Keeping It in the Family: Female Inheritance, Inmarriage, and the Status of Women

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Abstract

While female property ownership is associated with positive outcomes for women, their right to inherit property in male-dominated societies may also result in more constraining marriage and gender norms. I develop and test the following hypothesis: Where a woman inherits property, her male relatives are more likely to arrange her marriage within the same community in order to avoid fragmentation of the land. Arranging the marriage also requires controlling the woman's relations and mobility, which negatively impacts her economic participation. By analyzing datasets on pre-industrial societies and Indonesian individuals, I find that female inheritance is associated with a higher prevalence of cousin and arranged marriages as well as lower female economic participation and premarital sexual freedom. Using a difference-in-differences design that exploits exogenous variation induced by a reform of inheritance laws in India, I also provide evidence for a causal effect of female inheritance on cousin marriage and female economic participation rates. These findings have implications for the evolution of marriage and gender norms in Islamic societies, where female inheritance is mandated by Islamic law.

JEL classifications: D01, J12, J16, N30, Z12, Z13

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> “This is what the LORD commands . . . Every daughter who inherits land in any Israelite tribe must marry someone in her father’s tribal clan, so that every Israelite will possess the inheritance of his fathers."
>
> (The Bible, Numbers 36)

1 Introduction

Much of the economics literature argues that granting women rights to inherit property empowers women, increases their autonomy, and promotes gender equality (see, e.g., Deininger et al., 2013; Roy, 2015; Heath and Tan, 2019; Anderson, 2018). However, female inheritance may also result in the imposition of constraining marriage and gender norms on young women if it is not accompanied by actual property ownership.

In the modern world, women’s inheritance rights enable them to control and exploit their property and therefore improve their social and economic prospects. But, in a patrilineal society, female inheritance transmits property through women, not to women. Here, women function mainly as carriers of property from father to husband, and on to children, rather than as active managers of wealth (Goody, 1976; Korotayev, 2000; Howell, 2010). Therefore, under female inheritance, a woman’s marriage determines with whom her family will have to share their land. Thus, her male relatives have incentive to arrange her marriage within their kin group or same community in order to keep her share of property among themselves. Arranging her marriage also requires controlling her mobility and premarital relations. These arrangements and controls may negatively impact the woman’s role and participation in society.

In this paper, I contribute to the literature by empirically assessing these long-standing hypotheses. I suggest that under female inheritance, patrilineal societies encourage inmarriage—in the form of cousin marriage or endogamy (marriage within the limits of a local community such as a clan or village)—and control over women’s relations to keep property within the male lineage, prevent property fragmentation, and limit conflicting claims on the estate. Using various community- and individual-level datasets, I confirm that female inheritance is associated with more cousin marriage, endogamy, and arranged marriage, as well as with less female economic participation and premarital sexual freedom. In a difference-in-differences analysis using a policy reform on inheritance laws, I also provide causal evidence that female inheritance has a positive effect on the cousin marriage rate and a negative effect on the female economic participation rate.

Using insights from anthropological studies such as Goody (1976), I propose two hypotheses. The first hypothesis is that when women are included in inheritance, inmarriage is more frequent. Cousin marriage keeps the land within the male lineage; when a family head marries his granddaughter to his son’s son (her first cousin), her share of inheritance still serves to maintain the male lineage that is an important objective of patriarchs. Inmarriage also decreases land and capital fragmentation: a man can marry a woman within the kin group or same community to pool land parcels and capital goods. Such arrangements with outsiders are costly, because of imperfect capital markets in pre-industrial societies and developing countries.[1]

The second hypothesis is that under female inheritance, more restrictions are imposed on women's premarital relations and their economic participation. Arranging marriages within the same community requires controlling young people's premarital courtship and sexual relationships through gender segregation and restrictions on contact between opposite sexes. Under such restrictions, young people are more likely to meet and fall in love with insiders. These restrictions tend to disadvantage young women more than young men due to the respective implications of virginity, unwanted pregnancy, and maternity certainty.

Gender segregation might manifest as women being secluded at home and wearing the veil and the burqa, which are incompatible with strenuous manual work such as in agriculture. Moreover, inmarriage and restrictions on women's relations tie them to their kin group or village and discourage their mobility in the labor market, making them less likely to be employed.

In the empirical section, first I use pre-industrial society-level data from the Ethnographic Atlas to test the correlations predicted by the hypotheses in a historical context. Regression analyses confirm that female inheritance is associated with higher cousin marriage and endogamy as well as lower female participation in agriculture and premarital sexual freedom. The reduced female participation in agriculture associated with female inheritance is of a comparable magnitude to that of plow agriculture. As Alesina et al. (2013) argued, such a negative impact may carry over to beliefs about the role and participation of women in society generally.

The correlational analyses above are susceptible to reverse causality and potential confounds. Therefore, next I use the amendment of the Hindu Succession Act in 2005—which substantially improved Hindu women's inheritance rights on land—in a difference-in-differences approach to provide evidence of the causal impact of female inheritance on inmarriage and the status of women. The Hindu Succession Act applies only to Hindus, and explicitly exempts Muslims and Christians. For this analysis, I use data from the Indian National Family Health Survey. I show that the cousin marriage rate was significantly higher and the economic participation rate was significantly lower in the treated group, Hindu women married in or after 2005. I also provide placebo tests and event studies to confirm the identical counterfactual trends of the two outcome variables for treatment and control groups. These findings might partly explain the puzzle of recent decline in female economic participation rates in India (see Figure 1).

I also use the Indonesian Family Life Surveys, which provide data on the actual receiving of inheritance. I find results consistent with the hypotheses: Indonesian women who inherit property—even after marriage—are more likely to be engaged in endogamous and arranged marriages. This effect is obtained

[1] I base my arguments on inheritance of land only, both for the sake of clarity and because land was historically the most important form of property, factor of production, and source of wealth. However, my arguments and hypotheses may well apply to other property such as herds or commercial property.

Figure 1: Labor force participation rates of Indian women, measured by proportion of women ages 15 and older that is economically active. Source: International Labour Organization. The figure is also available on the World Bank's website.[2]

from a regression analysis controlling for individual characteristics and village-level, religion, and ethnicity fixed effects. This shows not only that different traditional inheritance systems have different consequences for marriage practices and gender norms *across societies*—as established through previous empirical strategies—but also that different potentials for actual inheritance may create different marriage outcomes for individuals living in the *same society*.

The findings of this study contribute to our knowledge of marriage and the status of young women in developing countries and highlight a potential unintended consequence of exogenously introduced policies to improve female inheritance under patrilineal restrictions. They also suggest that female inheritance affects marriage practices and the status of women even in the short term (such as in India). However, this short-term mechanism has operated for a long time and for a larger share of the population in some patrilineal societies that traditionally practiced female inheritance. The long-term practice of female inheritance in a patrilineal society may create persistent cultural traits and beliefs regarding marriage and the status of women that affect people—even those who do not receive inheritance, and even in an era in which, through industrialization, inheritance is no longer the only source of wealth and means of production. This has an important implication for the evolution of norms encouraging inmarriage and the seclusion of women in Islamic societies where Sharia has mandated female inheritance.

In the Qur'an, there is no specific guidance that encourages cousin marriage (Bittles, 2012) and no explicit prescription on the veiling of women (Ahmed, 1992). But, of all the economic rules in the Qur'an, the most detailed are those of inheritance (Kuran, 2012). The Qur'an, the main source of Islamic law, explicitly states the Islamic inheritance rules in such detail (the Qur'an 4:11) that no space is left for different interpretations regarding female inheritance. Islamic religious authorities have often paid great

[2] https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=IN

attention to the observance of female inheritance, while similar legal rights for women did not exist in the West until the nineteenth century (Korotayev, 2000). Islam, in fact, may be the only religion that formally specifies women's inheritance rights. In line with my arguments in the hypotheses, this may explain why cousin marriage (mean 32%), gender segregation, the seclusion of women inside homes, and the veiling of women are most common, and female economic participation (mean 27%) is lowest, in the Middle East and North Africa (see Figure 2). Studying these cultural traits is important for understanding the political economy and human development status of the region.[3]

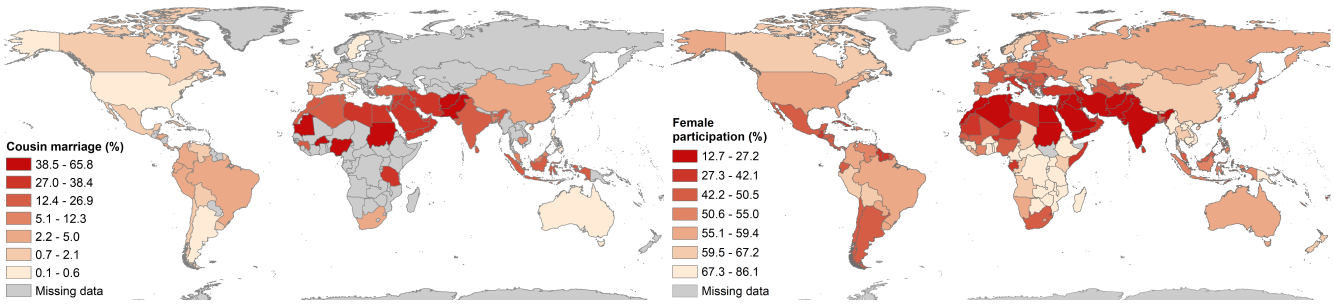

Figure 2: Left: Cousin marriage rates (up to and including second cousins) around the world. Source: Bittles and Black (2015). Right: Labor force participation rate of women, measured by proportion of women ages 15 and older who are economically active, 2010–2016. Source: International Labour Organization.

The paper is organized as follows. Section 2 reviews the literature, introduces various inheritance systems, and discusses their origins and persistence. Section 3 develops a conceptual framework for analyzing the effect of female inheritance on inmarriage and the status of women. Sections 4 and 5 describe the empirical strategies and present results using data on pre-industrial societies and individual-level datasets respectively. Finally, section 6 presents the conclusion and discussion.

2 Inheritance system as a determinant of kinship pattern

Social scientists discuss marriage practices and the status of women in the larger context of kinship patterns, for which inheritance is considered an important determinant.[4] Anthropological studies clearly

[3]For example, cousin marriage has historically provided one means of creating and maintaining tight kinship groups such as tribes and clans, with possibly important consequences, such as encouraging corruption, impairing the development of an individualistic social psychology, and undermining generalized trust, large-scale cooperation, and democratic institutions (Greif, 2006; Greif and Tabellini, 2015; Akbari et al., 2016; Enke, 2017; Schulz, 2017; Schulz et al., 2018).

[4]Max Weber perceived a kin group as "a group of expectant heirs" (Weber, 1978, p.365). Lewis Morgan argued that the family grew out of the development of a knowledge of property and its transmission by inheritance, and that even in the face of other factors, "with more effective power the rights of property might influence the system of relationship" (Morgan, 1871, p.14). Jack Goody noted that inheritance is an institution "in which interpersonal relationships are structured" (Goody, 1976, p.1). David Sabean suggested that "there is no system of obligations and duties" that is not mediated through property (Sabean, 1984, p.171).

emphasize that inheritance can affect marriage patterns, residence arrangements, family structures, patriarchy, courtship and sex, kinship terminology, and so on.[5]

To understand why the link between inheritance and kinship is important, we need to consider the institutional environment of pre-industrial societies and many contemporary developing countries. In pre-industrial agricultural societies, which were characterized by imperfect capital markets (Chu, 1991), land as the basic source of wealth and means of production was universally transmitted between close kin by the process of inheritance (Goody, 1969; Smith, 1984). Even today in many developing countries, land sales are rare, and most land is acquired through inheritance as a non-market mechanism (Platteau and Baland, 2001; Jain, 2014). It is not surprising that in such a world, “kinship and property are closely interlocked" (Goody, 1969, p.70).

I follow the literature and focus on examining the causal impact of inheritance rules on marriage practices and gender norms. To reach this end, I use different datasets that include my variables of interests and provide evidence for not only the correlations but also the causal relationships predicted by the literature. Next, after introducing different inheritance systems, I discuss their origins and persistence, with some historical examples that reflect the chain of causation suggested in the literature.

2.1 Classification of inheritance systems

It is important first to define what I refer to as "inheritance systems". I classify different inheritance systems using combinations of possible modes of property transmission. The first dimension involves lineal versus lateral inheritance systems. In lineal inheritance systems, property is transmitted vertically to children. In lateral inheritance systems, property is transmitted horizontally to siblings or indirectly vertically to siblings' children. The second dimension involves impartible versus partible inheritance systems. In impartible inheritance systems, a land parcel is preserved intact from generation to generation, and only one lineal or lateral heir inherits property. The examples are primogeniture (inheritance by a senior child, sibling, or sibling's child) and ultimogeniture (inheritance by a junior child, sibling, or sibling's child). In partible inheritance systems, the land parcel is not preserved intact. Instead, each parcel is divided up lineally or laterally, among some or all of the children, siblings, or siblings' children. The third dimension involves female inclusion versus female exclusion in inheritance.

To see how different inheritance systems can be characterized by the combinations of these three categories, consider the following historical examples.[6] Primogeniture, in practice carried out by preference given to the senior son—found in Japan, Korea, and northwest Europe—can be characterized as lineal and impartible, with female exclusion. The inheritance system of equal division of land property among sons—common in eastern Europe, Russia, China, and South Asia—can be characterized as lineal and partible,

[5] See, e.g., Morgan (1871); Dole (1965); Berkner (1972); Goody et al. (1976); Medick (1976); Medick and Sabean (1984); Smith (1984); Segalen (1986); Goldstein (1987); Korotayev (2000); Heady and Grandits (2003); Shenk et al. (2016).

[6] The examples are from Nakane et al. (1967); Goldschmidt and Kunkel (1971); Thirsk (1976); Platteau and Baland (2001); Kaser (2003); Mitterauer (2003); Beckert (2008)

with female exclusion. Dividing inheritance among all sons and daughters—common in Mediterranean Europe, Latin America, and Islamic societies—can be characterized as lineal and partible, with female inclusion. A lateral inheritance system was common in Africa south of the Sahara. In theory, this system could be partible or impartible, and with female inclusion or exclusion. But in practice, lateral inheritance in sub-Saharan Africa excluded women (Goody, 1976).[7] The mode of property transmission can also be characterized by the absence of any rules of inheritance or any private property rights, such as in hunter-gatherer or communal societies.[8] The global distribution of inheritance systems in the pre-industrial world (see Figure 4 in section 4) coincides with the historical examples mentioned above.

2.2 Origins and persistence of inheritance systems

The differences between inheritance systems are thought to be deep-rooted in agricultural and political organization. Capital-intensive (e.g., involving plows), open-field, and manorial agriculture might favor impartible inheritance due to economies of scale. However, agricultural organization itself is determined by geographic factors and political organization. For example, heavy soils usually required large plows pulled by several horses, which were expensive and practical only on large land holdings, while sandy light soils could be cultivated by handheld tools like the hoe and digging stick on small family farms. In terms of political organization, manorial agriculture, for example, was closely linked to feudalism.[9]

Despite the influence of agriculture, the literature suggests that inheritance systems are best explained by the political organization of societies. In societies with impartible inheritance, such as Japan or north-west Europe, lands were controlled by powerful nobility whose interests were best served by maintaining their holdings intact through impartible inheritance because the political and military functions associated with the estate were indivisible (Smith, 1776; Platteau and Baland, 2001; Beckert, 2008). Also, in the European countries, large estates came with seats on parliamentary bodies. Therefore, property became indivisible because the office was indivisible (Beckert, 2008).

On the other hand, a necessary condition for partible inheritance was a strong central government (Alston and Schapiro, 1984). In places such as China, India, Russia, and the Mediterranean, inheritance rules were subject to the legislation of strong central bureaucracies with an interest in restricting the development of powerful landholding families by fragmenting their properties through partible inheritance

[7]In the conceptual framework, I focus only on lineal inheritance, i.e., inheritance by sons and daughters. In the empirical sections, whenever lateral inheritance is also the case, I check the robustness of the results by distinguishing lateral and lineal inheritance systems.

[8]In many hunting and gathering societies (such as Native American societies) individuals had little property except personal equipment, which was often destroyed at death (Goody, 1976). Other societies had communal ownership of land, in which individuals inherited from their parents a general right of access to the whole of the community's resources that continued to exist after the head of the family passed away. Communal inheritance could be patrilineal (from father to sons), such as in the Russian peasantry, or matrilineal (from mother to daughters), such as among the Minang in Indonesia.

[9]See Platteau and Baland (2001) for a comprehensive discussion on different agricultural organizations and the involved political and geographic factors.

(Wittfogel, 1959; Goldschmidt and Kunkel, 1971; Platteau and Baland, 2001; Kuran, 2012). But contrary to patrilineal partible inheritance in China, India, and Russia, partible inheritance in the Mediterranean region (including the Middle East) included both sons and daughters. Inclusion of women in inheritance in the Mediterranean region had Roman-Byzantine roots (Kaser, 2003).

Again, it seems that geographic factors had a role here. For example, Wittfogel (1959) suggests that in regions such as the Middle East, states had centralized power by controlling large-scale irrigation systems essential to the agriculture. Bentzen et al. (2015) provide general evidence on this account. Michalopoulos et al. (2016, 2017) argue and present evidence that a centralized Islamic state featuring redistributive principles such as partible inheritance emerged to address economic inequalities resulting from geographic features of the region—this is, unequal agricultural potential with few fertile places and a large share of arid lands—and their interaction with the diversion of trade routes in seventh-century Arabia.

Whatever the deep-rooted sources are, once they determine the form of an inheritance system, its development “very much tends to follow the track that has been laid down, and is relatively independent of changing socio-economic conditions" (Beckert, 2008, p.82). One can find a strong continuity and a systematic pattern through all changes (Goody et al., 1976; Beckert, 2008). Two important aspects of inheritance contributed to its persistence and path dependency. First, inheritance practices cannot be understood as purely individual decisions. Rather, they are regulated by secular or religious institutions and laws. Inheritance laws frequently “continue in force long after the circumstances which first gave occasion to them" (Smith, 1776, p.305). Second, inheritance is a non-market institution (Platteau and Baland, 2001; Beckert, 2008).

For example, primogeniture was legally recognized through *entails*,[10] which were “respected through the greater part of Europe" (Smith, 1776, p.384). By entail, the testator not only determined the heir, but also decided to whom the land must be bequeathed after the death of the heir. If real property was entailed, it could not be sold by the heir, and it had to be passed on automatically from generation to generation according to the succession determined by the founder. Entails prevented the division of property through sale or inheritance. Therefore, an entailed property was removed from the market process. Aside from enjoying legal recognition for centuries—until 1780 in the United States, 1848 in France, 1919 in Germany, and 1925 in Britain (Beckert, 2008)—supporters of primogeniture collected more than a dozen biblical verses[11] to give it a Christian foundation (Kuran, 2012). Under strict manorial controls in Europe, even peasants had no right to divide or alienate the land (Platteau and Baland, 2001; Kaser, 2003).

In contrast, inheritance has been subject to the partible Qur’anic inheritance law in Islamic societies. Islamic inheritance law clearly subordinated personal preferences and strengthened the inheritance rights of women.[12] The law took shape in the Mediterranean Middle East region, in Syria and Iraq, which

[10] *Fideikommiss* (in German), *substitutions* and *majorats* (in French).

[11] E.g. Isaac’s first-born son, Esau, sold his “birthright" to his younger brother, Jacob, for a bowl of stew (the Bible, Genesis 25).

[12] Verses 11, 12, and 176 in the fourth chapter of the Qur’an, Surah An-Nisa. Islamic inheritance law limits an individual’s

were already accustomed to partible inheritance practices and inclusion of women. However, by entering into the text of the Qur'an, the law became a path-dependent institution for all populations that were introduced to Islam through conquests. Although some Muslim populations attempted to exclude women from inheritance, they were still more likely to inherit than their counterparts in Christian societies because the Qur'an left no space for different interpretations regarding female inheritance (Brunnbauer, 2003).

Finally, communal and joint property persists in many developing countries and even Europe.[13] Under these "archaic regimes" (Ostrom and Hess, 2000), access to land is possible only through membership in a communal assembly or a joint family composed of several generations, and a single member can hardly transfer or alienate their membership right. Thus, land sales and partitions are rare (Ostrom and Hess, 2000; Jain, 2014; Casari and Lisciandra, 2016).

Due to its deep-rooted origins and its persistence, inheritance is a process critical to the reproduction of the social system itself. It is true that the differences in inheritance systems were a marked feature of the pre-industrial era. But, as Goody et al. (1976) argued, "whatever the reasons, these differences have consequences for the position of women, the structure of social roles, the behaviour of kin, and the strategies of family organization" (p.35).

3 Conceptual framework

An implicit assumption of studies on inheritance, such as in Adam Smith's *The Wealth of Nations*, is an overlapping generations perspective, where the objective of the family head is to preserve the patrilineal succession and perpetuate his male lineage.[14] This objective is embedded in the nature of patrilineal societies, where male lineages are the basic social and economic units, and the succession of names, lordly rights, titles, and other valuables tends to be passed on in the male line. Patrilineal systems have been historically widespread, such as in Western cultures (Giuliano, 2017).[15] Many religions, specifically Abrahamic religions, offer an extensive demonstration of patrilineal relationships (see, e.g., Thomas et al., 2017).

