

Gender-Neutral Inheritance Laws, Family Structure, and Women's Social Status in India

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Abstract

This paper examines whether economic empowerment of women improves their autonomy within their marital household, and investigates the mechanism for this relationship. I exploit variation from a legal reform aimed at improving women's inheritance rights in India. For generations, inheritance laws in India favored men, but in recent years five states amended their inheritance laws to make them gender-neutral. I find that the amendments increased treated women's participation in household decision-making and their freedom of movement. The reform applied only to women belonging to certain religions, allowing me to perform falsification tests. Interestingly, the increase in women's decision-making authority appears to be not at the expense of their husbands, but rather at the expense of the members of the extended family, such as the husbands' parents. I propose two channels to explain this phenomenon. First, I show that this can be explained by a shift in the family structure in the reform states, from traditional joint families to nuclear households. Such a change in family structure is consistent with the effect of the reform on men's incentives, since men have weaker financial links with their parents post-reform. Second, even within joint families, the amendments empowered young couples at the expense of the older generation of household members. Overall, though the reform was intended as a transfer from men to women, it in fact resulted in an intergenerational transfer of decision-making authority within the household.

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1 Introduction

Women’s health, education, autonomy and economic outcomes have been a major concern for policy-makers in India over the past few decades (Das Gupta and Bhat 1997, Kingdon 2002, Borooah 2004). Beyond the intrinsic importance of guaranteeing women basic human rights, it is widely believed that social rights and economic independence among women leads to other desirable outcomes, such as higher economic productivity, and improved health status and educational attainment for children (Qian 2008, Luke and Munshi 2011, Chattopadhyay and Duflo 2004, Duflo 2012). To the extent that women’s social status is tied to their financial worth, gender-neutral employment and asset ownership rights are key to improving their socioeconomic outcomes. Property and inheritance laws are of particular consequence in a predominantly rural society like India, since they crucially determine access to land, the primary source of wealth and opportunities for productive activities (Mearns 1999, Roy and Tisdell 2002). Moreover, cultural conservatism often makes it difficult for married women to participate in the labor market¹, thereby making them extremely reliant on gifts and bequests received from their natal families to increase their net worth in their marital households².

Until as late as 2005, considerable discrepancies persisted between the property rights of men and women in India. However, between 1976 and 1994, five states amended their inheritance laws such that men and women were treated equally³. In this paper, I exploit the spatial and time variation in the implementation of these amendments to examine the effect of gender-neutral inheritance laws on the autonomy of married women. The contributions of this paper are as follows. First, I provide a comprehensive analysis of the effect of the reform on women’s status within their marital households, as measured by their freedom of movement (i.e. the ability to go somewhere without requiring permission or escorts) and participation in own health-care and household decision-making; this is similar in spirit to Roy (2008)⁴. Building on

¹Indeed, in my data, only 41.5% of married women report that they are currently working.

²Marital families often consider daughters-in-law to be financial burdens if not accompanied by sufficient gifts from their natal households (Bloch and Rao, 2002).

³Both central and state governments have legislative authority over inheritance laws in India.

⁴While Roy(2008) discusses variables related to freedom of movement only, I also focus on outcomes denoting participation in decision-making, which reflect the bargaining power of women in their marital households. Additionally, I perform some falsification tests to support my identification strategy. Heath and Tan (2014) also perform a similar analysis, but primarily focus on labor-force

these results, my key contribution is a detailed investigation of the mechanism through which the reform affects women’s outcomes. In particular, I explore how a shift to gender neutral inheritance impacts men, and demonstrate that such a policy can have unexpected circuitous effects because of the family structure prevailing in the Indian context.

I find that the reform led to a significant improvement in women’s autonomy; treated women are significantly more likely to have a say in household decisions, by about 3 percentage points, and to visit health clinics and markets without requiring permission or escorts. They are also about 4.6 percent more likely to participate in decisions about visiting their natal family, and are allowed to maintain greater contact with their families⁵. These results are consistent with Roy (2008) and Heath and Tan (2014). A robustness check performed on women belonging to the other religious groups excluded from the purview of the reform shows no such effect for them. A placebo test supports my identification strategy – I find no evidence of differential trends in women’s outcomes across reform and non-reform states, prior to the amendments.

I differ from previous research in the interpretation of these results. The finding that women have increased autonomy in their marital households following the reform seems consistent with a spousal bargaining model where bargaining power is in part a function of wealth. In fact, previous papers have typically interpreted higher autonomy of women as evidence of increased bargaining power for women relative to their husbands (Maitra 2004, Lancaster et. al. 2006, Heath and Tan, 2014). Given the redistributive nature of the policy, this simple spousal bargaining model would also predict that husband’s bargaining power, and thus decision-making power, should decrease. The richness of the data allows me to check this prediction directly. Somewhat surprisingly, I find that husbands of the women exposed to the reform also have higher participation in decision-making. Instead, a significant reduction in bargaining power seems to have occurred for the other members of the household, such as the husband’s parents⁶. Thus, a policy originally intended to transfer resources from men to women has resulted in

participation. Harari (2014) studies a similar question in the context of Kenya.

⁵This is in line with a higher likelihood of receiving ‘gifts’ from their natal families, either in the form of dowries or in the form of inherited property.

⁶I provide evidence in Section 6 that the ‘other’ decision-making agents are primarily the husband’s parents.

an intergenerational transfer of decision-making authority within the household.

A long-standing and widely prevalent cultural institution in India can in fact account for the presence of these other household members as decision-making agents, and rationalize this seemingly counterintuitive result. For generations, the most common family type has been a ‘joint’ family, where men reside with their parents and extended family in the same household, and women move into their husband’s home post marriage. These family elders are important decision-making agents in a joint family setup (Anderson and Eswaran 2009, Sen et. al. 2006) In recent years, there has been an increasing trend towards smaller ‘nuclear’ families consisting of just the couple and their children (Allendorf 2013, Adams 2010). In joint families, the potential increase in the wife’s wealth post-reform could have incentivized couples to bargain collectively with the members of the extended family, empowering them at the expense of the other household members. Moreover, since men now face the likelihood of a decline in the share of property that they inherit from their family, their incentives to stay on with the extended family might be reduced. This is especially true of the men whose livelihoods depend on their share of family property⁷. Supporting this hypothesis, I provide evidence of a shift in family structure from joint to nuclear households following the amendment in the reform states. This switch seems to be driven precisely by those men whose share of family income are affected by the reform. This, in turn, lead to higher autonomy for women, since a nuclear household setup is more conducive to women exerting authority and making decisions relatively early in their marriage⁸. Even among couples residing in joint households, both husbands’ and wives’ autonomy increase post reform. This demonstrates that, given the prevailing social structure, it is crucial to account for the presence of the extended family as decision-making agents when analyzing intrahousehold bargaining in the Indian context. Moreover, women seem to have become more likely to decide on household matters jointly with their husbands rather than on their own, making it hard to assess the welfare implications. The reform has indeed improved women’s autonomy, which is undeniably a positive

⁷Luke and Munshi (2011) find that family ties crucially determine mobility away from place of origin.

⁸I provide suggestive evidence of the higher autonomy of women in nuclear families, in this paper. Khalil and Mookerjee (2014) and Debnath (2014) examine this issue in detail. Also see Kandiyoti (1988).

outcome, but one needs to exercise caution while interpreting this as an overall welfare improvement, since part of the effect of the reform on autonomy is driven through the switch away from joint families, which has important social security benefits of its own.

The layout of the rest of the paper is as follows – Section 2 provides a background of the inheritance laws in India, Section 3 outlines my specifications, Section 4 describes the data, Section 5 discusses the reduced form results of the effect of the reform on women’s autonomy, Section 6 explores the channels through which these effects come about, Section 7 provides empirical support for the channels, Section 8 discusses policy implications, and Section 9 concludes.

2 Background of Inheritance Laws

Inheritance rights in India for Hindus, Sikhs, Buddhists and Jains (henceforth referred to as Hindus only for brevity) were governed by the Hindu Succession Law since 1956. It made a distinction⁹ between joint family property (ancestral property, or any property or assets held jointly by the extended family, e.g. land) and individual property (anything acquired by an individual on his own within his lifetime). Daughters had equal rights to their father’s individual property, once a Hindu male died intestate i.e. without a will¹⁰, but they did not have rights to the joint family property. Sons, however, enjoyed a right to joint family property by birth, and were regarded as belonging to the “Hindu coparcenary”. Being coparceners implied that their share of the property could not be willed away, and they alone could demand a division of the ancestral property while older coparceners were alive. Since the proportion of people in India who died without making a will is very high¹¹, most of the property settlements were made in accordance with the HSA, and women ended up inheriting significantly less than men, if at all. In a report on the property rights of women from May 2000, the Law Commission on India states that¹² “Discrimination against women is so pervasive

⁹The inheritance laws in India were state-specific, and there were two main schools of law - the Mitakshara and the Dayabhaga. This distinction was made by Mitakshara, which prevailed in most of the country, but not by Dayabhaga, which prevailed in Bengal and Assam, and treated all property as individual property (Agarwal 1994, Roy 2008).

