

# Family Types and Intimate-Partner Violence: A Historical Perspective\*

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## Abstract

This paper examines the historical origins of violence against women, in contrast to earlier literature, which focused only on short-term determinants. It analyzes the relationship between traditional family patterns (stem versus nuclear) and intimate-partner violence (IPV). Stem families are those in which one child stays in the parental household with spouse and children, so that at least two generations live together. I model the behavior of a traditional peasant family and show how coresidence with a mother-in-law increases a wife's contribution to farmwork. This increased contribution is shown to potentially decrease the level of violence, since the wife's reduced productivity acts as a deterrent. In my empirical analysis I use Spanish data, as Spain offers IPV measures of the highest quality as well as a persistent geographical distribution of family types. Results show that areas where stem families were socially predominant in the past currently have a lower IPV rate. I control for a large number of contemporary, historical, and geographical variables. To address causality, I use the stages and differences in the Christian conquest of the Iberian Peninsula (722-1492) as an instrument for the different family types. My instrumental variable results are consistent with my original findings.

**Keywords:** Gender inequality, cultural norms, persistence, inheritance, coresidence, Christian conquest.

**JEL Classification:** D03, J12, N43, Z13.

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# 1 Introduction

Worldwide, 30% of all women who have been in a relationship have experienced physical and/or sexual violence by their intimate partner (WHO, 2013). Exposure to this type of abuse has serious consequences for women's health, fatal injuries being the most extreme outcome: as many as 38% of all female murder victims are killed by their intimate partners, in contrast to 6% of all murdered men (WHO, 2013). Violence against women is both a public health priority and a matter of social justice, yet our understanding of the causes of this kind of abuse is limited.

So far, the economics literature on intimate-partner violence (IPV) has focused on its short-term determinants. The aim of this paper is to understand the long-term determinants, cultural norms, and systems that sustain gender inequality and violence. Among all cultural factors linked to gender inequality and violence, traditional family structure can be expected to be one of the most important. The family is a fundamental institution in all societies and has great power in shaping gender-related values and attitudes. This paper contributes to the analysis of IPV causes by studying the relationship between IPV and traditional family type.

I focus on the effects of two family types, stem and nuclear. Each has a distinct residence and inheritance pattern. In patrilineal stem families, one son inherits all the land and remains in the parental home with his wife to continue the family line. Therefore, in stem families there are at least two couples of different generations living together. Conversely, in nuclear families all children receive an equal share of the inheritance when leaving the parental home to start their own independent households. There is thus no intergenerational cohabitation in nuclear families.

I find that territories where the stem family was prevalent in the past currently exhibit lower rates of IPV and greater gender equality. I test the hypothesis that coresidence of the wife with other women (usually the mother-in-law) reduced the burden of household work, freeing up her time for nondomestic work. This allowed for a more productive role of the younger woman, who had an increased contribution to family subsistence in a stem family (see Sasaki [2002] for the case of contemporary Japan, and Section 7 for further empirical support).

To illustrate how a wife's greater contribution to agricultural work can reduce the level

of domestic violence, I set up a theoretical model. Since I am interested in the behavior of a traditional peasant family in the preindustrial period, in which all family members share consumption and produce jointly and divorce is nonexistent, I assume unitary male-dominant decision making. This is a departure from earlier models of domestic violence, which have adopted a non-unitary bargaining framework. In this model, violence enters the husband's utility function positively<sup>1</sup>, but also negatively as a loss of the wife's productivity. I show how, if the wife's productivity loss is higher in farmwork than in domestic work, the optimal level of violence will decrease as the mother-in-law's domestic productivity in the household increases.

In my main empirical analysis, I use Spanish data for two reasons. First, this country provides gold-standard IPV data as defined by the World Health Organization (WHO, 2013): a comprehensive survey dataset for 1999-2006 on violence against women in Spain ( $n=69,627$ ) in which IPV is measured objectively through a set of questions. Second, the regional distribution of stem and nuclear family types in Spain is stable and remarkably persistent, and has been traced back to the Middle Ages (Todd 1990). To measure historical distribution of family types, I use 1860 census data and compute the average number of married and widowed women per household at the province level. I control for individual characteristics, and I subsequently include an extensive set of contemporary, historical, and geographical control variables. My linear probability model (LPM) results are robust to the inclusion of these covariates and show a negative and significant relationship between areas with a stem family tradition and IPV.

To better understand the causality of this relationship I exploit a unique source of exogenous variation by using the Christian conquest of the Iberian Peninsula as an instrument for family types. The so-called *Reconquista* is a seven-century-long period (722–1492) in which several Christian kingdoms took control from Islamic rulers and repopulated significant parts of the Iberian Peninsula. Two important dimensions of this historical process explain the establishment of the different family types: political structure and size of landholdings.

In terms of political structure, the stronger and more centralized monarchies in the west

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<sup>1</sup>This is consistent with an interpretation of violence as an expressive behavior that provides direct gratification, an approach commonly used when modeling domestic violence. See, for instance, Tauchen et al. (1991), Aizer (2010), or Card and Dahl (2011). Section 3 discusses alternative interpretations of violence that are also consistent with my results (e.g., violence as an instrument for controlling the victim's behavior).

of what eventually became Spain had an interest in restricting the development of powerful landholding families. This interest was best served by the introduction of compulsory sharing of inheritance among all children, which led to nuclear families. Meanwhile, the eastern kingdoms had a more powerful feudal nobility which sought to maintain its landholdings intact through indivisible inheritance (i.e., the appointment of a single heir), which led to stem families.

Regarding landholding size, the Christian resettlement of conquered land in the north of the Iberian Peninsula, where the conquest began, created small and medium holdings owned by free peasants. These holdings needed to remain undivided to be viable and thus ensure family continuity: hence, again, the use of indivisible inheritance, which led to stem families. However, as the Christian kingdoms expanded south over the centuries, the increasing participation of the clergy and nobility in the war effort came to be rewarded with vast tracts of land, particularly in the areas conquered by Castile and Leon. The landless peasants and day laborers hired to work in these vast estates were typically less concerned with inheritance rules and usually complied with the equal inheritance rules mandated by Castilian law, and so tended to have nuclear families. The instrumental variable estimates are consistent with the LPM estimates.

The prevalence of the stem family has decreased in Spain over the last century as the country has become fully industrialized. However, this family pattern persisted long enough to potentially explain behavior at a later time and in different circumstances. I argue that the internalization of the resulting cultural norms and their intergenerational transmission play a crucial role in explaining why lower rates of IPV are currently found in territories where the stem family was predominant in the past. To further explore the cultural transmission channel I use data from the *World Values Survey* for Spain. I find that territories that had a stem-family tradition in the past currently exhibit more gender-equal attitudes than nuclear family territories, whereas I find no statistically significant difference when examining other values and attitudes (in relation to life satisfaction, trust, homosexuality, and euthanasia).

To my knowledge this is the first paper to look at the relationship between historical family types and IPV. This paper fits into three main strands in the literature. First, it contributes

to the analysis of the causes of domestic violence. The bulk of this literature looks at how the distribution of bargaining power within the couple affects domestic violence. For instance, various authors have analyzed the effect of income (Tauchen, Witte and Long 1991), services for battered women (Farmer and Tiefenthaler 1996), divorce laws (Stevenson and Wolfers 2006), the gender wage gap (Aizer 2010), cash transfers (Bobonis, González-Brenes, and Castro 2013), and unemployment (Anderberg et al. 2015). Other papers treat IPV as a signal conveying dissatisfaction with the marriage (Bolch and Rao 2002), or as an expressive mechanism triggered by an emotional cue (Card and Dahl 2011). All these are immediate determinants of domestic violence. Only Pollack (2004) recognizes this significant gap in the literature and develops a theoretical model of the intergenerational transmission of domestic violence.

Second, this paper also contributes to the literature on family types, an important part of which has focused on large kinship groups versus nuclear families and the interaction of this dimension with cooperation and provision of goods and safety. In this respect, Greif (2006) highlights the relevance of family structure to the emergence of economic and political corporations in late medieval Europe, and Greif and Tabellini (2015) study two different ways of sustaining cooperation in China and Europe: the clan and the city. Bertocchi and Bozzano (2015) investigate the relationship between the education gender gap and the prevalent family structures over the late nineteenth century in Italy. Alesina and Giuliano (2014) study the effects of strong versus weak family ties on economic attitudes and behavior.

Third, this paper also contributes to the literature that examines the historical origins of gender roles. Alesina, Giuliano, and Nunn (2013) test Boserup's (1970) hypothesis that societies that traditionally practiced plough cultivation (as opposed to shifting hoe cultivation), and where men therefore had an advantage in farmwork, exhibit less-equal gender norms today. Hansen, Jensen, and Skovsgaard (2015) examine the hypothesis that societies with a longer history of agriculture have less-equal gender roles, even without the plough. They find that those societies which experienced an earlier Neolithic revolution or an earlier transition to cereal agriculture currently have lower female labor force participation. Both studies associate less equality of gender roles with a historical division of labor in which "men tended to work outside the home in the fields, while women specialized in activities within the home."

This paper also looks to the traditional division of labor to explain gender inequalities, but instead of focusing on the role of agriculture per se, agricultural technology, or specific crops, I focus on historical family types and argue that a stem family structure tends to increase female contribution to nondomestic work, regardless of the agricultural setting.

Finally, my work is also related to that of Grosjean (2014), who examines the historical origins of the culture of honor and violence in the US South. She shows that historical settlements populated by Scottish and Scottish-Irish herders 200 years ago are still associated with homicide today. The present paper also shows a long-term impact of historical events on interpersonal relations.

In Section 2 I review family types and their measurement. Section 3 presents a theoretical model of domestic violence. Section 4 summarizes the historical background, family law institutions, and the origins of prevailing family patterns in the Iberian Peninsula (excluding modern-day Portugal). Section 5 documents the data used and explains the main empirical strategy. Section 6 reports the LPM results and the instrumental variable results. Section 7 shows supporting evidence on the effects of family structure on female participation in agriculture in preindustrial societies (using the *Ethnographic Atlas* dataset), and violence against women in a country where the stem family still persists (the Philippines). Section 8 discusses potential transmission mechanisms and shows evidence in favor of the cultural transmission channel, and Section 9 concludes.

## 2 Family Types

According to the work started by Le Play (1884), there are three basic types of families in all parts of the world and all ages of history. We describe them below assuming patrilocality for stem and joint families as the prevailing pattern. First, the joint or communitarian family, in which all sons remain with their parents and bring their wives to the family home upon reaching adulthood. When the family gets too large the household is split.<sup>2</sup> Second, the stem family, in which only one son stays at the parental homestead, together with his wife and

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<sup>2</sup>A well-known example of the joint family that still prevails today is the Hindu joint family.

children. He will be the one who inherits the land and the family home, thus continuing the family line. All other children who wish to marry and start their own households leave the household.<sup>3</sup> Third, the nuclear family, in which all children leave the parental home to establish their own households.

This classification is used, with some variations, by Todd (1990).<sup>4</sup> To draw a map of family types in Western Europe he uses a combination of recent data and historical monographs. Supported by anthropological and historical evidence, he suggests that family types in Europe have a stable and long-lasting pattern. He traces back the origins of the different family structures to medieval times, and even earlier for some regions.

Figure 1 shows Duranton, Rogríguez-Pose and Sandall (2009) version of Todd's map of family types in Europe. Only two family structures are found in Spain: stem and nuclear.<sup>5</sup> This is consistent with the anthropological work done in Spain by Lisón Tolosana (1975, 1977). There are two dimensions in which stem and nuclear families differ: coresidence and inheritance patterns. In stem families there is a higher degree of intergenerational cohabitation, and the *impartible* inheritance principle (which requires a single heir) serves the main purpose of preserving the family estate. Conversely, in nuclear families, children leave the home to form their own households so there is no cohabitation of couples and, at least in Spain, the estate is allocated equally among children.

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<sup>3</sup>Typically, the firstborn son is the one to stay, but in some regions, parents can choose among their sons, and in a very few others they can choose among both daughters and sons. If there are no sons then a daughter will typically remain in the household, bring her husband with her, and eventually inherit the house.

<sup>4</sup>Todd classifies families according to two organizing principles: the relationship between parents and children (liberal versus authoritarian), and the relationship between siblings (equal versus unequal). By combining these two principles he then characterizes four types of families: communitarian, stem, egalitarian nuclear, and absolute nuclear.

<sup>5</sup>Outside Europe and Spain, stem families are also found in Japan, Korea, and some parts of Southeast Asia, Hungary, and Canada (Goldschmidt and Kunkel 1971).

## 2.1 Measurement of Family Types in Spain

To measure the predominance of family types in Spain, I use the 1860 census (as in Mikelarena Peña 1992). This is the first dataset that allows us to reliably measure household types for the whole country. The indicator chosen to best capture family structure is the the average number of married and widowed women per household at the province level.<sup>6</sup> This indicator is preferred to measures of household size (number of people or number of adults per household) as well as indicators that do not correct for immigration (total number of married and widowed people in the house). Moreover, the number of married and widowed women has a correspondence in the Laslett classification scheme:<sup>7</sup> a value of 1.075 married and widowed women per household is equal to a 25% rate of complex households, and according to Mikelarena Peña (1992), if a society reaches this threshold, the stem family can be said to be socially predominant.<sup>8</sup>

Figure 2 shows family types in Spain in 1860. Although this represents only one specific point in time, some authors (Reher 1996; García González 2011) show that these patterns have remained stable at least from the seventeenth century through the beginning of the 1970s. The social and economic changes operated in Spain during the twentieth century (full industrialization, demographic transition, and mass migration to cities) have weakened the traditional peasant stem family pattern.<sup>9</sup>

My own map of family types in Spain using 1860 census data tallies well with Todd's map of medieval family types in Europe, with only two small differences. First, in Galicia, in the northwestern part of the Iberian Peninsula, I find nuclear families to be socially predominant

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<sup>6</sup>Currently, there are fifty provinces in Spain; this division was first introduced in 1833.