Of course, a family head would also like to support all his sons and daughters, and their families. How-

power of testamentary disposition to one-third of his estate, and two-thirds of the estate passes to the legal heirs of the deceased under the compulsory rules of inheritance. Legal heirs include children, spouses, parents, and siblings of both sexes. The females among these relatives take only half the share of the male relative of the same degree of relation to the decedent. However, a female must have her firm share of inheritance in all types of property left by her father.

[13] See, e.g., Agarwal (1995) for joint property in India, and Momigliano (2016) for communal lands in some Italian towns.

[14] Adam Smith (1776) suggested that primogeniture was introduced in Europe "to preserve a certain lineal succession [...] and to hinder any part of the original estate from being carried out of the proposed line" (p.384). Many anthropologists and historians use similar terminology: "perpetuation of the family line" (Cole and Wolf, 1999, p.176), "keeping the succession line firm" (Nakane et al., 1967, p.11), "the desire to preserve the family estate intact" (Kertzer, 1993, p.17), "fear of extinction of the family name" (Abbott, 2013, p.43), "to preserve in the male line" (Colclough, 2003, p.154), and "the control of an identifiable patrilineage" (Gabaccia and Iacovetta, 2002, p.86).

[15] "A patrilineal bias can coexist with cognatic descent groups and bilateral patterns of affiliation" (Borofsky, 1987, p.19).

ever, in a disorderly time (such as the pre-industrial era) or poor environment (such as in some developing countries), to divide the land among all children is to expose every parcel and family to extinction. On the other hand, leaving large land parcels for few children increases their families' chances of survival and therefore continuation of the lineage for another generation. Three factors contribute to this trade-off between supporting all children and preserving the lineage: economies of scale, high mortality rates, and imperfect capital markets.

First, division of land might decrease the total production of the offspring due to economies of scale in land size. Some forms of agricultural organization require larger land parcels. For example, plowing and harrowing can take place only on large parcels. Moreover, larger land parcels are associated with more political and bargaining power. For example, the size of a feudal estate determined the political and military power of the lord who owned it. Political power, such as a parliamentary seat, and military functions and obligations of lords were indivisible by nature (Platteau and Baland, 2001; Beckert, 2008). As Adam Smith (1776) noted, "to divide it [i.e. the land] was to ruin it, and to expose every part of it to be oppressed and swallowed up by the incursions of its neighbours" (p.383).

Second, since land is the basic means of production, under high mortality rates a larger land parcel provides a family with more production and higher income, which means better nutrition, hygiene, and health—in short, a better chance of survival.

Third, imperfect capital markets imply rigid intergenerational mobility of income groups. Since land is the main source of wealth, a child who gets a large land parcel would stands a better chance of staying rich or even moving up the social ladder, increasing the family's chance of survival. Emphasizing the role of high mortality rates and imperfect capital markets, Chu (1991) develops an economic model and simulations to show that even in the absence of economies of scale, the optimal strategy of a family head seeking to perpetuate his lineage is primogeniture. However, he also acknowledges that economies of scale alone are enough to rationalize primogeniture.[16]

Therefore, a family head seeking to protect the welfare of all his children and preserve his lineage might find himself with insufficient resources to fulfill both goals. In this case, sacrificing the welfare of some of his children is the only way to reach the objective of perpetuating his lineage. Since in a patrilineal society "the male sex is universally preferred to the female" (Smith, 1776, p.383) and lineal succession "refers to the preservation of a family name by sons" (Chu, 1991, p.83), sons are preferred to daughters in the succession of land. Patrilineal primogeniture manifests the extent of the sacrifice of families to preserve male lineages: family heads attempt to prevent the extinction of the male lineage by leaving the

[16]Similarly, in an evolutionary model, Rogers (1990) shows that under poor environment or positive correlation between earned and inherited wealth, the optimal strategy is to limit the number of heirs and maximize the wealth inherited by them. Harpending and Rogers (1990) and Scheidel (2009) argue that heritable wealth has reproductive value independent of number of offspring because it increases the reproductive chances of offspring by improving their quality as measured by status, health, nutrition, and so on. Therefore, a strategy favoring offspring quality, such as primogeniture, may better serve to enhance inclusive fitness in the long run. In other words, inheritance of wealth in humans alters the equilibrium favored by solely genetic inheritance of reproductive strategies.

land intact for only one son, knowing that this "beggars all the rest of the children" (Smith, 1776, p.384). In imperial China, the whole clan, not just immediate family members, often pooled their money to subsidize the education of just one child, hoping that he would pass the civil service examination, and bring honor and prestige to the clan by becoming an official (Chu, 1991). The patrilineal bias in succession persists even today in family farms of rural Europe (see, e.g., Plas, 1994, Ch.5) and many developing countries (see, e.g., Jain, 2014, for India).

3.1 Female inheritance and inmarriage

Bequeathing land to sons only (such as in primogeniture) is not always an option. As discussed earlier, female inheritance is mandated in some patrilineal societies. In this section, I will describe three mechanisms through which inmarriage arises in this specific institutional environment characterized by the intersection of a patrilineal system and female inheritance.

First, preserving land within the male lineage. Where female inheritance is mandated, marriage of a granddaughter to an outsider means that her share of land will eventually leave the male lineage. As anthropologists have noted, inmarriage provides a way to avoid this problem.[17] If the granddaughter marries a son's son (a first-cousin marriage), her share of inheritance will still serve to perpetuate the male lineage of the family head by increasing the chance of survival of the grandson's family. [18]

If there is no eligible partner among the family head's descendants, marriage of his granddaughter to his brother's son (a first-cousin-once-removed marriage) or his brother's son's son (a second-cousin marriage)—who are carriers of the same family name—could be arranged to keep the parcels of lands under the family name and within the higher-level segment of the male lineage (all male descendants of the family head's deceased father). Attempts to keep the land within the larger segments of the lineage (all male descendants of a remote common ancestor) lead to marriage between remote (and even unidentifiable) cousins. This creates endogamy within the lineage or clan.

Of all first-cousin marriages, marriage of a daughter to her father's brother's son is the most straightforward union to keep her inheritance within the male lineage.[19] It is not surprising that marriage of a daughter to her father's brother's son—or equivalently marriage of a son to his father's brother's daughter—is the most preferential form of cousin marriage in Islamic countries, where female inheritance is mandated (Holỳ, 1989; Korotayev, 2000).

[17] See, e.g., Goody (1969); Holỳ (1989); Harrell (1997); Korotayev (2000); Heady and Grandits (2003); Shenk et al. (2016).

[18] Goody (1969) considers a similar mechanism for the effect of dowry—the wealth transferred at marriage from the bride's family to the groom—on inmarriage. Focusing on the role of *mahr*—a payment by the groom to the bride according to Islamic law—Edlund (2018) considers cousin marriage as a form of marriage by exchange in which the bride giver's reward is a bride in return.

[19] Her marriage to her father's sister's son or her maternal cousins will serve her father's lineage only if those cousins are also members of the male lineage of the father. For example, if the father's sister herself is married to a first cousin within the male lineage, her son is also considered a member of the same male lineage—although not through his mother, but through his father and as a second cousin.

Following the arguments above, cousin marriage might even arise under impartible inheritance (such as primogeniture) or partible inheritance by males only, if daughters inherit property in the absence of male offspring. In his study of cousin marriage in Japan, Schull (1958) notes that a family head who has only daughters faces a problem because a wife takes the family name of her husband. “Pride in family name" and “attempts to ensure the perpetuation of the family name" lead him to “select her spouse from among her male relatives having the same family name, in which case the headship does not leave the family" (p.295). Schull (1958) presents statistics that show cousin marriage is higher among families with no male offspring. Using data from rural Bangladesh, Shenk et al. (2016) also report that women without brothers are more likely to be in cousin marriages. This calls to mind the biblical account about female inheritance in the absence of sons (the Bible, Numbers 27), in which the daughter is compelled to marry someone from the same clan as her father (the Bible, Numbers 36).

Second, decreasing land fragmentation. Partible inheritance could fragment the land until it is no longer viable because of decreased economies of scale (Platteau and Baland, 2001).[20] Under the constraint of partible inheritance by both sexes, cousin marriage emerges as a solution to decrease land fragmentation. Avoiding fragmentation of land by the means of inmarriage is well documented in the literature.[21] Cousin marriage provides the possibility for pooling farms and resources, and the continual recombining of portions by adding the claims of the groom and the bride in new conjugal estates. In the case of double cousin marriage—between a brother and sister of one family to a cousin sister and brother of another family—in fact no land changes hands at the marriage, which avoids land fragmentation with zero transaction costs.[22] The same arrangement of exchanging daughters between unrelated but neighbor farmers within the same village leaves both lineages with unfragmented lands (Pine, 2003). This creates endogamy within the village.

Figure 3 shows that compared with outmarriage in chart (b), double cousin marriage in chart (c) keeps land parcels within the male lineage and decreases land fragmentation. To highlight the former mechanism, population growth is added in chart (d). Note that the dimension of inheritance systems relevant for inmarriage is inclusion of women, not partibility. Under partible inheritance by sons only, keeping land parcels within the male lineage is irrelevant, and there is no possibility to decrease land fragmentation by inmarriage.

It is also important to recall the assumption of imperfect capital markets. Under this assumption, pooling land parcels (through markets) with landed outsiders is costly. Moreover, outmarriage might be associated with negative externalities for the community (see below). Therefore, a marriage partner with

[20]There is supporting evidence in fact that partible inheritance fragments the land and that land fragmentation sacrifices economies of scale, for example in Phillipine (Adamopoulos and Restuccia, 2019), China (Nguyen et al., 1996; Wan and Cheng, 2001; Tan et al., 2006), Indonesia and India (World Bank, 1978), and Africa (Anthony, 1978).

[21]See, e.g., Goody et al. (1976); Korotayev (2000); Heady and Grandits (2003); Cavalli-Sforza et al. (2004); Shenk et al. (2016).

[22]Surveys show that property fragmentation is in fact an important mechanism. Around 20% of respondents in Pakistan and Bangladesh state that splitting the property is the reason behind their cousin marriage (Mobarak et al., 2019).

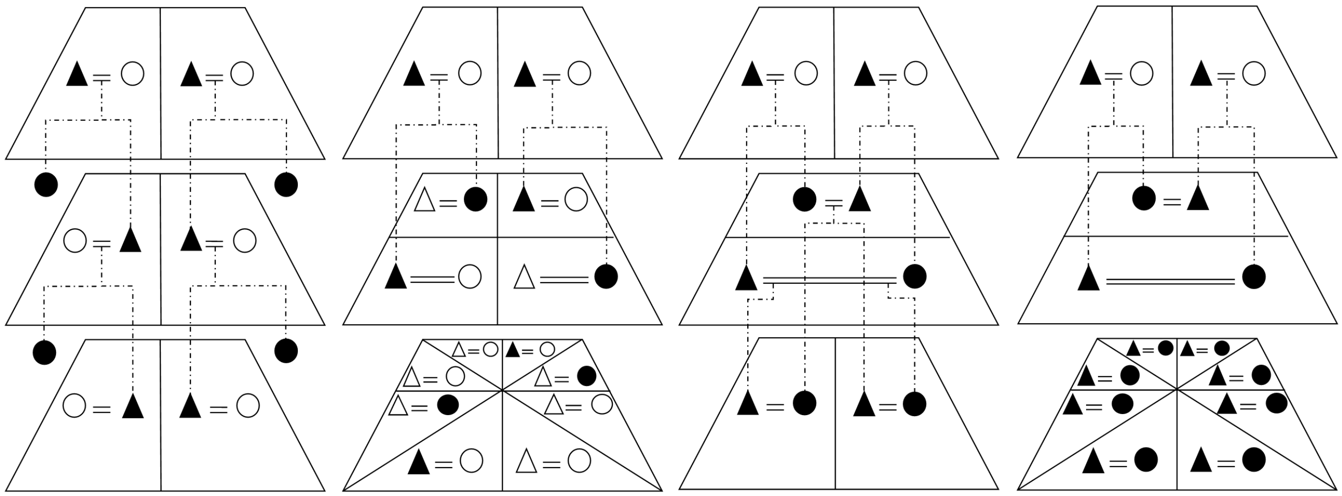

Figure 3: Triangles, circles, lines, and "=" represent males, females, descent bonds, and marriage respectively. The first generation starts with two brothers, and thereafter, every family has one son and one daughter. Black triangles and circles represent anyone within the male lineage. Chart (a): Impartible inheritance: primogeniture retains the family land intact, only at the cost of creating many landless offspring. Chart (b): Partible inheritance by both sexes, and outmarriage: female offspring marrying outsiders rapidly fragments the land and also diffuses land parcels out of the male lineage, since thereafter next generations are carrying a different family name. Chart (c): Partible inheritance by both sexes, and double cousin marriage: inmarriage decreases land fragmentation and, contrary to impartible inheritance, does so without leaving landless offspring. Chart (d): Partible inheritance by both sexes, double cousin marriage, and population growth: higher fertility (four sons and four daughters) creates the same land fragmentation in the third generation as the case with outmarriage (chart c), but still all land parcels remain under the family name.

a plot of land within the community is a better candidate to preserve the property of the male lineage than an outsider with the same size and quality of land plot.

Third, decreasing conflict over inheritance. Cousin marriage also reduces the rivalries and conflicts over inheritance.[23] By excluding outsiders, cousin marriage reduces the number of claimants on property and increases biological and cultural ties among those involved in the division of land after the death of the family head. By cousin marriage, men also take advantage of existing relationships. They know each other and have a sense of each other's personalities and how to work together, which is an advantage for the male lineage as a group of cooperators (Shenk et al., 2016). In contrast, outmarriage might diminish local skills and the stock of knowledge over time and across generations (Bidner and Eswaran, 2015).

Cousin marriage also decreases the potential for conflict among siblings over inheritance by creating overlapping interests and doubly relating them to each other through the young couple and their grandchildren (Shenk et al., 2016). A sister's offspring will benefit from a brother's property when it passes to his offspring. In the case of double cousin marriage, siblings' conflict over inheritance becomes irrelevant because in the next generation, the land will be reallocated only between their grandchildren (see Figure 3, chart (c)). Therefore, where women are legally entitled to a share of an inheritance—such as in

[23]In fact, the "solution of inheritance fights" was one of the situations that could be used to support a dispensation request from the Catholic Church to marry a relative (Cavalli-Sforza et al., 2004, p.37).

Islamic societies—cousin marriage offers a way to deny them inheritance but at the same time keep them content to not take legal action, such as through Sharia courts. Even if a Muslim community disinherits women in practice—despite Islamic law for female inheritance—cousin marriage could at least alleviate the potential for conflict stemming from the mandatory law.

3.2 Female inheritance and the status of women

An important line of research has recently developed to study how contemporary differences in gender norms are determined by various historical factors.[24] This study aims to contribute to this literature by highlighting the role of female inheritance as another deep-rooted factor influencing gender norms. Some potential mechanisms are as follows.

Controlling marriage and reproduction. As discussed earlier, female inheritance promotes arranged marriages within communities (kin, clan, village, caste, etc). If love and premarital relationships are not controlled, they might lead to marriage with outsiders because ties of descent are not central in love relationships (Harrell, 1997; Mitterauer, 2010). Therefore, cousin and endogamous marriages are generally arranged by parents, who control their children's courtship and premarital sexual relationships through gender segregation and restrictions on contact between opposite sexes. Under such restrictions, not only are young people less likely to form romantic relationships, have premarital sex, and have out-of-wedlock children—which makes arranging their marriages easier—but they are also much more likely to meet and thus form romantic attachments to insiders such as their cousins who are among the few young people of the opposite sex with whom it is appropriate for them to socialize (Goody, 1976; Shenk et al., 2016). However, restrictions on contact between opposite sexes tend to disadvantage young women more than young men for the following reasons.

First, the sexual behaviors of women can more easily be screened (through virginity and unwanted pregnancy) and punished. Female premarital sex is usually controlled by encouraging early marriage, stressing virginity at marriage, veiling, and chaperoning post-pubertal daughters (Goody, 1969; Harrell, 1997). Controlling a woman's premarital sexuality is a means of arranging a good marriage—one that would allow male relatives access to her inheritance.

Second, any out-of-wedlock children of female members are undeniably tied to the kin group due to maternity certainty[25] and therefore are considered potential heirs. Thus, maternity certainty creates unequal gender norms regarding premarital sexual contact. Historical evidence confirms that societies gave

[24] Such as subsistence technology of agriculture and herding (Qian, 2008; Alesina et al., 2013; Giuliano, 2015; Hansen et al., 2015; Becker, 2019), language (Sarid et al., 2017), geography (Carranza, 2014), family structures (Alesina and Giuliano, 2010; Tur-Prats, 2015; Alesina et al., 2016a), religion (Guiso et al., 2003; Becker and Woessmann, 2008; Nunn et al., 2011), historical shocks (Nunn et al., 2011; Grosjean and Khattar, 2015; Campa et al., 2016; Teso, 2016; Xue, 2016), and pre-industrial societal characteristics such as matrilineality (Gneezy et al., 2009; Gong and Yang, 2012; Lowes, 2016), modes of residence after marriage (Levine and Kevane, 2003), and dowry versus bride price (Ashraf et al., 2018). For more references see Giuliano (2017).

[25] It is always known who a child's mother is, and the mother knows her children, since she produces them.

“the father the option of refusing to acknowledge an illegitimate child [which] was intended to protect the property of the legitimate paternal kin from the claims of illegitimate children" (Beckert, 2008, p.102). Until the early twentieth century, in France, Germany, and the United States, illegitimate children had the right to acknowledgement only in relation to the mother, took their mother’s name, and “were granted inheritance rights from the maternal side of the family much earlier than from the paternal side" (Beckert, 2008, p.102).[26] Conflict and fights over inheritance play an important role here as well. Avoiding illegitimate children by controlling female premarital sex also limits the possibility of conflicting claims on the estate to which a woman has rights (Goody, 1969).

Female mobility and economic participation. Controlling marriage and reproduction by restricting women reduces their economic participation. First, imposed restrictions can directly impact women’s economic participation. Restrictions on contact between opposite sexes might require that women be secluded at home or wear the veil and the burqa, which are incompatible with strenuous manual work such as in agriculture.

Second, being a carrier of property from father to husband and its resulted inmarriage and social restrictions tie women to their local communities (e.g. extended family or clan, village, caste, etc). Economic literature stresses the complementarity between local social ties, geographical immobility, and lower economic participation. Maximizing labor market opportunities requires mobility. However, mobility is costly for individuals who are strongly attached to their local communities. Therefore, they are less mobile, have lower wages, are less often employed (Glaeser et al., 2002; Spilimbergo and Ubeda, 2004; David et al., 2010; Alesina et al., 2015).

Historical evidence confirms this mechanism. In medieval Europe, women migrated more often than men because men inherited land more often and had to stay in their home village (Cavalli-Sforza et al., 2004). The lack of any future inheritance encouraged mobility and emigration among landless offspring who had to move to cities to join the industrial labor force (Platteau and Baland, 2001; Beckert, 2008). Women’s informal learning, as workers, servants, or teachers, is considered a significant contributor to the intergenerational transmission and accumulation of human capital during the Industrial Revolution (Foreman-Peck and Zhou, 2017). These, as possible consequences of women’s exclusion from inheritance, might have contributed to women’s higher social and economic participation in Europe. In the Middle East, on the other hand, women as carriers of property were immobile, engaged in cousin marriages, and under the strict control of their male relatives.

The arguments presented above on the relationship of female inheritance with inmarriage and the status of women can be summarized in two hypotheses. **Hypothesis 1:** Female inheritance has a positive effect on cousin marriage, endogamy, and arranged marriage. **Hypothesis 2:** Female inheritance has a negative effect on female economic participation and premarital sexual freedom.

[26] This is still the law today in many Islamic countries (Ishaque, 2008).

4 Evidence from pre-industrial societies

In this section, I provide big-picture evidence on the correlations predicted by my two hypotheses. I describe historical data on pre-industrial societies from the Ethnographic Atlas to test the association of female inheritance with outcome variables. I show that female inheritance is associated with higher cousin marriage and endogamy (as stated in hypothesis 1) and lower female participation in agriculture and premarital sexual freedom (as stated in hypothesis 2).

Pre-industrial societies

The Ethnographic Atlas[27] includes data on 1,291 pre-industrial societies distributed globally and mostly sampled between 1800 and 1950, ranging from societies with complex agricultural economies and political systems to small hunter-gatherer groups. Table A1 of Appendix A shows a detailed description of all variables used in this section. If a variable is defined in previous empirical studies using the Ethnographic Atlas, I have used exactly the same definitions to construct the variable, in which case the related study is also mentioned in the table.