¹⁰Inheritance out of this individual share could however be manipulated by a will.

¹¹Goyal, Deininger and Nagarajan (2013) cite this proportion to be 65%

¹²The report further mentions “The Law Commission is concerned with the Discrimination inherent in the Mitakshara coparcenary under Section 6 of the Hindu Succession Act, as it only consists of

that it sometimes surfaces on a bare perusal of the law made by legislature itself. This is particularly so in relation to laws governing the inheritance/succession of property amongst the members of a Joint Hindu family.”

To get a clearer picture of the property division that the original HSA entailed, consider a family with m sons and n daughters. Suppose the family owns a acres of land, which is ancestral or joint family property, and none of the males of the family acquire any more property in their lifetime. As mentioned before, each male member of the family belongs to the coparcenary and has a birthright over this joint property. So, during the lifetime of the father, this property is held jointly by him and his sons, so that each of them holds $\frac{a}{(m+1)}$ acres. Once the father dies, his share now counts as individual property and is divided equally between all his children¹³. So, each girl gets $\frac{a}{(m+1)(m+n)}$ acres, while each son gets this plus their initial share, which amounts to $\frac{a(1+m+n)}{(m+1)(m+n)}$ acres.

In order to eliminate this gender inequality inherent in the HSA, five states amended the law such that the daughter of a coparcener too would become a coparcener by birth, thereby placing daughters on an equal footing with sons¹⁴. The amendment was passed by Kerala in 1976, Andhra Pradesh in 1986, Tamil Nadu in 1989, and Maharashtra and Karnataka in 1994¹⁵. Interestingly, the amendments applied only to women who were *unmarried* at the time that they were implemented. The HSA was amended nationwide in 2005, in the same spirit as those in the aforementioned states¹⁶.

The importance of the policy has made it a popular topic of research. Firstly, some researchers have looked into whether it actually resulted in an increase in inheritance for women. Deininger, Goyal and Nagarajan (2013) and Deininger, Jin, Nagarajan and Xia (2013) establish that the amendment significantly increased women’s likelihood to

male members.”

¹³His widow is entitled to share as well, which is then redistributed between the children after her death. This example is simply intended to illustrate the gender discrimination, and therefore ignores the widow’s share and its redistribution.

¹⁴‘Mapping Women’s Gains in Inheritance And Property Rights Under the Hindu Succession Act, 1956’, Lawyer’s Collective Women’s Rights Initiative, provides evidence that courts consistently ruled in favor of daughters claiming their rightful share of the joint family property, even in cases which had been pending and the final decree had not been passed before the reform.

¹⁵The state of Kerala differed from the other states in the sense that it abolished the joint family property system altogether in favor of every family member holding individual shares. The results are robust to removing Kerala from the sample. Table A.1 shows these results.

¹⁶My results are unchanged if I eliminate women married post 2005 from the sample. These results are reported in Table A.1.

inherit, in both rural and urban settings¹⁷. A second set of papers examine the effect of this law on a range of women’s outcomes, such as freedom of movement¹⁸ (Roy 2008), education (Roy 2013, Deininger, Goyal and Nagarajan 2013), labor force participation (Heath and Tan 2014), domestic abuse (Amaral 2013), female child mortality (Rosenblum 2013), and marital conflict (Anderson and Genicot 2014). I contribute to this second strand, by providing an insight into the mechanism through which the reform affects women’s autonomy, which is crucial for policy recommendations.

3 Empirical Specifications

In this section, I outline my empirical models¹⁹. My identification strategy exploits the fact that the reform applied only to those women in reform states who were married *after* the amendment was implemented, and only to Hindu women²⁰. An interesting feature of these state amendments is that they were often implemented retrospectively; for instance, in Andhra Pradesh, the act received the assent of the President and was formally passed in May 1986, but was deemed to have come into effect from September 1985. This helps allay endogeneity concerns such as potential selection in the timing of marriage; as long as women were not married at the time that the law was deemed to have come into effect, they would be exposed to the reform irrespective of whether they had purposely delayed their marriage to occur after the act was passed²¹.

¹⁷In contrast, Roy (2013) finds that inheritance for women does not go up, but that dowry increases.

¹⁸Roy (2008) uses an aggregated outcome based on unrestricted mobility as a measure of autonomy.

¹⁹I explain the specifications in the context of the overall effect of the reform on autonomy, but the specifications used in the subsequent investigation of the channels for such effects are identical.

²⁰The law did not apply to women in whose families the division of property had already taken place; the NFHS data doesn’t allow me to observe whether the death of the patriarch or the property division in the natal family has occurred. Since some women in the reform states married post-reform might not actually have been ‘treated’, this could potentially result in an attenuation bias in the estimates.

²¹My results remain unchanged if I eliminate the subsample of women married immediately before or after the reform. As evident from Table 4, my results are not driven by women married within the first few years after the implementation of the reform. Selection in marriage timing over a longer time horizon is highly unlikely in South Asia (Field and Ambrus 2008, Vogl 2013).

3.1 Primary Specification

Let y_{ist} be an outcome variable for woman i in state s married in year t . I discuss my outcome variables explicitly in the next section, but as an example, y_{ist} takes the value 1 if woman i answers “yes” to the question “Are you allowed to go to the market by yourself” or “do you have a say in decision in major purchase decisions in your household”, and 0 if she answers “no”. Let St be a dummy variable that takes the value 1 if a woman belongs to one of the reform states, and Aft be a dummy for whether she was married after the amendment took place in her state²². So, $Aft * St$ takes the value 1 if a woman lives in a reform state *and* has been married after the reform, and 0 otherwise. Since I do not observe where the respondents were born, I assume that the state of residence is the same as the state of birth, and property rights are therefore governed by the law existing in her state of residence²³. The primary econometric model that I estimate is

$$y_{ist} = \beta_0 + \beta_1 Aft * St_{ist} + \beta_2 X_{ist} + \alpha_s + \alpha_t + \varepsilon_{ist} \quad (1)$$

where α_s is a state-fixed effect, α_t is a year-of-marriage fixed effect (to capture cohort effects), and X_{ist} is a set of controls that includes age and education level of the women, wealth quintiles, caste, a dummy variable for residence in a rural area²⁴, and ownership of televisions as a proxy for durable goods ownership and social awareness, since television is the major form of media/news²⁵.

I estimate this difference-in-difference model separately for Hindus and non-Hindus, since the reform is relevant only for Hindus. My coefficient of interest is β_1 , which captures the additional ‘benefit’ of being exposed to the reform, comparing women who

²² Aft is 0 by definition for women in the non-reform states.

²³There are substantial linguistic barriers to cross-state migration in India – almost every state has its own language. I perform a robustness check by restricting my sample to non-migrants (those women in reform states whose native language matches that of the state, and to women in non-reform states whose native language is not that of a reform state). I find qualitatively similar results, showing that the effect is not driven by selective migration of progressive Hindu women to the reform states. This is supported by Rosenzweig and Stark (1989), which reports that most female migration in India happens only as a result of marriage.

²⁴I show in a subsequent section that the reform might have an effect on family location, urban or rural - the results stay unchanged if I exclude it from the set of controls.

²⁵Jensen and Oster (2009) argue that social status of women improved after the advent of cable television.

married before and after the reform in the same states and who have been married for the same number of years. It is expected to be positive and significant for the Hindu women, and insignificantly different from zero for the non-Hindu women.

The difference-in-difference model is my primary specification²⁶. I also estimate a triple-difference specification for the entire sample, the additional difference arising from a comparison of Hindu women with their non-Hindu counterparts. The implicit assumption here is that any state-cohort-specific trend would affect both religious groups in the same way. The model is

$$\begin{aligned}
 Y_{ist} = & \gamma_0 + \gamma_1 Aft * St * H_{ist} + \gamma_2 Aft * St_{ist} + \gamma_3 St * H_{ist} + \gamma_4 Aft * H_{ist} \\
 & + \gamma_5 H_{ist} + \gamma_6 X_{ist} + \alpha_s + \alpha_t + \varepsilon_{ist}
 \end{aligned} \tag{2}$$

where H is a dummy variable for being Hindu. The coefficient of interest in this specification is γ_1 , which captures the effect of being exposed to the reform (i.e. belonging to a reform state, being married after the reform and belonging to a religion which the reform was applicable to), controlling for state and cohort-of-marriage fixed effects, state-religion fixed effects and religion-year-of-marriage fixed effects. γ_2 shows the effect of being married in a reform state post-reform among the non-Hindu women, while γ_3 captures whether there is any difference in the autonomy of Hindu and non-Hindu women who reside in the reform state and were married pre-reform.