<sup>7</sup>Peter Laslett was an English historian who founded in 1964 the Cambridge Group for the History of Population and Social Structure. His finding that early modern English households were predominantly nuclear shattered many beliefs about preindustrial society.

<sup>8</sup>Figure 7 in Appendix A shows the core territories where the stem family was predominant according to this convention.

<sup>9</sup>Figure 8 in Appendix A shows family structure according to the 2001 census. When computing the average number of married and widowed women per household at the province level we find remarkably lower figures overall, and a complete change in geographic pattern.



at the province level although stem-family prevalence has been found in some studies at the county level (Pérez García 2008). Second, in the eastern region known as Valencia, the prevalence of stem families is relatively high, consistent with Ardit Lucas (2008).

### 3 The Model

In this section I demonstrate the main mechanism through which traditional stem families, as opposed to nuclear families, might lead to lower levels of domestic violence. The context is an agrarian and pre-demographic transition economy, in which all family members live together, and consume and produce jointly. Divorce is impossible or prohibitively costly.

In the household that I model, there can be three agents: husband  $h$ , wife  $w$ , and mother (normally the husband's mother)  $m$ ;  $m$  only appears in stem families. Each agent  $i$  is endowed with up to one unit of time  $t_i \in [0, 1]$ .  $t_i$  can be allocated to farming activity  $c$  or domestic activity  $q$ .  $c$  and  $q$  are produced and consumed jointly using the following production technology function:

$$c = \omega_h t_h + \omega_w(v) t_w + \omega_m t_m$$

$$q = \gamma_h(1 - t_h) + \gamma_w(v)(1 - t_w) + \gamma_m(1 - t_m)$$

where  $\omega_i$  and  $\gamma_i$  represent productivity in farm work and domestic work, respectively. Both  $\omega_w(v)$  and  $\gamma_w(v)$  are a negative function of violence  $v$ .<sup>10</sup>

$$\frac{d\omega_w(v)}{dv} < 0, \frac{d\gamma_w(v)}{dv} < 0$$

I assume the husband to be better than the wife at farmwork relative to domestic work, and the wife to be better than the mother-in-law:

$$\frac{\omega_h}{\gamma_h} \geq \frac{\omega_w(v)}{\gamma_w(v)} \geq \frac{\omega_m}{\gamma_m}$$

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<sup>10</sup>Fogel and Engerman (1974) found, in the context of slavery in the antebellum US South, that slave owners were giving slaves rest days, housing and other benefits in order to increase productivity.

I assume that the husband spends all his work time in the fields ( $t_h = 1$ ), and that the mother spends all her work time in the house ( $t_m = 0$ ).

I also assume male-dominant decision making and that the husband's preferences are represented by a quasi-linear Cobb-Douglas utility function  $U_h = c^\alpha q^{1-\alpha} + v$ . Violence enters the utility function positively and directly,<sup>11</sup> but also negatively and indirectly as the wife's productivity loss. The husband chooses  $t_w$  and  $v$  to solve

$$\max_{\{t_w, v\}} (w_h + \omega_w(v)t_w)^\alpha (\gamma_w(v)(1 - t_w) + \gamma_m)^{1-\alpha} + v.$$

The main idea is that, due to the wife's comparative advantage in farmwork, the presence of the mother-in-law reduces the burden of domestic activity on the wife, so the wife's contribution to farm work will be greater. This is shown in the solution for  $t_w$  from the first-order condition:

$$t_w^* = \alpha + \alpha \frac{\gamma_m}{\gamma_w(v)} + (\alpha - 1) \frac{\omega_h}{\omega_w(v)}$$

I then do comparative statics to determine how optimal violence  $v^*$  responds to changes in  $\gamma_m$ .<sup>12</sup> I find that, assuming that the utility function is a concave function of violence (i.e.,  $f_{vv} < 0$ ), if the wife's productivity loss due to violence is higher for farming than for household activity,<sup>13</sup> then the optimal level of violence  $v^*$  will decrease when the mother-in-law's household work increases:

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<sup>11</sup>This is consistent with an interpretation of violence as an expressive behavior that provides direct gratification, commonly used in economic models of domestic violence. See, for instance, Tauchen et al. (1991), Aizer (2010), or Card and Dahl (2011). Other papers consider violence as an instrument for controlling the victim's behavior (Bolch and Rao, 2002). Alternative explanations provided at the end of this section would be consistent with this second interpretation of violence.

<sup>12</sup>More details regarding the first-order conditions and comparative statics can be found in Appendix B.

<sup>13</sup>This condition is likely to hold. On the one hand, for extreme levels of violence (e.g., broken limbs) the wife will not be able to leave the house to perform any farming task. On the other hand, lower levels of violence and emotional abuse could impede cooperation between a husband and wife working together in the fields. A good understanding of the spouses—and co-workers— would then promote higher work performance in the farm.

$$\frac{\partial v^*}{\partial \gamma_m} < 0 \text{ if } \frac{\frac{d\omega_w(v)}{dv}}{\omega_w(v)} < \frac{\frac{d\gamma_w(v)}{dv}}{\gamma_w(v)}$$

To sum up, the model is based on the hypothesis that a wife's coresidence with her mother-in-law, a feature of stem families, allows the younger woman to be more productive. In fact, Sasaki (2002) shows that the presence of an older woman in the household reduces the burden of household work, leading to an increased female labor force participation. Since in traditional Spanish peasant families there was virtually no divorce, I assume that the husband is taking all the decisions. This represents a departure from previous models of domestic violence, which have employed a non-cooperative bargaining approach.<sup>14</sup> In this model, violence provides direct gratification to the husband, but it also has a cost since it reduces wife's productivity. The model shows that if the wife's productivity loss associated with violence is higher (in absolute terms) in farming than in household activity, then higher household productivity of the mother-in-law decreases the husband's preferred level of violence.

With this model I aim to show how, given a distribution of taste for violence among men, the optimal level of violence chosen by men living in stem families will be systematically lower than the one chosen by men living in nuclear families. There might be other potential explanations. For instance, violence can be viewed as a controlling behavior, rather than as a source of direct gratification. In this respect, a model based on the moral hazard literature would predict the same results: in stem families there would be less need for violence since the wife is going to be more closely monitored, both on the farm by the husband and inside the house by the mother-in-law. Furthermore, if we considered a negative effect of witnesses on violence, we would again expect less violence in stem families, as there are more people living in the same house. Significantly, the main result of the present model, namely that the more farming work outside the home the wife does, the better will be her position within the family, is in line with the work done by Alesina, Giuliano, and Nunn (2013) and Hansen, Jensen, and Skovsgaard

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<sup>14</sup>See, for instance, Tauchen et al. (1991) and Farmer and Tiefenthaler (1996, 1997). Bolch and Rao (2002) incorporate signaling in a non-cooperative model of bargaining. Card and Dahl (2011) also use a loss-of-control model.

(2015) on the historical origins of gender roles.

In section 7 I provide evidence of the main mechanisms described by this model. First, using information about preindustrial societies from the *Ethnographic Atlas*, I find that women who lived in indivisible inheritance (as a proxy for stem family) societies contributed more to agriculture. Second, I use contemporary data from the *Demographic Health Survey* for the Philippines, where the stem family still persists. I find that coresidence with other adult women has a positive effect on female labor force participation outside the home, and a negative effect on domestic violence.

Unfortunately, there is no historical data on domestic violence, let alone any data linked to family structures. Nevertheless, Michaelson and Goldschmidt (1971), studying female roles and male dominance among peasants, found that *machismo*, or aggressive masculinity, is associated with bilateral inheritance (which is very strongly associated with nuclear families; see, for instance, Goldschmidt and Kunkel 1971) but not, or very rarely, with patrilocal families in which inheritance of land is restricted to males. The evidence they present suggests that *machismo* is limited to social structures where masculine authority is culturally expected, but in which men do not control valued resources through inheritance. They argue that when men in these societies feel their masculine role threatened, they may react with sexist behavior to demonstrate virility.

## 4 Historical Background

### 4.1 The Christian Conquest of the Iberian Peninsula

In 711 AD, Muslims from North Africa crossed into the Iberian Peninsula. After seven years of battling the Visigoths they came to dominate most of the territory and established their authority over *Al-Andalus*, or Islamic Iberia. Muslim expansion into the rest of Europe was halted by the Franks in 732 at the battle of Tours. As a result, Charlemagne established the Spanish March, a buffer zone in northeastern Spain (broadly between the Pyrenees and the Ebro river) to protect his empire against attacks from Al-Andalus.

At the same time, in northwestern Spain where many of the ousted Visigothic nobles had

taken refuge, the Christian Kingdom of Asturias was consolidating. Their first significant victory against the Muslims was in the stronghold of Covadonga in 722. This event marked the beginning of the so-called Christian reconquest (*la Reconquista*). The takeover and repopulation of Iberia by Christian kingdoms lasted more than seven centuries and was completed in 1492 with the fall of Granada. The circumstances that gave rise to kingdoms with different political structures in the west and the east, and to different landholding patterns on a north-to-south gradient, are important features in understanding the emergence of different family patterns.

In the east of the Peninsula, distant imperial power allowed the counts of the Spanish March to gain independence from the Frankish Empire, and they began to drive south and conquer territories under Muslim control. Still, the feudal system brought in by Charlemagne persisted for some time and gave rise to a tradition of *pactism*, at least in Catalonia (Sobrequés i Callicó 1982). With this term historians refer to the principle that limited royal power by requiring agreements between the king and parliament (the latter first representing only the noblemen and clergy, and later incorporating commoners). From 1137 until 1707, the eastern territories formed the Crown of Aragon, a loose confederation of realms, each of which kept its own institutions, laws, and privileges.

Meanwhile, the Christian kingdoms in the west were also expanding southward. In 1230 several earlier kingdoms were united into the Crown of Castile.<sup>15</sup> Unlike the Crown of Aragon, Castilian monarchs fought to maintain and centralize power and to establish homogeneous institutions and laws. The Crowns of Castile and Aragon were joined in 1469 with the marriage of Isabella of Castile and Ferdinand of Aragon, also known as the Catholic Monarchs, although each Crown preserved its own institutions.<sup>16</sup> Ferdinand and Isabella completed the Christian conquest of the Iberian Peninsula and led Spain to the beginning of the modern era. Figure 3 shows the political development of medieval Iberia between 910 and 1492.

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<sup>15</sup>In westernmost part of the Iberian Peninsula, the Kingdom of Portugal became independent in 1139.

<sup>16</sup>The smaller Kingdom of Navarre, ensconced between Castile and Aragon, sought to expand north of the Pyrenees. Its peninsular territories were conquered by the Crown of Castile in 1512, but they also preserved their own institutions.

## 4.2 Family Law Institutions

The emergence of several independent states at the beginning of the Christian conquest, along with other factors, gave rise to a wide variety of legal systems (Castán Tobeñas 1988). The Crown of Castile had its own unified civil law, which applied as state law or ordinary law throughout its jurisdiction. In the Crown of Aragon, however, each individual realm (Aragon, Catalonia, the Balearic Islands, and Valencia) had its own distinct civil law. Within the Kingdom of Navarre, which also encompassed the modern-day Basque Country, various territories had their own legal systems, too. These different legal systems are known as “*foral* laws” after the *fueros*, or charters, they were based on.

The *foral* laws of non-Castilian Spain are characterized by respect for autonomy in individual matters and by a strong family organization. Indeed, most *foral* law is devoted to family institutions. They all have in common the age-old institution of the homestead: a stable peasant family together with the farmland that provides the family living.<sup>17</sup> To ensure the enduring survival of the family through future generations, the homestead needed to remain undivided. Thus, family and inheritance laws were geared toward guaranteeing the conservation and continuity of the family estate. This is shown in specific institutions distinct from those established in the rest of Spain, where Castilian law was in force. In this sense, one of the most paradigmatic features of family law in *foral* regions is the ability to appoint a single heir or heiress, as opposed to the more equal division of bequest among offspring that was required under Castilian law.

Under Castilian inheritance laws, it was mandatory to leave four-fifths of the estate to descendants, two-thirds of that to be equally allocated among them and one-third to be allocated freely to the preferred descendant. The testator could bequeath one-fifth of the estate to anyone but the descendant already favored until 1505, when it became possible to add the freely bequeathed one-fifth to the chosen heir’s one-third.<sup>18</sup> The Crown of Aragon had a distinct

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<sup>17</sup>The homestead bore a different name in each region, although it carried the same meaning everywhere. It was called *baserría* (or *etxea*) in what is now the Basque Country; *torre* in Aragon; *mas* or *masia* in Catalonia; *barraca* in Valencia, and so forth. (Lisón Tolosana 1972)

<sup>18</sup>According to these rules, a testator with 4 children could leave at most 40% of his goods to a single one of them before 1505, and at most 60% after that date. An exception to this rule was *mayorazgo*, a privilege granted by

inheritance law. As shown in Figure 4, freedom of testation was instituted by the thirteenth century in all its territories, as well as in some Basque regions and in Navarre. Therefore, indivisible inheritance (also known as “impartible” inheritance) was allowed, whereby a single heir or heiress could inherit all. This right originally began at the demand of the nobility, but later it was extended to all citizens.

Apart from inheritance rules, there were other traditional *foral* institutions devoted to the preservation and continuity of the homestead and family. For instance, widows in *foral* territories received a life interest in the property so that the farm could smoothly continue its activity after the death of the head of the household. Wives also enjoyed more rights in some of the *foral* territories than under Castilian law: for instance, they had greater power to manage matrimonial assets and could appoint the heir or heiress.<sup>19</sup>

### 4.3 The Origins of Family Types

There is a close connection between inheritance practices and family structure, indivisible inheritance being a key determinant of the stem family pattern. When considering the origins of these practices, anthropologists and historians have proposed several hypotheses.<sup>20</sup> One of the most well-established is the one by Goldschmidt and Kunkel (1971). They examine variation in family structure among different peasant communities and find three family patterns

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the king to some noble families as of the fourteenth century, enabling them to preserve their estate intact.