Inheritance systems. Earlier, I defined female inheritance as partible inheritance by both sexes. Therefore, I construct indicator variables for inheritance systems using entries in the Ethnographic Atlas on female inclusion in inheritance (EA074) and partibility of inheritance (EA075). With the available data, we can clearly characterize the inheritance systems of 820 Ethnographic Atlas societies[28] as summarized in Table 1.

EA074 / EA075	(1) Absence of private property	(2) Sisters' sons	(3) & (6) Younger brothers	(4) & (5) Sons and daughters	(7) Sons only	Total	Percent
(1) Equally distributed	0	10	20	86	191	307	%37.44
(2) Best qualified	0	0	9	3	8	20	%2.44
(3) Ultimogeniture	0	0	2	1	19	22	%2.68
(4) Primogeniture	0	11	107	8	122	248	%30.24
(9) Absence of private property	223	0	0	0	0	223	%27.20
Total	223	21	138	98	340	820	
Percent	%27.20	%2.56	%16.83	%11.95	%41.46	%100.00	

Table 1: Frequency of pre-industrial societies from the Ethnographic Atlas classified by (1) inheritance of real property by different individuals (entry EA074), and (2) distribution of inheritance among several individuals of the same category (entry EA075).

[27]Murdock (1962–1971); Barry (1980); Gray (1999); Korotayev et al. (2004); Bondarenko et al. (2005); Kirby et al. (2016)
[28]EA074 is available only for 856 societies, and EA075 is available only for 820 societies.

Based on the two entries, I construct dummy variables for the following categories: *impartible inheritance by males only* (categories 2, 3, and 4 of EA075, excluding few observations in categories 4 and 5 of EA074), *partible inheritance by males only* (intersection of category 1 of EA075 and categories 2, 3, 6, and 7 of EA074), *partible inheritance by both sexes* (intersection of category 1 of EA075 and categories 4 and 5 of entry EA074), and *absence of private property* (category 1 of entry EA074, or equivalently category 9 of entry EA075). Figure 4 follows this categorization to portray the distribution of inheritance systems globally for Ethnographic Atlas societies.

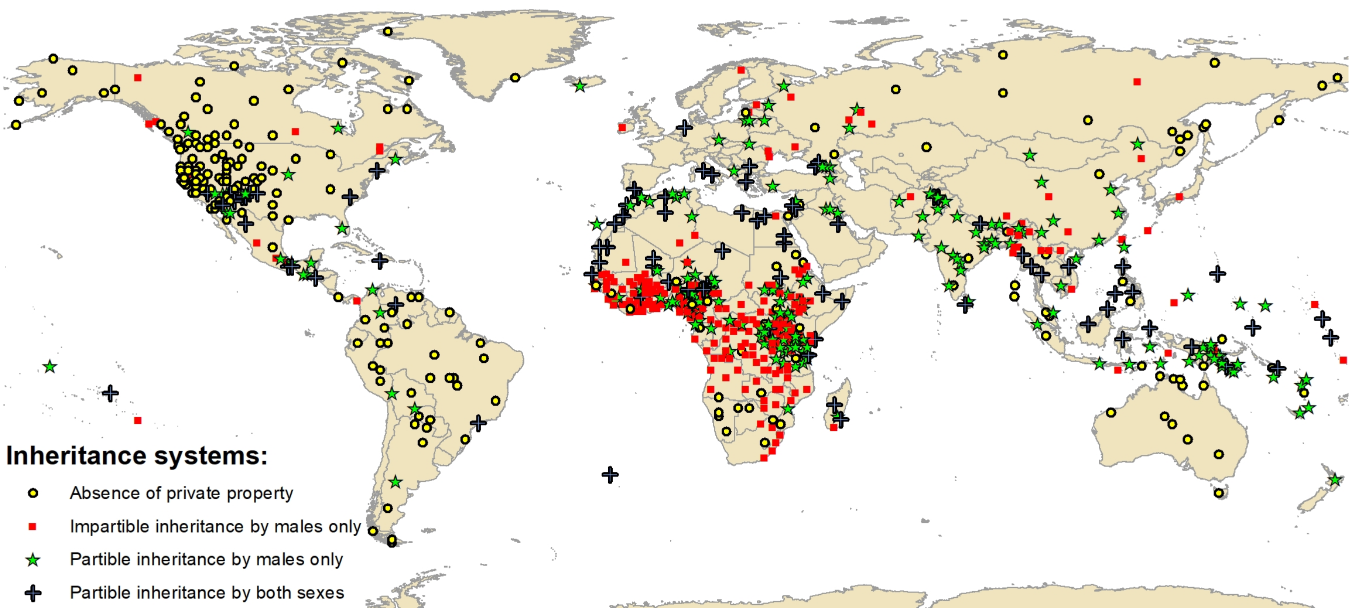

Figure 4: Inheritance systems of pre-industrial societies from the Ethnographic Atlas, distinguishing *impartible* and *partible* inheritance systems, and for the latter, distinguishing *female inclusion* and *female exclusion* in inheritance.

Dependent variables. As a measure of cousin marriage in the Ethnographic Atlas societies, I use entry EA023 on the rules governing cousin marriage. I construct a variable for cousin marriage that takes on integer values ranging from 1 to 4, where higher values indicate tighter cousin marriage culture. The highest value is assigned if marriage with any first cousins including a father's brother's daughter—the ideal marriage to keep the property within the male lineage—is allowed. Value 3 is assigned if marriage with any first cousins except a father's brother's daughter is allowed. Value 2 is assigned if only second-cousin marriages are allowed. Finally, value 1 is assigned if no first- or second-cousin marriages are allowed. The variable is positively correlated with partible inheritance by both sexes (Pearson's r=0.147, p-value<0.001, N=641).

To construct a variable for endogamy, I use entry EA015, which classifies the prevalence of local endogamy and exogamy. I construct a variable for endogamy, which takes on integer values ranging from 1 to 3, where higher values indicate higher endogamy: value 1 is assigned for exogamous communities, value 2 is assigned for societies with no marked tendency toward endogamy or exogamy, and value 3 is assigned for endogamous communities. The variable is positively correlated with partible inheritance by both sexes (Pearson's r=0.212, p-value$<$0.001, N=675).

Entry EA078 classifies prevailing standards of sexual behavior for unmarried women. I construct an indicator variable for female premarital sex freedom, which takes value 1 if premarital sex of unmarried women is permitted, and value 0 if it is precluded or prohibited. The variable is negatively correlated with partible inheritance by both sexes (Pearson's r=$-$0.120, p-value=0.014, N=418).

Following Alesina et al. (2013), I also construct a variable for female participation in agriculture that takes on integer values ranging from 1 to 5, where higher values indicate more participation of women in agriculture. The variable is negatively correlated with partible inheritance by both sexes (Pearson's r=$-$0.200, p-value$<$0.001, N=480).

Minimal controls (Alesina et al., 2013)	Traditional plough use, Settlement complexity, Political hierarchies, Presence of large animals, Tropical climate, Suitability for agriculture
Maximal controls	**Ethnographic controls:** Traditional plough use, Non-irrigated intensive agriculture, Irrigated intensive agriculture, Settlement complexity, Political hierarchies, Presence of large animals, Year society sampled, Patrilineal descent, Matrilineal descent, Dowry, Brice price **Geographic controls:** Latitude, Mean temperature, Temperature predictability, Mean precipitation, Precipitation predictability, Tropical climate, Suitability for agriculture, Distance to coast, Slope, Ruggedness, Elevation
Robustness controls	Population, Proportion of subsistence from herding, Proportion of subsistence from hunting, Proportion of subsistence from gathering, Patrilocal marriages, Matrilocal marriages, Extended family, Nuclear family

Table 2: Set of control variables used in different specifications for the Ethnographic Atlas data analyses.

Control variables. Table 2 lists all control variables used in the regression analyses. To test hypotheses with the Ethnographic Atlas data, I report three sets of regressions, which in addition to dummy variables for inheritance systems include the following set of controls: first, the regression specification from Alesina et al. (2013) as the specification with minimal controls; second, a large set of ethnographic and geographic controls, including those from Alesina et al. (2013); third, the set of robustness controls, including those mentioned as "historical controls" by Alesina et al. (2013). See Table A1 of Appendix A for a detailed description of all dependent and control variables.

The set of control variables controls for possible factors that can affect inheritance systems, inmarriage, and the status of women, including agricultural organization, economic and political development, subsistence economy, kinship structure, transfers at marriage, and a large set of geographic variables.

In a regression analysis, I also add region fixed effects and cluster standard errors in the region level to address concerns about possible confounding with religion and culture. Based on the Ethnographic Atlas data, I created seventeen subcontinent regions, importantly including seven regions within the Islamic world—which has a history of both female inheritance and cousin marriage practices (Goody, 1983;

Bittles, 2012; Courbage and Todd, 2014)—two in its core (Middle East and Northern Africa) and five in its periphery (Caucasus, Middle Asia, Indian Subcontinent, Malesia and Papuasia, and Northern Tropical Africa) where Islam might be mixed with other religions or local traditions. Figure B1 of Appendix B includes a map of the regions.

Results. Table B1 of Appendix B reports descriptive statistics for all dependent and control variables based on available observations in the full sample. The number of observations varies across regressions due to missing observations in the outcome variables. Tables B2–B9 of Appendix B report descriptive statistics for the sample of societies in regression analyses of each outcome variable, as well as full regression results with minimal, maximal, and robustness controls, and region fixed effects.

Table 3 reports the summary results from OLS estimations. Since the results are robust to inclusion of robustness controls, I do not report them here. For the ease of interpretation and similar to Alesina et al. (2013)'s analyses, I report OLS estimation results here. However, binary and ordered logit regressions yield qualitatively similar results (see robustness checks below).

	Cousin marriage (SD=0.991)				Endogamy (SD=0.582)			
VARIABLES	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Partible inheritance by males only	0.040	0.041	0.144	0.090	0.057	0.030	0.024	0.010
	(0.098)	(0.099)	(0.098)	(0.072)	(0.057)	(0.057)	(0.058)	(0.065)
Partible inheritance by both sexes	0.418***	0.277*	0.359**	0.343*	0.424***	0.382***	0.243***	0.170*
	(0.156)	(0.152)	(0.153)	(0.185)	(0.076)	(0.079)	(0.082)	(0.091)
Absence of private property	yes	yes	yes	yes	yes	yes	yes	yes
Minimal controls		yes				yes		
Maximal controls			yes	yes			yes	yes
Region fixed effects				yes				yes
Observations	641	641	641	641	675	675	675	675
R-squared	0.031	0.092	0.222	0.355	0.047	0.070	0.144	0.211
	Female premarital sex freedom (SD=0.499)				Female participation in agriculture (SD=0.986)			
VARIABLES	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Partible inheritance by males only	-0.068	-0.032	-0.003	0.000	-0.361***	-0.247**	-0.176*	-0.145
	(0.067)	(0.063)	(0.066)	(0.058)	(0.103)	(0.098)	(0.093)	(0.101)
Partible inheritance by both sexes	-0.260***	-0.258***	-0.240***	-0.196*	-0.700***	-0.578***	-0.261**	-0.200**
	(0.082)	(0.082)	(0.087)	(0.112)	(0.128)	(0.129)	(0.131)	(0.084)
Absence of private property	yes	yes	yes	yes	yes	yes	yes	yes
Minimal controls		yes				yes		
Maximal controls			yes	yes			yes	yes
Region fixed effects				yes				yes
Observations	418	418	418	418	480	480	480	480
R-squared	0.024	0.135	0.166	0.211	0.073	0.191	0.332	0.433

Table 3: Regression analyses of outcome variables using data on pre-industrial societies. OLS estimates are reported with robust standard errors in parentheses, clustered at the region level in regression (4). ***, **, and * indicate significance at the 1, 5, and 10% levels.

The omitted category in the regressions is impartible inheritance by males only. Consistent with the hypothesis, Table 3 shows that relative to impartible inheritance by males only, female inheritance (partible inheritance by both sexes) has a significant positive association with cousin marriage, endogamy, and a significant negative association with female premarital sex freedom and female participation in agriculture.

The estimated coefficients of the dummy variable for partible inheritance by both sexes are large, considering the standard deviations of dependent variables and also comparing with the coefficient of the dummy variable for traditional plough use—which is considered as an important determinant of pre-industrial characteristics of societies. For example, in the regression on female participation in agriculture, the coefficient of partible inheritance by both sexes is not significantly different from the coefficient of plough use (Wald test p-value=0.793 and 0.548 in the minimal and maximal regression specifications respectively). In Table B10 of Appendix B, I show how the regression on female participation in agriculture is compared to the one using the same specification and data from Alesina et al. (2013).[29]

The coefficients of partible inheritance by males only are insignificant in the regressions with full specifications, confirming that the dimension of inheritance systems relevant for these outcomes is female inheritance, not partibility of inheritance.[30]

Robustness checks. I also run some additional robustness checks using the maximal regression specification. One concern with estimations based on Ethnographic Atlas data is spatial auto-correlation (across nearby units). Table B12 of Appendix B reports OLS estimates with Conley (1999) standard errors for spatial dependence with cutoffs of 60 decimal degrees. Since the outcome variables are ordinal and not cardinal, I also report regression results using binary and ordered logit estimations in Table B13 of Appendix B. In both Tables B12 and B13, the coefficients of partible inheritance by both sexes remain significant at 1% and 5% levels.

In the above analyses, I have not distinguished between lineal and lateral inheritance systems. For example, the impartible inheritance category also includes primogeniture by younger brothers and a sister's sons. In Table B14 of the appendix, I define separate variables for lateral inheritance systems—that is, inheritance by matrilineal heirs (such as sister's sons) and inheritance by patrilineal heirs (such as younger brothers). Regression analyses report qualitatively similar results for partible inheritance by both sexes.

Here, I should acknowledge concerns of reverse causality and endogeneity in the analyses above. In the next section, I will address such concerns by providing causal evidence consistent with my hypotheses.

[29]The new version of the Ethnographic Atlas used in this study includes more societies. Also, the data is improved by linking each data point to one or more of the 3,502 ethnographic sources. Moreover, data sources and radius around societies used for tropical climate and suitability for agriculture are different than those in Alesina et al. (2013). With available data from Alesina et al. (2013), it is possible to run the same regressions with the minimal controls. Table B11 of Appendix B presents the regression results, indicating that results are robust across the two versions of the Ethnographic Atlas.

[30]Partibility of inheritance might also partly contribute to the difference in coefficients of impartible and partible inheritances in the regressions on female participation in agriculture. One possible mechanism described by Tur-Prats (2015) is that under impartible inheritance, usually two generations live together (stem family). This gives wives more time to work on the farm because co-residence with the mother-in-law reduces the burden of household work, freeing up the wife's time for non-domestic work.

5 Evidence from developing countries

Economic empowerment of women increases their control over decisions and bargaining power within the household, and it creates positive outcomes such as reduced domestic violence against women (see, e.g., Aizer, 2010; Anderberg et al., 2016). However, it is not clear whether policies designed to empower women in developing countries have this effect. Some studies suggest that such policies create positive outcomes for women (Deininger et al., 2013; Mathur and Slavov, 2013; Harari, 2014; Roy, 2015; Heath and Tan, 2019; Amaral, 2017; Anderson, 2018). Others report unintended negative consequences, such as increased female child mortality (Rosenblum, 2014), and domestic violence and suicides (Chin, 2012; Anderson and Genicot, 2015; Guarnieri and Rainer, 2018; Ericsson, 2019).

In their patrilineal nature, many developing countries resemble the pre-industrial world and fit the conceptual framework of my study. The effect of this patrilineal bias may be even more significant for women's premarital and marital outcomes that are formed in their parental households when they are very young.[31] They either have not received inheritance yet—because their fathers are still alive—or they have received inheritance but have not had much opportunity to gain bargaining power in premarital and marital decisions made for them in the paternal household.

In this section, I present findings using individual-level data from Indonesia and India. In section 5.1, I use the national amendment of the Hindu Succession Act in 2005 for a difference-in-differences analysis of the effect of female inheritance on cousin marriage and female economic participation (as predicted by hypotheses 1 and 2 respectively). Then, in section 5.2, using data from Indonesian Family Life Surveys, I examine the association of actual inheritance with endogamy and arranged marriage (as stated in hypothesis 1).

5.1 Difference-in-differences analysis using the Hindu Succession (Amendment) Act of India

Since 1956, property rights for Hindus (also Sikhs, Jains, and Buddhists) in India have been governed by the Hindu Succession Act (HSA). The Act applies to all states except Jammu and Kashmir, and it explicitly exempts Muslims, Christians, Parsis, and Jews. As in traditional Hindu law, under the HSA women had no rights to joint family property (including land and other ancestral assets). Since 1956, some states have amended the Act so that both sons and daughters have a right to joint family property (Kerala in 1976; Andhra Pradesh in 1986; Tamil Nadu in 1989; Maharashtra and Karnataka in 1994). However, these amendments applied only to women who were not yet married at the time of the reform in their state. In the other 29 states,[32] men remained the sole joint heirs of family property until 2005. In response to

[31] In my study samples, most women in Indonesia and India married before age 20.

[32] Excluding Jammu and Kashmir, which was exempt from the HSA, and Telangana, which was part of Andhra Pradesh until 2014.

international agreements—such as the Beijing Platform for Action[33]—that emphasize the importance of women's land and property rights, the government of India prepared and introduced the Hindu Succession (Amendment) Bill to parliament (Rajya Sabha) in 2004. The Hindu Succession (Amendment) Act was passed in 2005, and applied to any disposition, alienation, and partition of property that had taken place after December 20, 2004. Under the amendment, all daughters, including married daughters, are also joint heirs in family property such as agricultural land.[34]

The states that passed amendments to the HSA before 2004 are the farthest southern states, whose traditional schools of law (the Madras and Bombay sub-schools) were more gender equal, and they agreed to include female inheritance rights when the HSA was passed in 1956. However, the northern states dismissed the idea by a majority vote, and the traditional laws of female exclusion in joint property were maintained until 2005 (Agarwal, 1995; Anderson and Genicot, 2015). Interestingly, Hindus in southern India have historically experienced much higher cousin marriage rates compared with Hindus in the other states (see Figure 5); in the sample of those married in or after 2000, the rate was 22.5% in the states that passed local amendments in the past versus 6.5% in other 29 states. This historical difference in the marriage patterns of the southern and northern states might partly be a consequence of their different traditional attitudes to female inheritance. Therefore, there might be concerns regarding the endogeneity of the amendments in the five states.

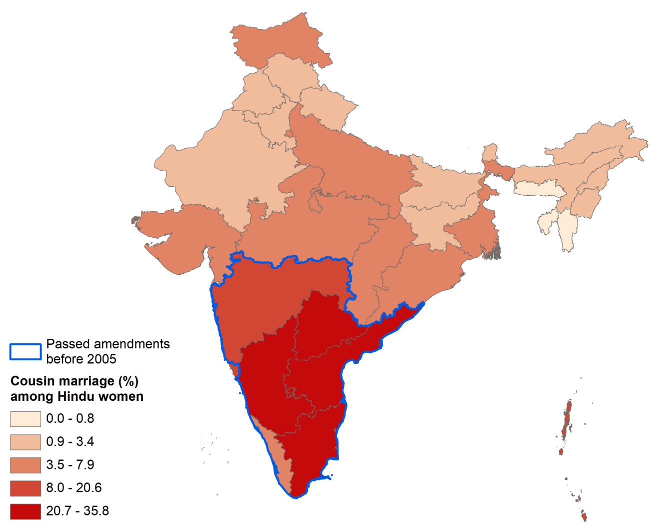

Figure 5: Cousin marriage rates among Hindu women across Indian states, the National Family Health Survey of India.

For several reasons, here I focus on other 29 states and the 2005 amendment only. First, endogeneity of the amendments in the five states is possible, as discussed above. Second, under the past amendments

[33]Government of India, National review on the Implementation of Beijing Declaration and Platform for Action, 2015, p.12.

[34] In a joint Hindu family coparcenary, when person A inherits a property from his father, then that property also becomes the coparcenary property of person A's children, grandchildren, and great grandchildren, and they will acquire equal coparcenary right in such property by virtue of their birth. Therefore, person A can will only his share of joint property or any self-acquired property, and he cannot disinherit his sons and daughters by will.

in the five states, only unmarried women were eligible to inherit. Therefore, timing of marriages might have responded to the amendments. With the anticipation of the amendments, families who did not want their daughters to be eligible married them just before the law passed (Heath and Tan, 2019). This is not a concern for the 2005 amendment, under which both married and unmarried women were eligible for inheritance. Third, past amendments not only were different from the 2005 amendment, but also might have been different from each other. For example, the amendment of the state of Kerala removed the legal status of the joint family altogether. Fourth, theoretically it is not obvious whether in each of the five states the national 2005 amendment imposed female inheritance even more strictly or led to its looser imposition.

To estimate the impact of the 2005 amendment—which substantially improved female inheritance—on outcome variables, I exploit a difference-in-differences approach using data collected from adult women (15–49 years old) by the National Family Health Survey (NFHS) of India (repeated cross-sectional surveys conducted in four rounds between 1992 and 2016). I dropped observations of respondents with unknown religions and a few observations on Jews and Parsis.

