

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

Sulagna Mookerjee



WORLD BANK GROUP

Development Economics Vice Presidency

Operations and Strategy Team

March 2017

Abstract

This paper examines whether economic empowerment of women improves their autonomy within their marital household, and investigates the mechanism, by exploiting variation from a legal reform aimed at improving women's inheritance rights in India. Results suggest that the reform increased women's participation in decision-making but at the expense of the older generation of household members and not at the expense of their husbands. Two channels are proposed to explain this phenomenon. First,

this can be driven by a shift in the family structure from traditional joint families to nuclear households. Such a change is consistent both with the increase in women's decision-making authority, which they can exert to move out of the joint household, as well as with 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.

This paper is a product of the Operations and Strategy Team, Development Economics Vice Presidency. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at sulagna.mookerjee@georgetown.edu.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

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

*Sulagna Mookerjee**

JEL Classification: J12, J16, K11, O12

Keywords: Inheritance, Women Welfare, Family Economics, Intrahousehold Bargaining

*Sulagna Mookerjee is an Assistant Professor of Economics at Georgetown University School of Foreign Service in Qatar; her email address is sulagna.mookerjee@georgetown.edu. The author is grateful to the editor, two anonymous referees, Joshua Kinsler, Gregorio Caetano, Neşe Yildiz, Umair Khalil, and David Slichter for their insightful comments and feedback.

Women's health, education, autonomy, and economic outcomes have been a major concern for policymakers 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 market, thereby making them extremely reliant on gifts and bequests received from their natal families to increase their net worth in their marital households.

A long-standing and widely prevalent cultural institution in India, in fact, results in a particularly weak bargaining position for young women in their marital households. 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). Therefore, any policy that seeks to strengthen women's status within their marital households must be able to improve their bargaining positions not only with respect to their husbands but also with respect to the other members of the husband's family such as his parents. A potential way of achieving this would be to contribute to the recent trend¹ toward smaller 'nuclear' families consisting of just the couple and their children, thereby eliminating the possibility of the extended family playing dominant decision-making roles in the household.

This paper shows that a reform aimed at increasing women's inheritance succeeded in improving their autonomy in their marital households, precisely by

1. Allendorf (2013) documents that there has been an increasing trend toward nuclear households in recent years.

precipitating a shift in family structure from joint families to nuclear households. Between 1976 and 1994, five states in India amended their inheritance laws to eliminate existing gender discrepancies such that men and women were treated equally.² 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, and the mechanism through which this effect occurs. I show 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 and to visit health clinics and markets without requiring permission or escorts, by about three percentage points. This is similar in spirit to Roy (2008) and Heath and Tan (2014)³ and consistent with their results. However, my paper differs in the interpretation of these results by providing an insight into the actual dynamics of intrahousehold bargaining. Contrary to previous literature that has typically interpreted changes in women's autonomy in the context of a spousal bargaining model (Maitra 2004, Lancaster et al. 2006, Heath and Tan 2014), I show that the husbands of the women exposed to the reform also have higher participation in decision-making; instead, a significant reduction in bargaining power seems to occur for the other members of the marital household, typically the husband's parents. Crucially, a robustness check performed on women belonging to the religious groups excluded from the purview of the reform shows no such effect for them while a placebo test supports my identification strategy—I find no evidence of differential trends in outcomes across reform and non-reform states, prior to the amendments. Thus, I demonstrate that a policy originally intended to transfer resources from men to women has, in fact, resulted in an intergenerational transfer of decision-making authority within the household because of the family structure prevailing in the Indian context.

I provide evidence for two channels through which such intergenerational transfer of autonomy occurs. First, in joint families, the potential increase in the wife's wealth post-reform could have shifted bargaining power from the older household members to the couple. Second, the reform might have resulted in a shift in the prevailing family structure itself, from joint to nuclear households—this would be in line with

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

3. While Roy (2008) discusses variables related to freedom of movement only, I also focus on outcomes denoting participation in decision-making. Heath and Tan (2014) also perform a similar analysis but primarily focus on labor-force participation. Harari (2014) studies a similar question in the context of Kenya.

the findings of Luke and Munshi (2011), which documents that a relative increase in women's income can loosen ties with ancestral families. A nuclear household setup being more conducive to women exerting authority and making decisions relatively early in their marriage, such a switch would lead to higher autonomy for women. Interestingly, this shift can occur through the effect of the reform on both the wife's and the husband's inheritance. The potential increase in the wife's inheritance can either empower her enough to demand to split away from the joint marital home or give the couple the financial resources to set up their own household. Additionally, 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. Supporting this hypothesis, I show that there was indeed a shift in family structure from joint to nuclear households following the amendment, among couples married post-reform. Part of this switch seems to be driven precisely by those men whose share of family income is adversely affected by the reform. Moreover, 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.

In the light of prior research showing that mothers' status in joint families crucially impacts the health of their children (Coffey et al., 2015), this finding suggests that the reform could have major positive repercussions within joint households beyond improving women's decision-making authority. However, 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, 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 have important benefits of their own.

I. BACKGROUND OF INHERITANCE LAWS

Inheritance rights in India for Hindus, Sikhs, Budhists, and Jains (henceforth referred to as Hindus only for brevity) were governed by the Hindu Succession Law since

1956. It made a distinction⁴ 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 will), 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 high,⁵ 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 that "Discrimination against women is so pervasive 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."