3.2 Placebo Test

In order to ensure that I am not picking up a spurious effect, I run a falsification test where I estimate the model assuming the reform actually took place ten years earlier. I estimate a specification similar to (1), but Aft'_{ist} is now a dummy variable taking the value 1 if a woman lives in the reform state s and has been married after the year $d - 10$, where d is the year the reform actually took place in state s (i.e., $t > d - 10$),

²⁶I provide evidence in Section 5 that the difference-in-difference specification surpasses the triple difference specification.

and 0 otherwise. The model is

$$Y_{ist} = \beta_0 + \beta_1 Aft' * St_{ist} + \beta_2 X_{ist} + \alpha_s + \alpha_t + \varepsilon_{ist} \quad (3)$$

This is estimated off the subsample of women not actually exposed to the reform, so that neither the treatment group nor the control group in this specification is actually treated. This placebo test addresses the remaining threat to identification, that the state-cohort trends are different across the reform and non-reform states, and for the two religious groups. For instance, one might argue that the relevant religious groups in the reform states always had a more progressive attitude towards women, which was why they introduced the amendment in the first place. If the reform states indeed had a better trend for the Hindu women compared to the non-reform states, the coefficient β_1 should be positive and significant for the Hindu sample, as before. For additional robustness, I then estimate this specification multiple times defining the treated group as women married after $d - \tau$ years pre-reform, for all τ from 1 to 10; a coefficient insignificantly different from zero for each of these specifications for both religions would ensure that there were indeed no such differential state-cohort trend for either religious group, and that the improved autonomy for the Hindu women can be attributed to the law amendments.

4 Data

The data I use is the National Family Health Survey (NFHS), conducted in 2005-06²⁷, which is a large survey of representative households from all 29 states of India. The survey includes a Household Schedule which provides a list of members in each household, and basic socioeconomic information such as religion, caste and durable goods ownership. In addition, a Women's Schedule provides the information needed to pin down the treatment status of each woman, their state of residence, year of

²⁷The NHFS has three waves, conducted in 1992-93, 1998-99 and 2005-06. I use the third wave, since it is the only one with a variety of outcome variables capturing different aspects of autonomy, and the time that elapsed between the last round of amendments and this wave allows for a sufficiently large treatment group.

marriage²⁸, and religion, for women between the ages of 15 and 49 in each household. It also provides information on socio-demographic variables, such as years of education, work and earnings, husband's education and occupation, and on variables denoting status within the household, such as participation in own health-care and household decision making, and requiring permission to go somewhere or maintain contact with friends and family. Questions about maintaining contact with or visiting natal families are very pertinent to this project because a married woman's relationship with her natal family, as approved by her in-laws, is likely to be directly affected by her potential of inheriting property²⁹.

The outcome variables that are based on questions related to mobility are dummy variables denoting (a) whether the woman is allowed to go to a health clinic by herself and (b) whether she is allowed to go to the market by herself. Outcome variables based on questions related to bargaining power within the marriage are dummies denoting whether she has a say in (either alone or jointly with her husband) (c) how the husband's money is spent, (d) her own health care decisions, (e) big household purchase decisions and (f) small household purchase decisions³⁰. Outcome variables related to the woman's natal family are dummies denoting (g) whether the woman participates in the final say on visits of family members, and (h) whether she has unrestricted contact with her family.

Table 1A shows summary statistics for some socioeconomic variables. There are 124,385 women in the data overall, of which 92,730 belong to the non-reform states and 10,377 reside in the reform states. 93,274 of these women are married, and constitute my primary sample. Women in reform and non-reform states are approximately similar along several dimensions, such as average age, age at marriage, and wealth status. Women in the reform states have higher years of education on average than women in non-reform states, and this is particularly the case for the cohorts of women married post-reform³¹, who are younger. The reform states have a slightly higher proportion

²⁸I also observe the precise month of marriage, which allows a more precise definition of treatment status.

²⁹Increased contact with the natal family post marriage could itself enhance autonomy within the marital family (Niraula and Morgan, 1996).

³⁰Anderson and Eswaran (2009) use the household purchase decision variables as their measure of autonomy.

³¹Deininger et. al. (2013) and Roy (2013) find evidence of this. Higher education is potentially one of the channels for the reform, but excluding education level from the regressions leaves my results

of Hindu women at 80%, compared to 75% in the non-reform states. Table 1B shows the proportion of women who report a positive outcome (e.g. allowed to go to market alone, has say in healthcare decision) for the key outcome variables. The top panel is for the entire sample, while the bottom panel is for the subsample aged between 25 and 30. Since women in the reform states married pre-reform are much older on average than those married post reform, and age is an important determinant of autonomy, treated women in reform states have lower autonomy on average. To mitigate the effect of age, the bottom panel reports these proportions restricting age to the same range, between 25 and 35, and thus provides a flavor of the difference-in-difference results. Conditioning on this age bracket, women in the reform states have better outcomes if they were married after the amendments. There is also a greater difference in autonomy between the reform and non-reform states for this age range, compared to the overall sample. On average, 64% women participate in decision-making, and 60% women enjoy unrestricted visits to the health clinic and market.

5 Results

In this section, I present the reduced-form results for the effect of the amendments on women’s mobility and decision-making outcomes, and establish that women exposed to the reform have higher autonomy.

5.1 Primary Results

Table 2 presents the difference-in-difference estimates for each of the outcome variables discussed in the previous section³². The column headed Hindu reports the coefficient β_1 from specification (1) restricting the data to only the Hindu’ sample, while the column headed non-Hindu reports the corresponding coefficient for the non-Hindu sample. If the reform indeed had a positive effect on the women who were ‘treated’, i.e. the

almost unchanged.

³²Table A.2 in the Appendix shows the coefficients for a wider set of controls. The patterns are similar across all outcome variables - the table includes just two of them for ease of viewing. The last column uses the ‘average’ of all the autonomy dummies as the outcome variable - the results are identical. The coefficients are exactly as one would expect - autonomy increases with age and educational attainment for women of both religious affiliations, and women belonging to wealthier households have higher autonomy.

sample of Hindu women in the reform states who were married after the reform, then we would expect a positive significant coefficient for the Hindu sample and an insignificant coefficient for the non-Hindu sample. For the outcome variables based on participation in decision-making, this is precisely what I find. Hindu women are significantly more likely to have a say in their health-care and other household decisions and to be able (or allowed) to maintain contact with family if they belong to the reform states and were married post-reform. For instance, Hindu women exposed to the reform are 2.7% more likely to have a say in own health-care decisions, 3.2% more likely to participate in household purchase decisions, and 4.6% more likely to have a say in visits to family and relatives. As expected, non-Hindu women do not share these positive outcomes, since the reform does not apply to them. For the outcome variables related to mobility, the coefficients for the Hindu sample are still positive and significant, with treated Hindu women being 4.6% more likely to visit the market and 3.5% more likely to visit health clinics alone. Estimates for the non-Hindu sample, however, are significantly negative, which might be indicative of the reform states actually having worse pre-reform trends than the non-reform states in terms of women’s freedom of movement.

The results from the triple-difference specification point in a similar direction³³ – Table 3 documents these results. We see from the first column that women actually exposed to the reform have significantly better outcomes. The second column shows that the reform did not have a significant effect on the outcomes for the non-Hindus belonging to the reform states married post-reform, barring the mobility variables. The third column indicates that among the women married pre-reform, there is no significant difference between the Hindu and the non-Hindu women in the reform states³⁴.

To the extent that there would be increased awareness about the law change over time, and it would take some time for social norms to change (such as disinheriting daughters to be condemnable and daughters staking a claim in their natal family properties to become acceptable) women married the year after the reform are not exposed to the same treatment as those married ten years after. So I estimate a specification almost identical to (1), but where the dummy variable Aft is split up into different dummies indicating marriage at different intervals of time after the reform,

³³The magnitudes are higher than difference-in-difference; this is because non-Hindus seem to have worse trends in the reform states.

³⁴The placebo test bears this out.

such as within two years of the reform, between two and five year, between five and ten years and more than ten years. This yields an interesting pattern, as seen in Table 4. For most outcome variables, the coefficients for the Hindu sample are typically insignificant for the women married right after the reform, and the effects start to show up only for later cohorts of married women; this is in accordance with what we would expect in case of a time lag between legislation and actual implementation of the reform³⁵.

5.2 Results of Placebo Tests

Table 5 documents the results of the placebo tests. The coefficients reported are β_1 from specification (3) for the Hindu and non-Hindu samples. The sample is restricted to untreated women only, to ensure that the results are not driven by women *actually* exposed to the reform. The coefficients are statistically insignificant³⁶, which suggests that there was no systematic difference between women in the reform and non-reform states married before and after a random cutoff date (10 years before the actual reform), particularly for the Hindu women. Table 6 reports the coefficients from the placebo test for different definitions of the treated group, based on different cutoffs for additional robustness – each row represents a specification with treatment group defined as women married after a certain number of years prior to the reform. For simplicity, the outcome variable I use here is an average of all the decision-making and mobility outcomes; for comparison, the first row reports the coefficients from using this aggregated outcome variable in my initial diff-in-diff specification, which are positive and significant for Hindus, and insignificant for non-Hindus. The coefficients for the Hindu women are quite close to zero and statistically insignificant, supporting the common trends assumption. The non-Hindu coefficients are insignificant for most specifications, but there is some oscillation. This also suggests that the estimates

³⁵Note that this is consistent with both the direct and the indirect channels discussed in Section 7. The change in family structure, the key factor for the indirect channel, would also have taken some time to set in. This is also aligned with a dynamic model of household bargaining where women gain bargaining power over the tenure of their marriage, so that most women married for a considerable length of time have gained decision-making authority, reform notwithstanding, and impact of the reform is therefore maximal for younger cohorts of married women.