The first outcome variable is cousin marriage, which takes value 1 if a woman's husband in her *first* marriage is a blood relative (first cousin, second cousin, or other blood relatives such as uncle), and takes value 0 otherwise. The second outcome variable is female economic participation, which takes value 1 if a married women worked in the last 12 months.

The first difference I use is the religion of the respondent. The amendment should have had an impact on Hindu women (Hindus, Sikhs, Jains, or Buddhists) but not women from the exempted religions (Muslims, Christians). The second difference I use is exposure to the amendment, as measured by the year of the first marriage. The decision to marry a relative could have been affected by the amendment only if the marriage took place after the amendment, in or after 2005.[35]

Similarly, assuming that labor force participation has evolved differently for women married after the amendment because of stronger local ties and lower mobility, their economic participation rates at the time of the survey (2015-2016) should be different than those who married before the amendment.

I assume that an outcome y for woman i of religion r, from state s, born in year τ, married for the first time in year t is a function with the following form:

$$y_{ir\tau ts} = \alpha + \beta_1 T_{irt} + \beta_2 \gamma_r + \beta_3 \delta_t + \beta_4 \theta_s + \beta_5 \lambda_\tau + \beta_6(\theta_s \times \lambda_\tau) + \beta_7(\theta_s \times \gamma_r) + \beta_8 X_{ircts} + \epsilon_{ircts}$$

$T_{irt'}$ captures a woman's treatment status and takes value 1 if she is a Hindu (i.e., Hindu, Sikh, Jain, or Buddhist) and married for the first time in or after 2005.[36] The coefficient of interest is β_1, which identifies

[35]Later, I will address the potential endogeneity concern that marriages were strategically delayed or advanced to avoid the application of the law.

[36]I could alternatively define the treated group as those married in or after 2004—the year the amendment bill was prepared and introduced by the government. The results are qualitatively the same.

the effect of exposure to the amendment. Religion dummy (γ_r) takes value 1 if a woman is a Hindu, and takes value 0 if she is a Muslim or Christian. It captures time-invariant characteristics of Hindus. Marriage year fixed effects (δ_t) control for time-series changes of the outcome variable across marriage cohorts. State fixed effects (θ_s) control for time-invariant characteristics of the states. Birth year fixed effects (λ_τ) control for time-series changes of the outcome variable across birth cohorts. State-birth year fixed effects ($\theta_s \times \lambda_\tau$) control for state-specific changes over time. Religion-state fixed effects ($\theta_s \times \gamma_r$) control for time-invariant characteristics of Hindus across the states. Finally, a vector of observable characteristics (X_{irts}) controls for respondent's education (four categories); wealth quintile; dummy variables for whether she lives in an urban region, whether she is a member of a scheduled caste, and whether she is a member of a scheduled tribe; and finally fixed effects for rounds in which respondents are surveyed.

	Cousin marriage (Hindu sample mean=0.047, SD=0.212)			Female economic participation (Hindu sample mean= 0.338, SD=0.473)		
VARIABLES	(1)	(2)	(3)	(1)	(2)	(3)
Subject to amend.	0.014***	0.010***	0.010***	-0.050***	-0.074***	-0.068***
	(0.003)	(0.003)	(0.003)	(0.008)	(0.008)	(0.008)
Hindu	-0.119***	-0.098***	-0.097***	0.069***	0.088***	0.088***
	(0.003)	(0.009)	(0.009)	(0.005)	(0.016)	(0.016)
Marriage year FE	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Birth year FE		yes	yes		yes	yes
State × Birth year FE		yes	yes		yes	yes
State × Hindu		yes	yes		yes	yes
Individual-level controls			yes			yes
Observations	461,675	461,675	461,675	260,264	260,264	260,264
R-squared	0.043	0.057	0.057	0.072	0.086	0.152

Table 4: Difference-in-differences analyses of outcome variables using data on Indian women. Individual-level controls include caste, tribe, and urban dummy variables; education and wealth; and survey round fixed effects. OLS estimates are reported with robust standard errors, clustered at the level of the primary sampling unit, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels. Full regression results are reported in Table B16 of Appendix B.

Table 4 presents regression results for cousin marriage and female economic participation with a subset or all of the controls in the full specification. Being a Hindu is negatively associated with cousin marriage and positively associated with female economic participation since Muslims—who constitute 56% of the dropped category—have much higher cousin marriage rates (with 18.7% versus 4.7% among Hindus) and lower female economic participation rates (with 20% versus 33.8% among Hindus). Among Hindu women, exposure to the amendment significantly increased the likelihood of marrying a blood relative and decreased the likelihood of economic participation. The coefficients are large compared with the coefficients of individual-level controls and considering the mean of dependent variables for the Hindu sample. Exposure to the amendment is associated with around 7% lower economic participation. The decline in national-level female economic participation in India after 2005 (see Figure 1) might be partly explained by whether women's marriage decisions are made under the amendment.[37]

[37] Unfortunately this data is not available by religion and state. Although comparing the economic participation of women

Two important notes must be made here. First, in the regressions, I have controlled for birth year fixed effects. Therefore, the decreased economic participation is not a result of younger ages of those married in or after 2005. Second, although the data restrcition doesn't allow testing the mechanism, we know that women married both before and after 2005 are entitled to receive inheritance under the 2005 amendment. Therefore, their difference in economic participation is more likely a result of their different marital arrangements, which could influence their social ties, mobility and labor market qualifications.

Table B15 of Appendix B presents the descriptive statistics and description of variables in the regressions. In column 1 of Table B17 of Appendix B, instead of primary sampling units, I report standard errors clustered at the state level. The coefficient of exposure to the amendment (β_1) remains significant for both dependent variable. To address concerns due to the low number of clusters, I also provide the Wald test results using the wild cluster bootstrap (Cameron et al., 2008; Roodman et al., 2018), which reject the null hypothesis of $\beta_1 = 0$.

Parallel counterfactual trends. The identifying assumption of the difference-in-differences approach is the identical counterfactual trends in treatment and control groups. Here, I provide some tests on this account. First, I conduct a placebo test in time. This involves re-estimating the difference in differences model over the pre-treatment period, but with the assumption that the treatment took effect at an earlier date. Table B18 of the Appendix B shows the regression results for both dependent variables, assuming that the amendment took place in different years after 2000. The difference-in-differences estimator is statistically insignificant, implying zero placebo effect.

Next, in an event-study analysis, I include lags and leads of the treatment in the regression. To get robust and more precise estimates, I add a set of interactions between Hindu dummy and two-year intervals of marriage before and after the amendment. I define the post-treatment period to begin with the two-year interval consisting of the years the amendment bill was introduced (2004) and passed (2005). Figure B2 of the Appendix B presents the results. The estimated coefficients of leads are insignificant for both variables, indicating the absence of pre-existing trends. The negative impact on economic participation is larger for those who at the time of marriage were exposed longer to inheritance expectations. However, the impact on cousin marriage is relatively larger for those who married at the time of or right after the amendment. Note that the cousin marriage variable does not capture other forms of arranged marriages such as marriage within village, clan or caste.

Endogeneity issue. Unlike the past amendments in the five states, under the 2005 amendment both unmarried and married women were eligible for inheritance. Therefore, endogeneity of the year of marriage is less of a concern for the 2005 amendment. However, to address any such concerns and to show the robustness of the results, here I follow two strategies. First, in an approach similar to Heath and Tan (2019), I use an instrumental variable approach where woman's treatment status (T_{irt})—which is a func-

before 2005 with their economic participation after 2005 could be interesting, comparing the current economic participation of women married before 2005 with those married after 2005 is a more relevant test for my hypothesis.

tion of religion-year of marriage cells—is instrumented by fixed effects for each religion-year of birth cell, i.e., $\gamma_r \times \lambda_\tau$ where γ_r is the Hindu dummy and λ_τ is year of birth fixed effects. Therefore, in this approach, exogenous variation in year of birth is used as a measure of exposure to the treatment.

The second approach is similar to Duflo (2001), Osili and Long (2008), and Heath and Tan (2019). I compare younger cohorts likely to be subject to the amendment with older cohorts who were likely to have been married by the time the amendment was passed and thus were probably not affected by the amendment in their marriage and premarital sex decisions. I define the treatment group to be *Hindu* women aged 14 or younger (the 10th percentile of the first marriage age distribution for females) in 2005—when the amendment was passed—and the control group to be women of all religions aged 24 or older (the 90th percentile of the distribution) in 2005. Defined based on the described age cohorts, 97.5% of the treatment group were actually exposed to the amendment, and 97% of the control group were not exposed to the amendment. Table B19 of Appendix B reports the results from the instrumental variable and age cohort comparison approaches. The direction and significance of the coefficients of the exposure to the amendment remain unchanged.

Contemporaneous events. It might not be empirically possible to decisively rule out the possibility that outcomes of Hindu women may have evolved differently after 2005 for reasons unrelated to the amendment. However, the discussions and evidence below might address this concern.

First, the findings for both cousin marriage and female economic participation are consistent with clear theoretical predictions of a long-standing literature discussed in this study. I am not aware of any other literature on potential contemporaneous social or political events that could make the same predictions of an increase in cousin marriage and a decrease in female economic participation rates. For example, it is hard to argue that Indian National Congress, a center-left party, winning the parliamentary election in 2004 could lead to these results. Second, one assumption of my analyses is the fact that the amendment applies only to Hindus. To the best of my knowledge there are no other contemporaneous changes in laws that apply only to Hindu population.

Third, the following findings provide some evidence that the described pattern in hypotheses is not something that is happening to Hindus in all Indian states. It is restricted only to those states that are patrilineal and have experienced the amendment for the first time in 2005. In column 3 of Table B17 in Appendix B, I run the same regression analysis with the sample of states that had passed similar amendments in the past. For Hindu women married in or after 2005, the coefficient of cousin marriage is negative and significant at 10%. The coefficient of economic participation is negative but not significant. These findings are not consistent with the pattern we see in the states that passed the law for the first time. In column 4, I restrict the sample to Nagaland, Mizoram, and Meghalaya, three north-eastern states that are characterized by a matrilineal culture (Filipiak and Walle, 2015). Consistent with the conceptual framework, exposure to the amendment seems to have had no effect on cousin marriage or the economic participation rates of women in matrilineal states. To the best of my knowledge, there is no contemporaneous event that might have affected Hindus only in some states but not others.

Premarital sex: I also create a variable for premarital sex which takes value 1 if a married woman had her first sexual intercourse before her first union with her first husband, and takes value 0 if she had her first sexual intercourse at or after her first union or if she has never had sex with her first husband. Table B20 presents the regression results and the event study analogous to analyses of previous outcome variables. Hindu women married after the amendment have experienced significantly lower premarital sex. The event study is consistent with the fact that premarital sex refers to relations before marriage, and we should not expect an effect on premarital sex for women who married shortly after the amendment.

Women's welfare. It is discussed and demonstrated in the literature that cousin marriage practice creates long-run negative aggregate-level consequences such as nepotism, conflict, and inefficient institutions (Goody, 1983; Herlihy, 1985; Ekelund et al., 1996; Korotayev et al., 2004; Greif, 2006; Mitterauer, 2010; Akbari et al., 2016; Schulz et al., 2018). But what about the status of women? Alesina et al. (2016b) show that being from an ethnicity that was traditionally endogamous has a positive and significant impact on spousal violence. Mobarak et al. (2019) also show that the likelihood of domestic violence increases with cousin marriage. I am able to confirm their findings: cousin-married women in India are 3.3% more likely to experience physical violence by their husbands (see Table B21 of the Appendix A).[38]

The anthropological and historical literature discussed in this study is also framed as predicting negative consequences of high cousin marriage and low female economic participation on women's welfare. This seems plausible from a historical perspective; women are more likely to have lower autonomy and influence in society in the long run if they live in tight kin networks, engage in endogemous marriages, and have low economic and social participation. However, this doesn't have to be true in the short run. For example, considering that domestic work is a preferred choice for women in patrilineal societies, higher labor force participation does not necessarily imply greater welfare. Women themselves might prefer domestic work to employment (Jayachandran, 2019). Mobile women who migrate and marry men from other villages might have higher economic participation only because they are expected to. Therefore, the short-run welfare of individual women in a developing country such as India could be a more complicated story that requires further investigation with more direct measures and better-quality data.[39]

5.2 Individual-level analysis using Indonesian data

To the best of my knowledge, the only dataset from a developing country that includes information on actual inheritance received by individuals is the Indonesian Family Life Survey (IFLS)—a longitudinal survey conducted between 1993 and 2014 in Indonesia. Here I would like to test whether by using data on actual inheritance, I can find patterns consistent with the findings above.

[38] However, the coefficient is insignificant when I use exposure to the amendment as an instrument.

[39] Using some proxy variables on women's autonomy, I test the impact of exposure to the amendment. The results are not conclusive (see Table B22 in Appendix B).

The IFLS sample is representative of about 83% of the Indonesian population and contains over 30,000 individuals of 7,224 households living in 13 of the 26 provinces, which captures the cultural and socioeconomic diversity of Indonesia. The IFLS has no information on cousin marriages. But the data allows creation of a proxy for endogamy. In the case of receiving inheritance, we should expect individuals to marry their relatives or neighbors more often, which usually means marrying from the same village. Therefore, I construct a variable for endogamy that indicates staying within the same village after marriage. The constructed indicator variable for endogamy takes value 0 if the respondent moved to another village after the wedding in the latest marriage, and takes value 1 otherwise. [40]

I also create a second variable that indicates whether the respondent's marriage was an arranged marriage (versus a love marriage). Respondents are asked who chose their spouse in their first marriage. I create a dummy variable for arranged marriage that takes value 1 if parents or family members chose the respondent's spouse, and takes value 0 if the respondent chose their spouse by themselves. Since marriage is a symmetrical arrangement and, contrary to Indian data, the Indonesian data on marriage outcomes is available for both sexes, I include both men and women in the sample of analyses.

Here, I focus on the actual inheritance individuals received. In the first survey of the IFLS, adults were asked if either of their parents died, and if so, whether and what the parent bequeathed to them: house, land, livestock, jewelry, or money. Using this information, I construct an indicator variable for receiving inheritance that takes value 1 if the respondent inherited house, land, and livestock (properties subject to economies of scale) from either parents, and takes value 0 otherwise. Of the sample, 36% reported that they received an inheritance in the form of house, land, and livestock.

To capture the effect of received inheritance on individual-level outcomes, I follow a strict strategy. The smallest administrative division in Indonesia (and in the IFLS data) is community (*desa/kelurahan*). Therefore, controlling for fixed effects of 312 IFLS communities, I make sure there is no confounding due to economic, geographic, and other differences across communities. In other words, the regressions capture only the variation of the inheritance indicator within communities, not across communities. Using fixed effects of religions and ethnicities, I also control for variation due to different religious and ethnic attitudes. In addition, I include controls for sex, education (five categories), quadratic in age, and quadratic in marriage age. I also cluster standard errors at the community level. The results are unchanged if standard errors are clustered at the province level.

Table 5 presents results without ethnicity fixed effects. Since the ethnicity information was collected for the first time in 2000, there is a rate of attrition when ethnicity fixed effects are included. However, Tables B23 in Appendix B show the descriptive statistics of variables, full regression results, and regressions including ethnicity fixed effects and logistic estimations, both with qualitatively similar results.

[40] I dropped a few (less than 0.02%) observations where the respondents did not start living with their spouses after the wedding. In unreported regressions on endogamy, to make sure that moving to the new residence after wedding was not temporary, I dropped some observations (around 11%) where the respondent stayed less than a year in their first residence (whether in another village or within the same village) after the wedding. The results do not change.

	Endogamy		Arranged marriage	
VARIABLES	(1)	(2)	(1)	(2)
Inheritance dummy	0.066***		0.034***	
	(0.010)		(0.010)	
Pre-marriage inheritance		0.077***		0.042***
		(0.012)		(0.012)
Post-marriage inheritance		0.057***		0.028**
		(0.013)		(0.013)
Education	-0.028***	-0.028***	-0.034***	-0.034***
	(0.007)	(0.007)	(0.006)	(0.006)
Male	0.014	0.015	-0.112***	-0.112***
	(0.014)	(0.014)	(0.010)	(0.010)
Quadratic in age	yes	yes	yes	yes
Quadratic in marriage age	yes	yes	yes	yes
Religion FE	yes	yes	yes	yes
Community FE	yes	yes	yes	yes
Observations	7,933	7,933	8,065	8,065
R-squared	0.117	0.117	0.336	0.336

Table 5: Regression analyses of outcome variables using data on Indonesian individuals. OLS estimates are reported with robust standard errors, clustered at the community level, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels. See Tables B23 for the full regression results, including regressions with ethnicity fixed effects and logit estimation.

As predicted, receiving inheritance from parents is significant in regression 1 on both outcome variables, and the magnitude of coefficients are comparable with that of education. The dummy variable for men is not significant in the regression on endogamy. This makes sense, since men and women are sampled from the same communities, and I controlled for community fixed effects in the regressions. However, in the regression on arranged marriage, being male is significant and negative. This reflects another aspect of unequal gender norms. As Edlund (2018) notes, in arranged marriage regimes, while men have more freedom to make their own marriage decisions, women are subject to guardianship. Men are more likely to choose their wives and ask their parents to arrange the marriage. Therefore, what is a choice for the husband can be perceived as an arranged marriage by the wife. While 23% of women in the sample are engaged in arranged marriages, this percentage for men is only 13%.

There is a possibility of reverse causality in the above analyses. That is, those who marry within the village or by their parents' choice are more likely to inherit property. To address this concern (but not all endogeneity concerns), I split the inheritance indicator into two separate variables: an indicator variable called post-marriage inheritance that takes value 1 if the respondent inherited house, land, and livestock after their marriage, and an indicator variable for pre-marriage inheritance that takes value 1 if the respondent inherited house, land, and livestock before their marriage. These categories are defined by comparing the respondent's date of marriage and the date of death of the parent who left the inheritance, and are based on the assumption that the inheritance is transferred upon the death of the parent. Around 54% of respondents received inheritance post-marriage.

Regressions 2 reports results with pre- and post-marriage inheritance variables. Both post- and pre-marriage inheritance indicators are significant in the regressions. The Wald test results indicate that the difference of the coefficients is not significant. This implies that expecting to inherit property might have the same association with marriage outcomes as actually inheriting the property. Those with high potential to receive an inheritance are subject to the same marriage restrictions as they would be if they actually received the inheritance. Of course, analyses in this section are still susceptible to endogeneity. However, they show that the results using data on actual inheritance are consistent with the findings in previous empirical sections.[41]

6 Conclusion and discussion

Theories on how inheritance systems shape family relationships, marriage patterns, and the status of women have been advanced over a century by social scientists. Following this literature, and standing on the shoulders of giants such as Adam Smith, Lewis Morgan, Max Weber, and Jack Goody, I developed two hypotheses with important implications for today's cultural differences across societies. Due to deep-rooted differences in their geography, subsistence economy, and agricultural and political organization, patrilineal societies ended up with different prevailing inheritance systems. I argued that patrilineal societies that traditionally included women in inheritance have developed practices encouraging inmarriage and controlling women's relations and participation in order to preserve the property within the patrilineage, prevent its fragmentation, and limit conflicting claims on the estate.

The findings of the study show that female inheritance is associated with higher cousin marriage, endogamy, and arranged marriages, and lower female economic participation and sexual freedom. In an attempt to identify the causal effects of female inheritance, I use a difference-in-differences approach to estimate the impact of a reform of inheritance regulations in India that substantially improved women's rights on land. Consistent with the causal direction stated by the hypotheses, the results indicate that women whose marriages were exposed to the reform have higher cousin marriage and lower economic participation rates.

These findings have several important implications. First, female inheritance imposed by Sharia law might be a major historical factor explaining why today the Middle Eastern countries experience the highest cousin marriage rates and the lowest female participation rates in the world (see Figure 2).

Second, there is growing evidence on how tight kinship systems undermine generalized trust, large-scale cooperation, and democratic institutions; and encourage corruption and conflict.[42] Cousin and arranged marriages—as means of creating and maintaining kin-based groups such as clans and tribes (Greif,

[41] In Tables B24 and B25 of Appendix B, I present regression results on the economic participation of female and male respondents respectively. While male inheritance is associated with higher self-employment and lower private/public sector employment in the men's sample, female inheritance is insignificant in the regressions. Higher self-employment in the men's sample may be considered the positive effect of inheriting property in the developing world, which is missing for women, likely due to the patrilineal restrictions on women's empowerment.

