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

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Abstract

Compared to previous literature, which has only paid attention to short-term determinants of domestic violence, this paper looks at the historical origins of violence against women. It analyzes the relationship between historical family types (stem vs. nuclear) and intimate-partner violence (IPV). In stem families two generations cohabitate as one son stays at the parental house with his wife and kids, whereas in nuclear families all children leave to start their independent households. I model the behavior of a traditional peasant family and show how co-residence with the mother-in-law (a feature of stem families) increased the wife's contribution to farming work. This in turn could decrease the level of violence since in the model it reduces wife's productivity. In the empirical analysis I use Spanish data as this country not only offers IPV measures of the highest quality but also stable and persistent family types. Results show that territories where stem family was socially predominant in the past have nowadays a lower IPV rate. I control for a large number of contemporaneous, historical and geographical variables. To address causality, I use the Christian "Reconquest" of the Iberian Peninsula (722-1492) as an instrument for the different family types.

Keywords: Culture, long-term persistence, inheritance, co-residence, Christian Reconquest.

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 abuse has serious consequences for women's health, fatal injures being the most extreme outcome: as many as 38% of all female murders are perpetrated by their intimate partners -in contrast to 6% of all murdered men (WHO, 2013). Understanding the factors that cause this kind of abuse is very important since it constitutes a major public health problem and a violation of women's human rights.

So far, the economics literature has focused on the short-term determinants of intimate-partner violence (IPV). The objective of this paper is to understand the long-term determinants. Among cultural factors linked to violence against women, the traditional structure of the family is one of the most important. The family is a fundamental institution with a great power in shaping values and attitutes towards gender. This paper contributes to the analysis of the IPV causes by studying the relationship between IPV and historical family types.

In particular, I focus on the effects of two family types: stem and nuclear. Each of these family types has a distinct residence and inheritance pattern. In stem families, one single kid inherits all and remains at the parental homestead. He brings his spouse and continues the family line. Therefore, two couples from two generations are living together. In nuclear families, however, all children leave the house to start their own independent households. There is equal division of bequest among all children and no intergenerational cohabitation.

My hypothesis is that co-residence with other women (normally the mother in-law), which is a feature of stem families, accentuated the productive role of the wife, increasing her contribution to farming work. Indeed, the presence of an older woman reduces the burden of the household work, freeing up time for farming work (see Sasaki (2002) for the case of Japan). To illustrate this I model the behaviour of a traditional peasant family in the preindustrial period, where all the household members work and live together in the family farm. Violence enters the utility function of the husband directly and positively [1], but also negatively as a loss of

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[1]This is consistent with an interpretation of violence as an expressive behaviour that provides direct gratification commonly used when modelling domestic violence. See, for

wife's productivity. I show how if the wife's productivity loss associated with violence is higher in the farming work than in the domestic work, then the optimal level of violence will decrease when the presence of the mother-in-law increases in the household.

In my main empirical analysis, I use Spanish data for two reasons. First, this country provides IPV measures of the highest quality. To measure IPV, I use a comprehensive survey dataset for 1999-2005 on violence against women in Spain (n=69,627) where IPV is measured objectively through a set of questions. Second, the stem and nuclear family types are stable and remarkably persistent in Spain. Indeed, historians trace their origins back to the Middle Ages. To measure the family types, I use the 1860 census data and compute the average number of married and widowed women in the household at the province level. I control for an exhaustive set of individual characteristics, and I subsequently include additional controls: (1) contemporaneous (GDP and unemployment, social capital, etc), (2) historical (population density and urbanization rates), and (3) geographical (ruggedness and climate) variables. The results are robust, statistically significant, and show a negative relationship between traditional stem family territories and IPV.

To better understand the causality of this relationship I exploit a unique source of exogenous variation and instrument the family types by using the Christian "Reconquest" of the Iberian Peninsula. The so-called "Reconquest" is a centuries-long period (722-1492) in which several Christian kingdoms took control and repopulated the Iberian Peninsula from the Islamic rulers. There are two important dimensions of this historical event that explain the establishment of the different family types: the political structure and the land tenure structure. On the one hand, western kingdoms had a stronger and more centralized monarchy, with interests in restricting the development of powerful landholding families, served by the introduction of equal allocation of bequest. Meanwhile, in the east, more powerful feudal nobility sought to maintain their feudal holdings intact through indivisible inheritance (a single heir). On the other hand, resettlement in the north, where the Reconquest started, favored small and medium ownership by free peasants. These small and medium holdings

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instance, Tauchen et al. (1991), Aizer (2010) or Card and Dahl (2011). Other papers consider violence as an instrument for controlling the victim's behaviour (Bolch and Rao, 2002). Alternative explanations provided in section 3 would be consistent with this second interpretation of violence.

needed to be undivided in order to guarantee the family continuity and therefore established indivisible inheritance. I find that IV estimates are consistent with OLS estimates.

During the last century, the importance of the stem family in Spain has been decreasing alongside the full industrialization of the country. Still, this family structure persisted long enough to potentially explain the behaviour in different circumstances and time. My hypothesis is that the internalization and intergenerational transmission of these cultural norms have a role in explaining why we still see lower levels of domestic violence in territories where stem family was socially predominant in the past. To explore further the cultural transmission channel I use data from the *World Values Survey* for Spain. I find that traditional stem family territories exhibit today attitudes towards more gender equality compared to nuclear family territories. However, when examining other values and attitudes (life satisfaction, trust, homosexuality, euthanasia) I don't find any statistically significant difference.

To my knowledge this is the first paper to look at the relationship between historical family types and intimate-partner violence. This paper fits in the literature in three main strands. First, it contributes to the analysis of domestic violence causes. The bulk of this literature looks at how the distribution of bargaining power within the couple affects domestic violence. For instance, they analyze the effect of income (Tauchen, Witte and Long, 1991), services for battered women (Farmer and Tiefenthaler, 1996), divorce (Stevenson and Wolfers, 2006), gender wage gap (Aizer, 2010), unemployment (Anderberg *et al.*, 2013), and cash transfers (Bobonis, González-Brenes and Castro, 2013) on domestic violence. Other papers treat IPV as a signal of dissatisfaction with the marriage (Bolch and Rao, 200) or as an expressive mechanism triggered by an emotional cue (Card and Dahl, 2011). All these papers study the short-term determinants of domestic abuse. Only Pollack (2004) recognizes this important gap in the literature and develops a theoretical model of the intergenerational transmission of domestic violence. This paper tries to identify and understand the deeper and historical factors that underlie violence against women.

Second, it contributes to the literature on family types. An important part of this literature has focused on the dimension of large kinship groups versus nuclear family and its interaction with cooperation and the provision of goods and safety. In this respect, Greif (2005) highlights the importance of family structure on the emergence of the economic and political

corporations in late medieval Europe, and Greif and Tabellini (2012) study two different ways of sustaining cooperation in China and Europe, the clan and the city. Alesina and Giuliano (2013) study the effects of strong or weak family ties on economic behaviour and economic attitudes.

Finally, this paper is also related to the growing literature on culture, institutions and history[2]. In particular, two papers are close to my topic of interest. First, Alesina, Giuliano and Nunn (2013) examine the historical origins of gender roles. They test Boserup's (1970) hypothesis that societies that traditionally practiced plough agriculture where men had an advantage in farming work, exhibit today less equal gender norms. Second, Grosjean (2012) examines the origins of the culture of honor in the US. She shows that historical settlements by Scot or Scot-Irish herders 200 years ago are still associated with homicide today.

The remaining of the paper is organized as follows. Section 2 reviews family types and their measurement. Section 3 presents the model. Section 4 briefly summarizes the historical background, the different family law institutions and the origins of the family types. Section 5 documents the data used and the empirical strategy. Section 6 reports OLS and IV results. Section 7 shows supporting evidence on the effects of the family structure on female participation in agriculture in pre industrial societies, and violence against women in countries where stem family still persists. Section 8 discusses potential transmission mechanisms and shows evidence in favor of the cultural transmission channel. 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. First, the joint or communitarian family, in which all sons remain with their parents and bring their wives to the family house upon reaching adulthood. When the family gets too large it splits apart. Second, in the stem family, only one child stays at the parental homestead, together with his wife and children. He will be the one who inherits the land and the house, thus continuing the family line. The other children that want to marry and start their own

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[2]See Nunn (2013) for a recent survey on comparative historical economic development.

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households leave the house. Third, the nuclear family, in which all children leave the parental house to establish their own households.

This classification is used, with some variations, by Todd (1990)[3]. To draw a map of family types in Western Europe he uses a combination of recent data and historical monographs. Supported by the use of anthropologic 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 the medieval time, if not earlier for some regions.