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 sons. The amendment was passed by Kerala in 1976, Andhra Pradesh in 1986, Tamil Nadu in 1989, and Maharashtra and Karnataka in 1994.⁶ 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 states.⁷

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 et al. (2013)

4. The 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).

5. Deininger, Goyal, and Nagarajan (2013) cites this proportion to be 65%.

6. The 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. Appendix table S.1 shows these results.

7. My results are unchanged if I eliminate women married post-2005 from the sample. These results are reported in table S.1.

establish that the amendment significantly increased women’s likelihood to inherit in both rural and urban settings.⁸ A second set of papers examine the effect of this law on a range of women’s outcomes such as freedom of movement (Roy 2008), education (Roy 2015, Deininger, Goyal, and Nagarajan 2013), labor force participation (Heath and Tan 2014), domestic abuse (Amaral 2014), female child mortality (Rosenblum 2015), and marital conflict (Anderson and Genicot 2015). I contribute to this second strand by providing the first insight into the mechanism through which the reform affects the actual bargaining dynamics within the household, which is crucial for policy recommendations. I also add to the literature on decision-making within the extended family, which particularly underscores the importance of intergenerational bargaining (Bertrand et al. 2003, Coffey et al. 2015, Debnath 2015).

II. EMPIRICAL SPECIFICATIONS

In this section, I outline my empirical models.⁹ 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 women. An interesting feature of these state amendments is that they were often implemented retrospectively.¹⁰ 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 passed.¹¹

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

8. In contrast, Roy (2015) finds that inheritance for women does not go up but that dowry increases.

9. I 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.

10. 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.

11. As evident from appendix table S.5, my results are not driven by women married within the first few years after the implementation of the reform.

1 if woman i reports being allowed to go to the market alone or having a say in major purchase decisions in her household, and 0 otherwise (i.e., in case she reports negative outcomes). 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 state.¹² 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 residence.¹³ 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, caste, and a dummy variable for residence in a rural area.

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 were married before and after the law change in the reform states with those in non-reform states 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 specification, but 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 should affect both religious groups in the same way. The model is

$$Y_{ist} = \gamma_0 + \gamma_1 Aft * St * H_{ist} + \gamma_2 Aft * St_{ist} + \gamma_3 St * H_{ist} + \gamma_4 Aft * H_{ist} + \gamma_5 H_{ist} + \gamma_6 X_{ist} + \alpha_s + \alpha_t + \varepsilon_{ist} \quad (2)$$

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

13. There are substantial linguistic barriers to cross-state migration in India—almost every state has its own language. My results are unchanged if I control for the native language of the respondent as presented in appendix table S.2. I also perform a robustness check by restricting my sample to non-migrants, and find qualitatively similar results. This is also supported by Rosenzweig and Stark (1989), which reports that most female migration in India happens only as a result of marriage.

where H is a dummy variable for being Hindu, and the coefficient of interest in this specification is γ_1 .

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 took place earlier than it actually did. 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 $d - \tau$, where d is the year the reform actually took place in state s (i.e., $t > d - \tau$), and 0 otherwise. The model is

$$Y_{ist} = \delta_0 + \delta_1 Aft'_{ist} * St_{ist} + \delta_2 X_{ist} + \alpha_s + \alpha_t + \varepsilon_{ist} \quad (3)$$

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. For additional robustness, I estimate this specification multiple times for all τ from one to ten. 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 toward women, which was why they introduced the amendment in the first place, which would imply that the coefficient δ_1 should be positive and significant for the Hindu sample. A coefficient insignificantly different from zero for both religions would ensure that there were indeed no such differential state-cohort trends for either religious group and that the improved autonomy for the Hindu women can be attributed to the law amendments.

III. DATA

The data I use is the National Family Health Survey (NFHS) conducted in 2005-06, 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, wealth status, and durable goods ownership. In addition, a Women's Schedule provides the information needed to pin down the treatment status—state of residence, year of marriage, and religion—for all women between the ages of 15 and 49 in each household. It also provides information on sociodemographic variables such as years of education, work status, husband's education and occupation, and on variables denoting status within the household such as participation in own healthcare and household decision-making, and requiring permission to go somewhere or maintain contact with friends and family.

The outcome variables that are based on questions related to mobility are dummy variables denoting: (i.) whether the woman is allowed to go to a health clinic by herself; and (ii.) 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): (iii.) how the husband's money is spent; (iv.) her own healthcare decisions; (v.) big household purchase decisions; (vi.) small household purchase decisions; and (vii.) decisions about visiting her family and friends.

Table 1 shows summary statistics. There are 93,274 married women in the data overall who constitute my primary sample. Women in reform and non-reform states are similar in average age and age at marriage. 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-reform,¹⁴ who are younger. The reform states have a slightly higher proportion of Hindu women at 80% compared to 75% in the non-reform states. The second and third panels show 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 second panel is for the entire sample; since women in the reform states married pre-reform are

14. Deininger, Goyal, and Nagarajan (2013) and Roy (2015) 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 almost unchanged.

much older on average than those married post-reform, and age is an important determinant of autonomy, the third 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.

IV. 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.

Primary Results

Table 2 presents the difference-in-difference estimates for each of the outcome variables discussed in the previous section. The coefficient corresponding to $Aft * St$ is β_1 from specification (1) and captures the effect of being exposed to the reform. Hindu women are significantly more likely to have a say in their healthcare and other household decisions if they belong to the reform states and were married post-reform. For instance, 'treated' Hindu women are 2.6% more likely to have a say in own healthcare decisions, and 3.3% more likely to participate in household purchase decisions. They are also 4.9% more likely to have a say in visits to family and relatives, which is very pertinent 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 property. 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 3.6% more likely to visit the market and 2% 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. As expected, older women and women in urban

areas have higher autonomy, for both religions, as do women who have had some level of education compared to those who have never been to school.

The results from the triple-difference specification (reported in table S.3 in the supplemental appendix) point in a similar direction. We see from the first column that women actually exposed to the reform have significantly better outcomes; the coefficients are in fact larger in magnitude compared to the difference-in-difference coefficients for all outcomes. The second column shows that the reform did not have a significant effect on the outcomes for the non-Hindus, 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 states.