[42] See, e.g., Ermisch and Gambetta (2010); Alesina and Giuliano (2011); Greif and Tabellini (2015); Akbari et al. (2016); Schulz (2017); Enke (2017); Moscona et al. (2017); Schulz et al. (2018); Moscona et al. (2018)

2006; Mitterauer, 2010)—are considered as important elements of kinship patterns. Therefore, I also add to the literature by highlighting how inheritance systems contribute to the heterogeneity of kinship patterns across societies. For example, it has been suggested that the Catholic Church's prohibitions on cousin marriages and promotion of consensual (or love) marriages played an important role in dismantling tribes and clans in Europe and stimulating its divergent development (Goody, 1983; Herlihy, 1985; Ekelund et al., 1996; Korotayev et al., 2004; Greif, 2006; Mitterauer, 2010; Schulz et al., 2018). It is true that cousin and arranged marriage rates have been historically low in Christian countries. However, these low cousin and arranged marriage rates are also consistent with the fact that by putting no emphasis on female inheritance, European inheritance systems did not create economic incentives for cousin or arranged marriages, and provided an incentive-compatible institutional environment for the Church's marriage policies.[43]

Finally, under patrilineal restrictions on women's empowerment in developing countries, the mere enacting of female inheritance might create unintended consequences for young women's premarital lives, marital choices, and economic participation. The welfare effects of such consequences require further investigation in future research.

[43]The Church's family and marriage regulations might have formed and evolved partly in response to inheritance rules. According to Goody (1983), an edict of a Roman emperor allowed the Church to possess properties that did not belong to any individual. Therefore, the Church could only benefit by leaving a deceased without eligible heirs. It does not seem accidental that the Church would have condemned polygyny, cousin marriage, remarriage, adoption, and concubinage. By providing heirs, these practices could deprive the Church of property. The Church prohibited cousin marriages within seven degree of kinship because it was the degree considered for the purpose of inheritance by Roman law. Therefore, one could no longer marry anyone from whom one could have inherited. Greif (2006) also agrees that the Church's marriage laws were "self-serving" (p.308).

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Appendices

A Empirical data description

Table A1: Description of the data on Ethnographic Atlas societies.

Ethnographic Atlas, Cultural Data.	Retrieved from D-PLACE (Murdock, 1962–1971; Barry, 1980; Gray, 1999; Korotayev et al., 2004; Bondarenko et al., 2005; Kirby et al., 2016)
Variable name	**Description**
Inheritance systems	Entry EA074 classifies "the rule or practice governing the disposition or transmission of a man's property in land" in the following categories: 1- no inheritance of real property (absence of individual property rights in land or of any rule of inheritance governing the transmission of such rights); 2- matrilineal by sister's sons; 3- matrilineal by heirs (who take precedence over sisters' sons); 4- children, less for daughters; 5- children; 6- patrilineal by heirs (who take precedence over sons); 7- patrilineal by sons. Entry EA075, following previous entry, "indicates how real property is distributed among several individuals of the same category" by the following categories: 1- equally distributed; 2- best qualified (adjudged either by the deceased or by his surviving relatives); 3- ultimogeniture (the junior member); 4- primogeniture (the senior member); 9- no inheritance of real property. For female inclusion and partibility of inheritance, four dummy variables are constructed by the intersection of categories from entry EA074 and EA075. 1- impartible inheritance (categories 2, 3, and 4 of EA075, excluding categories 4 and 5 of EA074), 2- partible inheritance by males only (intersection of category 1 of EA075 and categories 2, 3, 6, and 7 of EA074), 3- partible inheritance by both sexes (intersection of category 1 of EA075 and categories 4 and 5 of entry EA074), and 4- no inheritance of real property (category 1 of entry EA074, or equivalently category 9 of entry EA075).
Cousin marriage	Entry EA024 classifies the rules governing the marriageability of a man's first or second cousins in the following categories: 1- cross-cousin; 2- paternal only; 3-maternal only; 4- father's/mother's brother's daughter only; 5- father's/mother's sister's daughter only; 6- matrilateral cross only; 7- no first/second cousins; 8- no first cousins; 9- patrilateral cross only; 10- any first cousins; 11- some second only; 12- only second cousins; 13- any first cousin except lineage mate. The constructed "cousin marriage" variable takes on integer values ranging from 1 to 4, where higher values indicate tighter cousin marriage range; value 1 is assigned for no first/second-cousin marriage allowed (category 7), value 2 for second-cousin marriage allowed (categories 8, 11, and 12), value 3 is assigned for first-cousin marriage allowed except with father's brother's daughter (categories 1, 3, 5, 6, 9, and 13), value 4 is assigned for cousin marriage allowed with father's brother's daughter (categories 2, 4, and 10). Category 2 and 4 include 1 and 0 observations respectively, while category 10 includes 117 observations. Therefore, value 4 is practically the case if marriage with any first cousins is allowed.

Endogamy	Entry EA015 classifies "the prevalence of local endogamy, agamy, and exogamy" in the following categories; 1- demes (a marked tendency toward local endogamy); 2- segmented, no exogamy; 3- agamous (without any marked tendency toward either local exogamy or local endogamy); 4- exogamous; 5- segmented, exogamy; 6- clans (each consisting of a single localized exogamous kin group). Following Goody (1976), only category 1 is considered as endogamous. The constructed "endogamy" variable takes on integer values ranging from 1 to 3 where higher values indicate higher endogamy; value 1 is assigned for exogamous societies (categories 4, 5, and 6), value 2 is assigned for societies with no marked tendency toward endogamy or exogamy (categories 2 and 3), and value 3 is assigned for endogamous societies (categories 1).
Female premarital sex freedom	Entry EA078 classifies "prevailing standards of sex behavior for unmarried women" in the following categories: 1- precluded by early marriage; 2- prohibited, strongly sanctioned; 3- prohibited but weakly sanctioned; 4- permitted, sanctioned in the case of pregnancy; 5- trial marriage; 6- permitted, no sanctions. The constructed indicator variable for "female premarital sex freedom" takes value 1 if premarital sex of unmarried women is permitted (categories 4, 5, and 6), and 0 otherwise.
Female participation in agriculture	Entry EA054 classifies "specialization by sex in agriculture" in the following categories: 1- males alone; 2- both, males more; 3- differentiated but equal; 4- equal participation; 5- both, females more; 6- females alone; 7- sex irrelevant; 8- activity present, sex diff. unspecified; 9- activity is absent. Following Alesina et al. (2013), the constructed "female participation in agriculture" variable takes on integer values ranging from 1 to 5, where higher values indicate more participation of women in agriculture; value 3 is assigned for both categories 3 and 4; and categories 7, 8, and 9 are considered as missing data.
Traditional plough use	Entry EA039 "indicates whether or not animals are employed in plow cultivation, and whether plow cultivation is aboriginal or dates to the post-contact period" by the following categories: 1- absent; 2- not aboriginal but present; 3- present. Following Alesina et al. (2013), the constructed indicator variable for "traditional plough use" takes value 1 if the plough is present (categories 1 and 2), and 0 otherwise.
Non-irrigated/Irrigated intensive agriculture	Entry EA028 classifies "intensity of cultivation" in the following categories: 1- no agriculture, 2- casual; 3- extensive/shifting; 4- horticulture; 5- intensive; 6- intensive irrigated. The constructed indicator variable for "non-irrigated intensive agriculture" takes value 1 for category 5, and 0 otherwise. The constructed indicator variable for "irrigated intensive agriculture" takes value 1 for category 6, and 0 otherwise.
Settlement complexity	Entry EA030 classifies "settlement patterns" in the following categories: 1- nomadic; 2- seminomadic; 3- semisedentary; 4- impermanent; 5- dispersed homesteads; 6- hamlets; 7- village/town; 8- complex permanent. Following Alesina et al. (2013), the constructed "settlement complexity" variable takes on integer values ranging from 1 to 8, where higher values indicate higher settlement complexity.
Political hierarchies	Entry EA033 classifies "jurisdictional hierarchy beyond local community" in the following categories: 1- acephalous (e.g., autonomous bands and villages); 2- one level (e.g., petty chiefdoms); 3- two levels (e.g., larger chiefdoms); 4- three levels (e.g., states); 5- four levels (e.g., large states). Following Alesina et al. (2013), the constructed "political hierarchies" variable takes on integer values ranging from 1 to 5, where higher values indicate more political hierarchies.

Presence of large animals	Entry EA040 classifies “the predominant type of animals kept" in the following categories: 1- absence or near absence; 2- pigs; 3- sheep/goats; 4- equine; 5- deer; 6- camelids; 7- bovine. Following Alesina et al. (2013), the constructed “presence of large animals" variable takes value 1 for categories 2–7 and value 0 for category 1.
Year society sampled	D-PLACE data is tagged with a “focal year" indicating the year in which Ethnographic Atlas societies were sampled. Focal year is before 1800 for 3% of societies, in the nineteenth century for 25%, between 1900 and 1950 for 69%, and after 1950 for 2%; 1% of the 1,291 societies are missing a focal year.
Patrilineal/matrilineal descent	Entry EA043 indicates “major mode of descent " in the following categories: 1- patrilineal; 2- duolateral; 3- matrilineal; 4- quasi-lineages; 5- ambilineal; 6- bilateral; 7- mixed. Following Ashraf et al. (2018), the constructed indicator variable for “matrilineal descent" takes value 1 for category 3, and 0 otherwise. The constructed indicator variable for “patrilineal descent" takes value 1 for category 1, and 0 otherwise.
Bride price/dowry	Entry EA006 classifies "prevailing type of transfer or exchange at marriage" in the following categories: 1- bride wealth (or bride price); 2- bride service; 3- token bride wealth; 4- gift exchange; 5- woman exchange; 6- insignificant; 7- dowry. Following Ashraf et al. (2018), the constructed indicator variable for "bride price" takes value 1 for categories 1, and 0 otherwise. The constructed indicator variable for "dowry" takes value 1 for category 7, and 0 otherwise.
Population (in millions)	A continuous variable indicating the population of each society as a whole.
Proportion of subsistence from gathering/hunting/herding	Entries EA001, EA002, and EA004 indicate dependence on gathering, hunting, and animal husbandry respectively. Each entry takes the values 0 to 9 respectively for 0–5%, 6–15%, 16–25%, 26–35%, 36–45%, 46–55%, 56–65%, 66–75%, 76–85%, 86–100% dependence on the activity. Following Alesina et al. (2013), the median value of dependence on the activity is used to construct variables for “prop. of subsist. from gathering", “prop. of subsist. from hunting" and “prop. of subsist. from herding".
Patrilocal/matrilocal marriages	Entry EA011 indicates “the prevailing pattern of transfer of residence at marriage" in the following categories: 1- wife to husband; 2- ambi/neo-local; 3- husband to wife; 9- separate. The constructed indicator variable for “patrilocal marriages" takes value 1 for category 1, and 0 otherwise. The constructed indicator variable for “matrilocal marriages" takes value 1 for category 3, and 0 otherwise. These variables are equivalent to Alesina et al. (2013)'s constructed variables based on another entry describing marital residence with kin from which entry EA011 is summarized.
Extended/nuclear family	Entry EA008 indicates “the prevailing form of domestic or familial organization" in the following categories: 1- nuclear, monogamous; 2- nuclear, limited polygyny; 3- polyandrous; 4- polygyny, atypical cowives pattern; 5- polygyny, typical cowives pattern; 6- minimal extended; 7- small extended; 8- large extended. Following Alesina et al. (2013), the constructed indicator variable for “nuclear family" takes value 1 for categories 1 and 2, and 0 otherwise. The constructed indicator variable for “extended family" takes value 1 for categories 6–8, and 0 otherwise.

Ethnographic Atlas, Geographic data	
Variable name	**Description**
Latitude	D-PLACE data is tagged with a “revised latitude" indicating the corrected latitude data for Ethnographic Atlas societies. The constructed “latitude" variable is the absolute value of the revised latitude. Source: D-PLACE (Kirby et al., 2016).
Mean temperature (in Celsius degrees)/ mean precipitation (in meters)	The means of the entire annual cycles of precipitation and temperature are constructed for the time period between 1901 and 1950 (the time period in which the vast majority of Ethnographic Atlas societies were sampled) based on monthly global maps (0.5 by 0.5 degree cells) obtained from the CRU-TS 3.1 Climate Database, Harris et al. (2014). Source: D-PLACE (Kirby et al., 2016).
Temperature/precipitation predictability	The predictability measures of the entire annual cycles of precipitation and temperature are constructed for the time period between 1901 and 1950 based on monthly global maps (0.5 by 0.5 degree cells) obtained from the CRU-TS 3.1 Climate Database, Harris et al. (2014). Predictability was measured via Colwell (1974)’s Constancy, Contingency and Predictability indexes. These indexes capture the extent to which yearly cycles vary among years in terms of onset, intensity and duration, ranging from 0 (completely unpredictable) to 1 (fully predictable). Source: D-PLACE (Kirby et al., 2016).
Tropical climate	The indicator variable for “tropical climate" takes value 1 if the point location of an Ethnographic Atlas society is classified as being either tropical or subtropical, and 0 otherwise. The data is constructed based on Thermal Climate Zones of the World, a global raster datalayer with a resolution of 5 arc-minutes, with each pixel containing a class value for the dominant thermal climate found in the pixel. Source: FAO’s Food Insecurity, Poverty and Environment Global GIS Database (FGGD).
Suitability for agriculture	Suitability for agriculture represents the fraction of each grid cell that is suitable to be used for agriculture. It is based on the temperature and soil conditions of each grid cell. The data is constructed based on the global map (0.5 by 0.5 degree cells) obtained from Suitability for Agriculture. Source: Atlas of the Biosphere, Ramankutty et al. (2002).
Distance to coast (in 100 kilometers)	Distance of point locations of Ethnographic Atlas societies from the coast is constructed based on the coastline defined in the full-resolution Global Self-consistent, Hierarchical, High-resolution Geography Database. Source: D-PLACE (Kirby et al., 2016).
Slope (in degrees)	Mean incline in the terrain (unit of sample 0.5 by 0.5 degree cell) is constructed based on topographical data provided by the GTOPO30 data set. Source: D-PLACE (Kirby et al., 2016).
Elevation (in 100 meters)	Elevation is constructed based on the global map (30 by 30 arc-second cells) obtained from the Global 30 Arc-Second Elevation data set. For the consistency of data used for Ethnographic Atlas societies, I have aggregated the elevation data (waters excluded, and by taking mean) to a 0.5 by 0.5 degree resolution. Source: GTOPO30 data set.
Ruggedness (in 100 meters)	Ruggedness measures the elevation distance of each grid cell and its neighbors. The data is constructed based on the global map (30 by 30 arc-second cells) obtained from Grid-cell-level Data on Terrain Ruggedness. For the consistency of data used for Ethnographic Atlas societies, I have aggregated the Terrain Ruggedness data (waters excluded, and by taking mean) to a 0.5 by 0.5 degree resolution. Source: Nunn and Puga (2012).

B Additional figures and tables

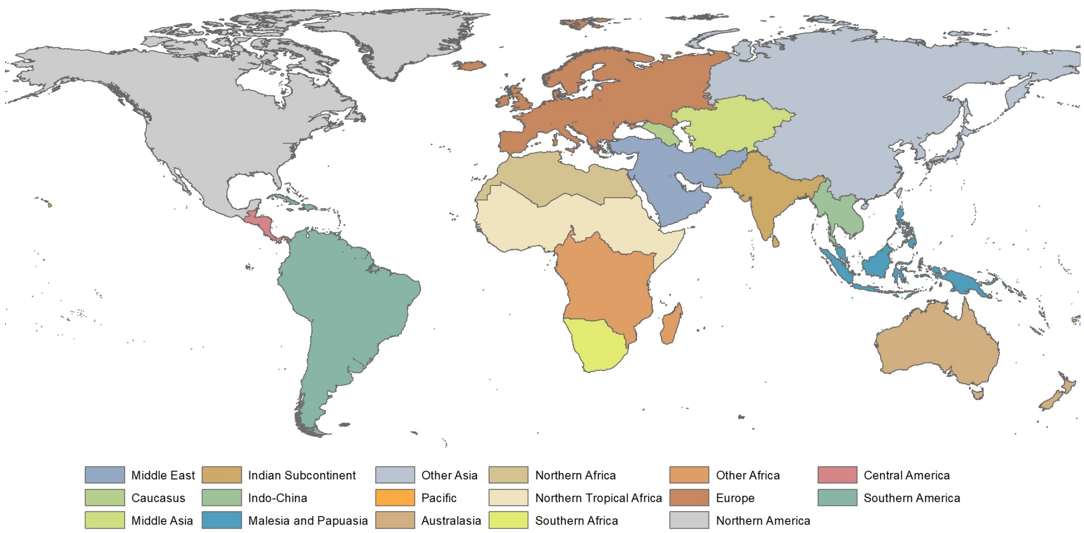


Figure B1: 17 regions used in the regression analyses of the Ethnographic Atlas data with regional fixed effects.

Table B1: Descriptive statistics of full sample.

VARIABLES	N	mean	sd
Cousin marriage	1,042	2.232	0.973
Endogamy	1,102	1.747	0.583
Female premarital sex prohibition	598	0.537	0.499
Polygyny	1,257	0.469	0.499
Female participation in agriculture	735	2.970	1.053
Impartible inheritance by males only	820	0.354	0.478
Partible inheritance by males only	820	0.270	0.444
Partible inheritance by both sexes	820	0.105	0.307
Partible inheritance	820	0.374	0.484
Absence of private property	820	0.272	0.445
Traditional plough use	1,182	0.149	0.356
Non-irrigated intensive agriculture	1,188	0.174	0.379
Irrigated intensive agriculture	1,188	0.106	0.308
Settlement complexity	1,187	5.116	2.218
Political hierarchies	1,155	1.944	1.106
Presence of large animals	1,182	0.727	0.446
Year society sampled	1,283	1,891	195
Patrilineal descent	1,274	0.463	0.499
Matrilineal descent	1,274	0.126	0.332
Dowry	1,272	0.034	0.181
Bride price	1,272	0.517	0.500
Latitude	1,291	21.193	17.376
Mean temperature	1,291	18.470	8.784
Temperature predictability	1,291	0.705	0.102
Mean precipitation	1,291	114.440	71.810
Precipitation predictability	1,291	0.625	0.097
Tropical climate	1,291	0.832	0.374
Suitability for agriculture	1,291	0.315	0.307
Distance to coast	1,291	4.370	4.308
Slope	1,291	2.117	2.537
Ruggedness	1,291	1.187	1.423
Elevation	1,291	6.850	6.936
Population	953	0.434	3.203
Prop. of subsist. from herding	1,290	16.747	17.344
Prop. of subsist. from hunting	1,290	15.500	15.054
Prop. of subsist. from gathering	1,290	11.743	15.098
Patrilocal marriages	1,267	0.680	0.467
Matrilocal marriages	1,267	0.081	0.273
Nuclear family structure	1,263	0.302	0.460
Extended family structure	1,263	0.473	0.499

Table B2: Descriptive statistics for regression analysis of cousin marriage.