Figure 1 shows Duranton et al. (2009) version of Todd's map of family types in Europe. In Spain, only two family structures are found: stem and nuclear[4]. 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: co-residence and inheritance patterns. In stem families there is a higher degree of intergenerational cohabitation and the indivisible or impartible inheritance principle (single heir) serves the main purpose of preserving the family heritage. Conversely, in nuclear families, as children leave the house to form their own households, there is no cohabitation of couples and, at least in Spain, there is equal allocation of bequest among children.

2.1 Measurement of Family Types in Spain

To measure the social predominance of both family types in Spain, I use 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 the family structure is the number of married and widowed women in the household. This indicator is preferred to others that only measure household size (number of people or adults per household) and also to others that do not correct for immigration (number of married and widowed people in the house). Moreover, the number of married and widowed women has a correspondence to Laslett classification: a value of 1.075 married and widowed women per household

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[3]Todd classifies families according to two organizing principles: the relationship between parents and children (liberal or authoritarian), and the relationship between siblings (equal or unequal). Combining these two principles he would then characterize four types of families: communitarian, stem, egalitarian nuclear and absolute nuclear.

[4]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).

is equal to 25% of complex households. And according to a convention agreed by researchers, if a society reaches this threshold, then we can say that stem family is social predominant (Mikelarena Peña, 1992)[5].

Figure 2 shows the family types in Spain in 1860. Although this represents a specific point in time, some authors (Reher, 1996; García González, 2011) show that these patterns have remained stable at least during the period between the 17th century and the beginning of the 1970's. The social and economic changes performed in Spain during the 20th century (full industrialization, demographical transition, and massive migration to cities) have jeopardized the traditional peasant stem family structure [6].

If we compare our own elaborated map of family types in Spain using 1860 census with Todd's map of family structures in Europe, I only find two small differences in Spain. First, in Galicia, in the northwestern part of the Iberian Peninsula, I find that nuclear families are social predominant at the province level. Second, in the Eastern region known as Valencia, the presence of stem families is relatively high. The latest evidence for both regions confirms my findings (Ardit Lucas, 2008 for Valencia; Pérez García, 2008 for Galicia)[7].

3 The Model

In this section I show the main mechanism through which traditional stem families, compared to nuclear families, could 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 the mother (normally the mother-in-law) m. m only appears

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[5]Figure 7 in the Appendix A shows the core territories where stem family was socially predominant according to this convention.

[6]Figure 8 in the Appendix A shows the family structure using 2001 census. When computing the average number of married and widowed women per household at the province level we find that all figures are remarkably lower, and that the geographical pattern has completely changed.

[7]For the sake of clarity, Figure 9 in the Appendix A shows the regional division of Early Modern Spain, and Figure 10 in the Appendix shows the provincial map of Spain. The 50 provinces division was first introduced in 1833 and has remained unchanged until present days.

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 in farming activity c or domestic activity q. c and q are produced and consumed jointly using the following production technology:

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

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

where ω_i and γ_i represent the productivity in the farming activity and domestic activity respectively. Both $\omega_w(v)$ and $\gamma_w(v)$ are a negative function of violence:

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

I assume the following pattern regarding the comparative advantage: the husband is better than the wife in farming work relative to domestic work, and the wife is better than the mother-in-law in farming work relative to domestic work:

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

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

I also assume a male dominant decision making and that the husband 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[8], but also negatively and indirectly as wife's productivity loss. The husband chooses t_w and v to solve:

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

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[8]This is consistent with an interpretation of violence as an expressive behaviour that provides direct gratification commonly used in economics when modelling 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 behaviour (Bolch and Rao, 2002). Alternative explanations provided at the end of this section would be consistent with this second interpretation of violence.

The main idea is that, due to the comparative advantage, the presence of the mother-in-law reduces the burden of the domestic activity on the wife. In stem families, therefore, wives contribution to farming 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 the optimal violence v^* responds to changes in γ_m [9]. I find that, assuming that the utility function is a concave function of the violence (i.e. $f_{vv} < 0$), if the productivity loss of the wife due to violence is higher in the farming activity than in the household activity[10], then the optimal level of violence v^* will decrease when the presence of the mother-in-law in the household increases:

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

To sum up, the model is based on the hypothesis that co-residence with the mother in law, a feature of stem families, allows for a more productive role of the younger wife. Indeed, the presence of an older woman in the household reduces the burden of household work, freeing up time for the farming work. I assume that there is no divorce and that the husband is taking all decisions. 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 the farming activity than in the household activity, then the optimal level of violence will decrease when the presence of the mother-in-law increases in the household.

The results of this model are also consistent with other potential explanations. For instance, with a model based on the moral hazard literature, where violence is used as a monitoring device. Since in stem families the

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[9]More details regarding the first-order conditions and the comparative statics can be found at the Appendix B

[10]In the fields the wife not only needs more physical strenght that can be jeopardized by extreme violence, but also work complementarities and cooperation between husband and wife can be dampered as a consequence of lower levels of violence

wife is going to be more monitored both in the farm by the husband and in the house by the mother, we would also expect to see lower levels of violence compared to nuclear families. Also, 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.

Although in the empirical part I provide evidence that the main mechanism described by the model is important, I cannot rule out that the other potential explanations might also play a role in explaining the relationship between family types and domestic violence.

4   Historical Background

4.1   The Christian *Reconquest*

In 711 AD the Moslem Africans crossed the strait and entered the Iberian Peninsula. After seven years of battling against the Visigoths they dominated the majority of the territory and established their authority over Al-Andalus (Islamic Iberia). Muslim expansion towards Europe came up against the Franks in 732 at the battle of Tours in France. As a consequence, Charlemagne established the Spanish March, a buffer zone in north-eastern Spain (broadly between the Pyrenees and the Ebro river) to protect his empire against Islamic attacks from Al-Andalus.

At the same time, in north-western Spain where many of the ousted Gothic nobles had taken refuge, the Christian Kingdom of Asturias was consolidating. Their first significant victory against the Muslims was in Covadonga stronghold in 722. This event determines the beginning of the so-called Christian "Reconquest". The repopulation and dominance of Iberia by the Christian kingdoms lasted more than seven centuries and finished in 1492 with the fall of Granada. Its slow pace and the different circumstances that originated the Christian kingdoms of the west and the east are important features in understanding the structure of the subsequent states.

In the east, distant central power allowed the Counts from the Spanish March to gain their independence from the Frankish Empire. They started their conquest of territories under the Muslim control towards the south. Still, the feudal system that Charlemagne had brought persisted for some time. Indeed, this feudal superstructure would be at the origin of

the traditional "pactismo", at least in Catalonia (Sobrequés i Callicó, 1982). With this term historians refer to the principle of reaching agreements between the king and the parliament (first represented only by noblemen and clergy, and later also by townsmen), which limited the royal power. From 1137 and until 1707, eastern territories formed the Crown of Aragon. It had a highly decentralized system, both geographically –it was a confederation of states- and politically –each state preserved its own institutions, laws and privileges.

Meanwhile, in the west, Christian kingdoms were also expanding their territories towards the south. In 1230 all these states unite into the Crown of Castile[11]. As opposed to the Crown of Aragon, in Castile there was a single king that fought to maintain and centralize the power and to establish homogeneous institutions and laws. With the marriage of Isabella of Castile and Ferdinand of Aragon, also known as the Catholic Monarchs, in 1469, both Crowns were united, although each of them preserved their own institutions[12]. The Catholic Monarchs completed the Christian Reconquest 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.

4.2 Family Law Institutions

The emergence of several independent states at the beginning of the Christian Reconquest, along with other determinants, brought about a great variety of civil legal sytems (Castán Tobeñas, 1988). The Crown of Castile had its own unified civil law system, also known as "common law" [13]. In the Crown of Aragon, however, the situation was different. Each of its regions (Aragon, Catalonia, Balearic Islands, and Valencia) had its own distinct civil law. Also, Navarre and some territories in the Basque Country had their own legal systems. All these territories are known as "foral"

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[11]In the very west of the Iberian Peninsula, the Kingdom of Portugal became independent in 1139.

[12]In between both Crowns of Aragon and Castile, the smaller Kingdom of Navarre sought to expand its territories towards the northern side of the Pyrenees. Its peninsular territories were conquered by the Crown of Castile in 1512 and they also preserved their own institutions.

[13]In this paper "common law" is not used in the sense of case law or precedent but only to refer to the Castilian legal system. "Civil law" is used as non-criminal law.

law territories.

These *foral* laws are characterized by the respect for the autonomy on one's own matters and by a strong family organization. Indeed, most of the *foral* law is devoted to family institutions. They all have in common the age-old existence of a *house*; namely a stable peasant family together with the farm that supports their living[14]. To assure family and future generations' survival the farm needed to be undivided. Their family and inheritance legal systems' rationale was thus to guarantee the conservation and continuity of the family heritage. This is shown in specific institutions that were distinct from the ones established in the rest of Spain, where Castilian law was in force. In this sense, one of the most paradigmatic family institutions of the *foral* regions is the single heir/heiress as opposed to the equal division of bequest between offspring that was promoted under common law.

