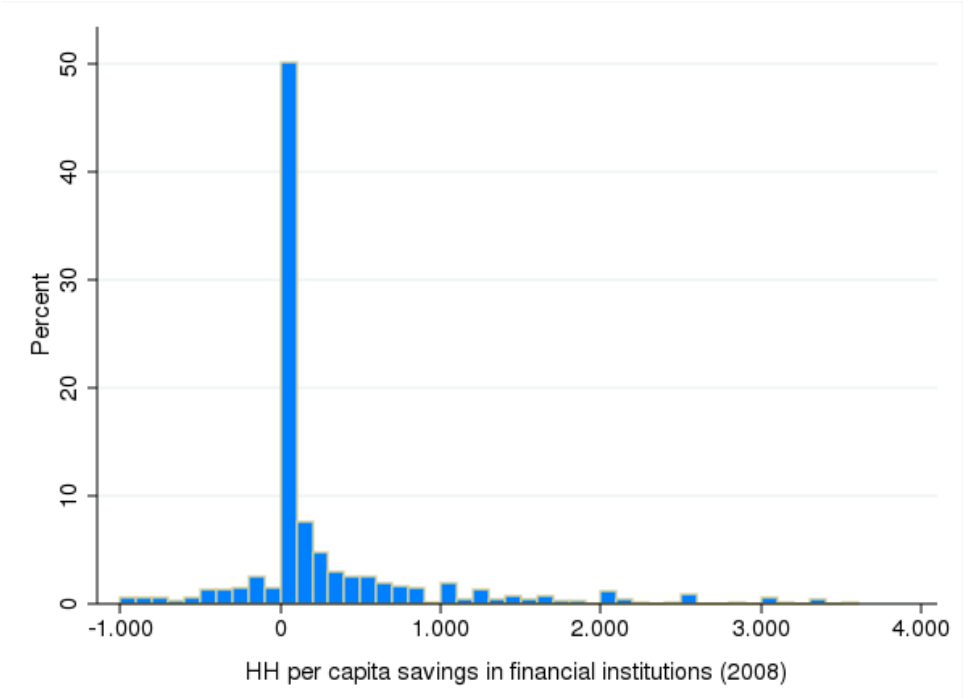
OBC: other backward classes

BPL: a beneficiary of Below Poverty Line card (poorest or less poor).

PDS: a eligibility for purchasing rice or/and wheat from the Public Distribution System.

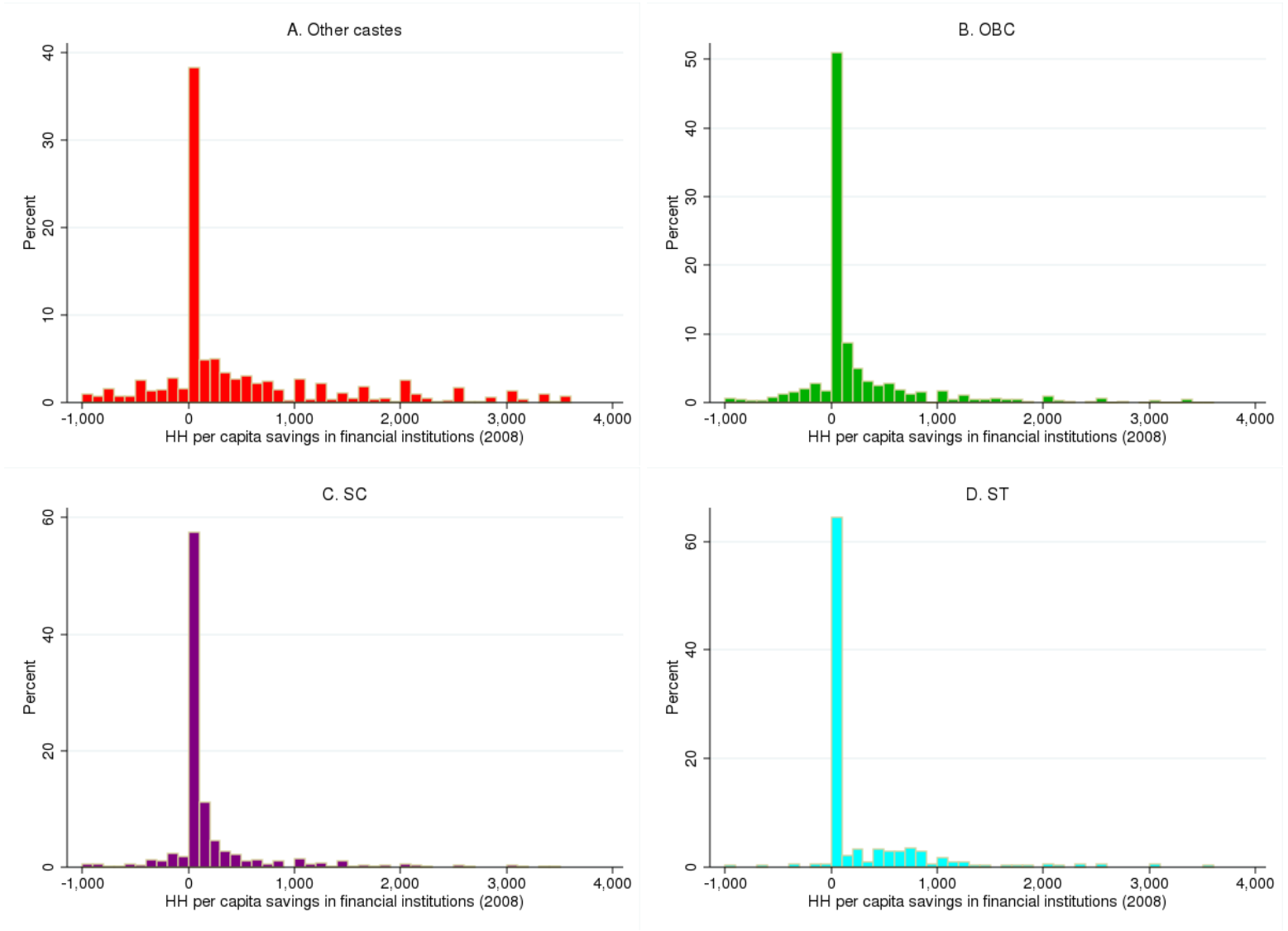
9 Figures and Tables

Figure 1: Distribution of Savings (in Rupees)