VARIABLES	N	mean	sd
Cousin marriage	641	2.223	0.991
Impartible inheritance by males only	641	0.328	0.470
Partible inheritance by males only	641	0.256	0.437
Partible inheritance by both sexes	641	0.106	0.308
Absence of private property	641	0.310	0.463
Traditional plough use	641	0.178	0.383
Non-irrigated intensive agriculture	641	0.204	0.404
Irrigated intensive agriculture	641	0.109	0.312
Settlement complexity	641	5.009	2.277
Political hierarchies	641	2.034	1.171
Presence of large animals	641	0.764	0.425
Year society sampled	641	1,893.791	191.231
Patrilineal descent	641	0.471	0.500
Matrilineal descent	641	0.108	0.310
Dowry	641	0.042	0.201
Bride price	641	0.524	0.500
Latitude	641	22.338	17.700
Mean Temperature	641	17.949	9.182
Temperature predictability	641	0.698	0.102
Mean precipitation	641	108.368	70.479
Precipitation Predictability	641	0.616	0.098
Tropical climate	641	0.822	0.383
Suitability for agriculture	641	0.313	0.299
Distance to coast	641	4.264	4.137
Slope	641	2.174	2.643
Ruggedness	641	1.204	1.424
Elevation	641	7.164	7.278
Prop. of subsist. from herding	641	17.679	17.824
Prop. of subsist. from hunting	641	16.385	17.106
Prop. of subsist. from gathering	641	12.372	15.624
Patrilocal Marriages	637	0.705	0.456
Matrilocal Marriages	637	0.057	0.231
Nuclear family structure	637	0.294	0.456
Extended family structure	637	0.480	0.500
Population	502	0.594	4.145

Table B3: Regression analysis of cousin marriage.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Partible inheritance by males only	0.041	0.144	0.161*	0.157	0.171	0.090
	(0.099)	(0.098)	(0.097)	(0.098)	(0.112)	(0.072)
Partible inheritance by both sexes	0.277*	0.359**	0.331**	0.361**	0.409**	0.343*
	(0.152)	(0.153)	(0.154)	(0.158)	(0.171)	(0.185)
Absence of private property	0.215	0.356***	0.382***	0.393***	0.537***	0.200
	(0.131)	(0.135)	(0.135)	(0.136)	(0.161)	(0.116)
Traditional plough use	0.229*	0.341**	0.238	0.239	0.200	-0.058
	(0.136)	(0.156)	(0.157)	(0.156)	(0.176)	(0.111)
Non-irrigated intensive agriculture		-0.223*	-0.241**	-0.247**	-0.307**	-0.229**
		(0.114)	(0.117)	(0.117)	(0.125)	(0.096)
Irrigated intensive agriculture		0.262*	0.288*	0.276*	0.286*	0.118
		(0.155)	(0.150)	(0.150)	(0.165)	(0.166)
Settlement complexity	0.022	-0.007	0.038	0.039	0.031	0.014
	(0.024)	(0.026)	(0.032)	(0.033)	(0.037)	(0.021)
Political hierarchies	0.102**	0.120***	0.087*	0.089*	0.111**	0.135***
	(0.044)	(0.046)	(0.045)	(0.045)	(0.051)	(0.041)
Presence of large animals	0.253**	0.182	-0.096	-0.073	0.036	-0.003
	(0.119)	(0.123)	(0.131)	(0.134)	(0.153)	(0.083)
Year society sampled		-0.000***	-0.000***	-0.000***	-0.000*	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Patrilineal descent		0.405***	0.344***	0.304***	0.223*	0.194
		(0.096)	(0.097)	(0.105)	(0.117)	(0.112)
Matrilineal descent		0.648***	0.659***	0.637***	0.595***	0.543***
		(0.115)	(0.113)	(0.118)	(0.142)	(0.137)
Dowry		-0.329	-0.339	-0.352	-0.324	-0.182
		(0.213)	(0.218)	(0.225)	(0.258)	(0.184)
Bride price		0.019	-0.058	-0.068	0.002	-0.053
		(0.087)	(0.089)	(0.090)	(0.104)	(0.078)
Latitude		0.014	0.015	0.014	0.018	0.012
		(0.009)	(0.009)	(0.010)	(0.011)	(0.013)
Mean Temperature		-0.007	-0.001	-0.003	-0.002	-0.003
		(0.014)	(0.014)	(0.014)	(0.016)	(0.018)
Temperature predictability		4.197***	3.578**	3.359**	4.025**	2.883*
		(1.455)	(1.477)	(1.504)	(1.738)	(1.505)
Mean precipitation		-0.003***	-0.002**	-0.002**	-0.002**	-0.002*
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Precipitation Predictability		0.344	0.379	0.379	0.804	0.619
		(0.689)	(0.677)	(0.685)	(0.822)	(0.870)
Tropical climate	0.403***	0.348*	0.374*	0.385**	0.592***	-0.003
	(0.119)	(0.187)	(0.191)	(0.192)	(0.224)	(0.146)
Suitability for agriculture	-0.339**	-0.196	-0.158	-0.137	-0.151	-0.163
	(0.133)	(0.131)	(0.130)	(0.131)	(0.147)	(0.180)
Distance to coast		0.010	0.009	0.008	0.023	0.004
		(0.012)	(0.013)	(0.013)	(0.015)	(0.009)
Slope		0.059*	0.058	0.047	0.041	0.016
		(0.035)	(0.035)	(0.036)	(0.041)	(0.056)
Ruggedness		-0.057	-0.066	-0.048	-0.012	-0.020
		(0.065)	(0.065)	(0.066)	(0.075)	(0.083)
Elevation		-0.028***	-0.026***	-0.025***	-0.028***	-0.012
		(0.009)	(0.009)	(0.009)	(0.010)	(0.008)
Prop. of subsist. from herding			0.014***	0.014***	0.013***	
			(0.004)	(0.004)	(0.004)	
Prop. of subsist. from hunting			0.005	0.006	0.005	
			(0.004)	(0.004)	(0.004)	
Prop. of subsist. from gathering			-0.006	-0.006	-0.003	
			(0.004)	(0.004)	(0.005)	
Patrilocal Marriages				0.144	0.273**	
				(0.111)	(0.126)	
Matrilocal Marriages				0.081	0.177	
				(0.146)	(0.168)	
Nuclear family structure				0.082	0.048	
				(0.100)	(0.119)	
Extended family structure				0.036	0.020	
				(0.092)	(0.105)	
Population					0.010	
					(0.006)	
Constant	1.339***	-1.144	-1.040	-0.978	-2.497	-0.416
	(0.211)	(1.274)	(1.322)	(1.337)	(1.558)	(1.330)
Region fixed effects						yes
Observations	641	641	641	633	495	641
R-squared	0.092	0.222	0.257	0.263	0.283	0.355
Adjusted R-squared	0.0791	0.190	0.223	0.224	0.231	0.311
Number of clusters						17

Robust standard errors in parentheses, clustered at the region level in regression (6). *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table B4: Descriptive statistics for regression analysis of endogamy.

VARIABLES	N	mean	sd
Endogamy	675	1.732	0.582
Impartible inheritance by males only	675	0.330	0.471
Partible inheritance by males only	675	0.252	0.434
Partible inheritance by both sexes	675	0.113	0.316
Absence of private property	675	0.305	0.461
Traditional plough use	675	0.179	0.384
Non-irrigated intensive agriculture	675	0.207	0.406
Irrigated intensive agriculture	675	0.110	0.313
Settlement complexity	675	5.061	2.280
Political hierarchies	675	2.030	1.176
Presence of large animals	675	0.769	0.422
Year society sampled	675	1,899.099	139.092
Patrilineal descent	675	0.480	0.500
Matrilineal descent	675	0.102	0.303
Dowry	675	0.047	0.213
Bride price	675	0.527	0.500
Latitude	675	22.446	18.314
Mean Temperature	675	17.714	9.369
Temperature predictability	675	0.697	0.103
Mean precipitation	675	110.196	69.756
Precipitation Predictability	675	0.623	0.100
Tropical climate	675	0.809	0.393
Suitability for agriculture	675	0.319	0.300
Distance to coast	675	4.476	4.296
Slope	675	2.185	2.641
Ruggedness	675	1.212	1.455
Elevation	675	7.106	7.214
Prop. of subsist. from herding	675	17.552	17.574
Prop. of subsist. from hunting	675	16.527	16.905
Prop. of subsist. from gathering	675	11.967	15.259
Patrilocal Marriages	669	0.712	0.453
Matrilocal Marriages	669	0.057	0.232
Nuclear family structure	671	0.288	0.453
Extended family structure	671	0.490	0.500
Population	527	0.570	4.046

Table B5: Regression analysis of endogamy.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Partible inheritance by males only	0.030	0.024	0.023	0.018	0.002	0.010
	(0.057)	(0.058)	(0.058)	(0.058)	(0.063)	(0.065)
Partible inheritance by both sexes	0.382***	0.243***	0.241***	0.163*	0.218**	0.170*
	(0.079)	(0.082)	(0.082)	(0.083)	(0.091)	(0.091)
Absence of private property	0.092	0.000	0.019	-0.029	-0.018	-0.040
	(0.076)	(0.080)	(0.081)	(0.083)	(0.091)	(0.062)
Traditional plough use	0.137*	0.013	-0.007	-0.021	-0.080	0.009
	(0.076)	(0.088)	(0.089)	(0.090)	(0.111)	(0.080)
Non-irrigated intensive agriculture		-0.041	-0.060	-0.062	0.008	-0.046
		(0.068)	(0.070)	(0.070)	(0.079)	(0.053)
Irrigated intensive agriculture		0.114	0.102	0.081	0.148	0.049
		(0.088)	(0.088)	(0.090)	(0.100)	(0.084)
Settlement complexity	0.022	0.035**	0.033*	0.037**	0.050**	0.039*
	(0.014)	(0.015)	(0.017)	(0.018)	(0.019)	(0.020)
Political hierarchies	0.026	0.013	0.005	0.013	0.023	0.036
	(0.026)	(0.028)	(0.028)	(0.028)	(0.030)	(0.035)
Presence of large animals	-0.096	0.092	0.043	0.016	0.020	0.074
	(0.068)	(0.076)	(0.080)	(0.082)	(0.100)	(0.072)
Year society sampled		0.000	0.000	0.000	-0.000	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Patrilineal descent		-0.188***	-0.200***	-0.140**	-0.168**	-0.181**
		(0.057)	(0.057)	(0.059)	(0.069)	(0.073)
Matrilineal descent		-0.043	-0.047	-0.088	0.001	-0.011
		(0.076)	(0.075)	(0.079)	(0.088)	(0.088)
Dowry		-0.009	-0.017	-0.007	-0.063	0.144*
		(0.107)	(0.106)	(0.101)	(0.116)	(0.080)
Bride price		-0.117**	-0.129**	-0.096*	-0.067	-0.088
		(0.053)	(0.055)	(0.055)	(0.062)	(0.061)
Latitude		0.005	0.006	0.005	0.009	-0.001
		(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Mean Temperature		0.004	0.006	0.006	0.004	-0.005
		(0.008)	(0.008)	(0.008)	(0.010)	(0.007)
Temperature predictability		-0.530	-0.812	-0.764	-0.426	-0.049
		(0.779)	(0.807)	(0.818)	(0.953)	(0.976)
Mean precipitation		-0.001	-0.000	-0.000	-0.001	-0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Precipitation Predictability		0.055	0.076	0.122	0.055	0.130
		(0.383)	(0.394)	(0.398)	(0.447)	(0.565)
Tropical climate	-0.057	0.184	0.189	0.205*	0.315**	0.177**
	(0.065)	(0.122)	(0.125)	(0.124)	(0.143)	(0.073)
Suitability for agriculture	0.015	0.019	0.031	0.023	0.056	0.031
	(0.077)	(0.076)	(0.077)	(0.077)	(0.087)	(0.077)
Distance to coast		-0.010	-0.010	-0.010	-0.010	-0.002
		(0.006)	(0.007)	(0.007)	(0.008)	(0.007)
Slope		0.012	0.013	0.015	0.018	0.011
		(0.020)	(0.020)	(0.020)	(0.024)	(0.018)
Ruggedness		-0.035	-0.039	-0.042	-0.046	-0.033
		(0.036)	(0.036)	(0.036)	(0.041)	(0.034)
Elevation		0.002	0.004	0.004	0.002	-0.000
		(0.006)	(0.006)	(0.006)	(0.006)	(0.004)
Prop. of subsist. from herding			0.001	0.002	0.000	
			(0.002)	(0.002)	(0.002)	
Prop. of subsist. from hunting			-0.001	-0.001	-0.001	
			(0.002)	(0.002)	(0.003)	
Prop. of subsist. from gathering			-0.002	-0.003	-0.003	
			(0.002)	(0.002)	(0.003)	
Patrilocal Marriages				-0.161**	-0.171**	
				(0.064)	(0.077)	
Matrilocal Marriages				0.127	0.153	
				(0.112)	(0.123)	
Nuclear family structure				0.154**	0.119	
				(0.068)	(0.075)	
Extended family structure				0.041	0.021	
				(0.061)	(0.066)	
Population					-0.002	
					(0.009)	
Constant	1.579***	1.572**	1.832**	1.713**	1.814	0.949
	(0.116)	(0.703)	(0.739)	(0.751)	(1.251)	(0.818)
Region fixed effects						yes
Observations	675	675	675	665	518	675
R-squared	0.070	0.144	0.148	0.172	0.222	0.211
Adjusted R-squared	0.0569	0.111	0.111	0.130	0.169	0.160
Number of clusters						17

Robust standard errors in parentheses, clustered at the region level in regression (6). *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table B6: Descriptive statistics for regression analysis of female premarital sex freedom.

VARIABLES	N	mean	sd
Female premarital sex prohibition	418	0.462	0.499
Impartible inheritance by males only	418	0.292	0.455
Partible inheritance by males only	418	0.249	0.433
Partible inheritance by both sexes	418	0.108	0.310
Absence of private property	418	0.352	0.478
Traditional plough use	418	0.203	0.403
Non-irrigated intensive agriculture	418	0.203	0.403
Irrigated intensive agriculture	418	0.117	0.322
Settlement complexity	418	4.926	2.332
Political hierarchies	418	2.091	1.241
Presence of large animals	418	0.756	0.430
Year society sampled	418	1,880.945	289.088
Patrilineal descent	418	0.438	0.497
Matrilineal descent	418	0.081	0.274
Dowry	418	0.053	0.224
Bride price	418	0.476	0.500
Latitude	418	24.718	19.520
Mean Temperature	418	16.552	10.217
Temperature predictability	418	0.687	0.110
Mean precipitation	418	110.116	72.953
Precipitation Predictability	418	0.625	0.098
Tropical climate	418	0.758	0.429
Suitability for agriculture	418	0.311	0.305
Distance to coast	418	4.400	4.266
Slope	418	2.255	2.698
Ruggedness	418	1.199	1.421
Elevation	418	7.148	7.233
Prop. of subsist. from herding	418	17.146	17.822
Prop. of subsist. from hunting	418	17.428	18.485
Prop. of subsist. from gathering	418	12.208	14.786
Patrilocal Marriages	414	0.669	0.471
Matrilocal Marriages	414	0.051	0.220
Nuclear family structure	416	0.329	0.471
Extended family structure	416	0.450	0.498
Population	323	0.780	5.127

Table B7: Regression analysis of female premarital sex freedom.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Partible inheritance by males only	-0.032	-0.003	0.004	0.003	-0.022	0.000
	(0.063)	(0.066)	(0.067)	(0.069)	(0.079)	(0.058)
Partible inheritance by both sexes	-0.258***	-0.240***	-0.245***	-0.265***	-0.288***	-0.196*
	(0.082)	(0.087)	(0.087)	(0.088)	(0.108)	(0.112)
Absence of private property	-0.149*	-0.113	-0.109	-0.122	-0.173*	-0.074
	(0.077)	(0.083)	(0.085)	(0.085)	(0.103)	(0.083)
Traditional plough use	-0.181**	-0.122	-0.145*	-0.168**	-0.203*	-0.097
	(0.072)	(0.082)	(0.082)	(0.082)	(0.111)	(0.096)
Non-irrigated intensive agriculture		0.006	0.005	-0.003	0.013	0.008
		(0.083)	(0.083)	(0.084)	(0.101)	(0.061)
Irrigated intensive agriculture		0.032	0.035	0.035	0.109	0.026
		(0.094)	(0.094)	(0.096)	(0.115)	(0.086)
Settlement complexity	0.037***	0.026*	0.034*	0.035*	0.018	0.015
	(0.013)	(0.016)	(0.020)	(0.020)	(0.022)	(0.022)
Political hierarchies	-0.084***	-0.082***	-0.094***	-0.088***	-0.076**	-0.092***
	(0.025)	(0.029)	(0.029)	(0.029)	(0.035)	(0.028)
Presence of large animals	0.126*	0.149*	0.083	0.086	0.153	0.065
	(0.069)	(0.076)	(0.083)	(0.084)	(0.099)	(0.072)
Year society sampled		0.000	-0.000	-0.000	-0.000**	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Patrilineal descent		-0.042	-0.068	-0.034	-0.021	-0.056
		(0.065)	(0.065)	(0.069)	(0.080)	(0.054)
Matrilineal descent		0.115	0.118	0.144	0.120	0.119
		(0.088)	(0.089)	(0.098)	(0.115)	(0.097)
Dowry		-0.017	-0.017	0.008	-0.105	-0.057
		(0.125)	(0.123)	(0.123)	(0.144)	(0.153)
Bride price		-0.008	-0.026	-0.027	-0.065	-0.022
		(0.059)	(0.059)	(0.061)	(0.068)	(0.016)
Latitude		0.001	0.002	0.000	-0.003	0.006
		(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Mean Temperature		-0.006	-0.004	-0.004	-0.006	0.002
		(0.008)	(0.009)	(0.009)	(0.010)	(0.012)
Temperature predictability		0.902	0.721	0.573	0.569	0.267
		(0.811)	(0.844)	(0.846)	(0.965)	(1.249)
Mean precipitation		-0.001	-0.000	-0.000	-0.001	-0.000
		(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Precipitation Predictability		0.645*	0.659*	0.735*	0.558	0.615
		(0.379)	(0.381)	(0.383)	(0.462)	(0.417)
Tropical climate	-0.073	-0.009	-0.003	-0.002	-0.064	0.034
	(0.061)	(0.117)	(0.118)	(0.118)	(0.156)	(0.166)
Suitability for agriculture	-0.298***	-0.265***	-0.254***	-0.258***	-0.268***	-0.230***
	(0.078)	(0.086)	(0.087)	(0.087)	(0.103)	(0.059)
Distance to coast		-0.001	-0.001	0.000	-0.002	-0.002
		(0.007)	(0.007)	(0.008)	(0.009)	(0.005)
Slope		-0.014	-0.014	-0.015	-0.008	-0.012
		(0.024)	(0.023)	(0.024)	(0.027)	(0.027)
Ruggedness		-0.003	-0.006	0.004	0.006	-0.010
		(0.042)	(0.041)	(0.042)	(0.048)	(0.032)
Elevation		0.001	0.002	0.001	-0.003	0.004
		(0.006)	(0.006)	(0.006)	(0.008)	(0.004)
Prop. of subsist. from herding			0.003	0.004**	0.004	
			(0.002)	(0.002)	(0.003)	
Prop. of subsist. from hunting			0.001	0.002	0.001	
			(0.002)	(0.002)	(0.003)	
Prop. of subsist. from gathering			-0.002	-0.002	-0.001	
			(0.003)	(0.003)	(0.003)	
Patrilocal Marriages				-0.078	-0.043	
				(0.064)	(0.078)	
Matrilocal Marriages				-0.086	-0.076	
				(0.118)	(0.146)	
Nuclear family structure				0.062	0.184**	
				(0.074)	(0.087)	
Extended family structure				0.094	0.129	
				(0.067)	(0.079)	
Population					-0.007**	
					(0.003)	
Constant	0.632***	-0.289	-0.249	-0.211	0.394	0.342
	(0.114)	(0.662)	(0.699)	(0.698)	(0.824)	(0.760)
Region fixed effects						yes
Observations	418	418	418	412	317	418
R-squared	0.135	0.166	0.178	0.185	0.190	0.211
Adjusted R-squared	0.116	0.113	0.119	0.116	0.096	0.125
Number of clusters						17

Robust standard errors in parentheses, clustered at the region level in regression (6). *** p<0.01, ** p<0.05, * p<0.1

Table B8: Descriptive statistics for regression analysis of female participation in agriculture.

VARIABLES	N	mean	sd
Female participation in agriculture	480	2.883	0.986
Impartible inheritance by males only	480	0.396	0.490
Partible inheritance by males only	480	0.331	0.471
Partible inheritance by both sexes	480	0.135	0.343
Absence of private property	480	0.138	0.345
Traditional plough use	480	0.250	0.433
Non-irrigated intensive agriculture	480	0.281	0.450
Irrigated intensive agriculture	480	0.150	0.357
Settlement complexity	480	5.967	1.588
Political hierarchies	480	2.342	1.234
Presence of large animals	480	0.906	0.292
Year society sampled	480	1,892.229	273.428
Patrilineal descent	480	0.563	0.497
Matrilineal descent	480	0.102	0.303
Dowry	480	0.060	0.239
Bride price	480	0.588	0.493
Latitude	480	16.872	14.612
Mean Temperature	480	20.458	6.456
Temperature predictability	480	0.728	0.083
Mean precipitation	480	120.388	72.856
Precipitation Predictability	480	0.626	0.096
Tropical climate	480	0.904	0.295
Suitability for agriculture	480	0.367	0.307
Distance to coast	480	4.751	4.400
Slope	480	1.999	2.519
Ruggedness	480	1.126	1.374
Elevation	480	7.265	7.779
Prop. of subsist. from herding	480	19.871	13.997
Prop. of subsist. from hunting	480	10.071	9.428
Prop. of subsist. from gathering	480	7.192	9.894
Patrilocal Marriages	478	0.770	0.421
Matrilocal Marriages	478	0.059	0.235
Nuclear family structure	479	0.271	0.445
Extended family structure	479	0.482	0.500
Population	375	0.797	4.781