³⁶The mobility coefficients are still significant for the non-Hindus, suggesting worse state-cohort trends for them in the reform states.

from the difference-in-difference specification are more credible than triple difference³⁷, since common trends do not always hold for the non-Hindu group, violating the triple-difference assumption of common trends across states for *both* religious groups.

6 Investigating Channels for Increased Autonomy

The results presented in Section 5 are consistent with the claim that the amendment to the Hindu Succession Act improved the bargaining power and led to increased participation in decision-making for the women who were exposed to it. The results are qualitatively similar to the findings in other papers that have considered the effect of this reform on women’s autonomy. However, prior research has been mostly agnostic on the channels through which the reform results in women attaining an elevated social or economic status. The most common perception has been that such a reform would improve the wife’s bargaining power at the cost of her husband’s. Roy (2008) posits that the potential of drawing in more money from her natal family makes the wife more ‘important’ in her marital household, but does not delve into the structure and dynamics between the members of such a household³⁸. Heath and Tan (2014) assume each household to consist of just the married couple, and suggest that the wife’s autonomy or bargaining power is function of the ratio of her unearned income to the total unearned income (assets) of the couple.

Now, if autonomy were indeed a function of the share of unearned income, or if a potential increase in inheritance increases the weight of a spouse within the marriage, we should observe a shift of the bargaining power away from the husband and towards the wife. This is especially true for the reform under study, since it necessarily entails a transfer of wealth from men to women³⁹. So, just as we observe that women are more likely to have a say in household decisions as a result of being exposed to the reform, one might reasonably expect to see that the reform makes it less likely for men, on

³⁷In fact, since the non-Hindus married after the reform in the reform states have *worse* outcomes on average, triple-differences would overstate the true effect of the reform on Hindus. Difference-in-difference therefore yields more conservative estimates.

³⁸Roy (2008) may have implicitly considered the woman’s position in the household to be strengthened at the cost of the other members of the extended family - this would be consistent with what I find.

³⁹This is true of the reform on average; of course, the actual wealth transfer is between a brother and sister rather than a husband and wife

average, to participate in decision-making.

The richness of the data allows me to examine whether the bargaining power of men declines relative to women following the enactment of the reform⁴⁰. For several decision-making outcome variables, a woman reports not only whether she has a say in the decision, but exactly who makes the decisions. The possible answers are she alone, her husband alone, both she and her husband, and ‘others’ in the family – these ‘others’ are typically the husband’s family e.g. his parents, who the couple reside with. This allows me to create different outcome variables denoting different family members having a say in each decision (alone or jointly).

The inclusion of the ‘other’ family members in the data as possible decision-makers is worthy of attention – it reflects the typical family structure and social norms prevailing in India. The traditional family structure in India is a ‘joint’ family, where men reside in the same household with their parents and extended family (e.g. uncles, brothers) and women relocate to their husband’s house post marriage. The joint family structure often persists as a result of the family holding property such as estates or land jointly, which serves as the means of livelihood of all the men in the family. In such a setting, young women married into the family are expected to do the bidding of the family elders, and do not have any authority of their own, as long as an older generation exists in the same household⁴¹. Indeed, the data shows that the proportion of joint families where these others make the decisions can be as high as 27% for some outcomes. Over the last two generations, this traditional family system has gradually given way to smaller ‘nuclear’ families, consisting of a married couple and their children. Such a nuclear setup is more conducive to women having a voice in household decisions relatively early on in their marriage.

I use the diff-in-diff specification (1) to estimate the effect of the reform on the participation in decision-making by each household member. Table 7 shows the surprising results⁴². Post-reform, the wife is more likely to have a say in decisions jointly with her

⁴⁰The husband’s ‘treatment status’ for the reform depends on his sister’s year of marriage rather than his own; since I cannot observe when his sisters were married, his own marriage after the reform can be considered a proxy that his sisters are likely to have been treated.

⁴¹The idea that in joint families the wife loses decision-making power not only to the husband but also to the older generation, has been pointed out by Debnath (2014), and by Sen, Rastogi and Vanneman (2006) in the Sociology literature.

⁴²The coefficients reported are only for the Hindu sample, and they show the effect of being exposed to the reform on the decision-making participation for various members of the household. The

husband, but less likely to be the solo decision-maker. The husband's decision-making participation does not decline at all - rather, it increases. The household member whose decision-making power declines is actually the 'other' group.

There are a number of reasons why decision-making power may have shifted from 'other' family members to husbands and wives post reform. The first, and most direct reason is that the wife's potential inheritance empowers both her and her husband relative to the 'other' family members. A second, and more indirect reason is that the reform might have reduced the likelihood of the couple residing in the same household with the others, which would trivially make the couple the sole decision-making unit in their household. In other words, the reform might have had direct effect on family structure itself, resulting in more couples residing as a nuclear family rather than part of a larger joint family. I discuss these channels below.

6.1 Direct Channel

The direct channel is similar in spirit to previous research (Roy 2008, Heath and Tan 2014), but is more reflective of a coalition type bargaining framework. In joint families, the husband serves as the key link between the wife and his family; for instance, his family can access his wife's wealth only through him, and they can benefit from her home production only if he decides to stay on in the joint household with them. On the other hand, the husband has considerable influence on his family, which he can exert on behalf of his wife to ensure that she is treated well in the marital household. It is reasonable to assume that the others in the household, typically the husband's parents, are more likely to make decisions that are in accordance with the husband's preferences rather than the wife's. In a joint household, where these others are available as potential decision-making agents, the husband might defer to them just because their decisions would reflect his preferences. So, 'others' being the principal decision-makers might even be perceived as the husband being in a coalition with his parents⁴³. Post reform, it is in the husband's interest to be in a coalition with his wife rather than his

coefficients for the non-Hindu sample are mostly insignificant.

⁴³The cultural norms rule out a coalition between the wife and the husband's family, excluding the husband.

parents⁴⁴ – the wife gains bargaining power because her own worth increases, while the husband is better off by exploiting his crucial position in the family structure, as the link between his wife and extended family, which allows him to bargain jointly with his wife, with the other household members.

6.2 Indirect Channel

The indirect channel primarily derives from the effect of the reform on men. The reform entails a smaller share of joint property for men, since their sisters now have a birthright share as well. Men whose occupations are dependent on the share of family property (such as agriculture) would have less incentive to stay on in a joint family setup post reform, and might opt to move out. Since families that have joint or ancestral property have a greater propensity to live in joint family set-ups⁴⁵, it is precisely men in these households who potentially have their incentives to stay on at home curtailed by the reform. It is important to note that the reform also reduces the father’s nominal (individual) share; so, even if men were to expect their fathers to will them a larger proportion of this nominal property if they cohabited with the extended family, their incentive to do so declines post-reform since the amount of money at the father’s disposal to bequeath is smaller. This idea, that weaker financial links within the family may make migration more likely in the Indian context, is supported by other research (Luke and Munshi 2011, Fernando 2014)⁴⁶.

The reform’s impact on the likelihood of living in a joint family may not work only through the men who are directly affected by the policy. Any man who prefers to live in a nuclear setup might now be able to afford to move out as a result of their

⁴⁴A switch from the others to the couple as primary decision-making agents, in accordance with the changing incentives of the husband, shows up as an increase in the wife’s autonomy, while in reality the decisions might always be in line with what the man prefers.

⁴⁵The data offers informal evidence of this, in terms of landholdings. The average landholding reported by women in joint families is 2.55 acres and women in nuclear households is 1.48 acres. Restricting the sample to households actually owning land, the averages are 4.86 acres for joint and 3.78 acres for nuclear women.

⁴⁶Roy (2013) argues that parents in the reform states are more likely to make ‘gifts’ of land to their sons. This suggests that they are aware that the incentives of their sons to stay on with them in the same household is tied with their potential inheritance, and is in line with the predictions in Botticinni and Siow (2003) that parents would want to leave bequests to those children who reside with them. Moreover, since the birthright share cannot be willed away, daughters can inherit more despite the fathers willing a greater part of their nominal shares to sons.

wife's potential inheritance. Moreover, if women prefer to be married to men in nuclear setups rather than joint families⁴⁷, and this preference is higher for more advantaged women, men might also decide to move out in expectation of marrying women who are now likely to bring in a larger pot of money from their natal homes.

Testing the direct channel amounts to finding evidence that within a particular type of family setup, women exposed to the reform have better autonomy outcomes. Examining the indirect channel is more difficult, but there are a number of key patterns that have to hold in order for this channel to be believable:

- (a) Women in nuclear families should have higher autonomy than those in joint ones.
- (b) Women exposed to the reform should be less likely to be residing in joint families.
- (c) The men in the reform states who switch to nuclear households should be precisely those whose income streams are potentially constrained by the reform.