Regarding the inheritance system, in Castile it was mandatory to leave 4/5 of the bequest to descendants: 2/3 should be equally allocated and 1/3 could be given to the preferred descendant. The testator could give 1/5 of his bequest to anyone but to the descendant that was already favoured. Only since 1505, the 1/5 could be added up 1/3, commonly known as "mejora de tercio y quinto" [15]. The Crown of Aragon had a distinct inheritance law. As shown in Figure 4, already in the 13th century freedom of testation was instituted in all its territories, plus in some Basque regions and Navarre. Therefore, impartible inheritance by which a single heir/heiress could inherit all was allowed. It came up as a noble claim but later it was extended to all citizens.

Apart from inheritance, other traditional *foral* institutions were also devoted to the preservation and continuity of the house and the family. In this respect, widows in foral territories held life interest in the property so that the farm could smoothly continue its activity after the death of one of the household heads. Wives were also granted more rights in

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[14]The *house* was named differently in each region, according to its language, although it had the same meaning everywhere. It was called *baserria* (or *etxea*) in Basque Country; *torre* in Aragon; *can*, *mas* or *masia* in Catalonia; *barraca* in Valencia, etc. (Lisón Tolosana, 1972)

[15]According to these rules, a testator with 4 kids could leave at most 40% of his goods to one of his kids before 1505, and 60% after. An exception to this rule was the "mayorazgo", an institution that arose in the 14th century as a privilege that the king granted to some noble families to maintain their patrimony together.

some of the foral territories compared to the common law as, for instance, they had greater management of marital goods and could appoint the heir/heiress[16].

4.3 The Origins of Family Types

Clearly, there is a close connection between inheritance practices and family structure, impartible inheritance being a key determinant of the stem family. When asked about the origins of these practices, anthropologists and historians have stated several hypothesis [17]. One of the most well-established is the one by Goldschmidt and Kunkel (1971). They examine the variation in family structure of different peasant communities and find three patterns of family associated with particular inheritance rules [18]. They also find that the peasant family structure is linked to the legislation and the needs of the superior power structure. In this sense, they underscore the historical relationship between impartible inheritance and strong, independent feudal nobility. On the contrary, highly centralized authorities would institute divisible or partible inheritance in order to restrict the development of powerful landholding families [19].

This hypothesis has been applied to the Spanish case by Terradas (1984). He links the origins of impartible inheritance to the feudalized system established in the Spanish March by the Franks. Nobility would use this institution to guarantee the preservation of their landholdings and to consolidate their regional authority. Impartible inheritance would then be pro-

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[16]Moret y Prendesgast and Silvela (1863) compare family institutions in Castile and in the *foral* territories (Aragon, Balearic Islands, Catalonia, Navarre and some regions of the Basque Country). They find that widows held life interest in the property in Aragon, Navarre and Catalonia, this last one only until 1351. From that year onwards, even though it was not a legal right, it was still a common institution for widows in some regions of Catalonia and Balearic Islands. In Navarre and Basque Country wives had greater management of marital goods jointly owned in the community property. Riaza and García Gallo (1934) also find that in some regions of the Crown of Castile where stem family was also found (Asturias, Leon and Galicia), widows held life interest in property and wives could appoint the heir/heiress.

[17]See Barrera González (1990) and Mikelarena Peña (1992) for an excellent review.

[18]These are: (1) patrilocal stem with patrilineal impartible inheritance, (2) patrilocal joint with patrilineal partible, and (3) nuclear with bilateral inheritance.

[19]As illustrative examples, they cite on the one hand, feudalized Japan and western Europe, and imperial and centralized China and Russia on the other.

gressively transmitted to peasants. On the one hand, this system would link a family to a piece of land, ensuring the feudal lord the collection of regular rents. And at the same time it would release the manpower needed for the repopulation in the Reconquest context.

With this hypothesis we are able to explain the emergence of the stem family in the territories that in the 13th century had allowed impartible inheritance: the Crown of Aragon (i.e., Aragon, Balearic Islands, Catalonia and Valencia), Navarre and Basque Country (Figure 4). As already explained, in these territories political power was more decentralized as opposed to what happened in the Crown of Castile, where the monarchs sought to centralize power. Still, the prevalence of the stem family in the north of the Crown of Castile, where the law established partible inheritance, remains unexplained.

My hypothesis for explaining the low level of law enforcement and the adoption of stem family structures in these territories is based on the underlying land tenure structure. At the beginning of the Reconquest, the initial Kingdom of Asturias and Leon (later part of the Crown of Castile) started the colonization on deserted lands by free peasants (Sánchez Albornoz, 1978). The repopulation formula at that time was the "presura", i.e., the propriety of the land was granted directly by the king to the first that ploughed it, with the condition that they remained there. All these factors contributed to the emergence of small and medium landholdings in this region owned by free and independent families, and best preserved by impartible inheritance.

As the Reconquest moved forward, towards the South of the Iberian Peninsula, state structure developed and so did the resettlement policy. Clergy and nobility participation was rewarded with vast extensions of land. Some authors claim this was the origin of the large estates or latifundia in the south of Spain (Carrión, 1975) and, furthermore, that the fundamental regional contrasts on land tenure structure that were set during the Reconquest have persisted over time (Malefakis, 1970). Landless peasants and day labourers typically hired at these large plots would be less concerned with inheritance rules.

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5   Data and Empirical Strategy

Intimate-partner violence (IPV) data comes from three cross-sectional surveys on violence against women in Spain -"macroencuesta sobre la violencia contra la mujer en Espana". These surveys were conducted by phone in 1999, 2002 and 2005 (sample sizes 20552, 20652 and 28423, respectively) and contain a broad and representative sample of adult women ($\geq$ 18 years old) living in Spain (n=69,627) and different IPV measures: self-reported and objective. In this paper I use the so-called objective measure since self-reported measures tend to underestimate domestic violence. This type of survey data represents the gold standard to estimate the prevalence of any form of inter-personal violence (WHO, 2013). Direct questions about specific acts of violence over a period of time tend to disclosure more information than generic questions about "domestic violence" or "abuse".

When being introduced to the interview, women were told that they were doing a survey about the situation of women in the household (regarding their health, housework, children, etc.). Later on, they were asked about domestic violence. In particular, women needed to indicate whether they had encountered any of 26 situations which are related to domestic violence. These 26 situations are specifically designed to detect violence against women; 13 of them are considered as as an indicator 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 violence. Table 1 shows these 13 situations. I then construct an IPV indicator variable that takes the value 1 if the woman answers "often" or "sometimes" to at least one of these 13 questions, and 0 otherwise. Figure 5 shows the resulting map of intimate-partner violence in the Spanish provinces during the period 1999-2005.

These surveys also include information at the individual level on the woman's and partner's level of education, woman's job status, household's reference person, marital status, children, number of people in the household, and religious beliefs.

To study the relationship between contemporaneous IPV and the 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 contemporaneous variables that capture the level of economic developement at the province level, both formal (through

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GDP per capita and unemployment rate) and informal (through a measure of social capital). I also add religion (whether the woman is a Catholic or not) and number of people in the household. Second, I include historical variables to control for the level of economic development in the past, namely population density and urbanization rates at 1787 and 1860, also at the province level. Finally, I add geographical variables that could affect labour productivity in the farm (a ruggedness index and climate variables, such as temperature, range of temperature, rain and frost) in order to control for land quality and climate. Data sources are listed in Table 2.

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

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

where $IPV_{i,p,y}$ is a binary variable that indicates if the woman i from province p on survey year y is receiving violence from her intimate-partner, $Stem_p$ is the average number of married and widowed women per household in province p based on 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, OLS 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. On the contrary, 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 OLS might be biased towards zero. To address this important concern, I do not only control for observable characteristics (contemporaneous and historical economic development, determinants of farm labour productivity) but I also use an instrumental variable strategy.

Indeed, to better understand the causality of this relationship I exploit a historical source of exogenous variation, unique in the history of Europe. I instrument the family types by using the Christian Reconquest of the Iberian Peninsula. There are two important dimensions of the Christian Reconquest that are key to explain the emergence of the different family types: the political process and the land tenure structure.

On the one hand, regarding the political process, western kingdoms within the Iberian Peninsula had interests in restricting the development

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of a powerful landholding family. This was best served by instituting equal allocation of bequest, that led to nuclear family structures. Meantime, in the east, power was more decentralized, and feudal nobility sought to maintain the holdings intact through indivisible inheritance (which led to stem family structures).