Table B9: Regression analysis of female participation in agriculture.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Partible inheritance by males only	-0.247**	-0.176*	-0.171*	-0.158*	-0.159	-0.145
	(0.098)	(0.093)	(0.091)	(0.090)	(0.097)	(0.101)
Partible inheritance by both sexes	-0.578***	-0.261**	-0.255**	-0.188	-0.251*	-0.200**
	(0.129)	(0.131)	(0.128)	(0.133)	(0.146)	(0.084)
Absence of private property	0.085	0.179	0.134	0.255*	0.222	0.267
	(0.147)	(0.144)	(0.134)	(0.134)	(0.149)	(0.185)
Traditional plough use	-0.630***	-0.387***	-0.315**	-0.215	-0.101	-0.277
	(0.120)	(0.148)	(0.145)	(0.144)	(0.169)	(0.186)
Non-irrigated intensive agriculture		-0.222**	-0.090	-0.090	-0.131	-0.234**
		(0.113)	(0.111)	(0.108)	(0.122)	(0.096)
Irrigated intensive agriculture		-0.328**	-0.209	-0.157	-0.156	-0.265*
		(0.146)	(0.149)	(0.146)	(0.169)	(0.138)
Settlement complexity	-0.011	-0.018	-0.050	-0.044	-0.049	-0.010
	(0.033)	(0.034)	(0.033)	(0.034)	(0.039)	(0.038)
Political hierarchies	-0.032	0.019	0.044	0.019	0.004	-0.040
	(0.041)	(0.042)	(0.042)	(0.041)	(0.046)	(0.057)
Presence of large animals	0.380**	-0.025	0.217	0.233	0.136	-0.034
	(0.156)	(0.153)	(0.149)	(0.145)	(0.165)	(0.116)
Year society sampled		0.000	0.000*	0.000	0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Patrilineal descent		0.200*	0.225**	0.164	0.068	0.285***
		(0.107)	(0.103)	(0.105)	(0.112)	(0.088)
Matrilineal descent		0.412***	0.370***	0.327**	0.162	0.399***
		(0.143)	(0.131)	(0.136)	(0.159)	(0.110)
Dowry		0.397**	0.468***	0.414**	0.401*	0.321**
		(0.183)	(0.180)	(0.174)	(0.220)	(0.147)
Bride price		0.189**	0.315***	0.265***	0.235**	0.082
		(0.095)	(0.091)	(0.093)	(0.100)	(0.079)
Latitude		-0.036***	-0.032***	-0.026***	-0.035***	-0.027***
		(0.009)	(0.009)	(0.009)	(0.010)	(0.008)
Mean Temperature		-0.069***	-0.068***	-0.058***	-0.064***	-0.035**
		(0.018)	(0.018)	(0.019)	(0.021)	(0.013)
Temperature predictability		0.109	1.762	2.080	2.105	-1.312
		(1.584)	(1.583)	(1.592)	(1.860)	(1.063)
Mean precipitation		0.000	-0.000	-0.001	-0.001	0.000
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Precipitation Predictability		-0.147	-0.733	-0.702	-0.914	-0.351
		(0.712)	(0.712)	(0.736)	(0.898)	(1.192)
Tropical climate	0.069	-0.064	-0.289	-0.350	-0.537*	0.042
	(0.183)	(0.281)	(0.268)	(0.268)	(0.308)	(0.408)
Suitability for agriculture	-0.486***	-0.456***	-0.447***	-0.483***	-0.495***	-0.259**
	(0.148)	(0.151)	(0.143)	(0.144)	(0.163)	(0.104)
Distance to coast		0.009	0.010	0.008	0.004	0.009
		(0.012)	(0.011)	(0.011)	(0.013)	(0.011)
Slope		-0.048	-0.054	-0.051	-0.086**	0.025
		(0.037)	(0.036)	(0.036)	(0.042)	(0.040)
Ruggedness		0.208***	0.215***	0.197***	0.226***	0.114*
		(0.060)	(0.061)	(0.061)	(0.071)	(0.064)
Elevation		-0.024**	-0.020*	-0.017	-0.015	-0.023**
		(0.010)	(0.011)	(0.011)	(0.013)	(0.009)
Prop. of subsist. from herding			-0.017***	-0.018***	-0.018***	
			(0.005)	(0.005)	(0.006)	
Prop. of subsist. from hunting			0.016***	0.016***	0.021***	
			(0.006)	(0.006)	(0.006)	
Prop. of subsist. from gathering			-0.008	-0.008	-0.012**	
			(0.006)	(0.006)	(0.005)	
Patrilocal Marriages				0.206	0.217	
				(0.132)	(0.155)	
Matrilocal Marriages				0.181	0.146	
				(0.214)	(0.227)	
Nuclear family structure				-0.405***	-0.372***	
				(0.117)	(0.120)	
Extended family structure				-0.437***	-0.455***	
				(0.096)	(0.102)	
Population					-0.015**	
					(0.006)	
Constant	3.103***	4.880***	4.108***	3.842***	4.917***	5.888***
	(0.328)	(1.278)	(1.366)	(1.390)	(1.612)	(0.964)
Region fixed effects						yes
Observations	480	480	480	477	372	480
R-squared	0.191	0.332	0.383	0.410	0.447	0.433
Adjusted R-squared	0.175	0.295	0.344	0.367	0.393	0.380
Number of clusters						17

Robust standard errors in parentheses, clustered at the region level in regression (6). *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table B10: Model specification Table (1), column (1) from Alesina et al. (2013), updated with new sample, inheritance systems, and maximal controls.

	Alesina et al. (2013)			Updated data			Restricted sample		
VARIABLES	N	mean	sd	N	mean	sd	N	mean	sd
Female participation in agriculture	660	3.036	1.018	713	3.000	1.036	480	2.883	0.986
Traditional plough use	660	0.186	0.390	713	0.198	0.399	480	0.250	0.433
Settlement complexity	660	5.877	1.691	713	5.928	1.650	480	5.967	1.588
Political hierarchies	660	2.111	1.108	713	2.181	1.165	480	2.342	1.234
Presence of large animals	660	0.835	0.372	713	0.837	0.369	480	0.906	0.292
Suitability for agriculture	660	0.469	0.384	713	0.349	0.312	480	0.367	0.307
Tropical climate	660	0.917	0.266	713	0.902	0.298	480	0.904	0.295

	Female participation in agriculture				
	(SD=1.018)	(SD=1.036)	(SD=0.986)	(SD=0.986)	(SD=0.986)
	(1)	(2)	(3)	(4)	(5)
VARIABLES	Alesina et al. (2013)	Updated data	Restricted sample	and Inheritance	Updated controls
Partible inheritance by males only				-0.247**	-0.176*
				(0.098)	(0.093)
Partible inheritance by both sexes				-0.578***	-0.261**
				(0.129)	(0.131)
Traditional plough use	-0.883***	-0.848***	-0.770***	-0.630***	-0.387***
	(0.114)	(0.107)	(0.121)	(0.120)	(0.148)
Absence of private property				yes	yes
Minimal controls	yes	yes	yes	yes	
Maximal controls					yes
Observations	660	713	480	480	480
R-squared	0.135	0.135	0.150	0.191	0.332

Regression 1 of the Table replicates the regression result by Alesina et al. (2013) using the same specification and data. The resulting coefficient for plough agriculture is the same as in Alesina et al. (2013). In column 2, I estimate the same regression specification, but using the version of the Ethnographic Atlas data used in this study. The coefficient is almost the same. In column 3, the sample is restricted to observations with available inheritance data. Plough agriculture remains significant, and the coefficient is not significantly different than column 2 (Wald test p-value=0.105). Column 4 introduces the controls for inheritance systems. Both plough use and partible inheritance by both sexes are significant. This decreases the coefficient on plough use (Wald test p-value<0.000) relative to column 3. Moreover, the coefficient of partible inheritance by both sexes is not significantly different than the coefficient of plough use (Wald test p-value=0.793). In regression 5, where I use maximal controls, the coefficient of partible inheritance by both sexes is still significant and not significantly different from the coefficient of plough use (Wald test p-value=0.548).

Table B11: Regression analyses of minimal specifications using data from Alesina et al. (2013).

VARIABLES	Cousin marriage	Endogamy	Female premarital sex freedom	Female participation in agriculture
Partible inheritance by males only	-0.002	0.022	-0.037	-0.304***
	(0.101)	(0.058)	(0.069)	(0.104)
Partible inheritance by both sexes	0.295*	0.373***	-0.196**	-0.655***
	(0.155)	(0.085)	(0.089)	(0.130)
Absence of private property	0.150	0.115	-0.140*	-0.012
	(0.126)	(0.075)	(0.081)	(0.155)
Historical plough use	0.215	0.103	-0.178**	-0.648***
	(0.137)	(0.077)	(0.075)	(0.129)
Settlement patterns	0.029	0.017	0.031**	-0.018
	(0.025)	(0.014)	(0.014)	(0.033)
Jurisdictional hierarchy	0.168***	0.027	-0.098***	-0.029
	(0.044)	(0.027)	(0.026)	(0.044)
Presence of large animals	0.189	-0.048	0.102	0.299*
	(0.122)	(0.067)	(0.075)	(0.163)
Tropical climate	0.293**	-0.021	-0.025	-0.058
	(0.127)	(0.070)	(0.075)	(0.236)
Suitability for agriculture	-0.221**	-0.144**	-0.041	-0.203*
	(0.103)	(0.061)	(0.070)	(0.120)
Constant	1.372***	1.600***	0.572***	3.302***
	(0.208)	(0.115)	(0.122)	(0.354)
Observations	610	641	380	453
R-squared	0.122	0.069	0.102	0.167
Adjusted R-squared	0.108	0.0562	0.0802	0.150

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table B12: Regression analyses of maximal specifications with Conley standard errors adjusted for spatial correlation with cutoffs of 60 decimal degrees.

VARIABLES	Cousin marriage	Endogamy	Female premarital sex freedom	Female participation in agriculture
Partible inheritance by males only	0.144	0.024	-0.003	-0.176**
	(0.088)	(0.060)	(0.058)	(0.087)
Partible inheritance by both sexes	0.359**	0.243***	-0.240**	-0.261***
	(0.159)	(0.079)	(0.095)	(0.096)
Absence of private property	yes	yes	yes	yes
Maximal controls	yes	yes	yes	yes
Observations	641	675	418	480
R-squared	0.222	0.144	0.166	0.332
Adjusted R-squared	0.190	0.111	0.113	0.295

Conley standard errors adjusted for spatial correlation in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table B13: Regression analyses of maximal specifications using ordered logistic model (regressions 1, 2, and 4) and binary logistic model (regression 3). Odds ratios are reported in the table.

VARIABLES	Cousin marriage	Endogamy	Female premarital sex freedom	Female participation in agriculture
Partible inheritance by males only	1.328	1.067	1.004	0.675*
	(0.267)	(0.230)	(0.309)	(0.145)
Partible inheritance by both sexes	2.268**	2.560***	0.300***	0.530**
	(0.794)	(0.834)	(0.133)	(0.158)
Absence of private property	yes	yes	yes	yes
Maximal controls	yes	yes	yes	yes
Observations	641	675	418	480
Pseudo R-squared	0.0967	0.0892	0.132	0.148

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table B14: Regression analyses distinguishing lineal and lateral inheritance systems.

	Cousin marriage		Endogamy		Female premarital sex freedom		Female participation in agriculture	
VARIABLES	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Inheritance by both sons and daughters	0.627***	0.332**	0.355***	0.223***	-0.138*	-0.129*	-0.423***	-0.112
	(0.238)	(0.140)	(0.069)	(0.073)	(0.073)	(0.077)	(0.120)	(0.123)
Matrilineal heirs	0.868***	0.441***	0.056	-0.091	0.225***	0.220*	0.065	0.042
	(0.194)	(0.156)	(0.065)	(0.098)	(0.078)	(0.127)	(0.140)	(0.196)
Patrilineal heirs	0.382*	0.299**		-0.037	-0.085	-0.056	0.172	0.242
	(0.197)	(0.128)		(0.076)	(0.074)	(0.079)	(0.142)	(0.149)
Absence of private property	yes	yes	yes	yes	yes	yes	yes	yes
Minimal controls	yes		yes		yes		yes	
Maximal controls		yes		yes		yes		yes
Observations	677	677	714	714	442	442	516	516
R-squared	0.115	0.208	0.072	0.145	0.138	0.165	0.169	0.327
Adjusted R-squared	0.102	0.176	0.0597	0.113	0.118	0.113	0.153	0.291

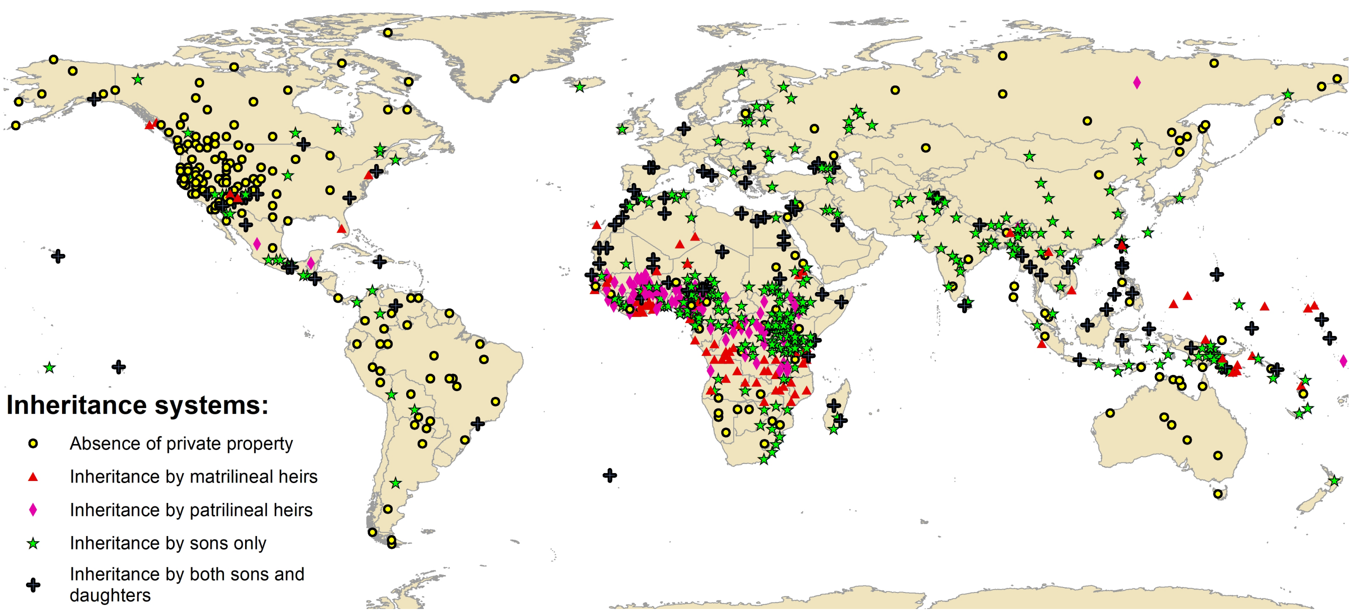


Figure shows inheritance systems of 856 Ethnographic Atlas societies, distinguishing lineal and lateral inheritance systems, and for the former, distinguishing female inclusion and female exclusion in inheritance. Lateral inheritance systems include inheritance by matrilineal or patrilineal heirs who take precedence over sons and daughters (indicator variables 3 and 4 below).

For the regression analysis, I define the following indicator variables based on entry EA074: 1- inheritance by both sons and daughters (categories 4 and 5); 2- inheritance by sons only (category 7); 3- inheritance by matrilineal heirs such as a sister's sons (categories 2, 3); 4- inheritance by patrilineal heirs such as younger brothers (category 6); and 5- no inheritance of real property (category 1).

Note that the omitted category in the regressions is inheritance by sons only, including both impartible and partible forms. With maximal controls, female inheritance is insignificant only in the regression on female participation in agriculture. As noted before, partibility of inheritance is likely to have an effect on female participation in agriculture, which is not captured by this categorization. Interestingly, inheritance by matrilineal heirs is associated with higher cousin marriages but also higher female premarital sex freedom.

Table B15: Descriptive statistics of analyses with the NFHS female adults.

VARIABLES	N	mean	sd
Cousin marriage	461,675	0.060	0.237
Subject to amendment	461,675	0.279	0.449
Hindu	461,675	0.825	0.380
Muslim	461,675	0.098	0.297
Christian	461,675	0.077	0.267
First marriage year	461,675	1,997.6	12.183
Birth year	461,675	1,979.2	11.245
Caste	461,675	0.177	0.381
Tribe	461,675	0.187	0.390
Education	461,675	1.124	1.033
Wealth	461,675	2.899	1.430
Urban	461,675	0.272	0.445

The sample includes ever married women. Dummy variable "Cousin marriage" takes value 1 if a woman's husband in her first marriage is a blood relative, and takes value 0 otherwise. Dummy variable "Hindu" takes value 1 if the respondent is Hindu, Sikh, Jain, or Buddhist, and takes value 0 if the respondent is Muslim and Christian. Dummy variable "Caste/Tribe" takes value 1 if the respondent is a member of a scheduled caste/tribe, and takes value 0 otherwise. Education takes values 1 to 4 for no education, primary education, secondary education, and higher education respectively. Wealth takes values 1 to 5 for the poorest to the richest quintile respectively. Dummy variable "Urban" takes value 1 if the respondent resides in a urban region, and takes value 0 if the respondent resides in a rural region.

VARIABLES	N	mean	sd
Female economic participation	260,264	0.337	0.473
Subject to amend.	260,264	0.095	0.293
Hindu	260,264	0.828	0.378
Muslim	260,264	0.098	0.298
Christian	260,264	0.074	0.262
First marriage year	260,264	1,989.1	12.378
Birth year	260,264	1,971	11.641
Caste	260,264	0.164	0.370
Tribe	260,264	0.159	0.366
Education	260,264	0.959	1.033
Wealth	260,264	3.132	1.437
Urban	260,264	0.316	0.465

The sample includes ever married women. Dummy variable "Female economic participation" takes value 1 if a woman worked in last 12 months. Dummy variable "Caste/Tribe" takes value 1 if the respondent is a member of a scheduled caste/tribe, and takes value 0 otherwise. Education takes values 1 to 4 for no education, primary education, secondary education, and higher education respectively. Wealth takes values 1 to 5 for the poorest to the richest quintile respectively. Dummy variable "Urban" takes value 1 if the respondent resides in a urban region, and takes value 0 if the respondent resides in a rural region.

Table B16: Individual-level regression analyses with the NFHS female adults.

	Cousin marriage (Hindu sample mean=0.047, SD=0.212)			Female economic participation (Hindu sample mean= 0.338, SD=0.473)		
VARIABLES	(1)	(2)	(3)	(1)	(2)	(3)
Subject to amend.	0.014***	0.010***	0.010***	-0.050***	-0.074***	-0.068***
	(0.003)	(0.003)	(0.003)	(0.008)	(0.008)	(0.008)
Hindu	-0.119***	-0.098***	-0.097***	0.069***	0.088***	0.088***
	(0.003)	(0.009)	(0.009)	(0.005)	(0.016)	(0.016)
caste			-0.001			0.052***
			(0.001)			(0.004)
tribe			0.002			0.150***
			(0.002)			(0.006)
education			-0.000			-0.008***
			(0.000)			(0.002)
wealth			0.001***			-0.062***
			(0.000)			(0.001)
urban			0.001			-0.041***
			(0.001)			(0.004)
Marriage year FE	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Birth year FE		yes	yes		yes	yes
State $\times$ Birth year FE		yes	yes		yes	yes
State $\times$ Hindu		yes	yes		yes	yes
Individual-level controls			yes			yes
Observations	461,675	461,675	461,675	260,264	260,264	260,264
R-squared	0.043	0.057	0.057	0.072	0.086	0.152
Number of clusters	22751	22751	22751	10937	10937	10937

OLS estimates are reported with robust standard errors, clustered at the level of the primary sampling unit, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels.

Table B17: Individual-level regression analyses of the amendment with the NFHS female adults with standard errors clustered at state level (column 1), using full sample (column 2), restricted to states that passed similar amendments in the past (column 3), and restricted to matrilineal states (column 4).

	Cousin marriage				Female economic participation			
VARIABLES	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Subject to amendment	0.010**	0.005*	-.016*	-0.002	-0.068***	-0.062***	-.014	-0.0311
	(0.004)	(0.003)	(0.008)	(0.006)	(0.014)	(0.007)	(0.017)	(0.045)
Hindu	-0.097***	-.041	-0.046*	-.014*	0.088***	0.124***	0.105**	-0.045
	(0.001)	(0.027)	(0.027)	(.008)	(0.007)	(0.047)	(0.047)	(0.037)
Marriage year FE	yes	yes	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes	yes	yes
Birth year FE	yes	yes	yes	yes	yes	yes	yes	yes
State $\times$ Birth year FE	yes	yes	yes	yes	yes	yes	yes	yes
State $\times$ Hindu	yes	yes	yes	yes	yes	yes	yes	yes
Individual-level controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	461,675	577,679	104,159	23,450	260,264	350,577	80,907	13,810
R-squared	0.057	0.121	0.079	0.015	0.152	0.164	0.191	0.113
Number of clusters	29	28,438	5,262	1,483	29	14,161	3,207	888
Wald test of H0: $\beta_1 = 0$	$t(28) = 2.654$				$t(28) = -4.970$			
(wild cluster bootstrap)	$Prob > \|t\| = 0.044$				$Prob > \|t\| = 0.004$			

OLS estimates are reported with robust standard errors in parentheses, clustered at the state level in regressions 1, and clustered at the level of the primary sampling unit in regressions 2-4. Individual-level controls include caste, tribe, and urban dummy variables; education and wealth; and survey round fixed effects. ***, **, and * indicate significance at the 1, 5, and 10% levels. Using state level wild cluster bootstrap with 500 replications after regression (1), the Wald test rejects the null hypothesis of H0: $\beta_1 = 0$, that is, the coefficient of exposure to the amendment is significant at 5% level. Wild test bootstrap is performed using *boottest* (Roodman et al., 2018).

Table B18: Individual-level regression analyses with the NFHS female adults over pre-treatment period using placebo years 2001-04.