In the next section, I examine whether both these channels are responsible for the improved autonomy of women. I do not make any claims about the relative importance of the two channels – I provide evidence for the indirect channel, and then explore whether it is the sole channel or the direct one is at work as well.

7 Empirical Evidence for Channels

The richness of the NFHS data allows me to determine the family status of each married woman (joint or nuclear). I observe a list of all the members of each household in the Household Schedule of the data, and whether each of them is a usual resident in the household, which lets me identify which women live in the same establishment with family elders, i.e. a joint family for my purposes. A *joint* family is defined as a family where a parent-in-law of a woman is present in the household⁴⁸; the dummy variable *joint* takes the value 1 if this is the case, and 0 otherwise. 30.8% of the married women in the sample belong to joint families, by this definition.

⁴⁷The indirect channel is also consistent with wives being in a position to demand a split away from the extended family, as a result of their greater potential inheritance.

⁴⁸For instance, the woman identifies herself as the daughter-in-law of the household head; or the woman reports she is the wife of the head, and the parents of the household head are usual residents in the same establishment.

I do not make any claims about the relative importance of the two channels. I provide evidence for the indirect channel, and then explore whether the direct one is in effect as well.

7.1 Evidence for Indirect Channel

(a) *Is a nuclear family better for autonomy?*

First, I test whether a nuclear family does in fact entail better autonomy outcomes for women than a joint family setup. Table 8 shows the coefficient for the *joint* dummy from regressions of each of the outcome variables on *joint*, controlling for age, education, caste, wealth quintiles, location (urban or rural), year-of-marriage fixed effects and state fixed effects. For both Hindus and non-Hindus, residing in a joint family has a negative significant effect on a woman's autonomy. Since I shall go on to show that the amendment has an effect on family structure itself in the reform states, one might worry that this contaminates these coefficients which are based on the entire sample⁴⁹. Appendix Table A.3 reports the same coefficients for the subsample of women in reform states only - they are qualitatively identical, i.e. negative and significant for both religious groups.

A possible endogeneity problem that one might be concerned about here is that women who are married into nuclear families might differ from those in joint families in their temperament and attitude towards authority. For instance, they may be less submissive or more desirous of asserting themselves. However, as evident from Table 9, women in joint families are in fact socioeconomically advantaged compared to those belonging to nuclear families⁵⁰. As one would expect, autonomy is found to be strongly positively correlated with socioeconomic characteristics, such as years of education of both spouses. Taken together, these imply that the estimates for the effect of residing in a joint family on autonomy are in fact biased *downwards* in magnitude. Moreover, women in joint and nuclear families provide very similar answers on average to questions about their attitudes towards social conservatism⁵¹, which largely alleviates the concern

⁴⁹This is because in the reform states, women are both more likely to reside in nuclear setups, and more likely to have higher autonomy, as a result of the reform.

⁵⁰This is not surprising, since joint families are typically wealthier.

⁵¹Examples are questions regarding whether they think wife beating is justified, and whether they

that women in joint families are likely to be predestined for worse outcomes. Khalil and Mookerjee (2014) provide a detailed analysis of the effect of residing with the extended family on the autonomy of young brides, and find a large negative effect.

(b) *Does the reform lead to more nuclear households?*

Next, I examine the effect of the reform on family structure. Table 9 shows the coefficient for being exposed to the reform on the outcome variable *joint*⁵². The first column shows that Hindu women who were ‘treated’ are significantly less likely, by about 4.1%, to reside in joint families⁵³. A placebo test identical to specification (3), which assumes that the amendments occurred ten years prior to their actual implementation, shows no such significant effect for the ‘treated’ Hindu women. This suggests that the significantly lower propensity of Hindu women to reside in joint families post reform is not simply a function of some such pre-existing trend in the reform states, and can in fact be attributed to the amendments.

(c) *Are the right men moving?*

Finally, I explore whether these moves from joint to nuclear households seem to be consistent with the changes in the inheritance law - in other words, whether the men that move are the ones we would expect to.

If it is the case that men move in response to the amendment making it harder for them to live off their reduced inheritance, such a move is likely to be accompanied by a change in occupational choice - from ones which depend on their share of family property to ones which don’t⁵⁴. So, among men who are still engaged in an occupation that depends on family property at the time of the survey, the reform should not have had any effect on their propensity to move out of the family home. The only occupation listed in the data that is likely to have any direct ties with family property is agriculture - so I check this conjecture by estimating a diff-in-diff-in-diff model, the additional difference coming from being engaged in agriculture versus having a different

would like more sons than daughters.

⁵²The specification for these regressions is the same as before, Equation (1)

⁵³The opposite in fact true of the non-Hindu sample. If this is suggestive of the general state-level social trend in the absence of the reform, then the actual effect of the reform on family composition is even higher - it is the difference between the coefficients for Hindu and non-Hindu women.

⁵⁴For example, a man who might have farmed his plot of land in a village could now decide to move to an urban area and find a job in the informal sector there.

occupation. As expected, Table 9 shows that for the Hindu households, the move out of the joint family setup is primarily driven by the men who are currently engaged in occupations other than agriculture (i.e. they are no longer living off family property). Hindu women who are treated are 4.3% less likely to reside in a joint setup if their husband’s occupation is not agriculture. For both religions, women are more likely to reside in joint families if their husbands are engaged in agriculture⁵⁵. Women in rural areas are also more likely to belong to joint families than those in urban areas, which is consistent with our prior⁵⁶. Finally, assuming that the outside option is the same irrespective of family wealth, men should have a higher incentive to move out the lower the total amount of assets or property owned by the family, when the reduction in their potential inheritance would be more keenly felt. So the men that we observe in the data to be residing in joint households at the time of the survey should be wealthier. Again, this is concordant with the results in Table 9.

In a similar vein, men in the reform states should be more likely to leave the joint household if they have more siblings or sisters. Unfortunately, the primary sample doesn’t allow me to calculate the number of siblings of each man. Instead, I use data on the *children* of women in the primary sample. Each woman reports how many children she has ever had, whether they are alive, and whether each of them live with her or live away. I consider the sample of boys (i.e. sons of women in the primary sample), and create a binary outcome variable *move* which takes the value 1 if the boy has moved away and 0 if not⁵⁷. The sample is restricted to boys who are more than fifteen years of age (boys who have moved out of home too young might have moved for reasons unrelated to the channels we seek to explore here). Table 10 reports the results. Hindu boys are 2.5% more likely to move away if they belong to reform states

⁵⁵Roy (2008) finds that autonomy increases more for the women whose husbands are engaged in agriculture, and she posits that this is because her inheritance is complementary to her husband’s occupation (assuming it is in the form of land). This is consistent with my results; men who persisted with agriculture potentially stayed on in joint setups because they were entitled to larger individual shares of family land than those who left home and switched to a different occupation. It is conceivable that their wives also belonged to richer families, inherited more and got higher bargaining power.

⁵⁶For instance, many moves out of a joint family setup occur as men move from villages or small towns to try their luck in large metropolitan areas, often in the informal sector.

⁵⁷The results reported in Table 10 are from a linear probability model of *move* on $St * Sis$, which is an interaction term of belonging in a reform state and having sisters, controlling for age, location (urban or rural), number of brothers and sisters, wealth quintiles and state fixed effects. Probit and logit specifications yield qualitatively similar results.

and have sisters, and 4.7% more likely to leave home if they belong to reform states and their father is engaged in agriculture (which entails living off family property). Additionally, if they are from a reform state, their father is in agriculture and they have siblings, Hindu boys have a 9.6% higher probability of leaving home⁵⁸, – this suggests that the reform impacts the location decisions of those men whose earning potential could be constrained as a result of reduced inheritance. Consistent with the previous table, it is precisely the boys from families belonging to lower wealth quintiles who are more likely to move out of home.

7.2 Evidence for Direct Channel

To provide evidence for the direct channel, I estimate the change in participation in decision-making for different family members, separately for each kind of family, joint and nuclear. If the effect of the reform is acting entirely through the change in family composition, then *within* each family type, women exposed to the reform should not be reporting better outcomes. However, if the potential inheritance that a woman brings in additionally elevates her position within the family, we should observe an improvement in bargaining power for the treated women within each family type.

Tables 11A and 11B report the results for the subsample of women who are in joint families (i.e. who have any person of an older generation residing in the same household). Table 11A depicts the change in the wife’s overall participation in decision-making i.e. both solo and jointly with husband, while Table 11B depicts the change in her solo decision-making. In each table, the columns represent mutually exclusive decision-makers. Admittedly, since the reform changes the incentives of couples to stay on in a joint family framework, there is likely to be some selection - however, controlling for education, wealth, caste, location etc, families that stay in a joint family setup pre and post-reform are not likely to be very different. The coefficients are consistent with what the direct channel would predict – women are significantly more likely to have a say in decisions post-reform, as are their husbands, and the others are significantly less likely to have a say. Note that since the coefficients are from a linear probability model, the coefficients in each row should add up to 0. The reform primarily increases the

⁵⁸However, similar patterns hold for the non-Hindu sample as well, though the estimates are statistically insignificant.

likelihood of the couple jointly making decisions, consistent with the couple bargaining collectively with the other household members; however, in terms of solo decision-making, the reform benefits men rather than women.