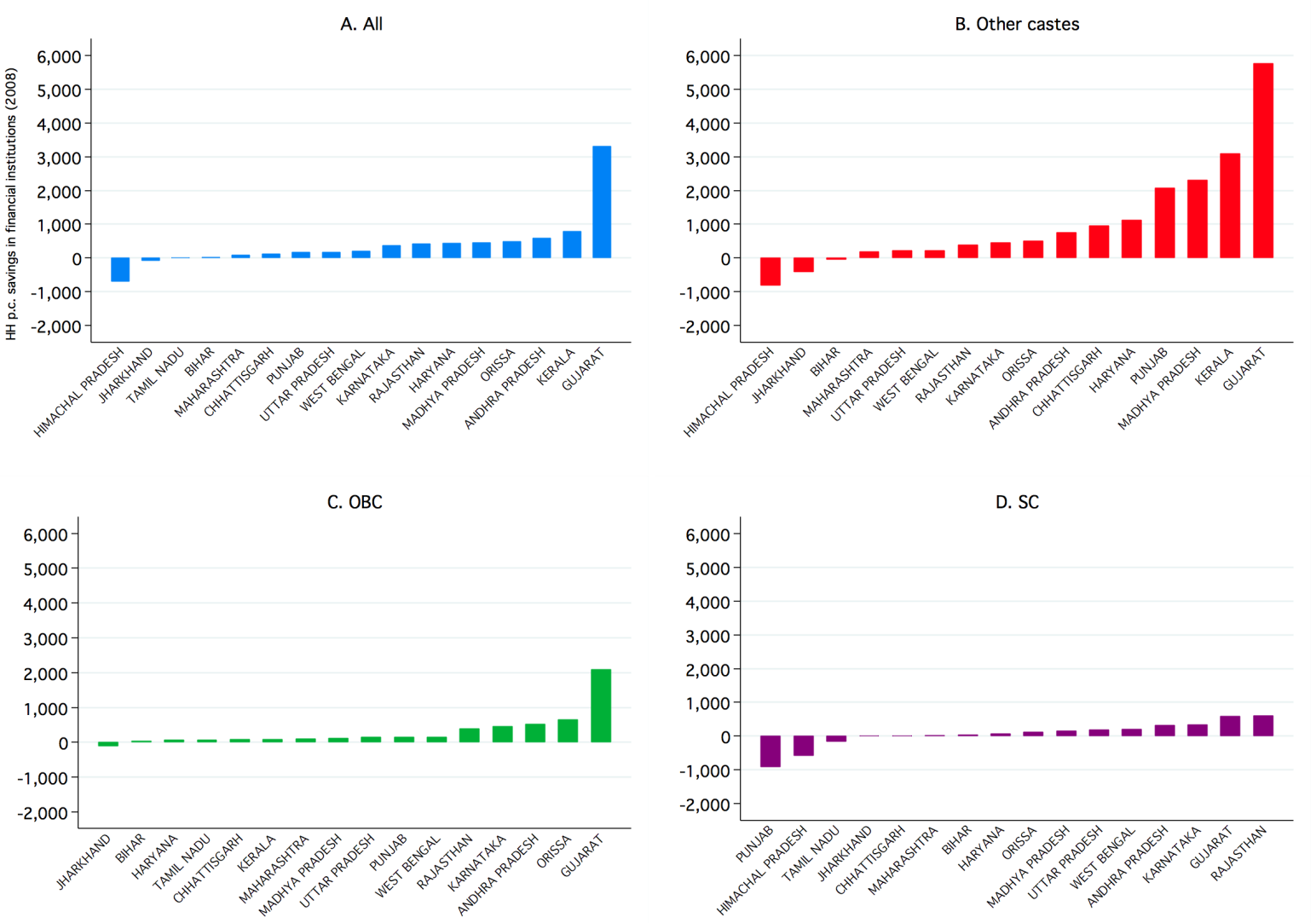
NOTES: This figure plots the distribution of per capita household savings in financial institutions in 2008 (in 2005 Rupees).

Figure 2: Distribution of Savings by Caste (in Rupees)



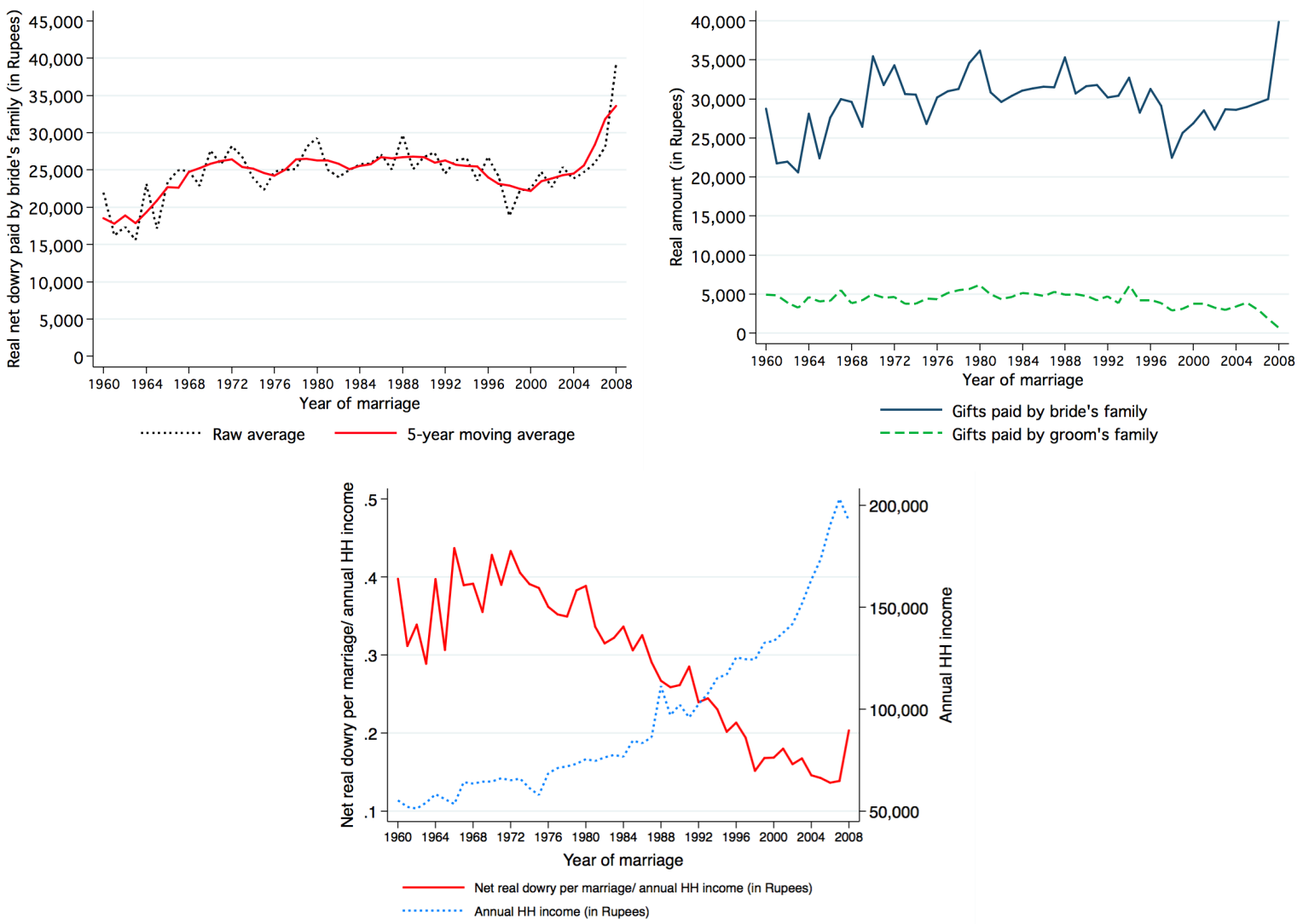
NOTES: This figure plots the distribution of per capita household savings in financial institutions in 2008 (in 2005 Rupees) separately for each caste group. OBC, SC, and ST stand for other backward classes, scheduled castes, and scheduled tribes, respectively. Other castes refer to the remaining castes.