Results of Placebo Tests

Table 3 documents the results of the placebo tests. The coefficients reported are δ_1 from specification (3) for the Hindu and non-Hindu samples 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;¹⁵ 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 for difference-in-difference. The non-Hindu coefficients are insignificant for most specifications but not all. This also suggests that the estimates from the diff-in-diff specification are more credible than triple difference, since the difference in trends between Hindus and non-Hindus were not always parallel across reform and non-reform states, violating the triple difference assumption. Moreover, as discussed earlier, the non-Hindu counterparts of the ‘treated’ women in the reform states, though identical to the ‘non-treated’ non-Hindu women for all the decision-making outcomes, appear to fare *worse* in terms of the

15. Appendix table S.4 shows the coefficients for all outcome variables for the case where $\tau = 10$.

mobility outcomes¹⁶ (as seen in table 2); so the difference-in-difference coefficients are also more conservative than the triple-difference coefficients.

V. INVESTIGATING CHANNELS FOR INCREASED AUTONOMY

Building on the finding that the amendment elevated women's status in the reform states, I now explore the effect of the reform on the actual bargaining dynamics within the household. For the 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. The richness of the data thus 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 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.¹⁷ 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.¹⁸ 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.

16. This could be because the reform might have made the younger non-Hindu women, who have worse outcomes in general as part of the religious minority, perceive themselves as facing more constraints as a result of the improvement in autonomy of their Hindu contemporaries.

17. The 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 (2015), Khalil and Mookerjee (forthcoming), Coffey et al. (2015), and by Sen, Rastogi, and Vanneman (2006) in the sociology literature.

18. I define joint households as those where the respondents co-reside with the husbands' parents. Less than 1% of women in nuclear households report that 'others' make decisions. This strongly suggests that the other decision-makers are primarily the parents-in-law.

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 4 shows the results.¹⁹ Post-reform, the wife is more likely to have a say in decisions jointly with her husband but less likely to be the solo decision-maker. The husband's decision-making participation also increases, and the household members whose decision-making power declines are actually the 'other' group, mostly comprising the husbands' parents. This finding is in direct contrast to the other papers that have examined the effect of the reform on women's autonomy; while mostly agnostic about the channels through which the reform empowers women, 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, Heath and Tan 2014). Contrary to such a spousal transfer of authority, I show that the couple as a whole is empowered at the expense of the older generation of household members.

There are a number of reasons why this might be the case. First, the wife's potential inheritance could empower both her and her husband relative to the 'other' family members. A second reason is that the reform might have reduced the likelihood of couples 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 a direct effect on family structure itself, resulting in a partition of large joint families into smaller nuclear households. I discuss these channels below.

Bargaining Channel

This channel is similar in spirit to previous research (Roy 2008, Heath and Tan 2014) but is more reflective of a coalition type bargaining framework, where bargaining power shifts from other household members to the couple post reform. In joint families, the husband serves as the key link between the wife and his family; for instance, his parents 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

19. The 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 coefficients for the non-Hindu sample are mostly insignificant.

marital household. Thus the reform can empower *both* the wife, whose bargaining power increases as a direct result of the increase in her perceived worth, *and* the husband, who can exploit his crucial position in the family structure as the link between his wife and extended family.

Partition Channel

The partition channel works through a shift in family structure away from joint households into smaller nuclear setups, following the reform. First, if the older members in joint families indeed impose more restrictions and curtail mobility and decision-making, women would have a preference for residing away from the husband's extended family, and those exposed to the reform would be better able to realize this preference. This could be either as a manifestation of their greater autonomy as a consequence of their increased financial worth, or because the wife's potential inheritance enables these couples to be able to afford to set up their own nuclear households. Such splitting away from the extended family setup would trivially empower the couple relative to the other household members, by eliminating them as potential decision-makers.

The partition channel need not work only through the impact of the reform on wives' increased inheritance—it could alternately be driven by a potential weakening of husbands' financial ties with their ancestral families in the reform states, owing to the effect of the reform on men through their *sisters*. Since their sisters now have a birthright as well, the reform entails a smaller share of joint property for men in these states. This could result in men whose occupations are dependent on the share of family property (such as agriculture) having less incentive to stay on in a joint family setup post reform and opting to move out.²⁰ Since families that have joint or ancestral property have a greater propensity to live in joint family set-ups, it would precisely be 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

20. Note that this is not a theoretical prediction but an empirically testable hypothesis.

family,²¹ their incentive to do so declines post-reform since the amount of money at the father's disposal to bequeath is smaller.

Testing the bargaining channel amounts to finding evidence that, within a particular type of family setup, women exposed to the reform have better autonomy outcomes. Examining the partition channel involves finding evidence that the following key patterns hold:

(a) *A preference for nuclear households*: Women in nuclear families should have higher autonomy than those in joint ones.

(b) *Partition driven by an increase in wives' inheritance*: Couples in reform states married after the reform should be less likely to be residing in joint families.

(c) *Partition driven by a decrease in husbands' inheritance*: Men in the reform states should switch to nuclear households if their income streams are potentially constrained by the reform.

In the next section, I empirically examine whether both these channels are in operation. I do not make any claims about the relative importance of the two. I first provide evidence for the partition channel and then explore whether the bargaining channel is in effect as well.

VI. EMPIRICAL EVIDENCE FOR CHANNELS

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 household;²² the dummy

21. Botticinni and Siow (2003) shows that parents would want to leave bequests to those children who reside with them.

22. For 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.

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.