To quantify the political process instrument I use the map of provinces that already in the 13th century had freedom of testation, which allowed indivisible inheritance. I construct an indicator variable at the province level that takes the value 1 if the province had freedom of testation by the 13th century and 0 otherwise[20].

On the other hand, regarding the land tenure structure, I find that resettlement in the north, where the Reconquest started, favoured small and medium ownership by free and independent peasants. These small and medium holdings needed to be undivided in order to guarantee the family continuity and therefore established indivisible inheritance which led to the emergence of stem families in the north of the Iberian Peninsula. As the Reconquest moved forward, towards the south, state structure developed, and clergy and nobility participation in the Reconquest was rewarded with vast extensions of land. These large states would typically hire day labourers and landless peasants who were less concerned about inheritance rules and thus established equal allocation of bequest and nuclear family structures.

To quantify the land tenure structure instrument, I use the stages of the Reconquest as a proxy. Based on the map of the Spanish reconquest by Lomax (1978) shown in Figure 6, I assign to each province a date from a set of 7 categories, based on the time each province was reconquered: 914, 1080, 1130, 1210, 1250, 1480 and 1492.

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

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

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[20]There were 13 provinces with freedom of testation by the 13th century: Alicante, Balearic Islands, Barcelona, Castellon, Girona, Huesca, Lleida, Navarre, Tarragona, Teruel, Valencia, Vizcaya and Zaragoza

where $Stage_p$ is the date in which each province was resettled (from seven categories) and $Polit_p$ is an indicator variable that takes value 1 if the province had freedom of testation by the 13th century. The different stages of the Reconquest enter the regression as dummy variables, and since I omit the initial stage category category I end up with 7 excluded instruments (6 λ_j and 1 σ coefficients).

6 Results

6.1 OLS Results

Table 3 reports the OLS estimates of regression (1). The results show that living in provinces where stem family was more socially predominant in 1860 is associated with less contemporaneous intimate-partner violence. In particular, an increase in 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 intimate-partner violence prevalence. This effect persists after controlling for contemporaneous, historical and geographical variables. It remains stable through the different specifications and statistically significant[21].

There are other factors that could potentialy be correlated with traditional family structure and violence against women. Even though the lack of reliable data prevents us from controlling for these factors in the regressions, historical evidence suggests that these are not correlated neither with the family structure nor with IPV. The first one is the existence of matriarchal societies in ancient times. The Greek geographer Strabo, in his *Geography* (by 20 BC) finds in Cantabria what some have interpreted as a matriarchal society [22]. More recently, Todd (1990), based on the work

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[21]Table 11 in the Appendix A show the results when using different definitions of IPV: physical and sexual violence on the one hand, and psychological, economic, spiritual, and structural violence on the other hand. Both set of results are consistent with the baseline measure of IPV.

[22]For instance, he describes Cantabrian women as "these 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, Geography, 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

done by Portuguese and Spanish ethnographers, finds also evidence of matriarchal traces in the southwest of the Iberian Peninsula.

Second, pastoral societies could be more gender equal since women had a comparative advantage in livestock farming, as showed by Voigtländer and Voth (2012). Together with agriculture, herding (especially sheep herding) was an important activity in medieval Spain, favoured by the lack of manpower and the abundance of land. Even though the lack of data, there is evidence of ancient tradition of transhumance herding, which was regulated in 1273 in the Crown of Castile. The seasonal movements took place between the northern mountains (Cantabric mountains and Pyrenees) and the southern steppes (Extremadura and New Castile), whereas in the east and south (the Mediterranean coast and Andalucia) agriculture was the main activity (Vicens Vives, 1959).

I address concerns about potential omitted variable bias by using a measure of unobservable selection. Following Altonji, Elder, and Taber (2005) I look at the coefficient movements as control variables are added. I compare the coefficients of the specifications with contemporaneous, 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 omitted variable would have to be, relative to observables, to explain away the effect observed between historical family types and intimate-partner violence. When comparing the baseline model to the model with contemporaneous variables, I find that the effect of selection on unobservables would have to be at least 3.86 times higher. The estimated effect obtained when comparing the baseline model to the model with historical and contemporaneous variables is very similar (3.90). In the case of the fully controlled model, when all contemporaneous, historical and geographical variables are included, I find that the effect of omitted variable bias would have to be 8.4 times higher to completely explain away the relationship found between family structure and intimate-partner violence.

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by their sisters. The custom involves, in fact, a sort of woman-rule — but this is not at all a mark of civilisation." (Strabo, Geography, III, 4, 18). Although he refers to the Cantabrians, some historians extend these practices to other pre-Roman societies of in the northwest of the Iberian Peninsula.

6.2 IV Results

Tables 4 and 5 show the IV estimates, which confirm the OLS estimates. Table 4 reports the first-stage results of regression (2). The results show how the more political decentralization has a positive effect on becoming a stem family province, and how further stages of the Reconquest are negatively correlated with finding stem family structure. The instruments are a powerful predictor of the family types, as reflected the F statistics for all specifications.

Regarding the second-stage and consistently with the OLS estimates, I find a negative and statistically significant effect of the historical stem family on IPV (Table 5): increasing in one the average number of married and widowed women in the household in 1860 would decrease in around 6-7 percentage points the prevalence of intimate-partner violence in the last decade in Spain. The magnitudes are slightly higher than in the OLS estimates.

To further test the validity of the instruments I follow Angrist and Pischke (2009) and I estimate the just-identified model using a single instrument. The results for the just-identified model with my preferred instrument (political process) are reported in Tables 12 (first-stage) and 13 (second-stage) in the Appendix A. The coefficients are negative and statistically significant, and the magnitude is greater in absolute terms (around 10-11 percentage points). When I use only the repopulation stages instrument the results show again a negative relationship between stem family and IPV although of a lower magnitude (4-5 percentage points) and not statistically significant. Tables 14 (first-stage) and 15 (second-stage) in the Appendix A report these last results.

The validity of the IV results rests on the assumption that the Reconquest affects intimate-partner violence today only through its impact on family types. The primary concern with this strategy would be that the different political institutions and land tenure structure could be correlated with different levels of development that at the same time could affect violence against women. To address this concern I control in my regressions by historical and contemporaneous measures of economic development, plus by a measure of social capital -only contemporaneous- as a control for informal development.

A related issue would be the potential long-term impact of the expulsion of converted Muslims (or Moriscos) after the Christian Reconquest.

Chaney (2008) analyzes the long-term effects of the expulsion of the 1609 expulsion of Moriscos from the Kingdom of Valencia. He finds evidence suggesting that the persistence of extractive institutions in pre-industrial economies dampened the development of the non-agricultural sector [23]. The expulsion of the Moriscos also affected other areas of Spain, although to a much lesser extent [24], and recent studies suggest that economic effects were concentrated in the Kingdom of Valencia (Álvarez-Nogal and Prados de la Escosura, 2007). To address this concern I run my regressions without Valencia region and find similar results.

Other potential concern would be related with the effect of the Reconquest on other kinds of inter-personal violence and conflict. In this respect, one might argue that land inequality could have fostered social unrest in large estates areas. From the second half of the 19th century, uprisings claiming land rights were frequent among Andalusian day labourers. This movement systematized into an anarchist ideology. This ideology, however, was not exclusive of landless peasants in the south of Spain and was also embraced by industrial labourers in Barcelona and spread throughout the Mediterranean coast [25].

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 impartible inheritance on female participation in agriculture in pre industrial societies. Second, I explore the concurrent relationship between stem family and intimate-partner violence by looking at Philippines, a country where stem family still persists and where the *Demographic Health Survey* provides us with data on violence against women.

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[23]Chaney and Hornbeck (2013) investigate the economic dynamics of the 1609 expulsion of Moriscos from the Kingdom of Valencia. They suggest that the Malthusian convergence was delayed due to the persistence of extractive institutions. By limiting labour income, these institutions discouraged migration to former-Morisco areas and slowed demographic responses to labor scarcity.

[24]Spain expelled a total of approximately 300,000 Moriscos. 110,000 were living in the Kingdom of Valencia, and the rest were scattered all through the rest of Spain (LaPeyre, 1959).

[25]Figure 11 in the Appendix A shows the Spanish regions with traditional anarchist ideology.

7.1 Evidence from the *Ethnographic Atlas*

In the model presented, wives in stem families contributed more to farming work, and through this channel they received less violence. To test this I use the *Ethnographic Atlas* dataset by Murdoch, that contains information for 1,265 ethnographic groups prior to their industrialization. This dataset contains information on female participation in agriculture relative to men, and on the inheritance distribution of real property (land), along with other socio-economic indicators. In order to look at the effect of family structure on female participation in farming I run the following regression:

$$y_e = \alpha + \beta Impartible_e + \gamma X_e + u_e \tag{3}$$

where the dependent variable y_e measures traditional female participation in agriculture relative to men in ethnicity e. The variable takes on integer values between 1 and 5 and is increasing in female participation: (1) males only, (2) males appreciably more, (3) equal participation, (4) female appreciably more, and (5) females only [26]. "Impartible" is an indicator variable that equals 1 if the inheritance distribution for real property (land) goes exclusively or predominantly to one adjudged to best qualified, to the last born, or to the first born. X_e is a vector of control variables at the ethnicity group level that includes: dependency on animal husbandry, 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 pre industrial agriculture.