Figure 3: State-wise average Savings (in Rupees)



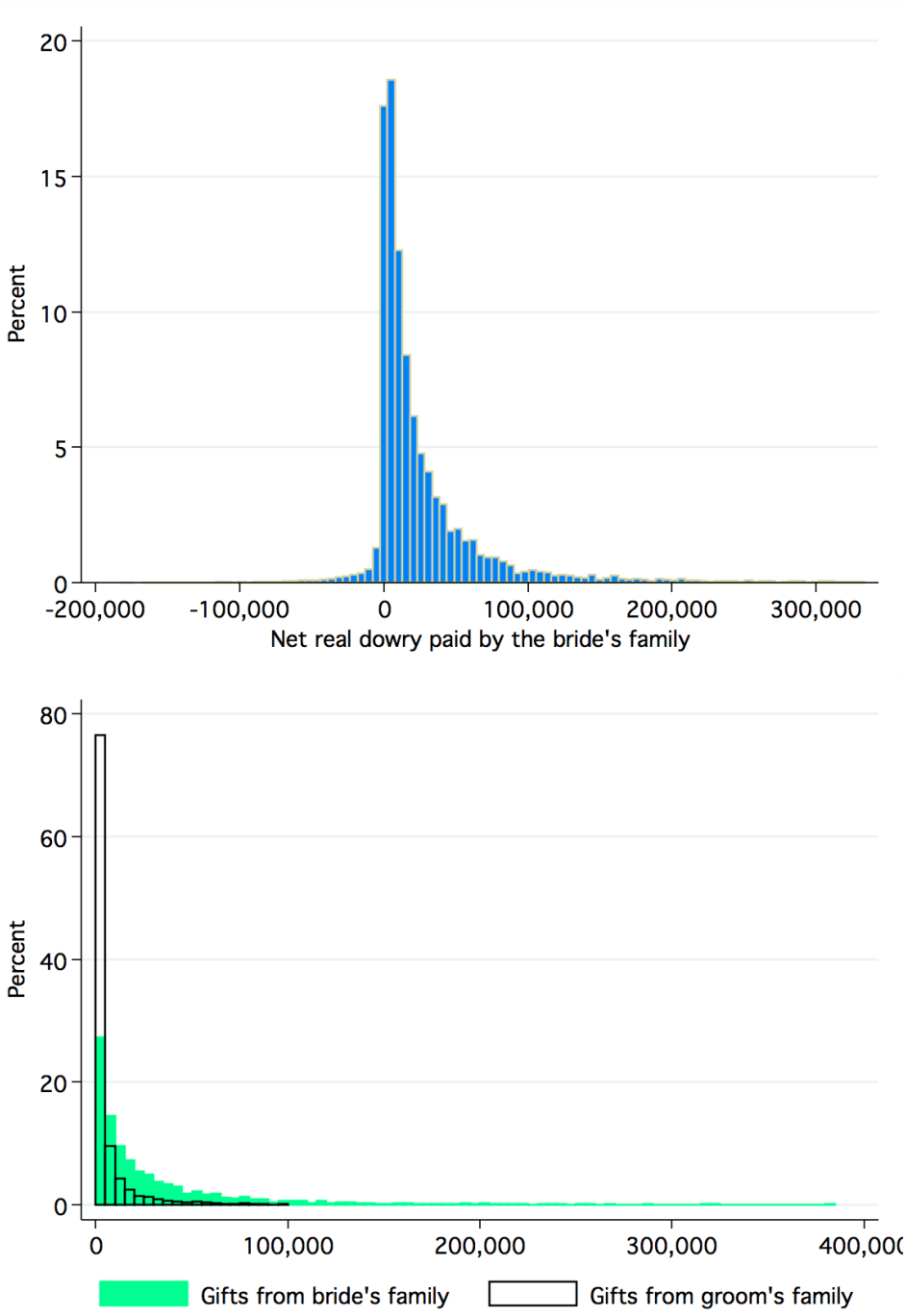
NOTES: This figure shows how average per capita household savings in financial institutions in 2008 (in 2005 Rupees) varies across states within each caste group. OBC, SC, and ST stand for other backward classes, scheduled castes, and scheduled tribes, respectively. Other castes refer to the remaining castes.

Figure 4: Trends in Real Marriage Payments (in Rupees), by Year of Marriage



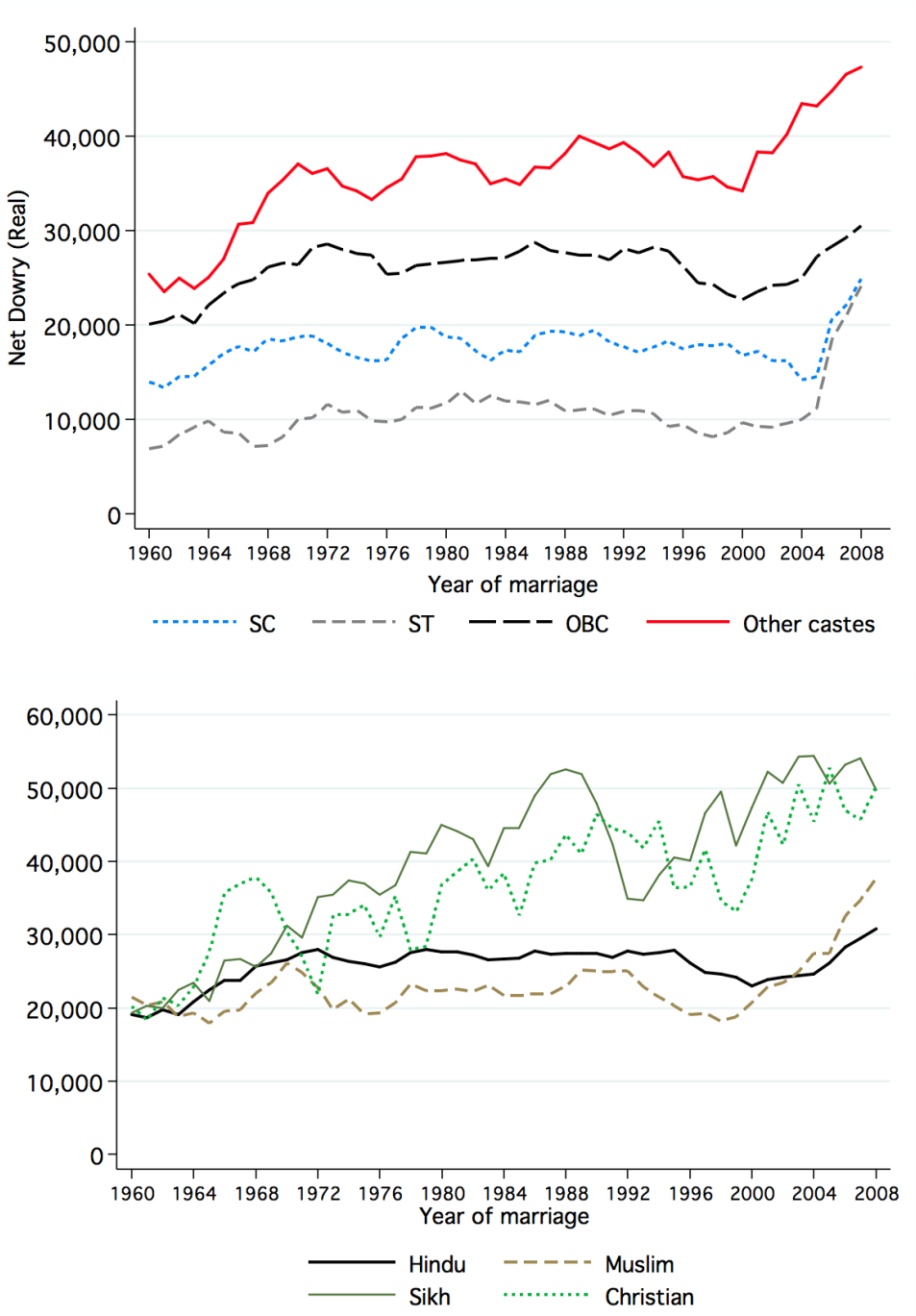
NOTES: The top left figure plots the raw unweighted average and the unweighted 5-year moving average of the net dowry paid by the bride's family by year of marriage. The top right graph plots the raw unweighted average of real payments from the bride's family and from the groom's family by year of marriage. The bottom graph plots trends in annual household income and average net real dowry per marriage as a share of annual household income. To construct estimates of annual household income, we multiply annual per capita GDP in 2005 INR for (rural+urban) India obtained from the World Bank with a household size of 5.4.