Finally, tables 12A and 12B report the results for the subsample of women in nuclear households. The proportion of such households where ‘others’ make the decisions is a negligible 2.4%, compared to 19.2 % in the joint sample⁵⁹. Conditional on nuclear residence, the reform has negligible effect on women’s overall decision-making. Similar to joint families, it increases the husband’s bargaining power and reduces that of the others. Moreover, in both kinds of families, the reform has a *negative* effect in average on women’s solo decision-making.

The direct mechanism of increasing the woman’s importance within her marital family therefore seems to be much more in evidence among joint families. One explanation of this is that given the rarity of divorces⁶⁰, separation from marriage is perhaps quite costly; therefore, such a reform cannot be interpreted as an improvement in the outside option for married women when the bargaining is just between the spouses⁶¹. Another explanation is that, to the extent that women in nuclear families are more likely to hail from nuclear households themselves, their natal households are less likely to hold joint or ancestral property compared to joint households; now, since the main impact of the reform derives from joint and not individual property, it might not have had a sufficiently large effect on the inheritance of these women in the first place⁶².

8 Discussion and Policy Implications

The preceding section shows that the positive effect of the reform on women’s autonomy is achieved, to a considerable extent, through a shift in family structure from traditional joint setups to smaller nuclear households, which is in fact driven by the effect that the reform would have had on men. Conditional on family structure, however, most of the

⁵⁹These proportions are the averages across the five outcome variables.

⁶⁰The divorce rate for ever-married women in my sample is 0.54%. That divorce is not really an option for women is supported also supported by previous research (Bloch and Rao, 2002).

⁶¹In contrast, in a bargaining game between the couple and the extended family in joint households, separation in the form of the couple moving out of the joint household is quite feasible.

⁶²The data shows that the proportion of women in nuclear households with decision-making authority is around 71.4%, which, though high, still leaves substantial scope for improvement in the autonomy of nuclear women.

results are driven by the women in the joint families. Moreover, the reform increased the likelihood of women making decisions jointly with their husbands, but it might even have depressed their probability of solo decision-making.

To the extent that the primary target of such gender-neutral reforms is to improve the welfare of women, the amendment definitely achieved this aim in the reform states. Having a say in their household decisions is a fundamental right for married women, and increased exercise of this right is an unambiguous positive effect of the reform. That this comes about mainly through joint decision-making can not necessarily be construed as an adverse effect; the increased participation of husbands in making decisions might reflect either that their own preferences are more aligned with their wives rather than their extended family post-reform, or that they have greater interest or concern about their wife's health, whereabouts and home production. However, to the extent that the law was intended to redress gender imbalances, the finding that the husbands gain greater decision-making authority compared to wives suggests that the amendment failed to reduce gender discrepancies in decision-making participation within the household, resulting in an intergenerational transfer of authority rather than the spousal transfer that it might have been intended to achieve.

The change in family structure serving as an important channel for increased autonomy warrants a cautious interpretation of the *overall* effect of the reform on women. This is because the joint family structure has important benefits of its own. It is an important form of social security, especially among those who are economically disadvantaged. Older women in the household provide subsidized child care, allowing young mothers to work outside the house in the absence of formal child care facilities. So a shift into nuclear families, though accompanied by improved autonomy, has serious welfare costs of its own. Moreover, a lot of the increased bargaining power for married women post-reform is compensated by a reduction in that of older family members; this indicates that the increased autonomy that younger women get would in fact be offset by a reduction in decision-making authority for their older selves. An overall welfare analysis would then involve an assessment of the relative importance of wielding authority in the household at younger versus older ages.

Finally, we need to consider the potential efficacy of such a reform in the context of the current social structure. As more and more families reside in nuclear rather

than joint setups, the capacity of the indirect channel to improve women's outcomes shrinks. The direct effect of the reform in terms of strengthening the woman's position within her household is also weak in nuclear setups. This implies that in a situation where the traditional joint family is rare, such a reform would have little or no ability to accomplish an improvement in women's outcomes. There is, however, a caveat – on average, the joint families which are more likely to be fragmented into nuclear ones are, so far, the less wealthy ones⁶³. Over time, as more men decide to move out of their joint setups, the difference in wealth, asset ownership or educational attainment between nuclear and joint families will be reduced. This would entail that the direct benefit of a pro-female reform (e.g., actually inheriting more) will accrue to a greater proportion of women in nuclear households. Moreover, separation from marriage is steadily becoming more acceptable over time, affording a realistic outside option for married women. Since nuclear setups are already more conducive to women having a bigger role as potential decision-makers, the overall effect of such a reform might even be larger.

9 Conclusion

The amendment to the Hindu Succession Act, making daughters a member of the Hindu coparcenary, was a significant step towards gender equality. It sought to provide the daughters with a share of the joint family property equal to that of the sons, thereby endowing daughters with financial security as a birth-right, and undermining the notion that the daughter had no claims on her natal family property post marriage. I find evidence that women exposed to the reform did report more favorable outcomes, and the fact that this is true only of the religious groups who were actually affected by the reform, and not by those that the reform did not apply to, lends credence to my results. Contrary to what one might expect, however, I find that the reform also increased the bargaining power of the husbands of the treated women; in fact, the husbands benefitted more than their wives in terms of participation in household decision-making. Firstly, this implies that the reform, though intended to redress gender imbalances

⁶³For instance, in terms of land ownership, land-owning joint families on average own 1.8 hectares of land while nuclear families own 1.4 hectares.

by eradicating the existing gender bias in inheritance laws, failed to repair gender differences in decision-making authority in the household. Secondly, this indicates that a framework in which each household comprises of only the married couple is not sufficient to analyze the effect of such an increase in women's income potential – other members of the family residing in the same household in a traditional joint family system also wield considerable power. A significant decline in the bargaining power of these other family members hints at a possible effect of the reform on family structure itself – a channel hitherto unexplored in the literature. I find that this shift in family structure, away from the traditional joint family system, is responsible for the improvement in women's autonomy to a considerable extent. Since a joint family structure acts as an informal social security system in India, and has benefits of its own, a comprehensive appraisal of the overall welfare implications of the reform is not trivial. However, women getting to have a say in personal and household decisions is an unambiguously desirable outcome, and if this was among the goals that the policy-makers sought to achieve by placing men and women on an equal footing in terms of potential inheritance, the reform succeeded in attaining it. The ensuing change in family composition was perhaps an unforeseen consequence, that nevertheless helped in improving women's outcomes and autonomy, and further research is needed in order to assess whether the reform increases the overall lifetime welfare of women who were exposed to it.

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Table 1.1A: Summary Statistics: Socioeconomic Variables

	All-India	Reform			Non-Reform
		Before	After	All	
Age	29.160 (9.494)	39.018 (5.803)	25.164 (7.327)	29.706 (9.456)	28.973 (9.499)
Age at Marriage	18.470 (3.916)	17.088 (3.496)	19.461 (4.031)	18.456 (3.990)	18.474 (3.890)
Hindu	0.764 (0.425)	0.856 (0.351)	0.780 (0.414)	0.805 (0.396)	0.750 (0.433)
Education	6.106 (5.191)	4.337 (4.649)	8.308 (4.705)	7.006 (5.043)	5.798 (5.205)
Partner's Education	7.252 (5.193)	6.325 (5.085)	8.207 (4.932)	7.410 (5.083)	7.197 (5.230)
Wealth Index	3.499 (1.355)	3.559 (1.277)	3.809 (1.180)	3.727 (1.218)	3.420 (1.391)
No of Married Women	93,724	9,889	14,631	24,520	69,204
No of Women	124,385	10,377	21,278	31,655	92,730

Entries present sample means with standard deviations reported in parentheses.