Evidence for Partition 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 5 shows the coefficient for the *joint* dummy from regressions of each of the outcome variables on a binary indicator denoting a joint household, controlling for age, education, caste, 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 sample. Appendix table S.6 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 toward authority. For instance, they may be less submissive or more desirous of asserting themselves. However, the data shows that women in joint families are in fact socioeconomically advantaged compared to those belonging to nuclear families. As table 2 illustrates, autonomy is found to be strongly positively correlated with socioeconomic characteristics such as years of education. Assuming that unobservable characteristics mirror these observable determinants of autonomy, this would suggest that the estimates for the effect of residing in a joint family on autonomy are not entirely driven by the sample of women in joint households being negatively selected or predestined for worse autonomy outcomes; in fact, these coefficients may even be biased *downward* in magnitude. Khalil and Mookerjee (forthcoming) and Debnath (2015) 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) *Are treated women more likely to reside in nuclear households?*

Next, I examine whether the potential increase in the wife's inheritance results in partition of joint households by checking for higher rates of migration among couples in reform states married post-reform. Table 6 shows the coefficient for being exposed to the reform on the outcome variable *joint*.²³ The first column shows that Hindu women who were 'treated' are significantly less likely by about 4.3% to reside in joint families, while the second column shows that there is no such effect for the non-Hindu women. A placebo test identical to specification (3), which assumes that the amendments occurred a couple of 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) Is part of the effect driven by the negative effect on men's inheritance?

Finally, I explore whether this shift in household structure is partially driven by the detrimental effect of the reform on men's inheritance. These are the men with sisters who were eligible to benefit from the reform. Unfortunately, the NFHS data doesn't allow me to calculate the number of siblings of each man since I do not observe any siblings who are not residents of the same household. To overcome this shortcoming, I make use of the Rural Economic and Demographic Survey (REDS) conducted in 1999. The REDS data provides information on household structure that is similar to the NFHS but also contains additional information on all the children of household heads who are not residents of the household. In particular, it provides the exact years of marriage of any daughters of the household head, thereby allowing me to identify whether these women, and in turn their brothers, are actually exposed to the reform. The partition channel predicts that men are more likely to leave the household if they have sisters who are treated but not if they have only untreated sisters, in which case their inheritance is not affected. Appendix table S.7 shows results from the REDS data for sons of household heads who are over 18 years of age; Hindu boys are around four percent more likely to reside away from home if they have a treated sister (i.e., a sister who is unmarried or was married after the reform), or if they have a sibling who is entitled to equal inheritance (i.e., a brother or a treated sister) but not if they have an

23. The specification for these regressions is the same as before, equation (1).

untreated sister (i.e., a sister who was married before the reform). All coefficients are insignificant for non-Hindus, to whom the reform doesn't apply.

Evidence for Bargaining Channel

To provide evidence for the bargaining 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.

The top panel of table 7 reports the results for the subsample of women who are in joint marital families (i.e., who have any person of an older generation residing in their marital household).²⁴ The columns represent mutually exclusive decision-makers: the respondent only, her husband only, the couple together, or others in the household. The coefficients are consistent with what the bargaining channel would predict: couples are significantly more likely to have a say in decisions post-reform, and the others are significantly less likely. Admittedly, since the reform changes the incentives of couples to stay on in a joint family framework, there could be some selection; however, such selection potentially works *against* these results. As argued above, women who have a higher preference for autonomy or an enhanced capacity to exert their authority are now more likely to have moved out of joint households and so the composition of couples in joint families now shifts toward those with a higher tolerance for co-residing with other potential decision-makers. Therefore, the coefficients that I estimate are possibly *lower bounds* for the true effects. The reform primarily increases the 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.²⁵

24. The sample is restricted to women who have been married into the household (i.e., wives, sisters-in-law, and daughters-in-law of household heads). Other respondents, such as those who identify as daughters and sisters of the head, are excluded from the sample since the data does not provide information about their marital families.

25. Section V discusses the intuition behind why men benefit despite their inheritance being *negatively* affected; however, in line with section VI (c), the reform might also be shifting the

Finally, the bottom panel reports the results for the subsample of women in nuclear households. The proportion of such households where ‘others’ make the decisions is a negligible 1% compared to over 20% in the joint sample. Conditional on nuclear residence, the reform has a modest positive effect on couples’ joint autonomy—the coefficient is significant for two of the outcome variables but much smaller compared to those for joint households. However, the improvement in joint decision-making for the wives is offset by the reduction in their solo decision-making authority. Note that selection concerns should similarly imply that these coefficients are biased *upward*, since women who can exercise a choice to move away with their husbands from a joint marital household should in fact be predisposed toward better autonomy outcomes. The bargaining mechanism of increasing the woman’s importance within her marital family therefore seems to be more prominent among joint families. One explanation of this is that, to the extent that divorces are rare²⁶ but that separation of the couple from the joint households is an easier and more likely outcome after the amendments, the reform led to a higher gain in bargaining power of the couple with respect to the extended family relative to the extent to which wives were empowered vis-à-vis husbands in nuclear homes. 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 place.

VII. 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. Conditional on family structure, however, most of the 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.

composition of men in joint households toward sole inheritors rather than ones with siblings who are also likely to exert greater influence on their parents.

26. The divorce rate for ever-married women in my sample is 0.54%.

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 cannot 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 instead in an intergenerational transfer of authority.

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. While a joint family structure places restrictions on women like lower autonomy and lower participation in the labor market (Khalil and Mookerjee forthcoming, Debnath 2015), it also has some benefits. It is an important form of social security, especially among those who are economically disadvantaged. Older women in the joint household provide subsidized childcare (Desai and Jain 1994), while the presence of additional household members seems to reduce spousal violence (Khalil and Mookerjee forthcoming). So a shift into nuclear families, though accompanied by improved autonomy, may have 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 partition channel to improve women's outcomes shrinks. The effect of the reform in terms of strengthening the woman's position

within her household is also weaker in nuclear setups. This implies that, in a situation where the traditional joint family is rare, such a reform would have little 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 ones. 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 (i.e., actually inheriting more) will accrue to a greater proportion of women in nuclear households.