Figure 5: Distribution of Marriage Payments (in Rupees)



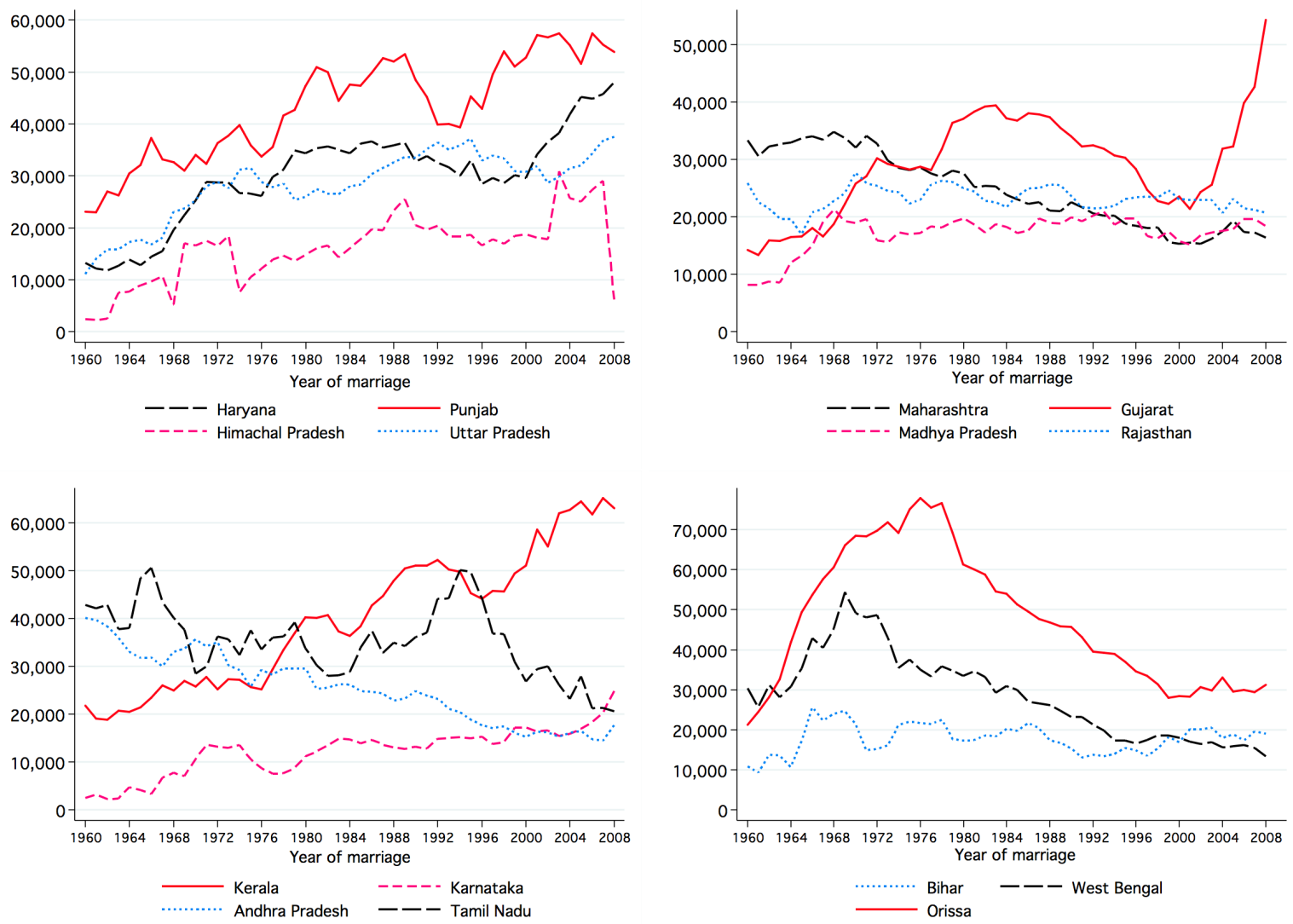
NOTES: This figure plots the distribution of net and gross payments by the bride's and the groom's families during 1960-2008.

Figure 6: Trends in Real Net Dowry Payments (in Rupees), by Year of Marriage, Caste, and Religion