<sup>19</sup>Moret y Prendesgast and Silvela (1863) compared family law in Castile and in the *foral* territories (Aragon, the Balearic Islands, Catalonia, Navarre, and some parts of the Basque Country). They found that widows had held a life interest in the estate in Aragon, Navarre, and Catalonia, although Catalonia only stipulated this until 1351. The life interest remained a common practice for widows in some regions of Catalonia and the Balearic Islands. In Navarre and the Basque Country, wives had greater power to manage matrimonial assets jointly owned as community property. Riaza and García Gallo (1934) also found that widows retained a life interest in property and wives could appoint the heir or heiress in some parts of Asturias, Leon, and Galicia, which belonged to the Crown of Castile. Mikelarena Peña (1992) also found the stem family pattern at the county level for some counties in these regions.

<sup>20</sup>See Barrera González (1990) and Mikelarena Peña (1992) for an excellent review for Spain.

associated with particular inheritance rules.<sup>21</sup> They also find that peasant family structure is linked to legislation and to the needs of the political power structure. They underscore the historical relationship between indivisible inheritance and a strong, independent feudal nobility, whereas highly centralized authorities would institute partible (i.e. divisible) inheritance in order to restrict the development of powerful landholding families.<sup>22</sup>

Terradas (1984) applies this approach to the Spanish case, linking the origins of indivisible inheritance to the feudal system established in the Spanish March by the Franks. According to his hypothesis, the nobility would use this institution to preserve their landholdings and consolidate their regional authority, and indivisible inheritance was then gradually applied to peasants since it was found to be beneficial for the feudal system and for conquest purposes. Indivisible inheritance, and thus a stem family structure, would link a family to a piece of land, ensuring regular collection of rents by the feudal lord. At the same time, it would release the people needed to resettle newly conquered land.

This synergy thus explains the emergence of the stem family in the territories that allowed indivisible inheritance in the thirteenth century: the Crown of Aragon (i.e., Aragon, the Balearic Islands, Catalonia, and Valencia), Navarre, and the Basque Country (Figure 4). As discussed, political power in these territories was more decentralized than in the Crown of Castile, where the monarchs sought to centralize all power. However, the prevalence of the stem family in the northern lands of the Crown of Castile, where the law required divisible inheritance, remains unexplained.

My hypothesis for explaining the low level of enforcement of inheritance rules and the adoption of stem family patterns in these northern lands of the Crown of Castile is based on the underlying landholding patterns. At the beginning of the Christian conquest, the Kingdom of Asturias and Leon (later part of the Crown of Castile) began to colonize deserted lands with free peasants (Sánchez Albornoz 1978). Settlement was encouraged through the institution of *presura*, whereby a piece of land was granted directly by the king to the first who ploughed it,

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<sup>21</sup>Namely, (1) patrilocal stem family with patrilineal impartible inheritance, (2) patrilocal joint family with patrilineal partible inheritance, and (3) nuclear family with bilateral inheritance.

<sup>22</sup>As illustrative examples, they cite feudal Japan and western Europe on the one hand, and imperial and centralized China and Russia on the other.



on condition that they remain there. This contributed to the emergence of small and medium landholdings in this region, owned by free and independent families and best preserved by indivisible inheritance.

As the Christian kingdoms expanded southward, state structure and resettlement policies evolved. The participation of the clergy and nobility in the conquest effort was rewarded with vast tracts of land. According to some authors, this was the origin of the large estates, or *latifundia*, in the south of Spain (Carrión 1975). Others have gone farther and claimed that the fundamental regional contrasts in land distribution that were established during the Christian conquest have persisted over time (Malefakis 1970). Landless peasants and day laborers typically hired to work on these large estates would be less concerned with inheritance rules and hence they would comply with the equal allocation of bequest mandated by the Castilian law.

## 5 Data and Empirical Strategy

Intimate-partner violence (IPV) data in this study come from three cross-sectional surveys on violence against women in Spain. These surveys were conducted by telephone in 1999, 2002 and 2006 (sample sizes 20,552, 20,652 and 28,423, respectively). They contain a broad and representative sample of adult women ( $\geq 18$  years old) living in Spain ( $n=69,627$ ) and include both self-assessment of IPV and objective criteria. In this paper I use the responses to objective questions, since self-assessed reporting tends to underestimate domestic violence. This type of survey data approximates the gold standard for estimating the prevalence of any form of interpersonal violence (WHO 2013). Direct questions about specific acts of violence experienced over a defined period of time tend to reveal more information than generic questions about “domestic violence” or “abuse”.

In the introduction to the interview, respondents were told that they were participating in a survey about the situation of women in the household (regarding their health, housework, children, etc.). Later in the interview, they were asked whether they had encountered any of twenty-six situations which are related to domestic violence. The questions about these twenty-six situations are specifically designed to detect violence against women, and thirteen

are considered standalone indicators of domestic violence because they describe more serious situations. They encompass six different types of violence against women: physical, sexual, psychological, economic, structural, and spiritual. Table 1 lists the thirteen indicator questions.

Having aggregated the data for the three surveys, I construct an IPV indicator variable that takes the value 1 if the woman answers “often” or “sometimes” for at least one of these thirteen questions, and 0 otherwise. Figure 5 shows the resulting map of IPV in Spanish provinces for the period 1999–2006.

These surveys also include information at the individual level on the respondent’s level of education, occupation occupational status, marital status and religious beliefs, the head of the household, the presence of children in the household, the number of people in the household, and the partner’s level of education.

To study the relationship between contemporary IPV levels and 1860 province-level family types, I also control for province characteristics that might be correlated with violence against women and with family types. First, I control for a set of variables that capture the current level of economic development in each province, including both formal measures (GDP per capita and unemployment) and informal measures (a social capital indicator).<sup>23</sup> I also add the respondent’s religion (Catholic versus any other option) and the number of people in the household. To control for the level of economic development in the past, I include population density and urbanization rates for each province in 1787 and 1860. Finally, to control for variable productivity of labor, land, and climate, I add geographical variables (ruggedness, average temperature, temperature range, rainfall, and frost days). Data sources are listed in Table 2.

Using all these data I run the following regression to study the relationship between IPV and the different family types:

$$IPV_{i,p,y} = \alpha + \beta Stem_p + \gamma X_{i,p,y} + \delta Z_{p,y} + \theta_y Year_y + \epsilon_{i,p,y} \quad (1)$$

where  $IPV_{i,p,y}$  is a binary variable that indicates if the woman  $i$  from province  $p$  on survey

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<sup>23</sup>GDP per capita is entered for the same year as the survey (1999, 2002, and 2006, respectively). The unemployment rate is entered for the same quarter as the survey (2<sup>nd</sup> quarter of 1999, 1<sup>st</sup> quarter of 2002, and 1<sup>st</sup> quarter of 2006). Social capital is entered for 1999, 2002, and 2005, taking 1983 as the baseline (=100 for all provinces).

year  $y$  is a target of violence from her intimate partner,  $Stem_p$  is the average number of married and widowed women per household in province  $p$  based on the 1860 census,  $X_{i,p,y}$  is a vector of control variables at the individual level,  $Z_{p,y}$  comprises regional controls at the province level,  $Year_y$  are survey-year fixed effects and  $\epsilon_{i,p,y}$  is the error term.

However, these linear probability model (LPM) estimates might be biased away from zero if societies that were initially more pro-women were also more likely to establish a stem family structure. Conversely, if more advanced societies were more prone to adopt nuclear family structure and to have more gender-equal role attitudes at the same time, then the LPM estimates might be biased towards zero. To address this important concern, I do not only control for observable characteristics (past and present economic development, and determinants of farm labor productivity) but I also use an instrumental variable strategy.

Specifically, to better understand causality in this relationship I exploit a historical source of exogenous variation that is unique in the history of Europe, and resort to the Christian conquest of the Iberian Peninsula to instrument the family types. Two important dimensions of this process, political structure and distribution of conquered land, are key to explaining the emergence of the different family types.

In terms of the political structure, the Christian kingdoms of the western Iberian Peninsula had an interest in restricting the development of powerful landholding families. This interest was best served by instituting equal allocation of bequest, which led to nuclear family patterns. Meantime, in the east, power was more decentralized, and the feudal nobility sought to maintain its holdings intact through indivisible inheritance, which led to stem family patterns.

To quantify the political process instrument I use the map of provinces in which freedom of testation was in place by the thirteenth century, thus allowing indivisible inheritance. I construct an indicator variable that takes the value 1 if the province had freedom of testation by the thirteenth century, and 0 otherwise.<sup>24</sup>

Regarding distribution of land, resettlement in the north, where the process of conquest started, favored small and medium ownership by free and independent peasants. These small

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<sup>24</sup>There are 13 provinces where freedom of testation had been established by the thirteenth century: Alicante, the Balearic Islands, Barcelona, Castellon, Gerona, Huesca, Lerida, Navarre, Tarragona, Teruel, Valencia, Vizcaya, and Zaragoza.

and medium holdings needed to be undivided in order to guarantee family continuity, so indivisible inheritance was established, and led to the emergence of stem families in the north of the Iberian Peninsula. As the Christian kingdoms expanded southward, state structure evolved, and clergy and nobility participation in the Reconquest was rewarded with vast tracts of land. These large estates would typically employ day laborers and landless peasants, who were less concerned about inheritance rules and who thus adopted equal inheritance and formed nuclear families.

Since there is no information about land distribution in the Iberian Peninsula in medieval times, to quantify the distribution of land instrument I use the stages of the Reconquest as a proxy. Using the map of the Spanish conquest by Lomax (1978) shown in Figure 6, I assign to each province a value from a set of 7 categories, based on the time each province was conquered: 914, 1080, 1130, 1210, 1250, 1480 and 1492.

I use a two-stage least-square (2SLS) procedure to estimate (1). In the first stage, I estimate the effect of the medieval political process and the structure of land tenure on becoming a stem family province:

$$Stem_{i,p,y} = \alpha + \sum_{j=1}^J \lambda_j ConquestStage_p + \sigma FreedomTestation_p + \gamma X_{i,p,y} + \delta Z_{p,y} + \theta_y Year_y + u_{i,p,y} \quad (2)$$

where  $ConquestStage_p$  is the value for the year in which each province was resettled (from seven categories) and  $FreedomTestation_p$  is an indicator variable that takes the value 1 if the province had freedom of testation by the thirteenth century. The different stages of the Reconquest enter the regression as dummy variables, and since I omit the initial-stage category, I end up with 7 excluded instruments (6  $\lambda_j$  coefficients and 1  $\sigma$  coefficient).

## 6 Results

### 6.1 Linear Probability Model Results

Table 3 reports the LPM estimates of regression (1). The results show that living in provinces where the stem family was more socially predominant in 1860 is associated with less contem-

porary IPV. In particular, an increase of one in the average number of married and widowed women in the household per province in 1860 is associated with a decrease of around 5 percentage points in the current IPV prevalence. This effect persists after controlling for contemporary, historical and geographic variables. It remains stable through the different specifications, and statistically significant.<sup>25</sup>

I also considered other factors that might potentially be correlated with traditional family structure and violence against women. While I could not control for these factors in the regressions owing to a lack of reliable data, historical evidence suggests that there are no correlations between these factors and either family structure or IPV. The first potential factor is the existence of matriarchal societies in ancient times. The Greek geographer Strabo, in his *Geography* (circa 20 BCE) describes what some have interpreted as a matriarchal society among the Cantabrians.<sup>26</sup> More recently, Todd (1990) also finds trace evidence of matriarchy in the southwest of the Iberian Peninsula on the basis of work by Portuguese and Spanish ethnographers.

Second, pastoral societies might have been more gender equal since women had a comparative advantage in livestock farming, as shown by Voigtländer and Voth (2012). Herding (especially sheep herding) was an economically important activity in medieval Spain, particularly given the lack of human resources and the abundance of land. While reliable data are lacking, there is evidence of an ancient tradition of transhumant herding, which was regulated by 1273 in the Crown of Castile. The herds of sheep moved seasonally between the mountains in the north (Cantabrian Mountains and Pyrenees) and the steppes to the south (Extremadura and New Castile), whereas agriculture was the main activity in the east and the very south (the Mediterranean coast and Andalucia) (Vicens Vives 1959).

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<sup>25</sup>Table 11 in Appendix A shows the results obtained using different definitions of IPV: physical and sexual violence on the one hand, and psychological, economic, spiritual, and structural violence on the other. Both sets of results are consistent with results for the overall measure of IPV.

<sup>26</sup>For instance, he says that Cantabrian women “till the soil, and when they have given birth to a child they put their husbands to bed instead of going to bed themselves and minister to them; and while at work in the fields, oftentimes, they turn aside to some brook, give birth to a child, and bathe and swaddle it.” (Strabo, III, 4, 18). Also, “it is the custom among the Cantabrians for the husbands to give dowries to their wives, for the daughters to be left as heirs, and the brothers to be married off by their sisters. The custom involves, in fact, a sort of woman-rule — but this is not at all a mark of civilization.” (Strabo, III, 4, 18).

I address concerns about potential omitted variable bias by using a measure of unobservable selection. Following Altonji, Elder, and Taber (2005) I consider how the coefficient changes as control variables are added. I compare the coefficients of the specifications with contemporary, historical, and geographical controls ( $\hat{\beta}_{controls}$ ) to my baseline regression (model (1), ( $\hat{\beta}_{baseline}$ )), and compute the ratio  $(\hat{\beta}_{controls})/(\hat{\beta}_{baseline}-\hat{\beta}_{controls})$ . Under the assumption that selection on observables is proportional to selection on unobservables, this ratio tells us how much stronger the effect of an omitted variable would have to be, relative to observables, to explain away the effect observed between historical family types and IPV. When comparing the baseline model to the model with contemporary variables, I find that the effect of selection on unobservables would have to be at least 4 times higher. The estimated effect obtained when comparing the baseline model to the model with historical and contemporary variables is slightly higher (4.6). In the case of the fully controlled model, when all contemporary, historical, and geographical variables are included, I find that the effect of omitted variable bias would have to be 8.6 times higher to completely explain away the relationship found between family structure and IPV.