VIII. CONCLUSION

The amendment to the Hindu Succession Act was a significant step toward gender equality in India. I find evidence that women exposed to the reform did report more favorable autonomy outcomes. However, I show that the reform also increased the bargaining power of the husbands of the treated women; in fact, the husbands benefitted more than their wives at the expense of other household members. 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 since other members of the family residing in the same household also wield decision-making 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 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 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 policymakers 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.

REFERENCES

- Agarwal, B. 1994. *A field of one's own: gender and land rights in South Asia*, volume 58. Cambridge University Press,
- Allendorf, K. 2013. "Going Nuclear? Family Structure and Young Women Health in India, 1992–2006." *Demography* 50 (3): 853–880.
- Amaral, S. 2014. "Do Improved Property Rights Decrease Violence against Women in India?" Available at SSRN 2504579.
- Anderson, S., and M. Eswaran. 2009. "What Determines Female Autonomy? Evidence from Bangladesh." *Journal of Development Economics* 90 (2):179–91.
- Anderson, S., and G. Genicot. 2015. "Suicide and Property Rights in India. *Journal of Development Economics* 114: 64–78.
- [Bertrand, M. S. Mullainathan, and D. Miller. 2003. "Public Policy and Extended Families: Evidence from Pensions in South Africa." *The World Bank Economic Review* 17 (1): 27–50.
- Borooah, V.K. 2004. "Gender Bias among Children in India in Their Diet and Immunisation against Disease. *Social Science & Medicine* 58 (9): 1719–31.
- Botticini, M., and A. Siow. 2003. "Why Dowries? *The American Economic Review* 93 (4): 1385–98.
- Chattopadhyay, R., and E. Duflo. 2004. "Women As Policy Makers: Evidence from a Randomized Policy Experiment in India." *Econometrica* 72 (5): 1409–43.
- Chiappori, P., and Y. Weiss. 2007. "Divorce, Remarriage, and Child Support." *Journal of Labor Economics* 25 (1): 37–74.
- Coffey, D., R. Khera, and D. Spears. 2015. "Intergenerational Effects of Womens Status: Evidence from Joint Indian Households." Technical report, Working Paper.
- Das Gupta, M., S. Lee, P. Uberoi, D. Wang, L. Wang, and X. Zhang. 2000. "State Policies and Women's Autonomy in China, The Republic of Korea, and India, 1950-2000: Lessons from Contrasting Experiences." Working paper.
- Das Gupta, M., and P.N.M. Bhat. 1997. "Fertility Decline and Increased Manifestation of Sex Bias in India." *Population studies* 51 (3): 307–15.
- Debnath, S. 2015. "The Impact of Household Structure on Female Autonomy in Developing Countries." *The Journal of Development Studies* 51 (5): 485–502.
- Deininger, K., A. Goyal, and H. Nagarajan. 2013. "Women's Inheritance Rights and Intergenerational Transmission of Resources in India. *Journal of Human Resources* 48 (1): 114–41.
- Deininger, K., S. Jin, H. Nagarajan, F. Xia, et al. 2013. "How Far Does the Amendment to the Hindu Succession Act Reach? Evidence from Two-Generation Females in Urban India. In *2013 Annual Meeting, August 4-6, 2013, Washington, DC*, number 151432. Agricultural and Applied Economics Association.

- Desai, S., and J. Devaki. 1994. "Maternal Employment and Changes in Family Dynamics: The Social Context of Women's Work in Rural South India." *Population and Development Review* 115–36.
- Duflo, E. 2012. "Women Empowerment and Economic Development." *Journal of Economic Literature* 50 (4): 1051–79.
- Gandhi Kingdon, G. 2002. "The Gender Gap in Educational Attainment in India: How Much Can Be Explained?" *Journal of Development Studies* 39 (2): 25–53.
- Harari, M. 2014. "Women Inheritance Rights and Bargaining Power: Evidence from Kenya." *Department of Economics of MIT* 1–47.
- Heath, R., and T. Xu. 2014. "Intrahousehold Bargaining, Female Autonomy, and Labor Supply: Theory and Evidence from India." *Unpublished manuscript*.
- Khalil, U., and S. Mookerjee. Forthcoming. "Patrilocal Residence and Women's Welfare: Evidence from South Asia." *Economic Development and Cultural Change*.
- Lancaster, G., P. Maitra, and R. Ray. 2006. "Endogenous Intra-Household Balance of Power and Its Impact on Expenditure Patterns: Evidence from India." *Economica* 73 (291): 435–60.
- Luke, N., and K. Munshi. 2011. "Women As Agents of Change: Female Income and Mobility in India." *Journal of Development Economics* 94 (1): 1–17.
- Maitra, P. 2004. "Parental Bargaining, Health Inputs and Child Mortality in India." *Journal of Health Economics* 23 (2): 259–91.
- Mearns, R. 1999. *Access to land in rural India: policy issues and options*, volume 2123. World Bank Publications.
- Mobarak, A.M., R. Kuhn, and C. Peters. 2007. "Marriage Market Effects of a Wealth Shock in Bangladesh." *Yale University Working Paper*.
- Qian, N. 2008. "Missing Women and the Price of Tea in China: The Effect of Sex-Specific Earnings on Sex Imbalance." *The Quarterly Journal of Economics* 123 (3): 1251–85.
- Rosenblum, D. 2015. "Unintended Consequences of Women Inheritance Rights on Female Mortality in India." *Economic Development and Cultural Change* 63 (2): 223–48.
- Rosenzweig, M.R., and O. Stark. 1989. "Consumption Smoothing, Migration, and Marriage: Evidence from Rural India." *The Journal of Political Economy* 905–26.
- Roy, K.C., and C. A. Tisdell. 2002. "Property Rights in Women's Empowerment in Rural India: A Review." *International Journal of Social Economics* 29 (4): 315–34.
- Roy, S. 2008. "Female Empowerment through Inheritance Rights: Evidence from India." *London School of Economics, London*.
- . 2015. "Empowering Women? Inheritance Rights, Female Education and Dowry Payments in India." *Journal of Development Economics* 114: 233–51.
- Sen, M., S. Rastogi, and R. Vanneman. 2006. "Disempowered by Whom? Gender vs. Generation in Family Decision Making." *Unpublished manuscript, Department of Sociology, University of Maryland, College Park, MD*.