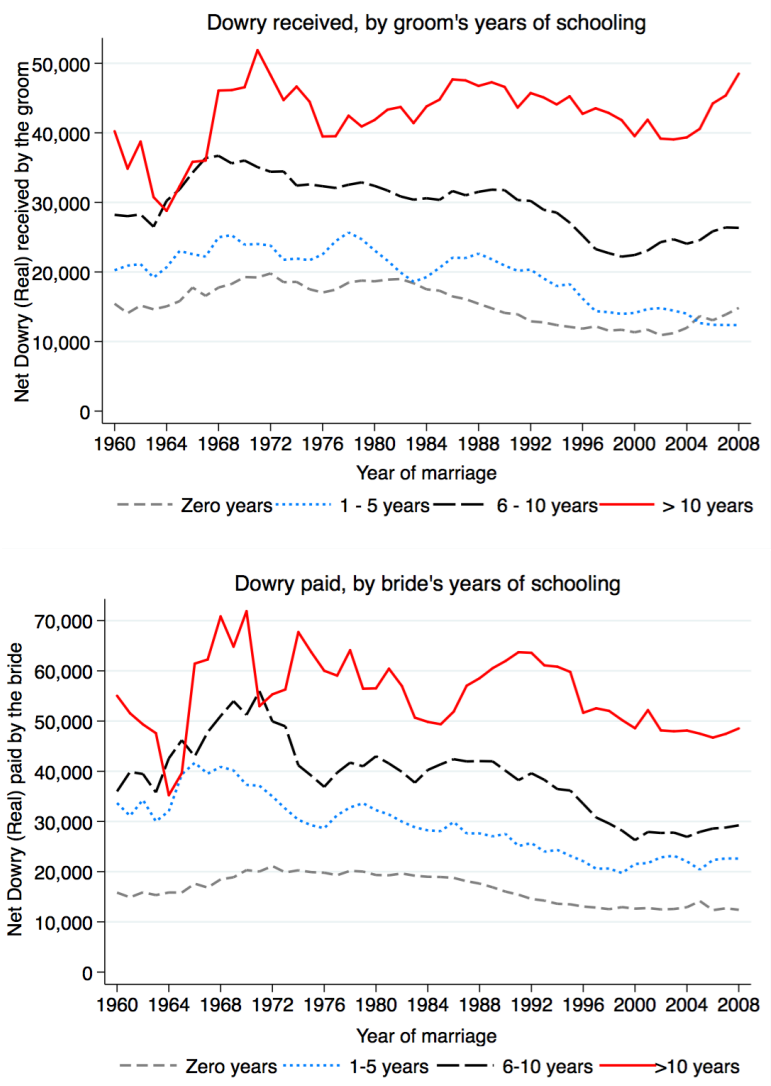
NOTES: This figure plots the 5-year moving unweighted average of real net dowry paid by the bride by year of marriage and caste or religion during 1960-2008. All religions are included within a caste group. SC, ST, and OBC respectively denote scheduled castes, scheduled tribes, and other backward classes.

Figure 7: Trends in Real Dowry Payments (in Rupees), by State and Year of Marriage



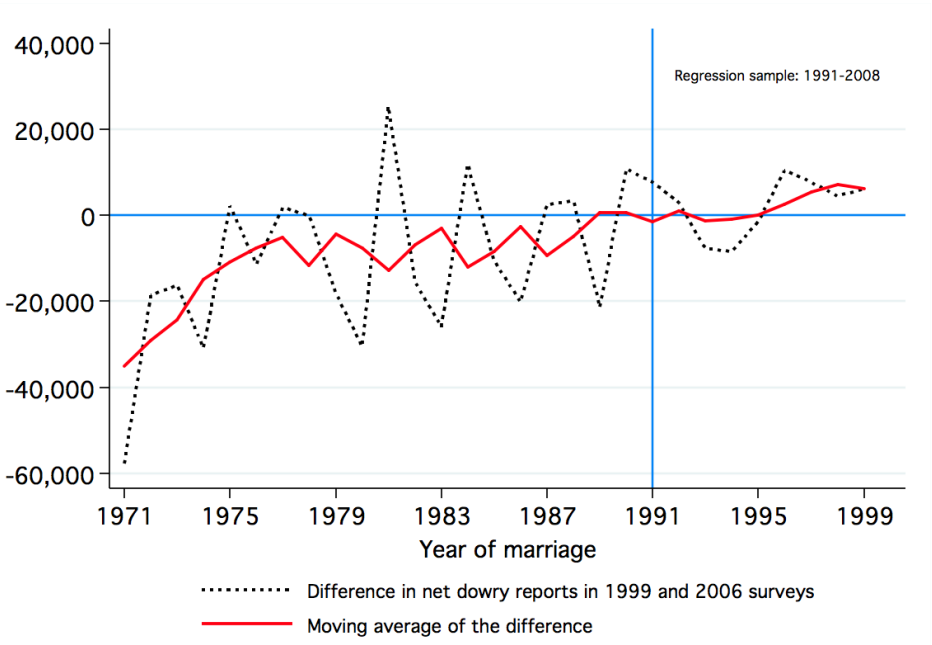
NOTES: This figure plots the 5-year moving unweighted average of real net dowry paid by the bride by year of marriage across states.

Figure 8: Trends in Real Dowry Payments (in Rupees), by Years of Schooling



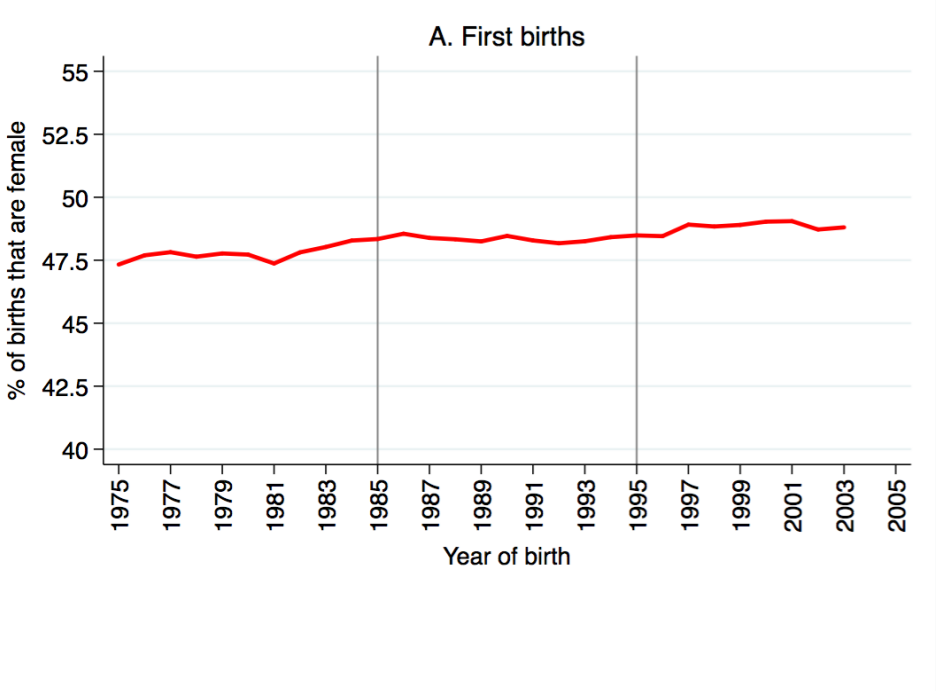
NOTES: This figure plots the 5-year moving unweighted average of real net dowry received by the groom (top graph) and paid by the bride (bottom graph) by year of marriage and years of schooling.

Figure 9: Recall Bias in Real Dowry Payments (in Rupees), by Years of Marriage



NOTES: The dashed line plots the difference between average real net dowry by year of marriage in the 1999 and 2006 rounds of REDS for marriages that took place during 1971-1999. We drop the years prior to 1971 due to outliers. The solid line plots the 5-year moving average of the difference. The vertical line denotes the earliest year included in our regression analysis.

Figure 10: Evidence against sex-selection at first parity



NOTES: This figure shows the evolution of percent female among first births over time using data from the three rounds of the National family Health Survey of India. The y-axis shows the 5-year moving average of percentage of births that are female. This figure shows that, despite ultrasound availability, the sex ratio of first births has remained normal. The two vertical lines denote the years in which ultrasound availability (a proximate determinant of prenatal sex-selection) underwent structural breaks. Source: Bhalotra and Cochrane (2010).