## 6.2 Results from Instrumental Variables

Tables 4 and 5 show the instrumental-variable estimates, which confirm the LPM estimates. Table 4 reports the first-stage results of regression (2) showing how greater political decentralization (measured by the freedom of testation) had a positive effect on becoming a stem-family province, and how later stages of conquest were negatively associated with finding stem-family structure. The instruments are a powerful predictor of family types, as reflected the  $F$  statistics for all specifications.

In my second-stage results shown in Table 5, and consistent with my LPM estimates, I find a negative and statistically significant effect of the historical stem family on IPV: increasing by 1 the average number of married and widowed women in the household in 1860 would decrease the prevalence of IPV in the last decade in Spain by about 7 percentage points. The magnitudes of the coefficients are slightly higher than in the LPM estimates, and again very robust to the inclusion of different sets of covariates to control for contemporary, historical, and geographic

effects.

To further test the validity of the instruments I follow Angrist and Pischke (2009) and estimate the just-identified model using a single instrument. The results for the just-identified model with my preferred instrument (political structure, measured by the freedom of testation) are reported in Tables 12 (first stage) and 13 (second stage) in Appendix A. The coefficients are negative and statistically significant, and the magnitude is greater in absolute terms (around 11 percentage points). When I use the conquest stages instrument alone, the results again show a negative relationship between stem family and IPV, although of a lower magnitude (3-5 percentage points) and not statistically significant. Tables 14 (first stage) and 15 (second stage) in the Appendix A report these results.

The validity of the instrumental-variable results rests on the assumption that the stages and political differences of the Christian conquest affect IPV today only through their impact on family types. The primary concern with this strategy is that the different political institutions and land-tenure structure could be correlated with different levels of development that might also affect violence against women. To address this concern I control in my regressions for historical and contemporary measures of economic development, as well as for a measure of social capital—contemporary only—as a proxy for informal development.

A related issue is the potential long-term impact of the expulsion of converted Muslims (*Moriscos*) after the Christian conquest had been completed. Chaney (2008) analyses the long-term effects of the 1609 expulsion of *Moriscos* from the Kingdom of Valencia. He finds evidence suggesting that the persistence of extractive institutions in preindustrial economies dampened the development of the nonagricultural sector.<sup>27</sup> The expulsion of the *Moriscos* also affected other areas of Spain, although to a much lesser extent,<sup>28</sup> and recent studies suggest that economic effects were concentrated in the Kingdom of Valencia (Álvarez-Nogal and Prados de la

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<sup>27</sup>Chaney and Hornbeck (2015) investigate the economic dynamics of the 1609 expulsion of *Moriscos* from the Kingdom of Valencia. They suggest that Malthusian convergence was delayed due to the persistence of extractive institutions. By limiting labor income, these institutions discouraged migration to former *Morisco* areas and slowed the demographic response to labor scarcity.

<sup>28</sup>Spain expelled a total of approximately 300,000 *Moriscos*, of which 110,000 were living in the Kingdom of Valencia, and the rest were scattered all through the rest of Spain (LaPeyre 1959).

Escosura 2007). To address this concern I run my regressions without including the Valencia region, and find similar results.

Other potential concerns have to do with the effects of the conquest on interpersonal violence at large and conflict in general. One might argue that land inequality could have fostered social unrest in areas with large estates. From the second half of the nineteenth century, Andalusian day laborers frequently revolted to demand land rights. This movement ultimately crystallized into an anarchist ideology that led to episodes of violence. This ideology, however, was not exclusive of landless peasants in the south of Spain, and was also embraced by industrial laborers in Barcelona and throughout the Mediterranean coast.<sup>29</sup>

Finally, the conquest-stage instrument is related to a more prolonged Muslim presence in the southern territories, and this could have directly affected beliefs about the role of women in society. I address concerns about Muslim presence and land inequality by running my regressions using only the political process instrument, as shown in Tables 12 and 13 in Appendix A: I again find a negative effect of stem family predominance on contemporary IPV, and results are stronger since the coefficients are higher in absolute terms.

## 7 Additional Evidence

In this section I show supporting evidence for the relationships and mechanisms claimed in the paper. First, using the *Ethnographic Atlas* dataset I look at the effect of indivisible inheritance on female participation in agriculture in preindustrial societies. Second, I explore the concurrent relationship between stem family and IPV by looking at the Philippines, a country where the stem family still persists and where the *Demographic Health Survey* provides data on violence against women.

### 7.1 Evidence from the *Ethnographic Atlas*

In the model presented, wives in stem families contributed more to farming work and thereby were subjected to less violence. To test this theoretical prediction I use the *Ethnographic Atlas*

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<sup>29</sup>Figure 9 in Appendix A shows the Spanish regions with traditional anarchist ideology.



dataset by Murdock, which contains information for 1,265 ethnographic groups prior to their industrialization, including information on female participation in agriculture relative to men and on the inheritance distribution of real property (land), along with other socioeconomic indicators. In order to look at the effect of family structure on female participation in farming I run the following regression:

$$y_e = \alpha + \beta Indivisible_e + \gamma X_e + \epsilon_e, \quad (3)$$

where the dependent variable  $y_e$  measures traditional female participation in agriculture relative to men in ethnicity  $e$ . The variable takes integer values between 1 and 5, increasing with female participation: (1) males only, (2) males appreciably more involved, (3) equal participation, (4) female appreciably more involved, and (5) females only.<sup>30</sup> “Indivisible” is an indicator variable that equals 1 if the inheritance distribution for real property (land) goes exclusively or predominantly to a single child adjudged to be the best qualified, to the lastborn, or to the first-born; and takes the value 0 if the land is distributed equally or relatively equally.  $X_e$  is a vector of control variables that includes dependency on animal husbandry, dependency on agriculture, an index of settlement density as a measure of economic development, and an index of political complexity (measured by the levels of jurisdictional hierarchies in the society). In Model (2), following Alesina, Giuliano, and Nunn (2013) I add “traditional plough use”, an indicator variable that equals 1 if the plough was traditionally used in preindustrial agriculture, and 0 otherwise.

Table 6 shows the results. I find a positive effect of indivisible inheritance on greater female participation in agriculture for preindustrial ethnicities. When I include the traditional plough use, the result holds although the estimate is slightly smaller.

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<sup>30</sup>Following Alesina, Giuliano, and Nunn (2013), I group the two categories ‘differentiated, but equal participation’ and ‘equal participation, not marked differentiation’ into ‘equal participation’.

## 7.2 Evidence from the Philippine *Demographic and Health Survey* Dataset

I further explore the relationship between stem family and IPV through simultaneous observation of both. To do this I look at the Philippines, a country where the stem family pattern is said to exist (Fauve-Chamoux and Ochiai 2009) and which provides information on domestic violence. I use the *Demographic and Health Survey* (DHS) 2008 dataset for the Philippines, which contains a module on domestic violence. The questions in this module are addressed to women aged 15-49 years and are specifically designed to measure IPV.

First, I analyze whether coresidence with other women affects the pattern of female work. To study this dimension I focus on the distinction between women working outside the home versus women working at home or not working at all.<sup>31</sup> I construct a binary variable that takes the value 1 if the woman has a job outside her home and 0 otherwise, and then estimate the following equation:

$$y_{i,r,e} = \alpha + \beta \text{Coresidence}_{i,r,e} + \gamma \mathbf{X}_{i,r,e} + \phi_r a_r + \lambda_e b_e + \epsilon_{i,r,e} \quad (4)$$

where  $y_{i,r}$  takes the value 1 if the woman  $i$  living in region  $r$  is working outside the home. In all the specifications I control for individual and household characteristics  $\mathbf{X}_{i,r}$ , such as the number of children  $\leq 5$  living in the household, age, whether the woman lives in an urban or rural environment and whether she is a Catholic. Additionally, I control for the marital status and educational level of both the woman and her partner. Finally, I include region ( $\phi_r a_r$ ) and ethnicity fixed effects ( $\lambda_e b_e$ ). The key covariate of interest is coresidence in the household with other women aged 15-49 years ( $\text{Coresidence}_{i,r}$ ). I cluster standard errors by region, and there are 17 regions. The standard statistical approach for clustered standard errors based on asymptotic theory (the cluster-correlated Huber-White estimator) has been shown to provide standard error estimates that are too small if the number of clusters is small. I therefore use wild cluster bootstrap standard errors with weights assigned at the region level as they are conservative according to Cameron et al. (2008).<sup>32</sup>

<sup>31</sup>In the sample, 43% of women work outside the home, 14% work at home, and 43% do not work.

<sup>32</sup>Cameron et al. suggest 30 as a rule-of-thumb cutoff for when the number of clusters can be considered

Table 7 shows the results. I find that coresidence with other women has a positive effect on female labor force participation outside the home. The coefficients are robust to the inclusion of additional covariates, such as the woman's marital status, her educational level and her partner's, and region and ethnicity fixed effects. They indicate that 1 more woman aged 15–49 years living in the household is associated with a 2-percentage-point increase in the probability of working outside the home.

Second, I analyze the effect of coresidence with other women on IPV. I take the subsample of women who answered the domestic violence module of the DHS (69% of all women) and construct a binary variable that takes the value 1 if the woman has ever experienced any kind of violence (physical, sexual, emotional, or economic) from her intimate partner, and 0 otherwise. I then estimate equation (4) using the IPV measure as the dependent variable. As shown in Table 8, I find a negative relationship between adult female coresidence and domestic violence. The coefficients remain negative and significant as I add education and marital status, and region and ethnicity fixed effects in the specification, and show that an additional woman aged 15–49 years in the household is associated with a 2- to 3-percentage-point decrease in the probability of experiencing IPV.

## 8 Transmission Channels

Different reasons may explain the persistence of this distinct culture of violence against women within Spain. In this section I explore the potential transmission channels. On the one hand, the institutional environment could have either reinforced or countered internal beliefs about gender roles. For instance, stem- and nuclear-family regions could have established different labor market institutions, laws, or policies that interacted with culture. On the other hand, it might just be purely cultural transmission. Cultural traits are sticky and slow-moving, and there is evidence of a high degree of intergenerational correlation of domestic violence (Pollak 2004), and of the important role of intrafamily transmission of gender-role attitudes (Thornton,

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small, but they indicate that in general it will depend on the level of intracluster correlation and the number of observations per cluster.

Alwin, and Camburn 1983). Moreover, Fernández, Fogli, and Olivetti (2004) stress the role of family attitudes and their intergenerational transmission in transforming women's role in the economy. They show that having a working mother influences a man's preference for a working wife or directly makes him a better partner for a working woman, and that the growing presence of this kind of man helps account for the increase in female labor force participation over time.

Even though I cannot completely rule out the institutional channel, the evidence I present is consistent with the cultural transmission channel. First, I am looking at within-country variation, which means that all regions are dealing with the same external environment in terms of the laws, policies, and markets determined by the central authority. Since the beginning of the Modern Era until the 1980s the tendency in Spain was to unify regional institutions and policies and centralize power, with few and brief exceptions. Only a very few regions have managed to preserve their own institutions through the centuries. Still, family structure and internal beliefs persisted in territories with very different degrees of institutional persistence. This allows us to apply a natural-experiment approach: the Basque Country and Navarre kept their own institutions almost throughout this period; Aragon, Catalonia, and the Balearic Islands lost their legislative bodies in the eighteenth century, but kept some of their own laws; Valencia lost both its legislative body and its laws in the eighteenth century;<sup>33</sup> finally, some regions in the northern part of the former Crown of Castile (Asturias, Cantabria) never had their own formal institutions. Despite the different persistence of local institutions across these regions, all these territories maintained a stem family structure and today exhibit more equal gender roles.

Regarding internal migration, it was not relevant in Spain until the second half of the nineteenth century, when some short-distance movements began to occur within the regions (Carreras and Tafunell 2005). During the twentieth century, there were two waves of cross-province migration, both involving agricultural workers moving to industrial towns. The first began in

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<sup>33</sup>The *Nueva Planta* (New Foundation) decrees signed by Philip V between 1707 and 1716, after winning the War of Spanish Succession, suppressed the political and administrative institutions of the regions that were part of the Crown of Aragon. Eventually, Aragon, Catalonia, and the Balearic Islands were allowed to keep their civil law. The Basque Country and Navarre were not affected, since they had supported Philip V.

the 1920s. The process was interrupted in the 1930s and 1940s due to the international economic crisis, the Spanish Civil War, and its aftermath. Migration resumed in greater numbers from the 1950s through the 1970s. Migrants typically left the southern agricultural regions (Andalucia, Extremadura, and Castilla-La Mancha) to settle in industrial conurbations in Madrid, the Basque Country, Catalonia, and Valencia. This means that a significant number of people from nuclear-family regions moved to regions where the stem family had been traditionally prevalent. For this reason, my estimates of the effect of historical family type on IPV should be interpreted as a lower bound.

## 8.1 Evidence from the *World Values Survey*

Table 11 in Appendix A already shows that the traditional structure of the family not only explains physical and sexual violence but also other kinds of less-extreme violence, such as psychological, economic, spiritual, and structural abuse. In this section, I explore the links between historical family types and other measures of gender inequality, using the Spanish sample of the *World Values Survey* for 1990–2007. Apart from demographic data, this survey contains information about values and attitudes towards women. The degree of gender equality is measured through agreement or disagreement with 4 statements:<sup>34</sup> (1) “When jobs are scarce, men should have more right to a job than women”; (2) “On the whole, men make better political leaders than women do”; (3) “Both the husband and wife should contribute to household income”; and (4) “Having a job is the best way for a woman to be an independent person”.