Table 1: Summary Statistics

	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)
N	93,724	9,889	14,631	24,520	69,204
<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

Notes: Entries present sample means with standard deviations reported in parentheses.

Source: Author's analysis based on data sources discussed in the text.

Table 2: Difference-in-Difference Results

	Health Dec	Major Purchase	Minor Purchase	Expenditure Dec	Family Visit	Visit Clinic	Visit Market
<u>Hindu</u>							
Aft*St	0.026** (0.009)	0.035** (0.009)	0.033** (0.009)	0.016* (0.008)	0.049** (0.008)	0.020** (0.008)	0.036** (0.008)
Age	0.028** (0.003)	0.033** (0.003)	0.033** (0.002)	0.029** (0.003)	0.031** (0.002)	0.044** (0.002)	0.047** (0.002)
Urban	0.065** (0.007)	0.087** (0.007)	0.083** (0.007)	0.035** (0.006)	0.074** (0.007)	0.129** (0.007)	0.142** (0.007)
Primary Edu	0.022** (0.006)	0.018** (0.006)	0.010 (0.006)	0.015** (0.006)	0.010 (0.006)	0.030** (0.006)	0.012* (0.006)
Secondary Edu	0.045** (0.005)	0.041** (0.006)	0.022** (0.005)	0.041** (0.005)	0.033** (0.005)	0.071** (0.005)	0.052** (0.005)
Higher Edu	0.126** (0.009)	0.125** (0.009)	0.090** (0.009)	0.095** (0.009)	0.111** (0.009)	0.183** (0.009)	0.160** (0.008)
SC/ST/OBC	0.005 (0.005)	0.006 (0.006)	0.007 (0.005)	0.012* (0.005)	0.006 (0.005)	0.006 (0.005)	0.001 (0.005)
N	67,777	66,114	66,094	66,426	67,775	72,070	72,072
<u>Non Hindu</u>							
Aft*St	0.006 (0.021)	-0.003 (0.020)	-0.017 (0.018)	-0.013 (0.019)	-0.007 (0.019)	-0.046* (0.019)	-0.049** (0.018)
Age	0.035** (0.005)	0.032** (0.005)	0.035** (0.005)	0.028** (0.005)	0.032** (0.004)	0.042** (0.005)	0.043** (0.005)
Urban	0.029* (0.012)	0.063** (0.013)	0.045** (0.012)	0.003 (0.011)	0.061** (0.012)	0.059** (0.015)	0.077** (0.014)
Primary Edu	0.019 (0.012)	0.031* (0.012)	0.050** (0.011)	0.018 (0.011)	0.029* (0.011)	0.021 (0.013)	0.026* (0.013)
Secondary Edu	0.039** (0.011)	0.054** (0.012)	0.048** (0.011)	0.048** (0.011)	0.031** (0.010)	0.051** (0.013)	0.045** (0.013)
Higher Edu	0.114** (0.016)	0.123** (0.020)	0.087** (0.018)	0.083** (0.017)	0.096** (0.021)	0.143** (0.021)	0.144** (0.019)
SC/ST/OBC	-0.013 (0.014)	0.016 (0.014)	0.013 (0.014)	0.008 (0.013)	0.021 (0.014)	0.009 (0.015)	0.028 (0.015)
N	15,562	15,267	15,234	15,148	15,562	16,753	16,752

Notes: **, * indicate significance at 1 and 5 percent respectively. Standard errors clustered at the PSU level in brackets. All regressions control for year-of-marriage fixed effects and state fixed effects. The omitted education category is 'No Education', and the omitted caste category is 'General'.
Source: Author's analysis based on data sources discussed in the text.

Table 3: Placebo Test

	Hindu	Non-Hindu
baseline	0.025** (0.006)	-0.007 (0.012)
N	64,780	16,952
$\tau = 1$	0.004 (0.012)	-0.001 (0.027)
$\tau = 2$	0.011 (0.009)	-0.027 (0.026)
$\tau = 3$	0.010 (0.008)	-0.019 (0.021)
$\tau = 4$	0.011 (0.007)	-0.048** (0.019)
$\tau = 5$	0.011 (0.007)	-0.035* (0.018)
$\tau = 6$	0.008 (0.007)	-0.022 (0.018)
$\tau = 7$	0.012 (0.007)	-0.025 (0.018)
$\tau = 8$	0.013 (0.007)	-0.028 (0.017)
$\tau = 9$	0.008 (0.007)	-0.033 (0.019)
$\tau = 10$	0.005 (0.007)	-0.021 (0.019)
N	32,983	7,829

Notes: **, * 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, year-of-marriage fixed effects and state fixed effects. The sample (except for the baseline row) is restricted to women married before the last reform year, and not actually exposed to the reform.

Source: Author's analysis based on data sources discussed in the text.