Table 1: Summary statistics

	All		Firstborn boy		Firstborn girl		Difference
	N	Mean	N	Mean	N	Mean	
Household variables:	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)-(6)
Expected dowry (in Rs. 10,000)	3,218	2.630	1,804	2.609	1,414	2.657	-0.048
Father's years of schooling	2,984	6.686	1,669	6.634	1,315	6.753	-0.119
Mother's years of schooling	3,210	4.058	1,801	3.900	1,409	4.259	-0.359**
Father's age	2,989	35.77	1,674	35.75	1,315	35.79	-0.04
Mother's age	3,218	31.51	1,804	31.46	1,414	31.57	-0.11
SC	3,218	0.169	1,804	0.152	1,414	0.190	-0.038***
ST	3,218	0.0876	1,804	0.0948	1,414	0.0785	0.0163
OBC	3,218	0.460	1,804	0.467	1,414	0.452	0.015
Other caste	3,218	0.283	1,804	0.286	1,414	0.279	0.007
Hindu	3,218	0.884	1,804	0.888	1,414	0.878	0.01
Muslim	3,218	0.0615	1,804	0.0576	1,414	0.0665	-0.0089
Sikh	3,218	0.0401	1,804	0.0399	1,414	0.0403	-0.0004
Total wealth (PC)	3,218	167,354	1,804	170,701	1,414	163,083	7618
BPL	2,996	0.452	1,690	0.458	1,306	0.444	0.014

NOTES: This table provides means of variables used in the analysis. Household data is restricted to nuclear households. Firstborn boy (girl) refers to households whose firstborn child is male (female). Expected dowry refers to the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. SC, ST, and OBC denote scheduled castes, scheduled tribes, and other backward classes, respectively. BPL denote a beneficiary of Below Poverty Line card (poorest or less poor). PC denotes per capita. Total wealth refers to the household wealth in land, assets, livestock, formal savings, jewelry, and durable goods. *** 1%, ** 5%, * 10%.

Table 2: Impact of expected dowry on the flow of household per capita saving

Dependent variable:	**Household Per Capita Saving in 2008**					
	Saving in financial institutions		Plus cash saving		Plus interest earned	
	(1)	(2)	(3)	(4)	(5)	(6)
*Firstborn girl * Expected dowry*	419.24**	556.25*	395.89*	485.14*	507.69**	617.54*
	[190.02]	[271.31]	[190.15]	[251.08]	[231.68]	[304.20]
Expected dowry	60.86		-98.08		-113.09	
	[306.28]		[316.61]		[339.35]	
Firstborn girl	-406.13	-639.85	-1044.67	-1132.86	-1942.95	-2168.65
	[1728.71]	[3342.15]	[1584.76]	[3124.21]	[1912.26]	[3488.94]
N	2,840					
Dep var mean for Firstborn boy	745.95		670.20		874.69	
$\mathbf{X}_i$	x	x	x	x	x	x
Caste FE	x	x	x	x	x	x
YOB FE	x	x	x	x	x	x
State FE	x	x	x	x	x	x
State*YOB FE	x	x	x	x	x	x
Caste*YOB FE	x	x	x	x	x	x
Caste*State FE	x	x	x	x	x	x
Firstborn girl*YOB FE	x	x	x	x	x	x
Firstborn girl*State FE	x	x	x	x	x	x
Firstborn girl*Caste FE	x	x	x	x	x	x
Caste*State*YOB FE		x		x		x

NOTES: This table reports the coefficients corresponding to specifications (1) and (2) estimated for nuclear households. Each column is a separate regression. The dependent variable is total per capita household saving in financial institutions in columns (1) and (2), plus per capita cash saving in columns (3) and (4), and plus per capita interest earning in the last two columns. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Caste refers to indicators for SC, ST, OBC, other castes. YOB refers to the year of birth of the firstborn child. State refers to the state of residence at the time of survey. $\mathbf{X}_i$ controls for parents' age, schooling, religion, and month of survey. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 3: Robustness: Impact of expected dowry on the flow of household per capita saving

Dependent variable:	**Household Per Capita Saving in 2008 (financial institutions + cash + interest earned)**	
	Additional controls:	
	FE for #children	Saving deposits at the start of 2008
	(1)	(2)
*Firstborn girl * Expected dowry*	612.76*	495.38*
	[211.71]	[281.47]
Firstborn girl	-2140.94	-512.63
	[3522.45]	[3464.00]
N	2,840	2,840
Dep var mean for Firstborn boy	874.69	874.69

NOTES: This table reports the coefficients for specification (2) for nuclear households with the addition of fixed effects for the number of children in column (1) and controlling for saving deposits at the start of 2008 in column (2). The dependent variable is the sum total of per capita savings in financial institutions, cash savings, and interest earned in 2008. Each column corresponds to a different regression. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for firstborn boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 4: Impact of expected dowry on the flow of household per capita saving in one-child families

Dependent Variable:	**Household per capita saving in 2008**					
	Saving in financial institutions		Plus cash saving		Plus interest earned	
	(1)	(2)	(3)	(4)	(5)	(6)
*Firstborn girl * Expected dowry*	3366.41*	3506.17*	3528.10*	3528.16*	3714.13*	3717.74*
	[1821.46]	[1882.99]	[1787.73]	[1996.05]	[1752.35]	[1939.27]
Expected dowry	-1608.42*		-2930.04*		-2892.84*	
	[898.37]		[1473.94]		[1457.44]	
Firstborn girl	-16787.47*	-18631.00**	-19223.79**	-19646.58**	-21038.68**	-21556.61**
	[7941.73]	[8321.80]	[7644.09]	[8976.05]	[7766.93]	[8754.37]
N	671					
Dep var mean for Firstborn boy	840.38		628.36		801.81	
Caste*State*YOB FE	x		x		x	

NOTES: This table reports the coefficients corresponding to specifications (1) and (2) estimated for nuclear households that have only one child. Each column is a separate regression. The dependent variable is total per capita household saving in financial institutions in columns (1) and (2), plus per capita cash saving in columns (3) and (4), and plus per capita interest earning in the last two columns. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Caste refers to indicators for SC, ST, OBC, other castes. YOB refers to the year of birth of the firstborn child. State refers to the state of residence at the time of survey. $\mathbf{X}_i$ controls for parents' age, schooling, religion, and month of survey. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 5: Impact of expected dowry on the flow of other types of household per capita saving

Dependent variable:	**Livestock**	**Investments**	**Jewelry**	**Durable goods**
	(1)	(2)	(3)	(4)
*Firstborn girl * Expected dowry*	331.08	-93.18	-5.51	-67.99
	[213.72]	[60.52]	[181.92]	[46.58]
Firstborn girl	1533.96	391.50	147.82	401.11
	[969.48]	[559.45]	[950.41]	[276.28]
N	1,623	2,845	2,079	2,844

NOTES: This table reports the coefficients corresponding to specification (2) for different types of saving. The sample is restricted to nuclear households. Each column is a separate regression. The dependent variables in each column are per capita household saving in financial institutions, jewelry, livestock, and durable goods. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for firstborn boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 6: Impact of expected dowry on fertility and sex ratio