Table 6 shows the results. I find a positive effect of impartible inheritance on greater female participation in agriculture for pre industrial ethnicities. The results are robust to the inclusion of the traditional plough use in the regression.

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[26]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 *Demographic and Health Survey* Dataset

I explore further the relationship between stem family and intimate-partner violence when both are observed at the same time. To do this I look at Philippines, a country where stem family is said to exist (Fauve-Chamoux and Ochiai, 2009) and has information on domestic violence. I take the *Demographic and Health Survey* (DHS) dataset for Philippines which contains a module on domestic violence. The questions of this specific module are addressed to women between 15-49 years-old and specifically designed to measure IPV.

First, I analyze whether co-residence with other women affects the pattern of female work. To study this dimension I focus on the distinction between women working at home and women working outside the home [27]. 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:

$$y_{i,r} = \alpha + \beta Coresidence_{i,r} + \gamma X_{i,r} + \phi_r z_r + e_{i,r} \tag{4}$$

where $y_{i,r}$ takes value 1 if woman i that lives in region r is working outside the home. In all the specifications I control for individual and household characteristics $X_{i,r}$ such as the number of household members and the number of children ≤ 5 living in the household. I also control for woman's age and whether she lives if a urban and rural environmnent and I include region fixed effects ($\phi_r z_r$). The key covariate of interest is the co-residence with other women between 15-49 living in the household ($Coresidence_{i,r}$). There are 17 regions and I cluster the standard errors by regions. Standard statistical formulae for clustered standard errors based on asymptotic theory (cluster-correlated Huber-White estimator) have been shown to provide standard error estimates that are too small if the number of clusters (regions here) is small. I therefore use wild bootstrap-se standard errors with weights assigned at the region level as they are conservative according to Cameron *et al.* (2008)[28].

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[27]In the sample, 43% of women do not work, 14% work at home, and 43% work outside the home.

[28]They indicate 30 as a rule of thumb for when the number of clusters can be considered small, but they indicate that in general it will depend on the level of intra-cluster correlation and the number of observations per cluster.

Table 7 shows the results. I find that co-residence 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 woman's marital status, educational level of the woman and her partner, and ethnicity fixed effects, and indicate that one more women between 15-49 living in the house is associated with an increase in the probability of working outside the home of 2-3 percentage points.

Second, I analyze the effect of co-residence with other women on IPV. I take the whole sample and construct a binary variable that takes the value 1 if the woman has ever experienced any kind of violence (physical, sexual, emotional, and economic) from her intimate-partner and 0 otherwise, and estimate a similar regression on the effects of co-residence with other women on IPV. As shown in Table 8, I find a negative relationship between female co-residence and domestic violence. The coeffcents remain remarkably stable when I add religion and ethnicity fixed effects and show that an additional women aged 15-49 in the household is associated with a decrease in the probability of experiencing intimate-partner violence of 2 percentage points.

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 reinforced or offset the internal beliefs about gender roles. In this sense, stem or 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 intra-family transmission of gender-role attitudes (Thornton, Alwin and Camburn, 1983). Moreover, Fernández, Fogli and Olivetti (2004) stressed 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 man's preferences 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 accounts for the increase

in female labor force participation over time.

Even though I cannot rule out completely the institutional channel, the evidence that I am presenting is consistent with the cultural transmission channel. First, I am looking at within country variation, which means that all regions are facing the same external environment in terms of the laws, policies and markets that are determined by the central authority. Indeed, since the beginning of the Modern Era until the 1980's the tendency in Spanish history has been, with some exceptions, to unify regional institutions and policies and centralize the power. Only some regions managed to maintain their own institutions. 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. Basque Country and Navarre kept their own institutions almost throughout history; Aragon, Catalonia and Balearic Island lost their legislative body in the 18th century, but kept their own laws; Valencia lost both its legislative body and laws in the 18th century [29]; finally, some regions at the north of the former Crown of Castile (Asturias, Cantabria) never had their own formal institutions but maintained a stem family structure and exhibit today less intimate-partner violence.

8.1 Evidence from the *World Values Survey*

I explore attitudes towards women and other values in contemporary Spanish society and find evidence in support of the cultural transmission channel. With this purpose, I use the Spanish sample for period 1990-2007 of the *World Values Survey*. This survey contains, apart from demographic characteristics, information about values and attitudes towards women. The degree of gender equality is measured through the agreement or disagreement with 4 statements[30]: (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

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[29]The Nueva Planta decrees were signed by Phillip V between 1707 and 1716 after winning the War of the Spanish Succession. They suppressed the political and administrative institutions of the regions that were part of the Crown of Aragon. Eventually, Aragon, Catalonia and Balearic Island were allowed to keep their civil law. Basque Country and Navarre were not affected since they supported Phillip V.

[30]The first two are taken from Alesina, Giuliano and Nunn (2013).

a woman to be an independent person".

I generate a binary variable for each of these statements, that takes the value 1 when the answers indicate beliefs towards greater equality and 0 otherwise [31]. To examine the effect of a traditional stem family structure on contemporary attitudes towards gender, I estimate the following equation:

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

where $y_{i,r}$ takes value 1 if individual i that lives in region r has beliefs for greater gender equality. $Stem_r$ measures the average number or widowed and married women in the household based on 1860 census and aggregated at the region level (Autonomous Communities). $X_{i,r}$ includes control variable at the individual level: sex, age, marital status fixed effects, and educational level fixed effects. z_r measures the GDP per capita at the region level measured in the same year as the dependent variable. The information on beliefs is at the region level and I cluster the standard errors by region. Since there are only 16 regions[32] I report wild bootstrap-se standard errors with weights assigned at the region level[33].

Table 9 reports the results: individuals that live in a region where stem family was socially predominant in 1860 have contemporaneous beliefs towards geater gender equality.

I then do a similar exercise but instead of looking at attitudes towards gender I look at attitudes towards other things: life satisfaction, trust, homosexuality and euthanasia. Similarly, I construct 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 disatisfied); (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

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[31]For statement (1), I omit the 'don't know' and 'neither' categories. For statements (2-4), I aggregate the 'agree strongly ' with the 'agree' answer, and the 'strongly disagree' with the 'disagree' answer.

[32]There are 17 Autonomous Communities but information on family structure is missing for the Canary Islands.

[33]See footnote 28 and comments on regression (4).

always be justified, never be justified, or something in between?" (1 indicates justifiable, 0 otherwise) [34]. I run the same regression used above when looking at gender equality measures. Table 10 report the results. I find no statistically significant differences in stem family territories in these attitudes when compared to nuclear family territories.

9   Conclusion

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

The results show that territories where stem family was socially predominant in the past exhibit today a lower prevalence of intimate-partner violence. The underlying mechanism that I claim is based on the greater female participation in agriculture found in stem families. Co-residence with the mother-in-law reduced the burden of household work and accentuated the productive role of the wife. To illustrate this I model a traditional peasant family in the pre industrial period and show how the presence of the mother-in-law in the family could decrease the optimal level of violence against the wife.

In my regressions I combine past and present data. To address potential endogeneity concerns I control for an exhaustive set of observable contemporaneous, historical, and geographical characteristics. I also use a unique event in the history of Europe, the Christian "Reconquest" of the Iberian Peninsula, as an instrument for the family types. There are two dimensions of the "Reconquest" (722-1492) that explain the emergence of the two family types: the political structure and the land tenure structure. Both OLS and IV estimates show a negative relationship between stem family predominance and violence against women.

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[34]In all 4 cases the responses vary in a 1-10 scale. Following what I did when looking at attitudes towards gender, I aggregate 1-5 and 6-10 answers.

Additional datasets provide supporting evidence for the channels and relationships that I claim in this paper. First, ethnographic data shows that impartible inheritance, which is a feature of stem families, is positively associated with greater female contribution to agriculture in pre industrial societies. Second, in Philippines, a country where stem family is still predominant, I find that co-residence 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 during the last century the importance of the stem family has decreased, it persisted remarkably long enough (evidence suggests from the Middle Ages until the 1970's) to potentially explain current behaviour. In the last section I show evidence that is consistent with the thesis that attitudes that arose from the family structure and their intergenerational transmission have a role in explaining violence against women today. In this resepcte, survey data from the *World Values Survey* for Spain shows that historical stem family territories exhibit today not only less intimate-partner violence but also more equal gender roles. However, no statistically significant difference is found with regard to other values and attitudes.