For each of these statements, I generate a binary variable that takes the value 1 when the answers indicate beliefs more consistent with gender equality and 0 otherwise.<sup>35</sup> To examine the effect of a traditional stem family structure on contemporary attitudes towards gender, I estimate the following equation:

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<sup>34</sup>The first two questions follow Alesina, Giuliano, and Nunn (2013).

<sup>35</sup>For statement (1), I omit ‘neither’ answer. For statements (2-4), I aggregate ‘agree strongly’ with ‘agree’, and ‘strongly disagree’ with ‘disagree’.

$$y_{i,r} = \alpha + \beta Stem_r + \gamma X_{i,r} + \delta z_r + e_{i,r} \quad (5)$$

where  $y_{i,r}$  takes the value 1 if individual  $i$  living in region  $r$  has more gender-equal beliefs.  $Stem_r$  measures the average number of widowed and married women in the household in the 1860 census, aggregated at the autonomous community level.<sup>36</sup>  $X_{i,r}$  includes control variables at the individual level: sex, age, marital status fixed effects, and educational level fixed effects.  $z_r$  measures regional GDP per capita measured in the same year as the dependent variable (1990, 1995, 2000, and 2007). Information on beliefs is given at the regional level and I cluster standard errors by region. Since my historical data cover only 16 regions<sup>37</sup> I report wild bootstrap standard errors with weights assigned at the region level.<sup>38</sup>

Table 9 reports the results. Controlling for other individual and regional variables, individuals currently living in a region where stem family was socially predominant in the past tend to have beliefs more consistent with gender equality (with the exception of the first measure for which results do not find any significant effect).

Potentially, one could argue that stem-family territories might be more open-minded, and that higher gender equality in these regions is simply an expression of greater broad-mindedness of these regions. To address this concern I look at other non-gender-related attitudes. Using the same dataset from the *World Values Survey*, I run equation (5) using as dependent variables life satisfaction, trust, and attitudes toward homosexuality and euthanasia by constructing indicator variables for the following questions: (1) “All things considered, how satisfied are you with your life as a whole these days?” (1 indicates satisfied, 0 dissatisfied); (2) “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” (1 indicates most people can be trusted, 0 otherwise); (3) “Do you think homosexuality can always be justified, never be justified, or something in between?” (1 indicates

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<sup>36</sup>The Spanish sample of the *World Values Survey* only contains information about the respondent’s autonomous community (NUTS 2–level region in the Eurostat classification), which is a higher level than the province (NUTS 3).

<sup>37</sup>There are 17 Autonomous Communities, but information on historical family structure is missing for the Canary Islands.

<sup>38</sup>See footnote 32 and comments on regression (4).

justifiable, 0 otherwise); and (4) “Do you think euthanasia can always be justified, never be justified, or something in between?” (1 indicates justifiable, 0 otherwise).<sup>39</sup> Table 10 reports the results. I find no statistically significant differences for these attitudes in stem family territories compared to nuclear family territories.

## 9 Conclusion

Family is a primal and fundamental institution that affects all spheres in the society. Its importance in shaping values and attitudes towards gender is more than evident. In this paper I analyze the effect of the family structure on the culture of violence against women. I look at the relationship between IPV in Spain and traditional family types (stem and nuclear). My hypothesis is that different family types shaped distinct gender roles, and that this has had a long-term and persistent impact that explains differences in violence against women today.

The results show that territories where the stem family was socially predominant in the past exhibit a lower prevalence of IPV today. My proposed underlying mechanism for this is based on the greater female participation in agriculture associated with traditional stem families. Coresidence with the mother-in-law reduced the wife’s burden of household work and accentuated her productive role. To illustrate this I model a traditional peasant family in the preindustrial period and show how the presence of the mother-in-law in the family could decrease the level of domestic violence exerted by the husband.

In my regressions I combine past and present data. To address potential endogeneity concerns I control for an exhaustive set of observable contemporary, historical, and geographic characteristics. I also resort to a unique event in the history of Europe, the Christian conquest of the Iberian Peninsula (722–1492), as an instrument for family types. Two dimensions of this process explain the emergence of the two family types: political structure and landholding size. Both LPM and instrumental-variable estimates show a negative relationship between

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<sup>39</sup>For the *trust* statement, I assign the value 1 if the individual responds that “most people can be trusted”, and 0 if the response is “can’t be too careful”. Responses to the other 3 questions vary on a scale of 1 to 10. Following what I did when looking at attitudes towards gender, I aggregate answers 1–5 and 6–10.

stem-family predominance and violence against women.

Additional datasets provide supporting evidence for the channels and relationships that I claim in this paper. First, ethnographic data show that indivisible inheritance, which is a feature of stem families, is positively associated with greater female contribution to agriculture in preindustrial societies. Second, in the Philippines, a country where the stem family is still predominant, I find that coresidence with other women is linked to an increase in the probability of working outside the home, and to a reduction in the probability of being abused by the intimate partner.

Even though the importance of the stem family has decreased over the past century, it persisted remarkably (from the beginning of the Middle Ages until the 1970s, evidence suggests)—long enough to potentially explain current behavior. In the last section I show evidence consistent with the idea that attitudes that arose from the traditional family structure and their intergenerational transmission have a role in explaining violence against women today. In this respect, *World Values Survey* data for Spain show that historical stem-family territories today show not only less IPV but also more equal gender roles, whereas I found no differences across territories when looking at other values and attitudes not related to gender.

This study contributes to the understanding of the deep historical factors that underlie gender inequality. As reviewed by Giuliano (2014), several studies have found that agricultural technology, language, and geography can affect the role of women in society and have a long-lasting impact up to the present. This paper introduces historical family patterns as yet another element that may also underlie present gender relations. Additionally, it provides an example of the significance of historical events in explaining attitudes today. By exploiting the Christian conquest of the Iberian Peninsula as a historical source of exogenous variation, I am able to address endogeneity issues and gain a better understanding of the timeline and the links between history, culture, and institutions.



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## 10 Tables and Figures

Table 1: Definition of Intimate-Partner Violence in the Survey

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*At the moment, how often has someone from your home or your intimate partner done any of the following:*

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Doesn't allow you to see your family, friends or neighbors.

Takes the money you make or doesn't give you enough money to live on.

Calls you names or threatens you.

Decides the things you can or cannot do.

Insists on having sex even though he or she knows you don't want to.

Doesn't take your needs into account (leaves you the worst share of the food, the house, etc.).

Makes you feel afraid.

Shoves or beats you when is feeling angry.

Says you're incapable of doing anything on your own/without him or her.

Says everything you do is wrong, calls you clumsy.

Belittles your beliefs (going to church, voting for a political party, joining an organization, etc.) or doesn't value them.

Doesn't appreciate your work.

Says things to make you look bad in front of the children.

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Table 2: Data Sources

Variables	Source
GDP per capita, population and unemployment	National Institute for Statistics
Population density in 1787 and 1860	Census
Urbanization rates at 1787 and 1860	<i>Estadísticas Históricas de España siglos XIX y XX</i> , by Carreras and Tafunell (2006)
Social capital	Pérez García et al. (2008)
Ruggednes	Goerlich Gisbert and Cantarino Martí (2010)
Climate variables	Averaged at the province level for the whole century using Goerlich Gisbert (2012)

Table 3: Linear Probability Model Results

	(1)	(2)	(3)	(4)
Intimate-partner violence				
Mean of dependent variable	0.085			
Stem family	-0.059*** (0.0191)	-0.047** (0.0179)	-0.048*** (0.0165)	-0.054*** (0.0184)
Contemporary controls		yes	yes	yes
Historical controls			yes	yes
Geographic controls				yes
Observations	59678	59678	59678	59678
$R^2$	0.041	0.041	0.041	0.042

*Notes:* *Stem family* is defined as the average number of married and widowed women in the household at the province level in 1860. Model (1) includes age, respondent's and partner's level of education, respondent's occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted. Model (2) adds contemporary controls (religion; number of people in the household; and GDP per capita, unemployment rate, and social capital at the province level). Model (3) adds historical controls at the province level (population density in 1787, 1860, and the survey year; urbanization rates in 1787 and 1860). Model (4) adds geographic controls at the province level (ruggedness index and climate variables including temperature, temperature range, rainfall, and frost days). Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 4: First-Stage 2SLS Results

	(1)	(2)	(3)
	Stem family		
Mean of dependent variable	1.02		
Freedom of testation	0.090*** (0.0266)	0.112*** (0.0328)	0.116*** (0.0226)
Conquest by 914–1080	-0.054*** (0.0183)	-0.018 (0.0253)	-0.049** (0.0191)
Conquest by 1080–1130	-0.086*** (0.0180)	-0.106*** (0.0362)	-0.122*** (0.0274)
Conquest by 1130–1210	-0.083*** (0.0210)	-0.102*** (0.0361)	-0.146*** (0.0316)
Conquest by 1210–1250	-0.062*** (0.0211)	-0.067** (0.0324)	-0.109*** (0.0403)
Conquest by 1250–1480	-0.114*** (0.0382)	-0.102** (0.0501)	-0.043 (0.0641)
Conquest by 1480–1492	-0.016 (0.0180)	-0.016 (0.0232)	-0.070* (0.0376)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
F-stat	13.26	12.87	16.42
Observations	59678	59678	59678

Omitted category: conquest prior to 914 CE.

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: Second-Stage 2SLS Results

	(1)	(2)	(3 )
Intimate-partner violence			
Mean of dependent variable		0.085	
Stem family	-0.070** (0.0277)	-0.070** (0.0305)	-0.072*** (0.0247)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
Observations	59678	59678	59678
$R^2$	0.041	0.041	0.041

This analysis uses the period in which the province was resettled as well as a dummy variable indicating whether the province had freedom of testation as instruments for prevailing family structure.

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: OLS Results from *Ethnographic Atlas*

	(1)	(2)
	Female participation in agriculture	
Mean of dependent variable	2.9	
Indivisible inheritance	0.479*** (0.0911)	0.370*** (0.0931)
Traditional plough use		-0.552*** (0.1248)
Observations	411	411
$R^2$	0.11	0.15

*Notes:* The unit of observation is an ethnic group from the Ethnographic Atlas. The dependent variable measures traditional female participation in agriculture relative to male participation in the preindustrial period. The variable takes on integer values between 1 and 5 and increases with greater female participation. *Indivisible inheritance* is an indicator variable that equals 1 when, according to inheritance customs, land goes exclusively or predominantly to a single person, typically the last-born or firstborn child. Control variables include dependency on animal husbandry, dependency on agriculture, an index of settlement density, and an index of political development. *Traditional plough use* is an indicator variable that equals 1 if the plough was traditionally used in preindustrial agriculture.

Robust standard errors in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7: LPM Results from the Philippine *Demographic Health Survey*. **Working Outside the Home**

	(1)	(2)	(3)
Working outside the home			
Mean of dependent variable		0.43	
Coresidence with other women	0.018** (0.0070)	0.015** (0.0061)	0.017*** (0.0058)
Education and marital status		yes	yes
Region and ethnicity fixed effects			yes
Observations	13200	13200	13200
$R^2$	0.045	0.057	0.075

*Notes:* The unit of observation is a woman aged 15-49 living in the Philippines in 2008. The dependent variable is an indicator variable that takes the value 1 if the woman works outside the home, and 0 if she works at home or does not work at all. *Coresidence with other women* is a variable that measures the number of other women aged 15-49 living with the interviewed woman. Control variables include number of children aged 5 years or less living in the household, the respondent's age, whether she lives in an urban or rural environment, and whether she is a Catholic. Model (2) adds the respondent's marital status, her educational level, and her partner's. Model (3) adds region (17 regions) and ethnicity fixed effects (23 ethnic groups). In the sample, 43% of women do not work, 14% work at home, and 43% work outside the home. Wild bootstrapped standard errors with weights assigned to the regional level (17 clusters) in brackets.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 8: LPM results from the Philippine *Demographic Health Survey*. **Intimate-Partner Violence**

	(1)	(2)	(3)
Intimate-partner violence			
Mean of dependent variable		0.18	
Coresidence with other women	-0.032*** (0.0082)	-0.017** (0.0079)	-0.015* (0.0078)
Education and marital status		yes	yes
Region and ethnicity fixed effects			yes
Observations	8317	8317	8317
$R^2$	0.011	0.032	0.062

*Notes:* The unit of observation is a woman aged 15-49 living in the Philippines in 2008. The dependent variable measures the overall level of intimate-partner violence, including physical, sexual, emotional, and economic violence. It is an indicator variable that equals 1 if the woman has ever experienced violence. *Coresidence with other women* is a variable that measures the number of other women aged 15-49 living with the interviewed woman. Control variables include number of children aged 5 years or less living in the household, the respondent's age, whether she lives in an urban or rural environment, and whether she is a Catholic. Model (2) adds the respondent's marital status, her educational level, and her partner's. Model (3) adds region (17 regions) and ethnicity fixed effects (23 ethnic groups). Wild bootstrapped standard errors with weights assigned to the regional level (17 clusters) in brackets.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 9: LPM Results from the Spanish *World Values Survey*. **Attitudes Towards Gender**

	(1)	(2)	(3)	(4)
	Job scarcity	Political leader- ship	Household contribu- tion	Independence through work
Mean of dependent var.	0.76	0.78	0.91	0.80
Stem family	0.008 (0.276)	0.196* (0.103)	0.238** (0.118)	0.678*** (0.125)
Observations	2853	3082	2118	1299
$R^2$	0.098	0.053	0.026	0.037