Table 4: Overall Change in Decision-Making by Member

	wife only	wife has say	husband only	husband has say	others only
Own Healthcare Decision	-0.013 (0.008)	0.025** (0.009)	0.015 (0.008)	0.052** (0.009)	-0.039** (0.004)
Major Purchase Decision	-0.035** (0.006)	0.034** (0.009)	0.046** (0.008)	0.115** (0.008)	-0.080** (0.006)
Minor Purchase Decision	0.008 (0.009)	0.033** (0.009)	0.045** (0.008)	0.070** (0.009)	-0.077** (0.006)
Family Visit Decision	-0.029** (0.007)	0.048** (0.008)	0.036** (0.008)	0.113** (0.008)	-0.084** (0.005)
N	66,456	66,456	66,456	66,456	66,456

Notes: **, * 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 level, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only.
 Source: Author's analysis based on data sources discussed in the text.

Table 5: Effect of living in a Joint Family on Autonomy

	Hindu	Non-Hindu
Own Healthcare Decision	-0.079** (0.005)	-0.068** (0.010)
Major Purchase Decision	-0.162** (0.005)	-0.151** (0.010)
Minor Purchase Decision	-0.166** (0.005)	-0.166** (0.010)
Expenditure Decision	-0.120** (0.005)	-0.130** (0.010)
Family Visit Decision	-0.147** (0.005)	-0.126** (0.010)
Visit Health Clinic Alone	-0.060** (0.005)	-0.084** (0.010)
Visit Market Alone	-0.065** (0.004)	-0.092** (0.010)
N	59,464	15,048

Notes: **, * 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 level, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects.

Source: Author's analysis based on data sources discussed in the text.

Table 6: Probability of Living in Joint Families

	Hindu	Non-Hindu
Aft*St	-0.043** (0.009)	0.030 (0.018)
Urban	-0.111** (0.006)	-0.066** (0.009)
Primary Edu	0.056** (0.006)	0.033** (0.010)
Secondary Edu	0.115** (0.005)	0.067** (0.010)
Higher Edu	0.172** (0.009)	0.085** (0.018)
N	61,302	15,521

Notes: **, * 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'. All regressions control for age and age squared, caste, year-of-marriage fixed effects and state fixed effects.

Source: Author's analysis based on data sources discussed in the text.

Table 7: Bargaining Channel: Change in Decision-Making by Member

	Wife	Husband	Couple	Others
<u>Joint Households</u>				
Own Healthcare Decision	0.001 (0.017)	0.004 (0.018)	0.039* (0.019)	-0.044** (0.010)
Major Purchase Decision	-0.037** (0.011)	0.055** (0.018)	0.065** (0.019)	-0.083** (0.014)
Minor Purchase Decision	0.012 (0.018)	0.061** (0.016)	0.009 (0.017)	-0.082** (0.014)
Family Visit Decision	-0.035** (0.013)	0.056** (0.016)	0.075** (0.019)	-0.097** (0.013)
N	20,382	20,382	20,382	20,382
<u>Nuclear Households</u>				
Own Healthcare Decision	-0.022* (0.010)	0.013 (0.011)	0.011 (0.011)	-0.002 (0.002)
Major Purchase Decision	-0.035** (0.008)	0.008 (0.011)	0.032** (0.011)	-0.005* (0.002)
Minor Purchase Decision	-0.013 (0.011)	0.019 (0.010)	-0.005 (0.010)	-0.001 (0.002)
Family Visit Decision	-0.035** (0.008)	0.002 (0.010)	0.041** (0.011)	-0.008** (0.002)
N	39,042	39,042	39,042	39,042

Notes: **, * 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 level, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects. These regressions are for the Hindu sample only.

Source: Author's analysis based on data sources discussed in the text.

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

Sulagna Mookerjee*

Appendix

*Sulagna Mookerjee is an Assistant Professor of Economics at Georgetown University School of Foreign Service in Qatar; her email address is sulagna.mookerjee@georgetown.edu.

Table S.1: Robustness Checks: Selected Samples

	(1)	(2)	(3)	(4)
	Hindu	Non-Hindu	Hindu	Non-Hindu
Own Healthcare Decision	0.026** (0.009)	-0.002 (0.022)	0.023** (0.009)	0.002 (0.020)
Major Purchase Decision	0.037** (0.009)	-0.017 (0.020)	0.032** (0.009)	-0.009 (0.020)
Minor Purchase Decision	0.035** (0.009)	0.003 (0.018)	0.031** (0.009)	0.010 (0.017)
Expenditure Decision	0.017* (0.008)	-0.015 (0.019)	0.013 (0.008)	-0.015 (0.019)
Family Visit Decision	0.051** (0.008)	-0.004 (0.020)	0.046** (0.008)	0.005 (0.019)
Visits to Health Clinic	0.021** (0.008)	-0.061** (0.019)	0.021** (0.008)	-0.044** (0.019)
Visits to Market	0.036** (0.008)	-0.058** (0.018)	0.035** (0.008)	-0.041** (0.018)
N	65,030	16,302	63,310	16,523

**, * 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, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects. Columns (1) and (2) exclude Kerala from the sample, and columns (3) and (4) exclude women married after 2005.

Table S.2: Robustness Checks: Additional Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Hindu	Non-Hindu	Hindu	Non-Hindu	Hindu	Non-Hindu
Own Healthcare Decision	0.023* (0.009)	0.002 (0.021)	0.022* (0.009)	-0.004 (0.021)	0.025** (0.009)	-0.003 (0.020)
Major Purchase Decision	0.029** (0.009)	-0.004 (0.020)	0.032** (0.009)	-0.023 (0.020)	0.034** (0.009)	-0.008 (0.020)
Minor Purchase Decision	0.027** (0.008)	0.016 (0.017)	0.027** (0.009)	0.005 (0.018)	0.033** (0.009)	0.010 (0.017)
Expenditure Decision	0.012 (0.008)	-0.009 (0.019)	0.012 (0.008)	-0.018 (0.019)	0.016* (0.008)	-0.011 (0.019)
Family Visit Decision	0.044** (0.008)	0.005 (0.019)	0.045** (0.009)	-0.005 (0.019)	0.048** (0.008)	0.002 (0.019)
Visits to Health Clinic	0.017* (0.008)	-0.042** (0.018)	0.020* (0.008)	-0.052** (0.018)	0.020* (0.008)	-0.046** (0.018)
Visits to Market	0.034** (0.008)	-0.042** (0.017)	0.035** (0.008)	-0.050** (0.018)	0.037** (0.008)	-0.046** (0.017)
N	66,456	16,701	63,926	16,048	66,456	17,431

**, * 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, 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) control for tv ownership and wealth quintiles, and columns (5) and (6) control for native language.