This study contributes to the understanding of the deeper and historical factors that underlie violence against women. It provides evidence on how a historical event affected the family structure and how this in turn had a long-term impact on interpersonal relations.

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10   Tables and Figures

Table 1: Definition of intimate-partner violence in the survey

At the moment, how often someone from your home or your intimate-partner has...?
He doesn't allow you to see your family, friends or neighbors.
He takes the money you make or doesn't give you enough money to sustain you.
He insults or threatens you.
He decides the things you can or cannot do.
He insists in having sexual relationships even though he knows you don't want to.
He doesn't take into account your needs (he leaves you the worst part of the food, the house, etc.).
He scares you.
When he is angry, he shoves or beats you.
He says that you are not capable of doing anything on your own/without him.
He says that all things you do are wrong, that you're clumsy.
He ridicules or doesn't value your beliefs (religious, political, organizational).
He doesn't appreciate your work.
In front of your children, he says things to make you look bad.

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	*Estadísticas Históricas de España siglos XIX y XX*, by Carreras and Tafunell (2006)
Social capital	Pérez García et al. (2008)
Ruggednes	Goerlich Gisbert and Cantarino Martí (2010)
Climate variables	Province average for the whole century computed using Goerlich Gisbert (2012)

Table 3: OLS results

	(1)	(2)	(3)	(4)
	Intimate-partner violence			
Mean of dependent variable	0.085			
Stem family	-0.0575***	-0.0457**	-0.0458***	-0.0514***
	(0.0192)	(0.0195)	(0.0168)	(0.0188)
Contemporaneous controls		yes	yes	yes
Historical controls			yes	yes
Geographical controls				yes
Observations	60743	60743	60743	60743
R^2	0.040	0.041	0.041	0.041

Notes: Stem family defined as the average number of married and widowed women in the household at the province level in 1860. Model (1) includes age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls (GDP per capita, unemployment rate, and social capital at the province level; religion; number of people in the household). Model (3) adds historical controls (population density at 1787, 1860, and survey year; urbanization rates at 1787 and 1860. All at the province level). Model (4) adds geographical controls (ruggedness index and climate variables -temperature, range of temperature, rain, and frost-. All at the province level).

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 4: First-stage 2SLS results

	(1)	(2)	(3)
		Stem family	
Mean of dependent variable		1.02	
Political decentralization	0.0884***	0.111***	0.114***
	(0.0265)	(0.0336)	(0.0222)
Reconquest stage 1080	-0.0591***	-0.0235	-0.0516***
	(0.0170)	(0.0242)	(0.0184)
Reconquest stage 1130	-0.0871***	-0.107***	-0.122***
	(0.0184)	(0.0375)	(0.0278)
Reconquest stage 1210	-0.0871***	-0.105***	-0.147***
	(0.0224)	(0.0376)	(0.0320)
Reconquest stage 1250	-0.0596***	-0.0638*	-0.107**
	(0.0204)	(0.0325)	(0.0406)
Reconquest stage 1480	-0.105***	-0.0915*	-0.0387
	(0.0346)	(0.0497)	(0.0645)
Reconquest stage 1492	-0.0127	-0.0125	-0.0688*
	(0.0176)	(0.0239)	(0.0373)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
F-stat	11.22	12.36	15.46
Observations	60743	60743	60743

Omitted category: Initial Reconquest stage at 914.

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 5: Second-stage 2SLS results

	(2)	(3)	(4)
	Intimate-partner violence		
Mean of dependent variable	0.085		
Stem family	-0.0677**	-0.0630**	-0.0667***
	(0.0299)	(0.0305)	(0.0247)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
Observations	60743	60743	60743
R^2	0.041	0.041	0.041

It uses the time in which the province was resettled and a dummy variable indicating if the province had freedom of testation as instruments for having a different family structure.

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 6: OLS results from Ethnographic Atlas

	(1)	(2)
	Female participation in agriculture	
Mean of dependent variable	2.8	
Impartible inheritance	0.598***	0.443***
	(0.113)	(0.117)
Traditional plough use		-0.748***
		(0.163)
Observations	326	326
R^2	0.134	0.190

Notes: The unit of observation is an ethnic group from the Ethnographic Atlas. The dependent variable measures traditional female participation in agriculture relative to men in the pre-industrial period. The variable takes on integer values between 1 and 5 and is increasing in female participation. "Impartible inheritance" is an indicator variable that equals 1 of the inheritance distribution for real property (land) goes exclusively or predominantly to one adjudged to best qualified, to the last born or the first born. Control variables include: dependency on animal husbandry, 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 pre-industrial agriculture.

Robust standard errors in parentheses

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

Table 7: OLS results from DHS for Philippines. Working away from home

	(1)	(2)	(3)
	Working away from home		
Mean of dependent variable	0.75	0.73	0.73
Co-residence with other women	0.0217**	0.0274**	0.0271**
	(0.0095)	(0.0124)	(0.0128)
Education and Marital status		yes	yes
Ethnicity fixed effects			yes
Observations	5226	4256	4256
R^2	0.025	0.040	0.051

Notes: The unit of observation is a woman between 15-49 living inPhilippines in 2010 from DHS. The dependent variable is an indicator variable that takes the value 1 if the woman work away from home, and 0 if she works at home. "Co-residence with other women" is a variable that measures the number of other women between 15-49 years old living with the interviewed women. Control variables include: number of household members, number of children $\leq$ 5 living in the household, woman's age, if she lives in a urban or rural environment, and region fixed effects. Model (2) adds woman's marital status and educational level of the woman and her partner. Model (3) adds ethnicity fixed effects (23 ethnic groups). In the whole 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: OLS results from DHS for Philippines. Intimate-partner violence

	(1)	(2)	(3)
	Intimate-partner violence		
Mean of dependent variable		0.16	
Co-residence with other women	-0.0244**	-0.0245**	-0.0245**
	(0.0101)	(0.0101)	(0.0103)
Religion		yes	yes
Ethnicity			yes
Observations	7030	7030	7030
R^2	0.052	0.052	0.058

Notes: The unit of observation is a woman between 15-49 living inPhilippines in 2010 from DHS. The dependent variable measures the level of intimate-partner violence, physical, sexual, emotional, and economic. The variable is an indicator variable that equals 1 if the woman has experienced violence (ever) and in the 12 months preceding the survey. "Co-residence with other women" is a variable that measures the number of other women between 15-49 years old living with the interviewed women. It ranges from 0 to 8 and the mean value is 1.3. Control variables include: number of household members, number of children $\leq$ 5 living in the household, woman's age, woman's marital status, educational level of the woman and her partner, if she lives in a urban or rural environment, and region fixed effects. Model (2) adds religion (value that takes value 1 if the women is catholic -76%-) and model (3) adds 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: OLS results from WVS for Spain. Attitudes towards gender

	(1)	(2)	(3)	(4)
	Jobs scarce	Men better political	Contribute household	Job independent
Mean of dependent var.	0.76	0.78	0.91	0.80
Stem family	0.008	0.196*	0.238**	0.678***
	(0.276)	(0.103)	(0.118)	(0.125)
Observations	2853	3082	2118	1299
R^2	0.098	0.053	0.026	0.037

Notes: The unit of observation is the individual, aged 18+ living in Spain between 1990 and 2007. The dependent variables are indicator variables and value 1 refers to beliefs for 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 at the household based on 1860 and aggregated at the region (Autonomous Community) level. Control variables include: sex, age, marital status fixed effects, job status fixed effects, educational level fixed effects, and GDP per capita at the region 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 year 1990 and education information is missing that year.
Wild bootstrapped standard errors with weights assigned tat the Autonomous Community level (16 clusters) in brackets.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: OLS results from WVS for Spain. Attitudes towards other things

	(1)	(2)	(3)	(4)
	Life satis-faction	Trust	Homosex.	Euthanasia
Mean of dependent var.	0.80	0.27	0.54	0.43
Stem family	-0.081	0.264	-0.225	0.327
	(0.115)	(0.260)	(0.308)	(0.223)
Observations	3286	3204	3112	3025
R^2	0.075	0.013	0.124	0.084