*Notes:* The unit of observation is the adult individual (18+) living in Spain between 1990 and 2007. The dependent variables are indicator variables and value 1 refers to beliefs consistent with greater gender equality. (1) “When jobs are scarce, men should have more right to a job than women”; (2) “On the whole, men make better political leaders than women do”; (3) “Both the husband and wife should contribute to household income”; and (4) “Having a job is the best way for a woman to be an independent person”. *Stem family* measures the average number of widowed and married women per household based on the 1860 census and aggregated at the autonomous community level. Control variables include sex, age, marital status fixed effects, occupational status fixed effects, educational level fixed effects, and GDP per capita at the autonomous community level measured in the same year as the dependent variable. Model (4) does not include educational level fixed effects since the dependent variable is only defined for 1990 and education information is missing for that year. Wild bootstrapped standard errors with weights assigned at the Autonomous Community level (16 clusters) in brackets.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

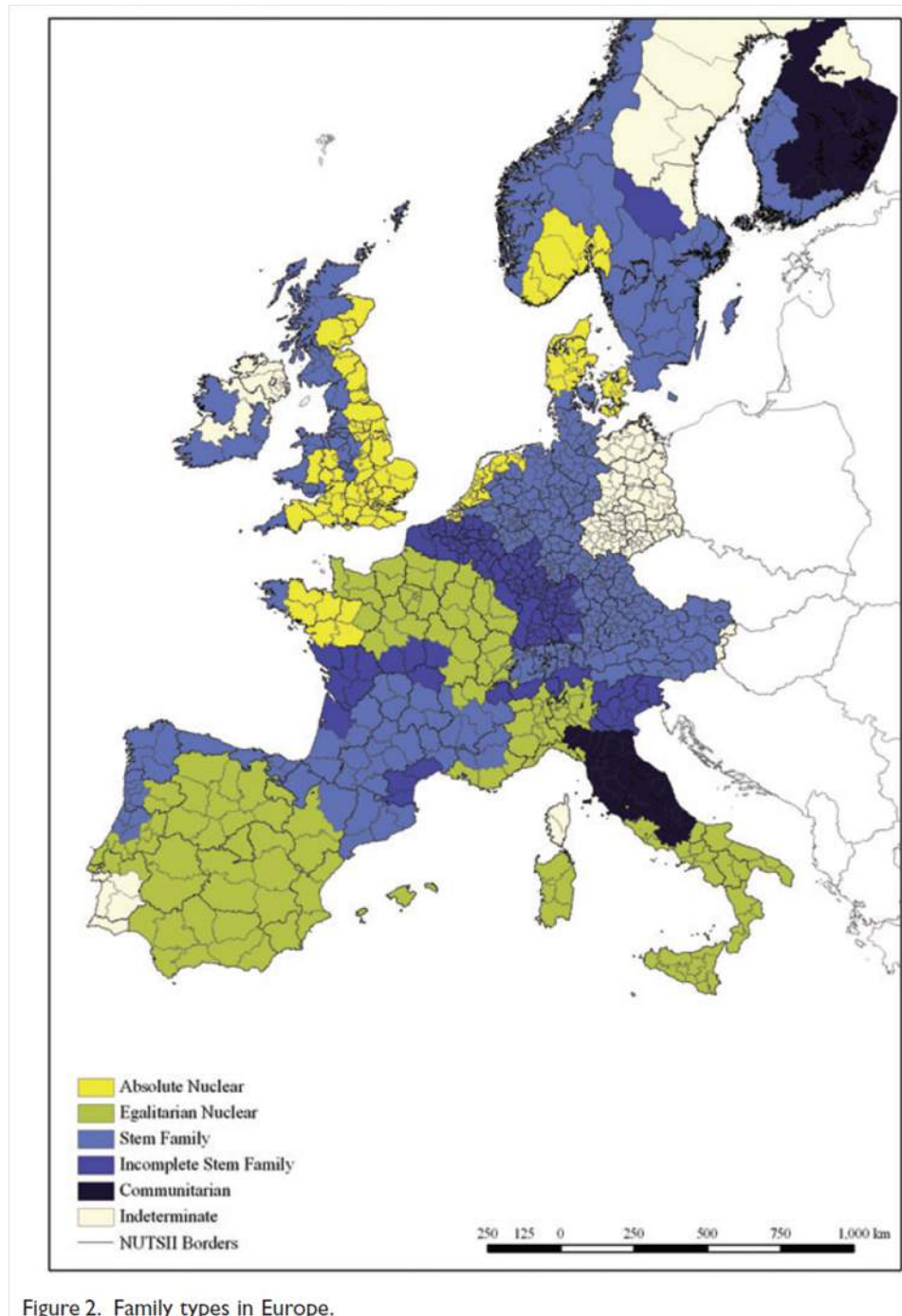
Table 10: LPM Results from the Spanish *World Values Survey*. **Attitudes Towards Other Things**

	(1)	(2)	(3)	(4)
	Life satis- faction	Trust	Homosex.	Euthanasia
Mean of dependent var.	0.80	0.28	0.54	0.43
Stem family	-0.081 (0.115)	0.264 (0.260)	-0.225 (0.308)	0.327 (0.223)
Observations	3286	3204	3112	3025
$R^2$	0.075	0.013	0.124	0.084

*Notes:* The unit of observation is the adult individual (18+) living in Spain between 1990 and 2007. The dependent variables are indicator variables for the following questions: (1) "All things considered, how satisfied are you with your life as a whole these days?" (1 indicates satisfied, 0 dissatisfied); (2) "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" (1 indicates most people can be trusted, 0 otherwise); (3) "Do you think homosexuality can always be justified, never be justified, or something in between?" (1 indicates justifiable, 0 otherwise); and (4) "Do you think euthanasia can always be justified, never be justified, or something in between?" (1 indicates justifiable, 0 otherwise). *Stem family* measures the average number of widowed and married women per household based on the 1860 census and aggregated at the autonomous community level. Control variables include sex, age, marital status fixed effects, occupational status fixed effects, educational level fixed effects, and GDP per capita at the autonomous community level measured in the same year as the dependent variable. Wild bootstrapped standard errors with weights assigned at the Autonomous Community level (16 clusters) in brackets.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

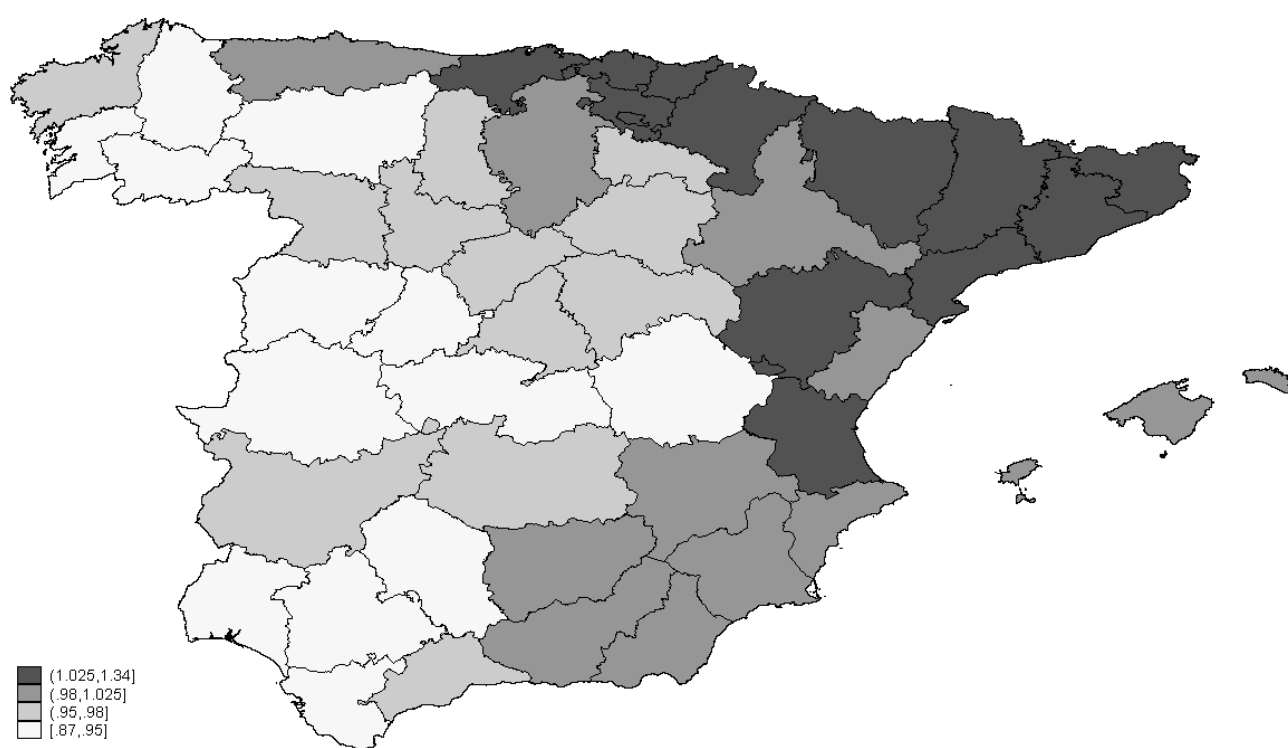
Figure 1: Family Types in Western Europe



Source: Duranton, Rodríguez-Pose and Sandall (2009). Based on Todd's (1990) map.