Table 1.1B: Summary Statistics: Outcome Variables

	All-India	Reform		Non-Reform	
		Before	After		All
<u>All Ages</u>					
Visit Market Alone	0.625 (0.484)	0.729 (0.444)	0.602 (0.489)	0.656 (0.474)	0.614 (0.486)
Visit Health Clinic Alone	0.581 (0.493)	0.689 (0.462)	0.558 (0.497)	0.614 (0.487)	0.569 (0.495)
Own Healthcare Decision	0.669 (0.470)	0.698 (0.459)	0.665 (0.472)	0.678 (0.467)	0.667 (0.471)
Major Purchase Decision	0.601 (0.489)	0.667 (0.471)	0.579 (0.493)	0.615 (0.486)	0.597 (0.490)
Minor Purchase Decision	0.668 (0.470)	0.759 (0.427)	0.656 (0.475)	0.698 (0.450)	0.658 (0.474)
Family Visit Decision	0.667 (0.471)	0.747 (0.434)	0.685 (0.464)	0.710 (0.454)	0.652 (0.476)
N	85,761	9,034	13,058	22,092	63,669
<u>Ages 25-35</u>					
Visit Market Alone	0.652 (0.476)	0.648 (0.477)	0.689 (0.462)	0.677 (0.467)	0.642 (0.479)
Visit Health Clinic Alone	0.607 (0.488)	0.613 (0.487)	0.643 (0.479)	0.634 (0.481)	0.597 (0.490)
Own Healthcare Decision	0.689 (0.462)	0.627 (0.483)	0.713 (0.452)	0.689 (0.462)	0.690 (0.462)
Major Purchase Decision	0.621 (0.484)	0.612 (0.487)	0.633 (0.482)	0.628 (0.483)	0.619 (0.485)
Minor Purchase Decision	0.694 (0.461)	0.717 (0.450)	0.717 (0.450)	0.717 (0.450)	0.686 (0.464)
Family Visit Decision	0.686 (0.464)	0.682 (0.465)	0.744 (0.436)	0.727 (0.445)	0.671 (0.469)
N	29,325	2,147	5,492	7,639	21,686

Entries present sample means with standard deviations reported in parentheses.

Table 2: Difference-in-Difference Results

	Hindu	Non-Hindu
Own Healthcare Decision	0.021* (0.009)	-0.010 (0.017)
Major Purchase Decision	0.032** (0.008)	-0.012 (0.018)
Minor Purchase Decision	0.031** (0.008)	0.009 (0.017)
Expenditure Decision	0.010 (0.008)	-0.025 (0.016)
Visit Health Clinic Alone	0.019* (0.008)	-0.041** (0.017)
Visit Market Alone	0.035** (0.007)	-0.041** (0.016)
Family Visit Decision	0.046** (0.008)	-0.006 (0.016)
Contact with Family	0.013** (0.005)	0.007 (0.012)
N	65,338	17,136

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects.

Table 3: Triple Difference Results

	Aft*St*H	Aft*St	St*H
Own Healthcare Decision	0.040** (0.017)	-0.014 (0.016)	-0.006 (0.015)
Major Purchase Decision	0.051** (0.018)	-0.002 (0.017)	-0.001 (0.015)
Minor Purchase Decision	0.049** (0.017)	0.006 (0.016)	0.022 (0.014)
Expenditure Decision	0.053** (0.017)	-0.044** (0.016)	-0.002 (0.014)
Visit Health Clinic Alone	0.089** (0.017)	-0.067** (0.015)	0.013 (0.014)
Visit Market Alone	0.123** (0.016)	-0.081** (0.015)	-0.019 (0.014)
Family Visit Decision	0.070** (0.017)	-0.022 (0.016)	0.013 (0.014)
Contact with Family	0.012 (0.012)	0.001 (0.011)	-0.021* (0.010)
N	83,429	83,429	83,429

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state, married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects.

Table 4: Difference-in-Difference Results Split by Years

		0-2 yrs	2-5 yrs	5-10 yrs	>10 yrs
Own Healthcare Decision	H	0.008 (0.014)	0.010 (0.012)	0.025** (0.010)	0.050** (0.012)
	NH	-0.003 (0.028)	0.036 (0.025)	-0.025 (0.021)	-0.025 (0.022)
Expenditure Decision	H	0.021 (0.013)	0.006 (0.012)	0.000 (0.010)	0.037** (0.011)
	NH	-0.007 (0.028)	0.015 (0.025)	-0.030 (0.021)	-0.025 (0.021)
Major Purchase Decision	H	0.007 (0.013)	0.016 (0.012)	0.028** (0.010)	0.077** (0.011)
	NH	0.004 (0.028)	0.039 (0.025)	-0.008 (0.021)	-0.001 (0.021)
Visit Health Clinic Alone	H	-0.013 (0.013)	0.026* (0.012)	0.027** (0.010)	0.028** (0.011)
	NH	-0.039 (0.029)	-0.044 (0.026)	-0.049** (0.021)	-0.052** (0.022)
Family Visit Decision	H	0.036** (0.013)	0.029** (0.012)	0.043** (0.010)	0.081** (0.012)
	NH	0.039 (0.027)	0.016 (0.024)	-0.008 (0.020)	-0.030 (0.021)
Contact with Family	H	0.020** (0.009)	0.011 (0.008)	0.014* (0.007)	0.024** (0.008)
	NH	0.027 (0.021)	-0.002 (0.018)	0.001 (0.015)	0.019 (0.016)

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state, and married within a certain interval post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. The average number of observations is 65,338 for Hindus and 17,136 for non-Hindus.

Table 5: Placebo Test ($\tau = 10$)

	Hindu	Non-Hindu
Own Healthcare Decision	-0.016 (0.013)	-0.006 (0.030)
Major Purchase Decision	0.012 (0.014)	-0.032 (0.032)
Minor Purchase Decision	0.019 (0.013)	-0.009 (0.025)
Expenditure Decision	-0.005 (0.012)	-0.028 (0.028)
Visit Health Clinic Alone	0.013 (0.012)	-0.034 (0.029)
Visit Market Alone	0.014 (0.011)	-0.026 (0.027)
Family Visit Decision	0.010 (0.012)	0.004 (0.027)
Contact with Family	0.006 (0.009)	0.002 (0.023)
N	51,747	13,601

**, * indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married within 10 years before the reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. The sample is restricted to women not actually exposed to the reform.

Table 6: Placebo Test: All Specifications

	Hindu	Non-Hindu
baseline	0.021** (0.005)	-0.014 (0.015)
N	61,011	16,117
$\tau = 1$	0.002 (0.010)	-0.025 (0.022)
$\tau = 2$	0.012 (0.009)	-0.035 (0.019)
$\tau = 3$	0.009 (0.008)	-0.027 (0.017)
$\tau = 4$	0.011 (0.007)	-0.048** (0.016)
$\tau = 5$	0.009 (0.007)	-0.037* (0.016)
$\tau = 6$	0.006 (0.007)	-0.025 (0.016)
$\tau = 7$	0.010 (0.007)	-0.028 (0.016)
$\tau = 8$	0.010 (0.007)	0.007 (0.017)
$\tau = 9$	0.006 (0.007)	-0.039* (0.018)
$\tau = 10$	0.003 (0.008)	-0.028 (0.019)
N	51,747	13,601

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The outcome variable is the proportion of outcomes where the women have autonomy. The coefficients reported are for the interaction term of the woman belonging to a reform state and married within τ years before the reform (married after the reform, for the baseline row). All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. The sample (except for the baseline row) is restricted to women not actually exposed to the reform.

Table 7: Overall Shift in Decision-Making Power

	wife only	wife has say	husband only	husband has say	others only
Own Healthcare Decision	-0.020** (0.008)	0.021** (0.008)	0.011 (0.008)	0.051** (0.009)	-0.031** (0.004)
Major Purchase Decision	-0.037** (0.005)	0.032** (0.008)	0.037** (0.008)	0.107** (0.007)	-0.071** (0.005)
Minor Purchase Decision	0.000 (0.008)	0.027** (0.008)	0.038** (0.007)	0.065** (0.009)	-0.066** (0.005)
Expenditure Decision	-0.020** (0.004)	0.010 (0.007)	0.022** (0.007)	0.053** (0.006)	-0.033** (0.004)
Family Visit Decision	-0.031** (0.006)	0.046** (0.008)	0.027** (0.008)	0.105** (0.007)	-0.073** (0.005)

**, * indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only. Average number of observations is 65,338.

Table 8: Effect of living in a Joint Family on Autonomy

	Hindu	Non-Hindu
Own Healthcare Decision	-0.101** (0.005)	-0.092** (0.009)
Major Purchase Decision	-0.194** (0.005)	-0.176** (0.010)
Minor Purchase Decision	-0.212** (0.005)	-0.192** (0.010)
Expenditure Decision	-0.142** (0.005)	-0.145** (0.009)
Visit Health Clinic Alone	-0.081** (0.005)	-0.107** (0.010)
Visit Market Alone	-0.085** (0.004)	-0.117** (0.009)
Family Visit Decision	-0.174** (0.005)	-0.146** (0.009)
N	65,338	17,136

**, * indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. All regressions control for age and age squared, education, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects.

Table 9: Probability of Living in Joint Families

	Hindu	Non-Hindu
St*Aft	-0.037** (0.008)	0.031 (0.018)
Urban	-0.140** (0.004)	-0.077** (0.006)
Primary Edu	0.017** (0.005)	0.004 (0.009)
Secondary Edu	0.046** (0.005)	0.000 (0.008)
Higher Edu	0.079** (0.008)	-0.022 (0.015)
Wealth quintile 1	-0.134** (0.009)	-0.168** (0.016)
Wealth quintile 2	-0.084** (0.008)	-0.114** (0.014)
Wealth quintile 3	-0.061** (0.006)	-0.095** (0.011)
Wealth quintile 4	-0.054** (0.005)	-0.070** (0.008)
N	68,782	18,472

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. St: dummy for reform state, Aft: dummy for marriage occurring after the reform. The omitted category for education is 'No education' and for wealth is 'Wealth quintile 5'. All regressions have state and year-of-marriage fixed effects.