Table S.3: Triple Difference Results

	Aft*St*H	Aft*St	St*H
Own Healthcare Decision	0.027 (0.018)	-0.000 (0.016)	0.003 (0.021)
Major Purchase Decision	0.040** (0.018)	-0.005 (0.016)	0.004 (0.019)
Minor Purchase Decision	0.041** (0.015)	-0.003 (0.014)	0.024 (0.017)
Expenditure Decision	0.041** (0.016)	-0.022 (0.015)	0.003 (0.018)
Family Visit Decision	0.060** (0.015)	-0.006 (0.014)	0.016 (0.018)
Visit Health Clinic Alone	0.071** (0.017)	-0.047** (0.015)	0.032 (0.019)
Visit Market Alone	0.087** (0.015)	-0.046** (0.014)	0.001 (0.019)
N	84,212	84,212	84,212

**,* 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 level, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects.

Table S.4: Placebo Test ($\tau = 10$)

	Hindu	Non-Hindu
Own Healthcare Decision	-0.015 (0.012)	-0.025 (0.030)
Major Purchase Decision	0.017 (0.012)	-0.043 (0.030)
Minor Purchase Decision	0.017 (0.011)	-0.023 (0.026)
Expenditure Decision	-0.002 (0.011)	-0.021 (0.027)
Family Visit Decision	0.009 (0.011)	0.016 (0.027)
Visit Health Clinic Alone	0.018 (0.011)	-0.056* (0.030)
Visit Market Alone	0.020 (0.011)	-0.052* (0.030)
N	36,074	9,012

**, * 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, year-of-marriage fixed effects and state fixed effects. The sample is restricted to women married before the last reform year, and not actually exposed to the reform.

Table S.5: Difference-in-Difference Results Split by Years

		0-2 yrs	2-5 yrs	5-10 yrs	>10 yrs
Own Healthcare Decision	H	0.011 (0.015)	0.011 (0.013)	0.027* (0.011)	0.052** (0.013)
	NH	-0.008 (0.032)	0.040 (0.027)	-0.021 (0.024)	-0.019 (0.027)
Major Purchase Decision	H	0.013 (0.015)	0.032** (0.013)	0.021* (0.011)	0.066** (0.013)
	NH	-0.001 (0.034)	0.001 (0.028)	-0.011 (0.023)	-0.030 (0.028)
Minor Purchase Decision	H	0.003 (0.014)	0.016 (0.013)	0.030** (0.011)	0.077** (0.012)
	NH	-0.002 (0.032)	0.041 (0.025)	-0.002 (0.021)	0.003 (0.026)
Family Visit Decision	H	0.043** (0.014)	0.030** (0.012)	0.047** (0.010)	0.081** (0.012)
	NH	0.030 (0.028)	0.014 (0.026)	-0.010 (0.022)	-0.035 (0.025)
Visit Health Clinic Alone	H	-0.023 (0.014)	0.026* (0.012)	0.027** (0.010)	0.024* (0.012)
	NH	-0.022 (0.033)	-0.039 (0.027)	-0.044 (0.024)	-0.047* (0.024)
Visit Market Alone	H	-0.039 (0.013)	0.033* (0.027)	0.047** (0.010)	0.061** (0.011)
	NH	-0.011 (0.032)	-0.013 (0.026)	-0.048* (0.023)	-0.068** (0.024)

**,* 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, year-of-marriage fixed effects and state fixed effects. The average number of observations is 69,023 for Hindus and 18,214 for non-Hindus.

Table S.6: Effect of living in a Joint Family on Autonomy: Reform States Only

	Hindu	Non-Hindu
Own Healthcare Decision	-0.064** (0.009)	-0.045** (0.021)
Major Purchase Decision	-0.121** (0.010)	-0.113** (0.025)
Minor Purchase Decision	-0.123** (0.009)	-0.123** (0.021)
Expenditure decisions	-0.099** (0.009)	-0.097** (0.021)
Family Visit Decision	-0.110** (0.009)	-0.105** (0.021)
Visit Health Clinic Alone	-0.043** (0.010)	-0.048** (0.020)
Visit Market Alone	-0.052** (0.009)	-0.080** (0.019)
N	16,004	3,375

**, * 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, urban or rural residence, caste, year-of-marriage fixed effects and state fixed effects. The sample is restricted to women who were married into the household.

Table S.7: Probability of Sons Moving Out (REDS sample)

	Hindu	Non-Hindu
St*Inheriting Sibling	0.042** (0.015)	-0.059 (0.077)
St*Treated Sister	0.035** (0.013)	0.017 (0.061)
St*Untreated Sister	-0.021 (0.014)	0.71 (0.062)
N	7,983	703

**, * indicate significance at 1 and 5 percent respectively. Robust standard errors in brackets. St: dummy for reform state, Treated Sister: dummy for having a sister not married before the reform, Untreated Sister: dummy for having a sister married before the reform, Inheriting Sibling: dummy for having either a brother or a treated sister. All regressions control for years of education, age, years of education, caste, total number of male and female siblings, and include state and sister's year-of-marriage fixed effects. The sample is restricted to boys over 18 years of age. Data Source: REDS 1999.