Notes: The unit of observation is the individual, aged 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 disatisfied); (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 at the household based on 1860 and aggregated at the region (Autonomous Community) level. Control variables include: sex, age, marital status fixed effects, job status fixed effects, educational level fixed effects, and GDP per capita at the region level measured in the same year as the dependent variable. Wild bootstrapped standard errors with weights assigned tat the Autonomous Community level (16 clusters) in brackets.
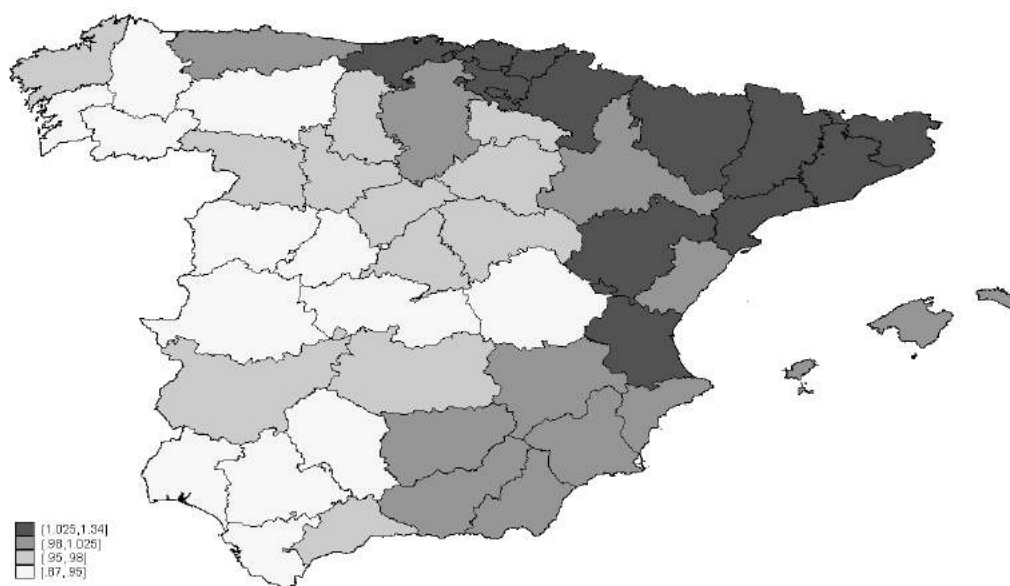* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
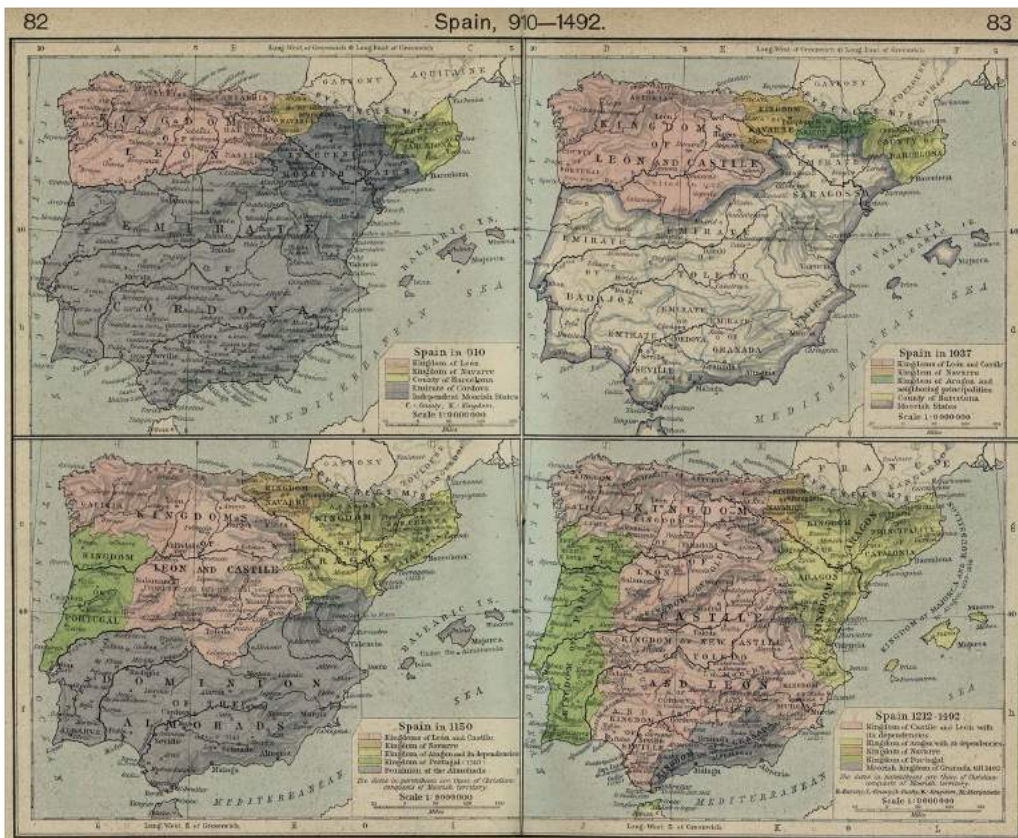
Figure 1: Family types in Western Europe

Figure 2. Family types in Europe.
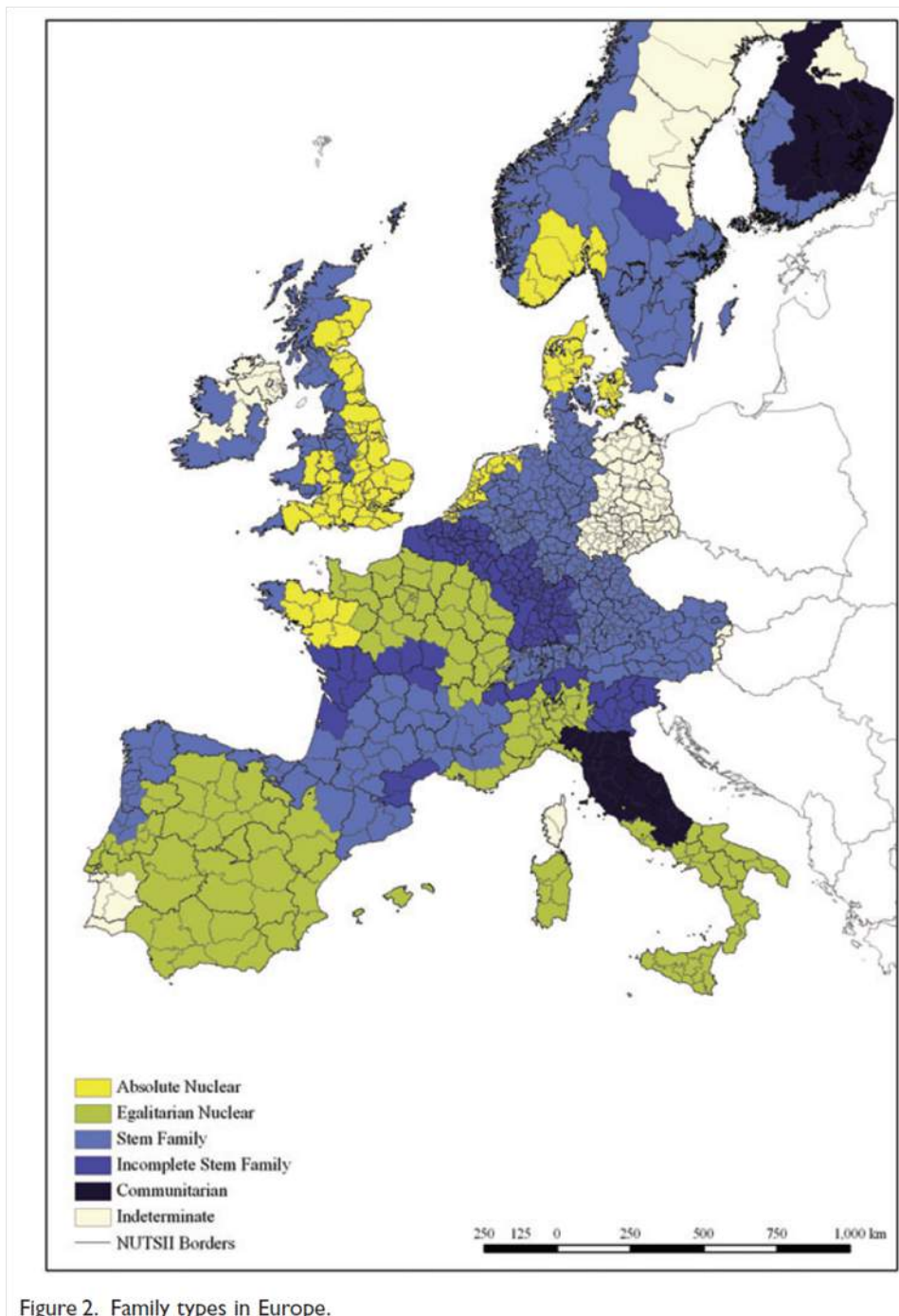
Source: Duranton, Rodríguez-Pose and Sandall (2008). Based on Todd's (1990) map.

Figure 2: Family types in Spain in 1860

Legend:
- [1.025,1.34]
- (.98,1.025]
- (.95,.98]
- [.87,.95]

Source: Own elaboration using 1860 census.