Table 10: Probability of Boys Moving Away

	(1)	(2)	(3)	(4)	(5)	(6)
	Hindu	Non-Hindu	Hindu	Non-Hindu	Hindu	Non-Hindu
St*Sister	0.025** (0.010)	0.011 (0.022)	-	-	-	-
St*Agr	-	-	0.047** (0.013)	0.118** (0.030)	-0.045 (0.030)	-0.143 (0.148)
St*Agr*Sib	-	-	-	-	0.096** (0.031)	0.267 (0.148)
Age	0.017** (0.000)	0.022** (0.001)	0.017** (0.000)	0.023** (0.001)	0.018** (0.000)	0.023** (0.001)
Urban	-0.081** (0.005)	-0.081** (0.010)	-0.082** (0.005)	-0.086** (0.010)	-0.082** (0.005)	-0.086** (0.010)
Wealth quintile 1	0.052** (0.009)	0.067** (0.018)	0.053** (0.009)	0.074** (0.018)	0.054** (0.009)	0.073** (0.018)
Wealth quintile 2	0.040** (0.008)	0.039** (0.015)	0.042** (0.008)	0.048** (0.015)	0.042** (0.008)	0.048** (0.015)
Wealth quintile 3	0.024** (0.007)	0.026** (0.013)	0.025** (0.007)	0.032** (0.013)	0.025** (0.007)	0.032** (0.013)
Wealth quintile 4	-0.009 (0.006)	-0.012 (0.011)	-0.008 (0.006)	-0.007 (0.011)	-0.008 (0.006)	-0.007 (0.011)
N	36,139	10,267	36,139	10,267	36,139	10,267

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. St: dummy for reform state, Sister: dummy for having sisters, Sib: dummy for having siblings, Agr: dummy for father's occupation being agriculture. Wealth quintile 5 is the omitted category. All regressions have state fixed effects.

Table 11A: Joint Families - Change in Wife's Overall Decision-Making

	Wife has say	Husband only	Others only
Own Healthcare Decision	0.059** (0.017)	-0.011 (0.017)	-0.047** (0.011)
Major Purchase Decision	0.042** (0.018)	0.045** (0.016)	-0.087** (0.015)
Minor Purchase Decision	0.033* (0.017)	0.051** (0.015)	-0.084** (0.015)
Expenditure Decision	0.009 (0.017)	0.027 (0.016)	-0.036** (0.012)
Family Visit Decision	0.047** (0.017)	0.049** (0.015)	-0.101** (0.014)

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only. Average number of observations is 20,670.

Table 11B: Joint Families - Change in Wife's Solo Decision-Making

	Wife only	Husband has say	Others only
Own Healthcare Decision	0.001 (0.016)	0.045** (0.018)	-0.046** (0.016)
Major Purchase Decision	-0.037** (0.008)	0.124** (0.016)	-0.087** (0.015)
Minor Purchase Decision	0.010 (0.016)	0.075** (0.018)	-0.085** (0.015)
Expenditure Decision	-0.016* (0.007)	0.052** (0.014)	-0.036** (0.013)
Family Visit Decision	-0.027** (0.011)	0.128** (0.017)	-0.101** (0.014)

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only. Average number of observations is 20,670.

Table 12A: Nuclear Families - Change in Wife's Overall Decision-Making

	Wife has say	Husband only	Others only
Own Healthcare Decision	-0.004 (0.010)	0.012 (0.010)	-0.008** (0.002)
Major Purchase Decision	-0.001 (0.010)	0.015 (0.010)	-0.014** (0.003)
Minor Purchase Decision	-0.007 (0.009)	0.018** (0.009)	-0.011** (0.003)
Expenditure Decision	-0.005 (0.009)	0.014 (0.009)	-0.009** (0.002)
Family Visit Decision	0.017 (0.009)	0.000 (0.009)	-0.017** (0.003)

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only. Average number of observations is 44,668.

Table 12B: Nuclear Families - Change in Wife's Solo Decision-Making

	wife only	husband has say	others only
Own Healthcare Decision	-0.023* (0.010)	0.030** (0.010)	-0.007** (0.002)
Major Purchase Decision	-0.034** (0.007)	0.048** (0.007)	-0.014** (0.003)
Minor Purchase Decision	-0.011 (0.011)	0.022* (0.010)	-0.011** (0.003)
Expenditure Decision	-0.022** (0.006)	0.031** (0.006)	-0.009** (0.002)
Family Visit Decision	-0.034** (0.008)	0.050** (0.008)	-0.016** (0.003)

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The coefficients reported are for the interaction term of the woman belonging to a reform state and married post reform. All regressions control for age and age squared, education level, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only. Average number of observations is 44,668.

10 Appendix

Table A.1: Primary Results: Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
	Hindu	Non-Hindu	Hindu	Non-Hindu	Hindu	Non-Hindu
Own Healthcare Decision	0.018* (0.008)	-0.004 (0.017)	0.022** (0.008)	-0.004 (0.018)	0.020** (0.008)	-0.005 (0.018)
Major Purchase Decision	0.027** (0.009)	-0.013 (0.018)	0.035** (0.009)	-0.029 (0.019)	0.033** (0.009)	-0.018 (0.019)
Minor Purchase Decision	0.021** (0.008)	0.011 (0.017)	0.030** (0.008)	-0.008 (0.018)	0.028** (0.008)	0.005 (0.018)
Expenditure Decision	0.007 (0.008)	-0.001 (0.017)	0.012 (0.008)	-0.011 (0.018)	0.011 (0.008)	-0.009 (0.017)
Visits to Health Clinic	0.016* (0.008)	-0.045** (0.018)	0.020** (0.008)	-0.066** (0.018)	0.020** (0.008)	-0.043** (0.018)
Visits to Market	0.029** (0.008)	-0.044** (0.017)	0.033** (0.008)	-0.059** (0.017)	0.032** (0.008)	-0.041** (0.017)
Family Visit Decision	0.041** (0.008)	0.004 (0.017)	0.049** (0.008)	-0.008 (0.017)	0.046** (0.008)	0.003 (0.017)
Contact with Family	0.016** (0.006)	0.006 (0.013)	0.016** (0.006)	0.003 (0.013)	0.016** (0.006)	0.007 (0.013)
N	65,338	17,136	63,926	16,048	62,337	16,314

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. All regressions control for age and age squared, education, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects. Columns (1) and (2) control for family type, columns (3) and (4) exclude Kerala from the sample, and columns (5) and (6) exclude women married after 2005.

Table A.2: Primary Results - Important Covariates

	Health Dec		Big Purchases		Avg Autonomy	
	(1)	(2)	(3)	(4)	(5)	(6)
	Hindu	Non-Hindu	Hindu	Non-Hindu	Hindu	Non-Hindu
St*Aft	0.0215** (0.0083)	-0.0068 (0.0173)	0.0331** (0.0086)	-0.0187 (0.0185)	0.0231** (0.0052)	-0.0113 (0.0113)
Age	0.0269** (0.0025)	0.0296** (0.0043)	0.0325** (0.0026)	0.0295** (0.0046)	0.0330** (0.0016)	0.0300** (0.0029)
Urban	0.0645** (0.0046)	0.0240** (0.0082)	0.0930** (0.0048)	0.0778** (0.0088)	0.0849** (0.0029)	0.0549** (0.0054)
Primary Ed.	0.0269** (0.0057)	0.0163** (0.0102)	0.0287** (0.0059)	0.0302* (0.0109)	0.0230** (0.0036)	0.0233** (0.0067)
Secondary Ed.	0.0471** (0.0054)	0.0382** (0.0095)	0.0491** (0.0056)	0.0607** (0.0102)	0.0477** (0.0034)	0.0470** (0.0063)
High Ed.	0.1230** (0.0087)	0.1295** (0.0172)	0.1257** (0.0091)	0.1395** (0.0185)	0.1208** (0.0055)	0.1252** (0.0113)
N	64,582	17,154	63,042	16,792	61,478	16,264

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. The omitted category for education is 'no education'. All regressions control for caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects.

Table A.3: Effect of living in a Joint Family on Autonomy: Reform States Only

	Hindu	Non-Hindu
Own Healthcare Decision	-0.089** (0.010)	-0.070** (0.020)
Major Purchase Decision	-0.149** (0.010)	-0.176** (0.021)
Minor Purchase Decision	-0.137** (0.009)	-0.128** (0.019)
Expenditure decisions	-0.115** (0.009)	-0.104** (0.020)
Visit Health Clinic Alone	-0.064** (0.009)	-0.071** (0.020)
Visit Market Alone	-0.068** (0.009)	-0.095** (0.019)
Family Visit Decision	-0.162** (0.010)	-0.147** (0.020)
N	17,614	3,979

**,* indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. All regressions control for age and age squared, education, urban or rural residence, caste, wealth quintiles, year-of-marriage fixed effects and state fixed effects.