Dependent variable:	**No. of children**	**Fraction sons (parity $\geq$ 2)**
	(1)	(2)
*Firstborn girl * Expected dowry*	0.018	-0.032
	[0.054]	[0.030]
Firstborn girl	0.407	0.329
	[0.437]	[0.208]
N	2,846	2,174
Dep Var Mean	2.285	0.535

NOTES: This table reports the coefficients corresponding to specification (2) estimated for nuclear households. Each column is a separate regression. The dependent variable in the first column is the total number of children in the household and in the second column is the proportion of male births among second and higher parity births. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for firstborn-boy households. YOB refers to the year of birth of the firstborn child. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 7: Impact of expected dowry on household per capita saving by BPL status

Dependent variable:	**Household Per Capita Saving in 2008 (financial institutions + cash + interest earned)**	
	Above poverty line (APL)	Below poverty line (BPL)
	(1)	(2)
*Firstborn girl * Expected dowry*	1881.66**	71.74
	[679.91]	[114.13]
Firstborn girl	-5419.96	-74.37
	[5895.24]	[422.49]
N	1,461	1,172
Dep Var Mean	1415.33	135.28

NOTES: This table reports the coefficients for specification (2) for nuclear households for the sub-sample of APL and BPL households. The BPL status is measured at the time of survey. The dependent variable is the sum total of per capita savings in financial institutions, cash savings, and interest earned in 2008. Each column is a separate regression. *Firstborn girl* indicates that the first-born child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for the firstborn boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table 8: Impact of expected dowry on father's labor supply

Dependent Variable:	**Father's days worked in a year**		
	All	Above poverty line	Below poverty line
	(1)	(2)	(3)
*Firstborn girl * Post* Expected dowry*	3.64**	5.54**	2.19
	[1.66]	[1.95]	[3.94]
*Expected dowry * Post*	0.89	-0.24	-0.66
	[2.49]	[3.17]	[4.38]
*Firstborn girl * Post*	-9.85*	-14.49**	-11.32
	[5.29]	[6.77]	[11.77]
N	71,282	36,703	29,395
Dep var mean for Firstborn boy	156.30	146.76	167.76

NOTES: This table reports the coefficients corresponding to specification (3). The sample is restricted to nuclear households. Each column corresponds to a different regression. The dependent variable is the number of days worked each year. *Firstborn girl* indicates that the firstborn child of the household is female. Post indicates that the year of labor is later than the first child's year of birth. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for firstborn boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

A Appendix

Table A.1: Descriptive Statistics on Wedding Expenditure from the 2004-05 India Human Development Survey

Panel A: By caste										
	Urban					Rural				
	Brahmin	OBC	SC	ST	Others	Brahmin	OBC	SC	ST	Others
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Expenditure by bride's family	186,683	120,818	96,038	74,689	165,710	140,575	89,973	64,194	35,007	120,038
Expenditure by groom's family	128,166	74,673	63,616	58,691	108,188	92,365	56,380	43,539	29,176	74,162
Difference	58,617	46,145	32,423	15,997	57,522	48,210	33,589	20,655	5,835	45,875
N	1,313	5,452	2,322	499	4,956	1,108	10,834	6,011	2,939	6,118
Panel B: By religion										
	Urban				Rural					
	Hindu	Muslim	Christian	Sikh	Hindu	Muslim	Christian	Sikh		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
Expenditure by bride's family	137,992	119,959	143,553	194,341	84,014	100,849	103,211	161,513		
Expenditure by groom's family	90,649	76,515	66,274	132,988	55,309	57,894	48,767	107,471		
Difference	47,350	43,444	77,278	61,353	28,706	42,956	54,443	54,042		
N	11,286	2,215	514	258	22,239	2,573	862	732		

NOTES: This table provides means of wedding expenditure in the 2004-05 India Human Development Survey (IHDS). The survey asks "At the time of the marriage in your community (jati) for a family like yours, how much money is usually spent by the girl(boy)'s family?" The IHDS data set has five broad social groups: (1) Brahmin (2) OBC (3) SC (4) ST (5) Others.

Table A.2: Robustness

Dependent variable:	**Household Per Capita Saving in 2008 (financial institutions + cash + interest earned)**		
	Caste-religion	Non-missing obs.	Around YOB
	(1)	(2)	(3)
*Firstborn girl * Expected dowry*	1042.516**	637.396*	363.029*
	[482.237]	[354.225]	[189.191]
Firstborn girl	-6743.631**	-3635.865**	-795.161
	[2865.822]	[1669.782]	[2394.170]
N	2,833	2,610	2,837

NOTES: This table reports the coefficients corresponding to specification (2) estimated for nuclear households. Each column is a separate regression. The dependent variable is the sum total of per capita savings in financial institutions, cash savings, and interest earned in 2008. *Firstborn girl* indicates that the firstborn child of the household is female. Expected dowry (in Rs.10,000) for a female (male) child is defined as the average dowry paid (received) by brides (grooms) from the same social group and state as the child and who married during the year of the child's birth or the prior four years. In column (1), we construct seven social groups based on the caste and religion. Specifically, we split Hindus by caste and use other religions as it is (i.e., Hindu SCs, Hindu STs, Hindu OBCs, Hindu OCs, Muslims, Sikhs, Other religions). In column (2), we construct expected dowry only using marriages where both gifts are non-missing. In column (3), expected dowry is defined using marriages around the year of birth (YOB) of the child (i.e., during YOB + 2, YOB + 1, YOB, YOB - 1, YOB - 2). Dep var mean is the mean of the dependent variable for firstborn boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table A.3: Impact of *Expected Gross Marriage Payments* on Household Per Capita Saving

Dependent variable:	**Household Per Capita Saving in 2008 (financial institutions + cash + interest earned)**	
	(1)	(2)
		FE for #children
*Firstborn girl * Expected gross payment by bride*	662.599*	656.620*
	[356.919]	[357.881]
*Firstborn girl * Expected gross payment by groom*	1066.166	1094.129
	[2129.185]	[2148.927]
Firstborn girl	-2572.919	-2539.765
	[3757.239]	[3787.714]
N	2,840	

NOTES: Instead of net dowry expectation in specification (2), here we use two gross dowry variables: *Expected gross (wedding) payment by bride* and *Expected gross (wedding) payment by groom*. Expected gross payment (in Rs.10,000) by bride (groom) are defined as the average value of gifts given by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Household data is restricted to nuclear households. Each column is a separate regression. Column (2) also controls for indicators for the number of children. *Firstborn girl* indicates that the firstborn child of the household is female. Dep var mean is the mean of the dependent variable for firstborn-boy households. Standard errors in brackets are clustered by state. *** 1%, ** 5%, * 10%.