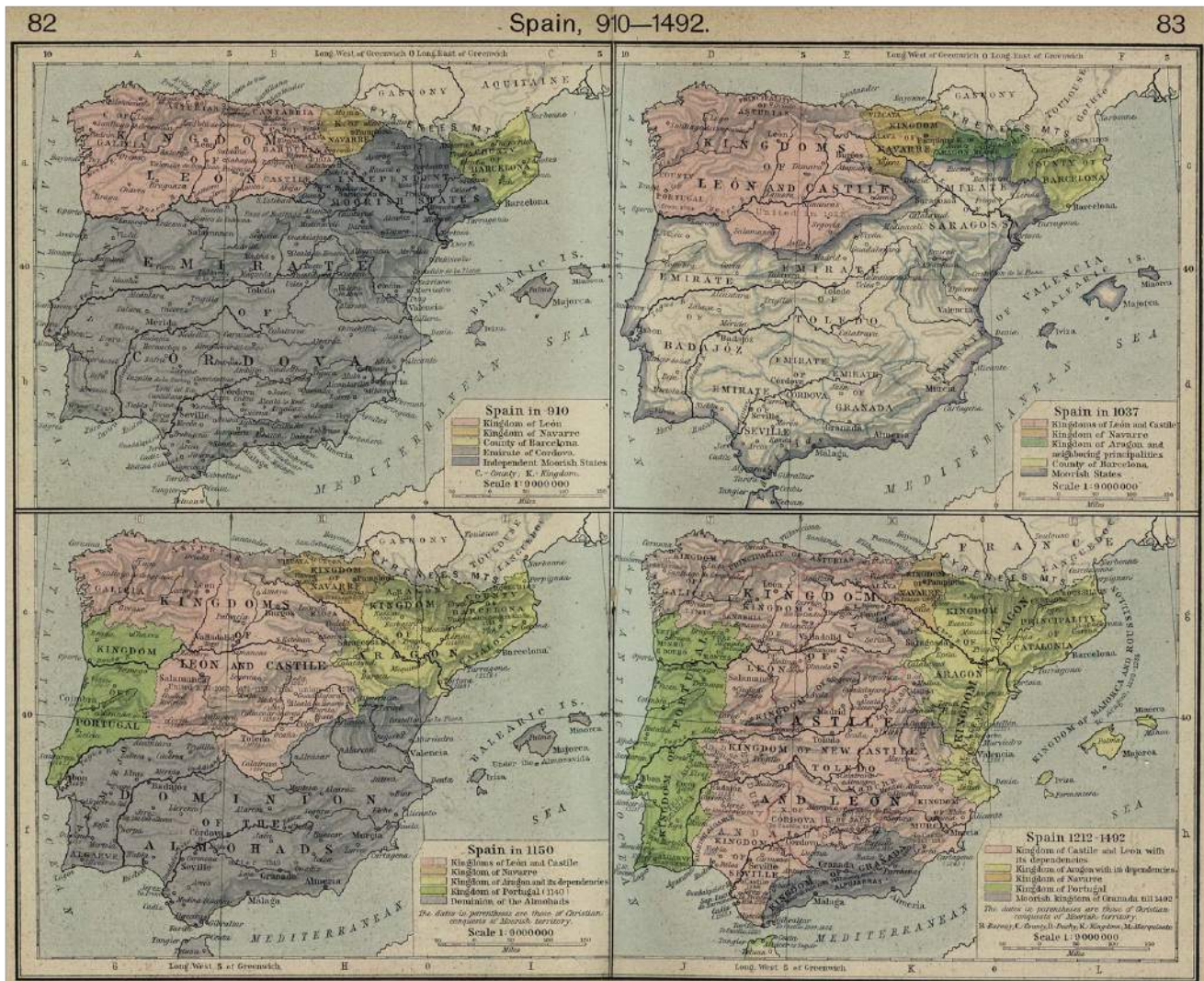


Figure 2: Family Types in Spain in 1860



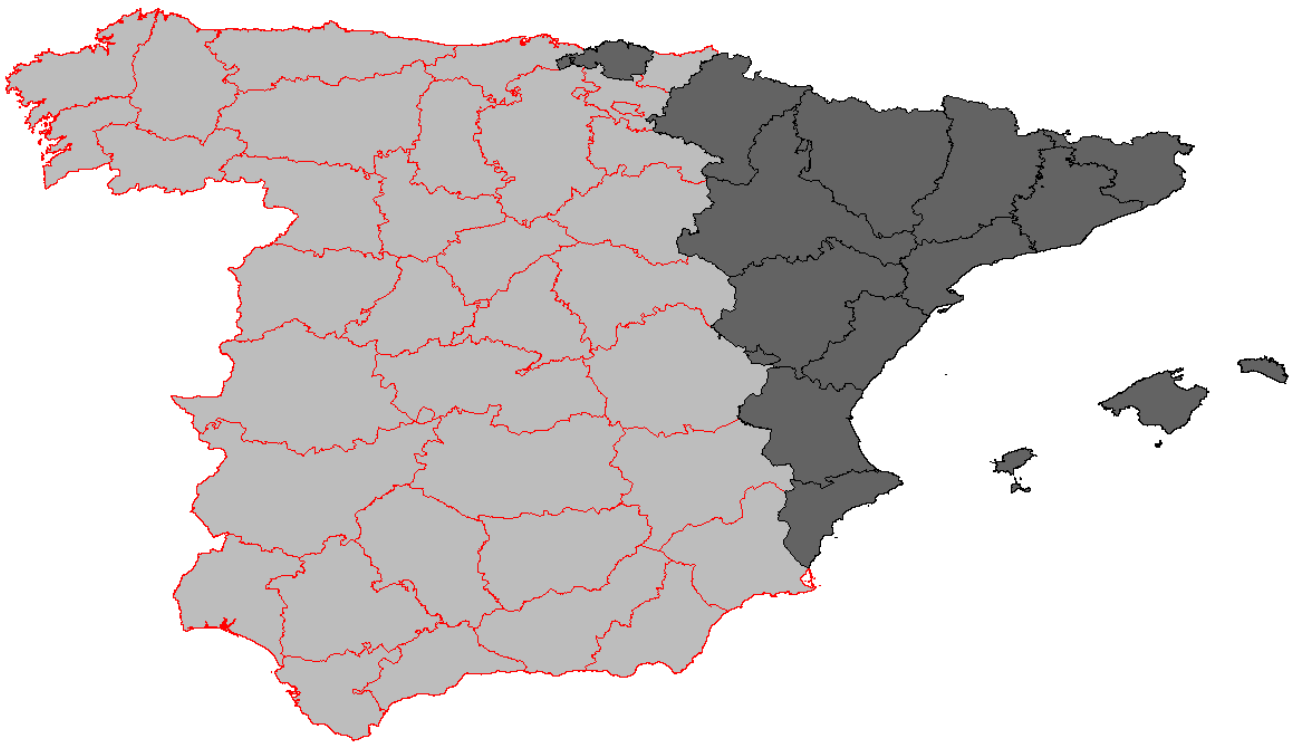
Source: Own calculations using 1860 census data.

Figure 3: Kingdoms of the Iberian Peninsula During the Middle Ages



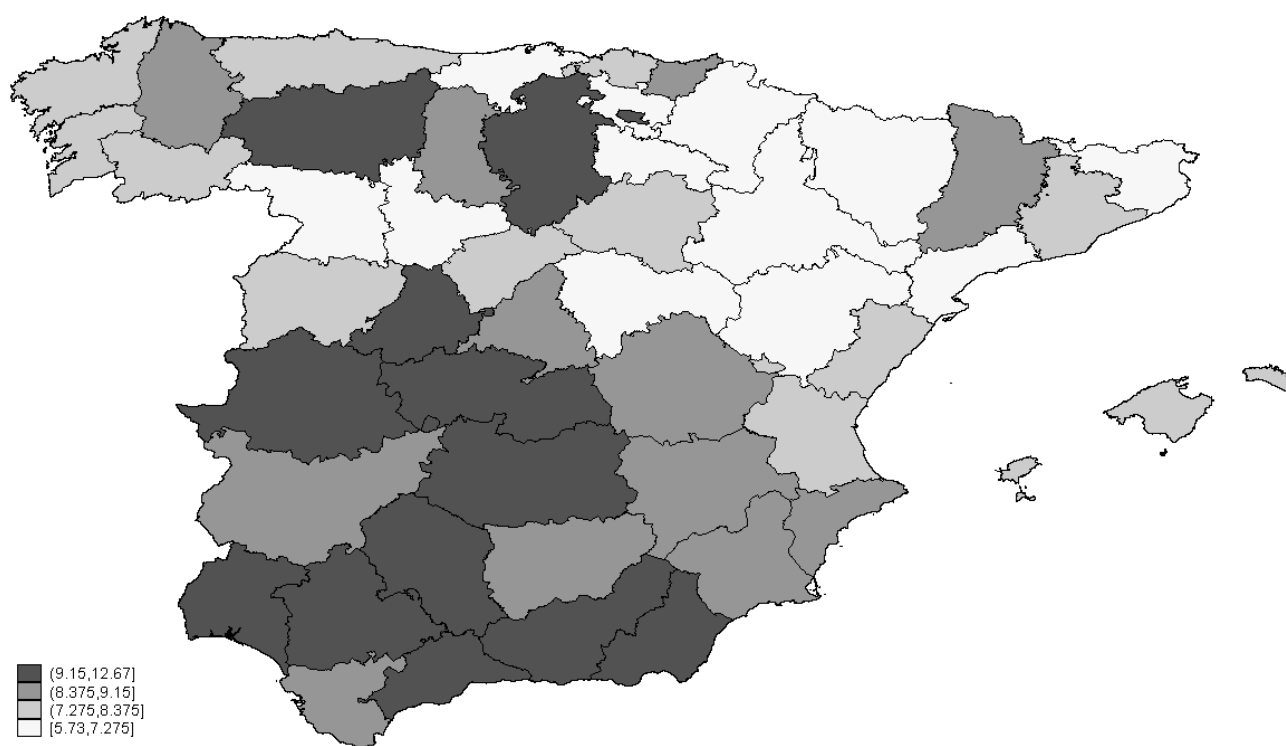
Source: *Historical Atlas* by William R. Shepherd (1923)

Figure 4: Spanish Territories with Freedom of Testation in the 13<sup>th</sup> Century



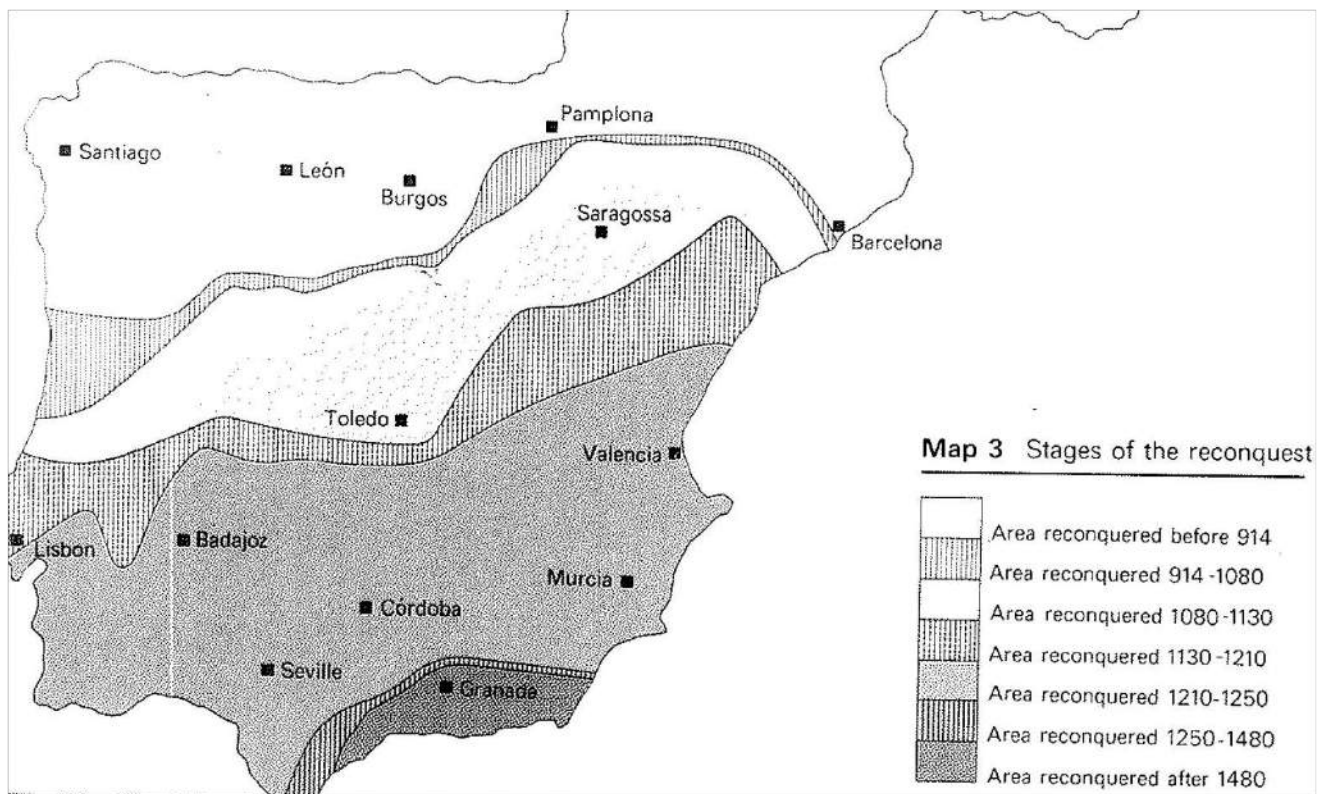
Source: Based on Chacón and Bestard (2011)

Figure 5: Intimate-Partner Violence in Spain, 1999–2006



Source: Own calculations from Spanish surveys on violence against women.

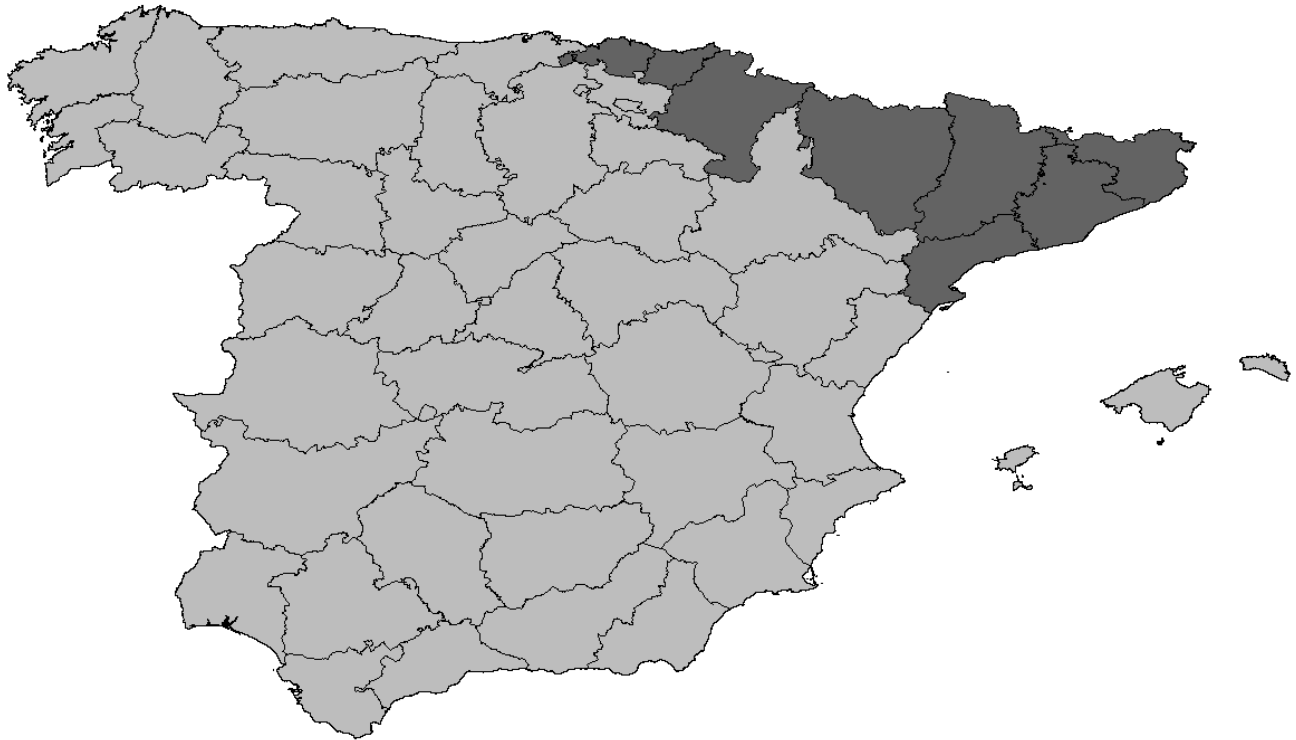
Figure 6: Stages of the Christian Conquest



Source: Derek W. Lomax (1978)

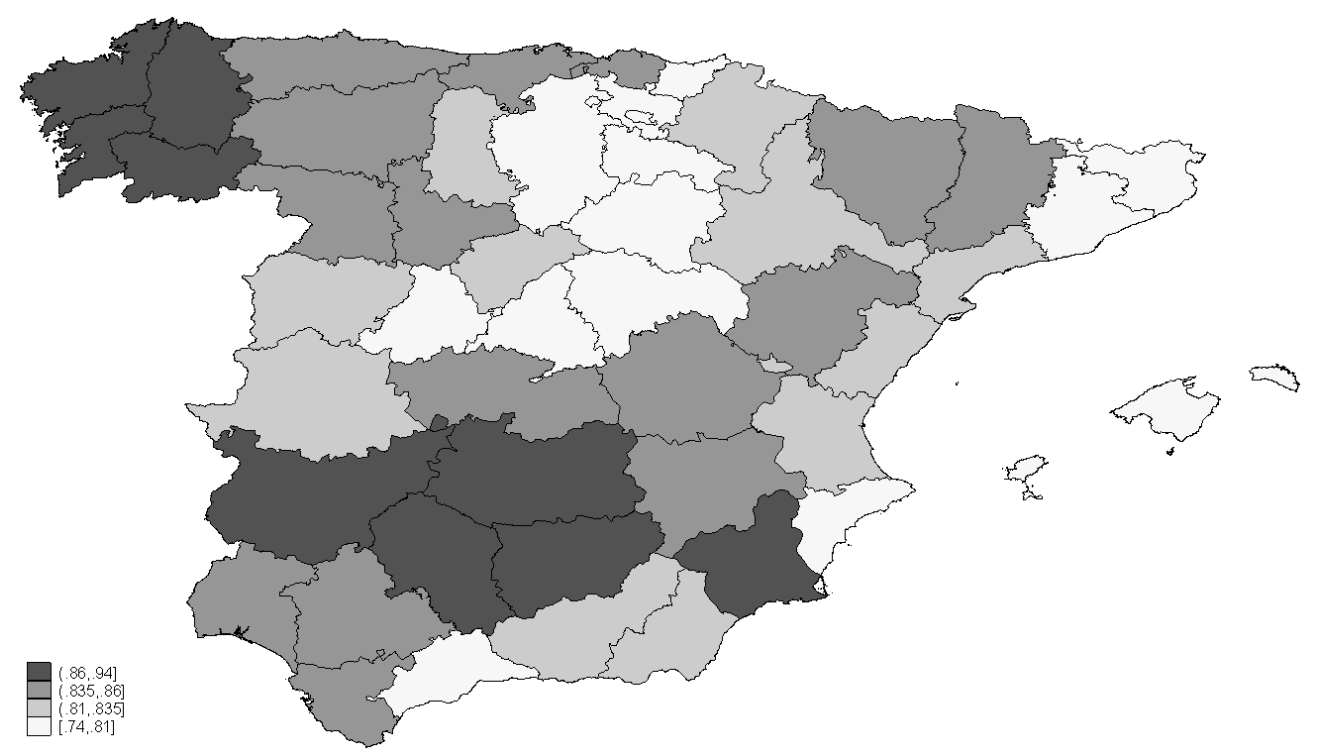
## A Appendix A: Additional Tables and Figures

Figure 7: Stem Family in Spain, 1860



Source: Own calculations using 1860 census data. Provinces where the average number of widowed and married women in the household is  $\geq 1.075$  are shown in a darker shade.