	Cousin marriage				Female economic participation			
VARIABLES	(2004)	(2003)	(2002)	(2001)	(2004)	(2003)	(2002)	(2001)
Subject to amend.	0.011	0.000	0.000	0.002	-0.026	-0.018	-0.011	-0.016
	(0.007)	(0.005)	(0.005)	(0.004)	(0.017)	(0.013)	(0.011)	(0.010)
Hindu	-0.107***	-0.107***	-0.107***	-0.107***	0.088***	0.088***	0.088***	0.089***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.017)	(0.017)	(0.017)	(0.017)
Marriage year FE	yes	yes	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes	yes	yes
Birth year FE	yes	yes	yes	yes	yes	yes	yes	yes
State × Birth year FE	yes	yes	yes	yes	yes	yes	yes	yes
State × Hindu FE	yes	yes	yes	yes	yes	yes	yes	yes
Individual-level controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	302,562	302,562	302,562	302,562	229,974	229,974	229,974	229,974
R-squared	0.061	0.061	0.061	0.061	0.152	0.152	0.152	0.152
Number of clusters	22684	22684	22684	22684	10870	10870	10870	10870

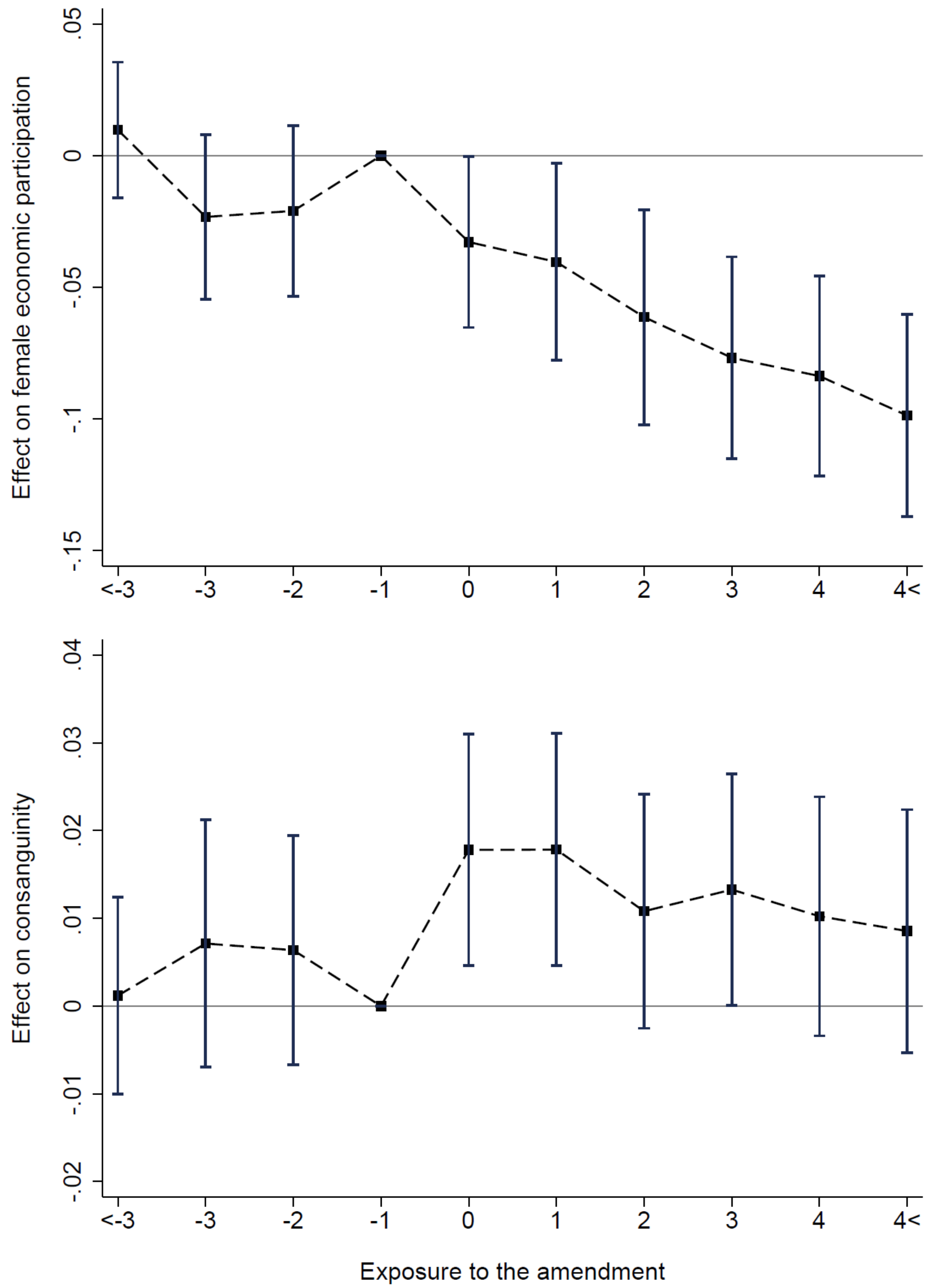
OLS estimates are reported with robust standard errors,clustered at the level of the primary sampling unit, in parentheses, . ***, **, and * indicate significance at the 1, 5, and 10% levels.

Table B19: Individual-level regression analyses with the NFHS female adults using instrumental variable and age cohort comparison approaches.

	Cousin marriage		Female economic participation	
VARIABLES	(1)	(2)	(1)	(2)
Subject to amendment	0.014***	0.015***	-0.064***	-0.094***
	(0.005)	(0.003)	(0.011)	(0.010)
Hindu	-0.100***	-0.105***	0.091***	0.098***
	(0.009)	(0.010)	(0.016)	(0.017)
Marriage year FE	yes	yes	yes	yes
State FE	yes	yes	yes	yes
State × Marriage year FE	yes	yes	yes	yes
State × Hindu FE	yes	yes	yes	yes
Individual-level controls	yes	yes	yes	yes
Observations	461,675	323,864	260,264	223,111
R-squared	0.056	0.060	0.150	0.154
Number of clusters	22751	22712	10,937	10,887

Estimates are reported with robust standard errors, clustered at the level of the primary sampling unit, in parentheses. Regression 1 reports results from instrumental variable estimations. The Cragg-Donald Wald first stage F statistics are 6143.76 and 3640.40 respectively that reject the weak instrument hypothesis. Since birth year is used as an instrumental variable (column 1) or to define control and treated groups (column 2), I do not control for it in the regressions. Instead, State × Marriage year fixed effects is added to the regression. Regression 2 reports results from OLS estimations in which the treated group includes *Hindu* women aged 14 or younger in 2005, and the control group includes women (of all religions) aged 24 or older in 2005. ***, **, and * indicate significance at the 1, 5, and 10% levels.

Figure B2: Event study of the effect of exposure to female inheritance amendment

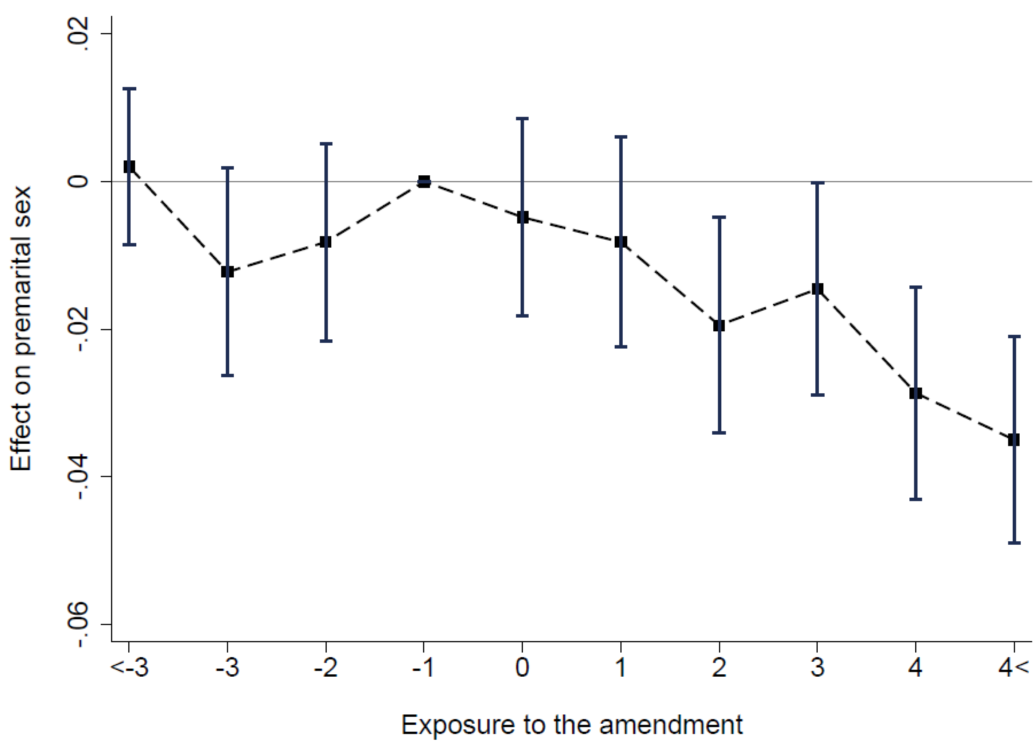


Coefficient estimates and 95% confidence intervals from the set of interactions between Hindu dummy and two-year intervals of marriage. Post-treatment starts at time 0, the two-year interval consisted of 2004 and 2005. Interactions are expressed relative to time -1, the omitted two-year interval (2002-2003) which serves as the baseline.

Table B20: Individual-level regression analyses of premarital sex rates among with the NFHS female adults.

	Premarital sex (Hindu sample mean=0.096 , SD=0.294)		
VARIABLES	(1)	(2)	(3)
Subject to amend.	-0.038***	-0.021***	-0.018***
	(0.003)	(0.003)	(0.003)
Hindu	0.005*	-0.003	-0.004
	(0.002)	(0.007)	(0.006)
Marriage year FE	yes	yes	yes
State FE	yes	yes	yes
Birth year FE		yes	yes
State × Birth year FE		yes	yes
State × Hindu FE		yes	yes
Individual-level controls			yes
Observations	419,166	419,166	419,166
R-squared	0.054	0.085	0.097

OLS estimates are reported with robust standard errors, clustered at the level of the primary sampling unit, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels. Contrary to the cousin marriage variable, the sample for the premarital sex variable includes only those women who are currently married. This is because the age at first union was not asked of other groups, such as those who are widowed, divorced, or separated. I have created the premarital sex variable using information on age at first union and age at first sexual intercourse. The latter includes a category labelled as "at first union". In addition, whenever age at first union and age at first sexual intercourse are the same, because of strong norms against premarital sex, I considered it as sex at first union with husband. However, it is possible for age at first union and age at first sexual intercourse to be the same, but for first sexual intercourse to have occurred before the marriage.



Coefficient estimates and 95% confidence intervals from the set of interactions between Hindu dummy and two-year intervals of marriage. Post-treatment starts at time 0, the two-year interval consisted of 2004 and 2005. Interactions are expressed relative to time -1, the omitted two-year interval (2002-2003) which serves as the baseline.

Table B21: Individual-level regression analyses with the NFHS female adults: Cousin marriage and physical violence against women by husband/partner.

	Physical violence (Hindu sample mean=0.280 , SD=0.449)		
VARIABLES	(1)	(2)	(3)
Cousin married	0.033***	0.028***	0.028***
	(0.007)	(0.007)	(0.007)
Hindu	0.009	0.073	0.054
	(0.006)	(0.057)	(0.055)
Marriage year FE	yes	yes	yes
State FE	yes	yes	yes
Birth year FE		yes	yes
State $\times$ Birth year FE		yes	yes
State $\times$ Hindu FE		yes	yes
Individual-level controls			yes
Observations	64,251	64,251	61,101
R-squared	0.072	0.094	0.117
Number of clusters	9,841	9,841	9,621

OLS estimates are reported with robust standard errors, clustered at the level of the primary sampling unit, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels. The variable "cousin married" is a dummy variable that takes value 1 if a women married to a blood relative. Dependent variable is a dummy variable that takes value 1 if a women has ever faced any kind of physical violence by husband or partner. The data is collected only from a sub-sample.

Table B22: Individual-level regression analyses with the NFHS female adults: Exposure to the amendment and women's autonomy.

	money	allowed to go alone to			bank account
	of your own	market	health facility	outside of village	of your own
VARIABLES	(1)	(2)	(3)	(4)	(5)
Subject to amend.	-0.026**	0.003	0.001	0.004	-0.011
	(0.011)	(0.010)	(0.011)	(0.010)	(0.010)
Hindu	0.085***	0.082**	0.060	0.064**	0.014
	(0.031)	(0.040)	(0.038)	(0.032)	(0.033)
Marriage year FE	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes
Birth year	yes	yes	yes	yes	yes
State × Birth year FE	yes	yes	yes	yes	yes
State × Hindu FE	yes	yes	yes	yes	yes
Individual-level controls	yes	yes	yes	yes	yes
Observations	67,262	67,262	67,262	67,262	67,262
R-squared	0.085	0.167	0.156	0.142	0.152
Number of clusters	7518	7518	7518	7518	7518

OLS estimates are reported with robust standard errors in parentheses, clustered at the level of the primary sampling unit in regressions 2. ***, **, and * indicate significance at the 1, 5, and 10% levels. Dependent variables are dummy variables capturing: (1) whether a women has any money of her own that she alone can decide how to use; (2) whether she is usually allowed to go to market/health facility/outside of village alone (versus only with someone else, or not at all); (3) whether she has a bank or savings account that she herself use. This data is collected only from a sub-sample.

Table B23: Individual-level regression analyses with the IFLS full sample using pre- and post-marriage inheritance indicators.

VARIABLES	N	mean	sd
Endogamy	7,933	0.739	0.439
Arranged marriage	8,065	0.315	0.465
Inheritance dummy	8,065	0.364	0.481
Post-marriage inheritance	8,065	0.198	0.399
Pre-marriage inheritance	8,065	0.166	0.372
Muslim	8,065	0.868	0.339
Protestant	8,065	0.049	0.216
Catholic	8,065	0.022	0.147
Hindu	8,065	0.043	0.202
Other religions	8,065	0.019	0.135
Education	8,065	0.762	1.050
Urban	8,065	0.467	0.499
Age	8,065	46.774	13.586
Marriage age	8,065	21.577	7.013
Male	8,065	0.468	0.499

	Endogamy				Arranged marriage			
VARIABLES	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Inheritance dummy	0.066***		0.067***	0.067***	0.034***		0.029***	0.035***
	(0.010)		(0.012)	(0.010)	(0.010)		(0.011)	(0.010)
Pre-marriage inheritance		0.077***				0.042***		
		(0.012)				(0.012)		
Post-marriage inheritance		0.057***				0.028**		
		(0.013)				(0.013)		
Education	-0.028***	-0.028***	-0.023***	-0.024***	-0.034***	-0.034***	-0.036***	-0.044***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Male	0.014	0.015	0.012	0.015	-0.112***	-0.112***	-0.114***	-0.121***
	(0.014)	(0.014)	(0.015)	(0.014)	(0.010)	(0.010)	(0.011)	(0.009)
Quadratic in age	yes	yes	yes	yes	yes	yes	yes	yes
Quadratic in marriage age	yes	yes	yes	yes	yes	yes	yes	yes
Religion FE	yes	yes	yes	yes	yes	yes	yes	yes
Community FE	yes	yes	yes	yes	yes	yes	yes	yes
Community FE	yes	yes	yes	yes	yes	yes	yes	yes
Ethnicity FE			yes				yes	
Observations	7,933	7,933	6,633	7,885	8,065	8,065	6,730	7,683
R-squared	0.117	0.117	0.127		0.336	0.336	0.342	
Pseudo R-squared				0.103				0.292
Number of clusters	312	312	311	309	312	312	311	293

OLS estimates (1-3) and average marginal effects of logit estimates (4) are reported with robust standard errors, clustered at the community level, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels.

Table B24: Descriptive statistics and individual-level regression analyses of economic participation among the IFLS female adults sample.

	Self employed			Private/Public sector			Family work		
VARIABLES	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Female inheritance	0.029	0.023	0.030	-0.006	-0.006	-0.005	0.007	0.010	0.015
	(0.019)	(0.020)	(0.019)	(0.013)	(0.015)	(0.012)	(0.012)	(0.013)	(0.024)
Protestant	0.016	0.042	0.019	-0.046	-0.046	-0.039*	0.079***	0.062	0.223**
	(0.059)	(0.069)	(0.063)	(0.036)	(0.041)	(0.023)	(0.030)	(0.041)	(0.088)
Catholic	0.037	0.061	0.046	-0.122***	-0.103*	-0.088***	0.031	0.032	0.105
	(0.071)	(0.082)	(0.078)	(0.043)	(0.057)	(0.020)	(0.036)	(0.050)	(0.126)
Hindu	-0.023	0.102	-0.021	-0.026	0.042	-0.009	0.037	0.092	0.162
	(0.123)	(0.140)	(0.102)	(0.072)	(0.085)	(0.050)	(0.027)	(0.068)	(0.158)
Other religions	-0.016	-0.048	-0.013	-0.117***	-0.062	-0.111***	0.170**	0.184**	0.417***
	(0.058)	(0.078)	(0.057)	(0.044)	(0.070)	(0.026)	(0.068)	(0.089)	(0.095)
Education	-0.029***	-0.032***	-0.033***	0.054***	0.066***	0.043***	-0.020***	-0.022***	-0.064***
	(0.009)	(0.010)	(0.010)	(0.011)	(0.012)	(0.008)	(0.006)	(0.007)	(0.018)
Age	0.021***	0.018***	0.024***	0.014***	0.015***	0.015***	0.010**	0.010*	0.024**
	(0.006)	(0.006)	(0.006)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.010)
Age^2	-0.000***	-0.000**	-0.000***	-0.000***	-0.000***	-0.000***	-0.000**	-0.000**	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Marriage age	-0.002	-0.001	-0.002	0.010**	0.008*	0.012**	-0.007*	-0.007*	-0.014**
	(0.006)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.007)
Marriage age^2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000*	0.000	0.000*	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Community FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Ethnicity FE		yes			yes			yes	
Observations	3,656	3,269	3,418	3,656	3,269	2,665	3,656	3,269	2,033
R-squared	0.161	0.175		0.194	0.211		0.338	0.350	
Pseudo R-squared			0.117			0.145			0.217
Number of clusters	311	309	280	311	309	212	311	309	153

OLS estimates (1-2) and average marginal effects of logit estimates (3) are reported with robust standard errors, clustered at the community level, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels.

The first variable takes value 1 if the respondent is self-employed, and takes value 0 otherwise. The second variable takes value 1 if she is employed in public or private sectors (working for others), and takes value 0 otherwise. The third variable takes value 1 if she works unpaid for her family. To define these variables, I dropped observations for those over 60 years old.

Table B25: Descriptive statistics and individual-level regression analyses of economic participation among the IFLS male adults sample.

	Self employed			Private/Public sector			Family work		
VARIABLES	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Male inheritance	0.041**	0.039*	0.046**	-0.038**	-0.041*	-0.040**	0.002	0.001	
	(0.019)	(0.022)	(0.019)	(0.019)	(0.021)	(0.019)	(0.003)	(0.003)	
Protestant	0.180***	0.171**	0.188***	-0.164***	-0.163**	-0.161***	-0.001	-0.002	
	(0.055)	(0.071)	(0.048)	(0.058)	(0.070)	(0.047)	(0.003)	(0.003)	
Catholic	0.093	0.062	0.085	-0.107	-0.081	-0.089	-0.002	-0.001	
	(0.064)	(0.081)	(0.073)	(0.069)	(0.086)	(0.068)	(0.002)	(0.003)	
Hindu	0.025	0.188	0.022	-0.015	-0.064	0.026	0.000	0.002	
	(0.138)	(0.268)	(0.146)	(0.119)	(0.204)	(0.132)	(0.001)	(0.002)	
Other religions	0.189**	0.130	0.187**	-0.253***	-0.138	-0.235***	-0.000	0.001	
	(0.093)	(0.102)	(0.080)	(0.091)	(0.104)	(0.069)	(0.001)	(0.002)	
Education	-0.095***	-0.103***	-0.098***	0.091***	0.103***	0.089***	-0.001	-0.001	
	(0.010)	(0.011)	(0.010)	(0.010)	(0.011)	(0.009)	(0.001)	(0.001)	
Age	0.011	0.008	0.014	0.008	0.010	0.008	-0.003	-0.003*	
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.002)	(0.002)	
Age^2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000*	0.000*	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
Marriage age	0.001	-0.003	0.001	-0.001	0.003	0.000	0.001*	0.001	
	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.001)	(0.001)	
Marriage age^2	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
District FE	yes	yes	yes	yes	yes	yes	yes	yes	
Ethnicity FE		yes			yes			yes	
Observations	3,059	2,612	2,729	3,059	2,612	2,731	3,059	2,612	
R-squared	0.348	0.373		0.346	0.372		0.121	0.119	
R-squared									
Number of clusters	312	311	267	312	311	269	312	311	

OLS estimates are reported with robust standard errors, clustered at the community level, in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels.

The first variable takes value 1 if the respondent is self-employed, and takes value 0 otherwise. The second variable takes value 1 if she is employed in public or private sectors (working for others), and takes value 0 otherwise. The third variable takes value 1 if she works unpaid for her family. To define these variables, I dropped observations for those over 60 years old.