Table A.4: Impact of expected dowry on saving, panel

Dependent Variable:	**Stock of saving in financial institutions**	
	(1)	(2)
Firstborn girl Post* Expected dowry*	231.09	239.06
	[190.87]	[147.52]
*Expected dowry * Post*	-74.37	-137.04
	[412.18]	[308.78]
*Firstborn girl * Post*	-664.26	-697.56
	[549.09]	[409.50]
Firstborn girl Expected dowry*		1013
		[1439.56]
Firstborn girl		-11361.25
		[11448.48]
Post		3120.58*
		[1702.74]
Expected dowry		-1716.14**
		[805.47]
N	2,714	2,528

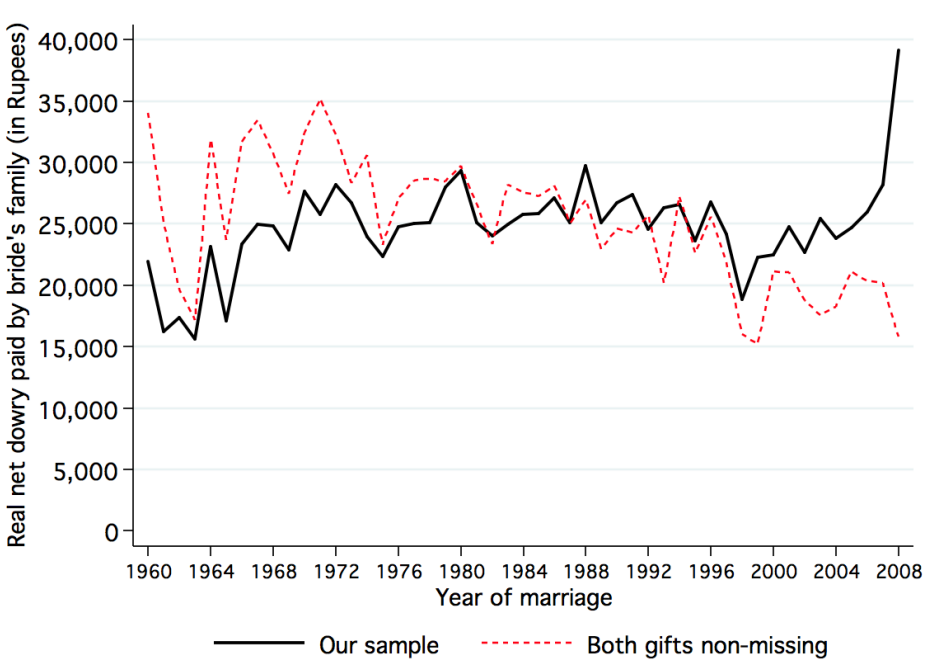
NOTES: Expected dowry (in Rs.10,000) for a female (male) child is defined as the average net dowry paid (received) by brides (grooms) from the same caste and state as the child and who married during the year of the child's birth or the prior four years. Dep var mean is the mean of the dependent variable for firstborn boy households. All regressions include individual, year, year-by-state, year-by-caste, year-by-year of birth of the firstborn child fixed effects. Standard errors in parentheses are clustered by state. *** 1%, ** 5%, * 10%.

B Note on Missing Observations

In total, we have 40,623 marriages for which the year of marriage is available and is during 1960-2008. We exclude marriages where data on both gifts given and received is missing (1,079) leaving us with 39,544 observations. While 18,275 (46 percent) observations have information on both gifts, the remaining 21,269 (54 percent) have one of them missing. In the latter case, when only one of the two is missing, we assume that the missing value equals zero. Note, however, that in 95 percent of the cases where one of the gifts is missing, the missing data is for gifts from the groom's side. This implies that by replacing missing data with zeros we are primarily underestimating gifts from the groom's side, and in turn overestimating net dowry.

Figure B.1 plots the trends in net dowry for our sample and for the sub-sample where both gifts are non-missing. The two lines are largely similar except in recent years for which we do not have a large enough sample size, suggesting that our analysis is not substantively affected by the treatment of missing data. This is not surprising since the bulk of the missing information is for groom's payments that are several orders of magnitude smaller than the bride's payments.

Figure B.1: Trends in Real Marriage Payments (in Rupees), by Year of Marriage

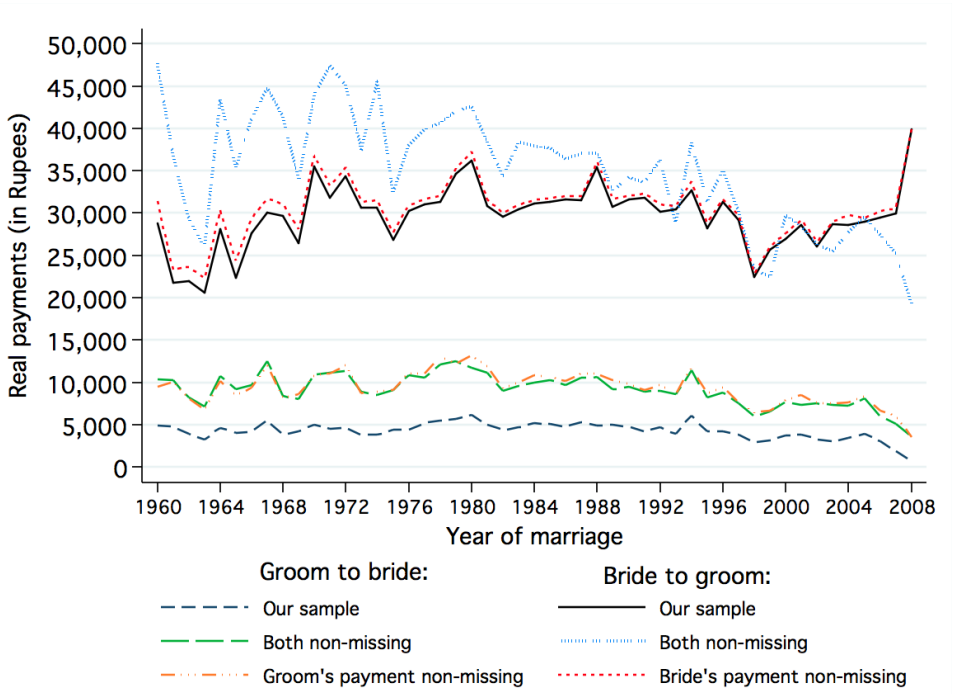


NOTES: This figure plots the raw unweighted average of the net dowry paid by the bride's family by year of marriage. The dashed line only uses observations that have non-missing information on gifts from both bride's and groom's sides. The solid line also includes observations where information on one of the gifts is missing and which we replace with a zero in calculating the net dowry.

Figure B.2 plots the trends for gross payments. In addition to the plots corresponding to Figure B.1 (i.e., our sample and when both gifts are non-missing), a third set of lines plots average payments using non-missing data for each gift variable irrespective of whether the other gift variable

is missing. As expected, for groom's payments, our sample means are lower (by about Rs. 5,000) than those calculated using non-missing data. Average bride's payments are also somewhat smaller in our sample and the sample with non-missing bride's payments when compared to the sample where both gifts are non-missing.

Figure B.2: Trends in Real Marriage Payments (in Rupees), by Year of Marriage



NOTES: This figure plots the raw unweighted average of the net dowry paid by the bride's family by year of marriage. The dashed line only uses observations that have non-missing information on gifts from both bride's and groom's sides. The solid line also includes observations where information on one of the gifts is missing and which we replace with a zero in calculating the net dowry.