Figure 8: Family Structure Today



Source: Own calculations using 2001 census data. Number of widowed and married women in the household.

Table 11: LPM Results with Different IPV Measures

	(1)	(2)	(3)	(4)
Physical and sexual violence				
Mean of dependent var.	0.032			
Stem family	-0.033*** (0.0106)	-0.029*** (0.0081)	-0.024** (0.0112)	-0.029** (0.0117)
Observations	59678	59678	59678	59678
$R^2$	0.018	0.019	0.019	0.019
	(1)	(2)	(3)	(4)
Psychological, economic, spiritual, and structural violence				
Mean of dependent var.	0.069			
Stem family	-0.044** (0.0163)	-0.035** (0.0161)	-0.046*** (0.0123)	-0.045*** (0.0121)
Observations	59678	59678	59678	59678
$R^2$	0.032	0.032	0.032	0.032

*Notes:* *Stem family* is defined as the average number of married and widowed women in the household at the province level in 1860. Model (1) includes age, respondent's and partner's level of education, respondent's occupation occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted. Model (2) adds contemporary controls (religion; number of people in the household; and GDP per capita, unemployment rate, and social capital at the province level). Model (3) adds historical controls at the province level (population density in 1787, 1860, and the survey year; urbanization rates in 1787 and 1860). Model (4) adds geographic controls at the province level (ruggedness index and climate variables including temperature, temperature range, rainfall, and frost days).

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 12: First-Stage 2SLS Results. Just-Identified Model. Political structure instrument only

	(1)	(2)	(3)
	Stem family		
Mean of dependent variable	1.02		
Freedom of testation	0.109*** (0.0341)	0.089*** (0.0323)	0.113*** (0.0264)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
F-stat	10.17	7.64	18.25
Observations	59678	59678	59678

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupation occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 13: Second-Stage 2SLS Results. Just-Identified Model. Political structure instrument only

	(1)	(2)	(3)
Intimate-partner violence			
Mean of dependent variable		0.085	
Stem family	-0.107** (0.0431)	-0.113** (0.0509)	-0.116*** (0.0373)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
Observations	59678	59678	59678
$R^2$	0.041	0.041	0.041

This analysis uses a dummy variable indicating whether the province had freedom of testation as instrument for prevailing family structure.

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupation occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 14: First-Stage 2SLS Results. Only with Conquest Stages

	(1)	(2)	(3)
	Stem family		
Mean of dependent variable	1.02		
Conquest by 914–1080	-0.114*** (0.0165)	-0.066*** (0.0198)	-0.107*** (0.0310)
Conquest by 1080–1130	-0.123*** (0.0310)	-0.078** (0.0380)	-0.095** (0.0400)
Conquest by 1130–1210	-0.063*** (0.0211)	-0.036 (0.0334)	-0.108** (0.0477)
Conquest by 1210–1250	-0.056** (0.0242)	0.013 (0.0345)	-0.024 (0.0457)
Conquest by 1250–1480	-0.102** (0.0446)	0.034 (0.0687)	0.177* (0.0985)
Conquest by 1480–1492	-0.040 (0.0285)	-0.014 (0.0287)	-0.074 (0.0461)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
F-stat	16.05	8.03	5.87
Observations	59678	59678	59678

Omitted category: Omitted category: conquest prior to 914 CE.

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupation occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 15: Second-Stage 2SLS Results. Only with Conquest Stages

	(1)	(2)	(3)
Intimate-partner violence			
Mean of dependent variable		0.085	
Stem family	-0.052 (0.0374)	-0.031 (0.0620)	-0.045 (0.0388)
Contemporary controls	yes	yes	yes
Historical controls		yes	yes
Geographic controls			yes
Observations	59678	59678	59678
$R^2$	0.041	0.041	0.042

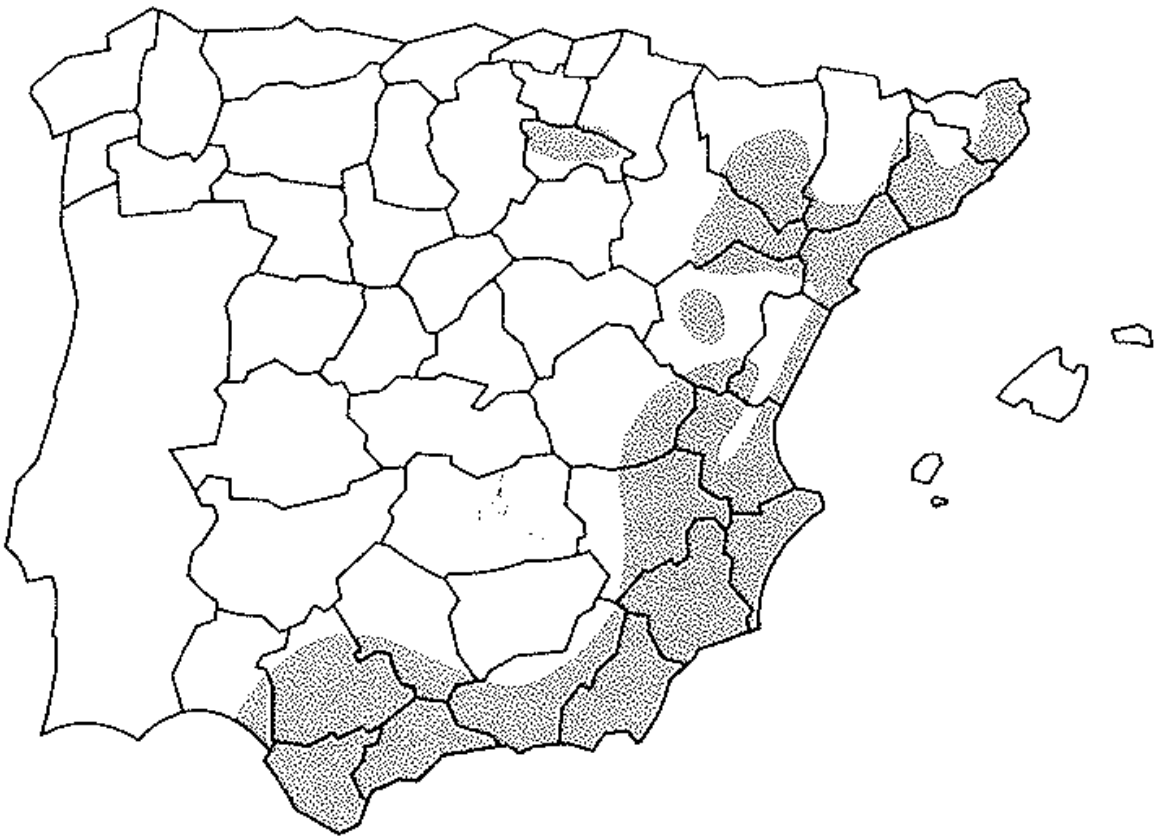
This analysis uses the period in which the province was resettled as instruments for prevailing family structure.

*Notes:* All models include age, respondent's and partner's level of education, respondent's occupation occupational status, marital status, the head of the household, the presence of children in the household, habitat size, and year when survey was conducted, and contemporary controls. Model (2) adds historical controls. Model (3) adds geographic controls.

Standard errors clustered by province in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Figure 9: Traditional Anarchist Areas



Source: Todd (1990).

## B Appendix B: Theoretical Model

The husband chooses  $t_w$  and  $v$  to solve:

$$\max_{\{t_w, v\}} (w_h + \omega_w(v)t_w)^\alpha (\gamma_w(v)(1 - t_w) + \gamma_m)^{1-\alpha} + v$$

The first-order conditions of this maximization problem are:

$$\frac{\partial U_h}{\partial v} \tag{6}$$

$$\frac{\partial U_h}{\partial t_w} \Rightarrow t_w^* = \alpha + \alpha \frac{\gamma_m}{\gamma_w(v)} + (\alpha - 1) \frac{\omega_h}{\omega_w(v)} \tag{7}$$

If we substitute  $t_w^*$  in  $c$  and  $q$  we obtain:

$$c = \alpha \left( \omega_w(v) + \omega_h + \frac{\omega_w(v)}{\gamma_w(v)} \gamma_m \right)$$

$$q = (1 - \alpha) \frac{\gamma_w(v)}{\omega_w(v)} \left( \omega_w(v) + \omega_h + \frac{\omega_w(v)}{\gamma_w(v)} \gamma_m \right)$$

We want to determine how  $v^*$  responds to changes in  $\gamma_m$ . We know that  $v^*$  has to satisfy the first-order condition:

$$\frac{\partial U_h(v(\gamma_m), t_w(\gamma_m), \gamma_m)}{\partial v} = 0 \tag{8}$$

Since we have an explicit solution for  $t_w^*$ , we plug it in (3), and then we differentiate this expression with respect to  $\gamma_m$ :

$$f_{vv} \frac{\partial v^*}{\partial \gamma_m} + f_{vt} \frac{\partial t^*}{\partial \gamma_m} + f_{v\gamma} = 0$$

We isolate the effect of  $\gamma_m$  on the optimal violence  $v^*$ :

$$\frac{\partial v^*}{\partial \gamma_m} = - \frac{(f_{vt} \frac{\partial t^*}{\partial \gamma_m} + f_{v\gamma})}{f_{vv}}$$

Assuming  $f_{vv} < 0$ , then the sign of  $\frac{\partial v^*}{\partial \gamma_m}$  will be equal to the sign of  $(f_{vt} \frac{\partial t^*}{\partial \gamma_m} + f_{v\gamma})$ .

The expression  $(f_{vt} \frac{\partial t^*}{\partial \gamma_m} + f_{v\gamma})$  is the cross-partial second derivate of the first-order condition (1) with respect to  $\gamma_m$  after substituting  $t_w$  by  $t_w^*$  from (2). To see this, we first write the first-order condition for  $v$  in terms of  $c, q$  and  $t_w^*$ :

$$\frac{\partial U_h}{\partial v} = \alpha \left(\frac{c}{q}\right)^{\alpha-1} \frac{d\omega_w(v)}{dv} t_w^* + (1-\alpha) \left(\frac{c}{q}\right)^{\alpha} \frac{d\gamma_w(v)}{dv} (1-t_w^*) + 1$$

We then take the second cross-partial derivative with respect to  $\gamma_m$ :

$$\frac{\partial^2 U_h}{\partial v \partial \gamma_m} = \alpha \left(\frac{c}{q}\right)^{\alpha-1} \frac{d\omega_w(v)}{dv} \alpha \frac{1}{\gamma_w(v)} + (1-\alpha) \left(\frac{c}{q}\right)^{\alpha} \frac{d\gamma_w(v)}{dv} (-\alpha) \frac{1}{\gamma_w(v)}$$

Simplifying this expression, we find that for it to be negative we need:

$$\alpha \left(\frac{c}{q}\right)^{\alpha-1} \frac{d\omega_w(v)}{dv} - (1-\alpha) \left(\frac{c}{q}\right)^{\alpha} \frac{d\gamma_w(v)}{dv} < 0$$

$$\frac{\frac{d\omega_w(v)}{dv}}{\frac{d\gamma_w(v)}{dv}} < \frac{(1-\alpha)}{\alpha} \left(\frac{c}{q}\right)$$

Recall that  $\left(\frac{c}{q}\right)$  evaluated at  $t_w^*$  is equal to  $\frac{\alpha}{(1-\alpha)} \frac{\omega_w(v)}{\gamma_w(v)}$ .

$$\frac{\frac{d\omega_w(v)}{dv}}{\frac{d\gamma_w(v)}{dv}} < \frac{\omega_w(v)}{\gamma_w(v)}$$

$$\frac{\frac{d\omega_w(v)}{dv}}{\omega_w(v)} < \frac{\frac{d\gamma_w(v)}{dv}}{\gamma_w(v)}$$

Therefore, when the wife's productivity loss due to violence is greater in absolute terms than her productivity loss in domestic work, we will find that  $\frac{\partial v^*}{\partial \gamma_m} < 0$ .