Figure 3: Spanish regions during Middle Ages

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

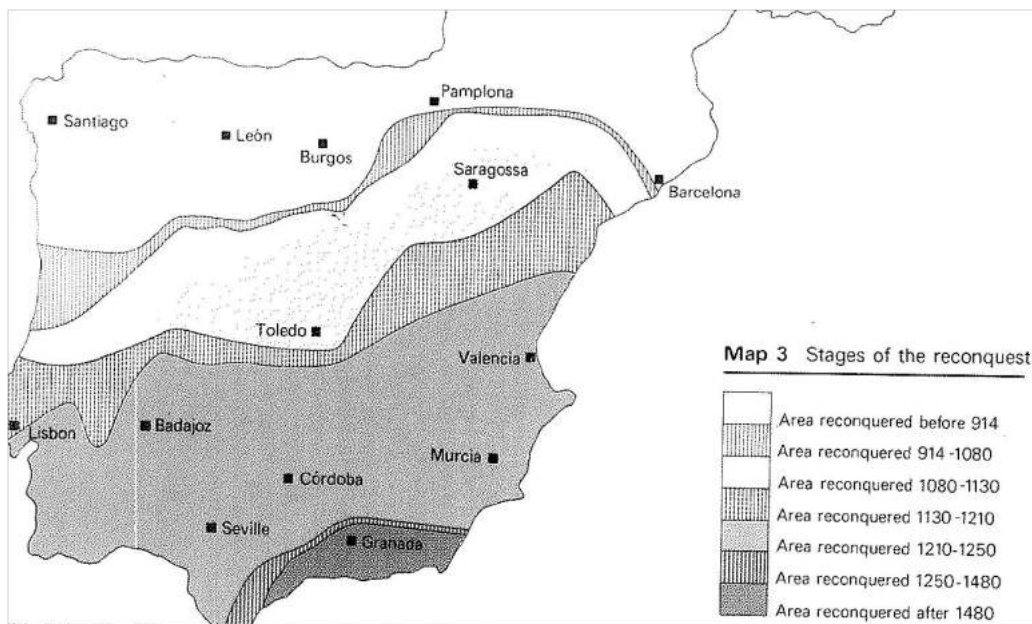Figure 4: Spanish territories with freedom of testation in 13th century

Source: Own elaboration. Based on Chacón and Bestard (2011)

Figure 5: IPV within Spain, 1999-2011

[9.15,12.67]
[8.375,9.15]
[7.275,8.375]
[5.73,7.275]
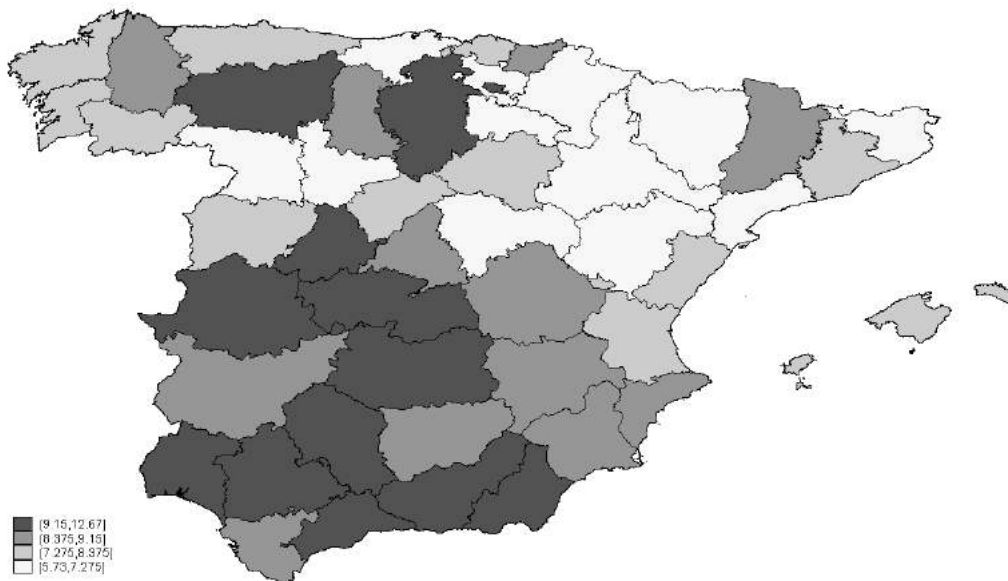
Source: Own elaboration from the Spanish surveys on violence against women.

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Figure 6: Stages of the Reconquest

Map 3 Stages of the reconquest

Area reconquered before 914
Area reconquered 914 -1080
Area reconquered 1080-1130
Area reconquered 1130 -1210
Area reconquered 1210-1250
Area reconquered 1250-1480
Area reconquered after 1480

Source: Derek W. Lomax (1978)

A   Appendix A: Additional Tables and Figures

Table 11: OLS results with different IPV measures

	(1)	(2)	(3)	(4)
	Physical and sexual violence			
Mean of dependent var.	0.032			
Stem family	-0.0333***	-0.0282***	-0.0212*	-0.0275**
	(0.0105)	(0.00896)	(0.0114)	(0.0122)
Observations	60743	60743	60743	60743
R^2	0.019	0.019	0.019	0.019
	(1)	(2)	(3)	(4)
	Psychological, economic, spiritual, and structural			
Mean of dependent var.	0.069			
Stem family	-0.0428**	-0.0344*	-0.0442***	-0.0444***
	(0.0166)	(0.0174)	(0.0126)	(0.0123)
Observations	60743	60743	60743	60743
R^2	0.032	0.032	0.032	0.032

Notes: Stem family defined as the average number of married and widowed women in the household at the province level in 1860. Model (1) includes age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls (GDP per capita, unemployment rate, and social capital at the province level; religion; number of people in the household). Model (3) adds historical controls (population density at 1787, 1860, and survey year; urbanization rates at 1787 and 1860. All at the province level). Model (4) adds geographical controls (ruggedness index and climate variables -temperature, range of temperature, rain, and frost-. All at the province level).

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 12: First-stage 2SLS results. Just-identified model. Political decentralization instrument only

	(2)	(3)	(4)
		Stem family	
Mean of dependent variable		1.02	
Political decentralization	0.108***	0.0896**	0.112***
	(0.0343)	(0.0336)	(0.0267)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
F-stat	9.87	7.11	17.67
Observations	60743	60743	60743

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 13: Second-stage 2SLS results. Just-identified model. Political decentralization instrument only

	(2)	(3)	(4)
	Intimate-partner violence		
Mean of dependent variable		0.085	
Stem family	-0.108**	-0.114**	-0.115***
	(0.0461)	(0.0547)	(0.0386)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
Observations	60743	60743	60743
R^2	0.041	0.041	0.041

It uses a dummy variable indicating if the province had freedom of testation as instruments as an instrument for having a different family structure.

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 14: First-stage 2SLS results. Only with Reconquest stages (7 categories)

	(2)	(3)	(4)
		Stem family	
Mean of dependent variable		1.02	
Reconquest stage 1080	-0.118***	-0.0716***	-0.108***
	(0.0187)	(0.0172)	(0.0306)
Reconquest stage 1130	-0.124***	-0.0799**	-0.0922**
	(0.0313)	(0.0384)	(0.0394)
Reconquest stage 1210	-0.0699***	-0.0406	-0.107**
	(0.0215)	(0.0333)	(0.0468)
Reconquest stage 1250	-0.0527**	0.0147	-0.0191
	(0.0227)	(0.0362)	(0.0446)
Reconquest stage 1480	-0.0860**	0.0411	0.172*
	(0.0381)	(0.0738)	(0.100)
Reconquest stage 1492	-0.0335	-0.00909	-0.0691
	(0.0280)	(0.0305)	(0.0454)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
F-stat	12.99	9.38	5.85
Observations	60743	60743	60743

Omitted category: Initial Reconquest stage at 914.

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

Standard errors in parentheses computed applying a cluster structure by province.

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

Table 15: Second-stage 2SLS results. Only with Reconquest stages (7 categories)

|	(2)	(3)	(4)
	Intimate-partner violence		
Mean of dependent variable	0.085		
Stem family	-0.0458	-0.00895	-0.0346
	(0.0390)	(0.0614)	(0.0400)
Contemporaneous controls	yes	yes	yes
Historical controls		yes	yes
Geographical controls			yes
Observations	60743	60743	60743
R^2	0.041	0.041	0.041

It uses the time in which the province was resettled as instruments for having a different family structure.

Notes: All models include age, children, woman's and partner's level of education, woman's job status, household's reference person, marital status, habitat size and year when survey was conducted. Model (2) adds contemporaneous controls. Model (3) adds historical controls. Model (4) adds geographical controls.

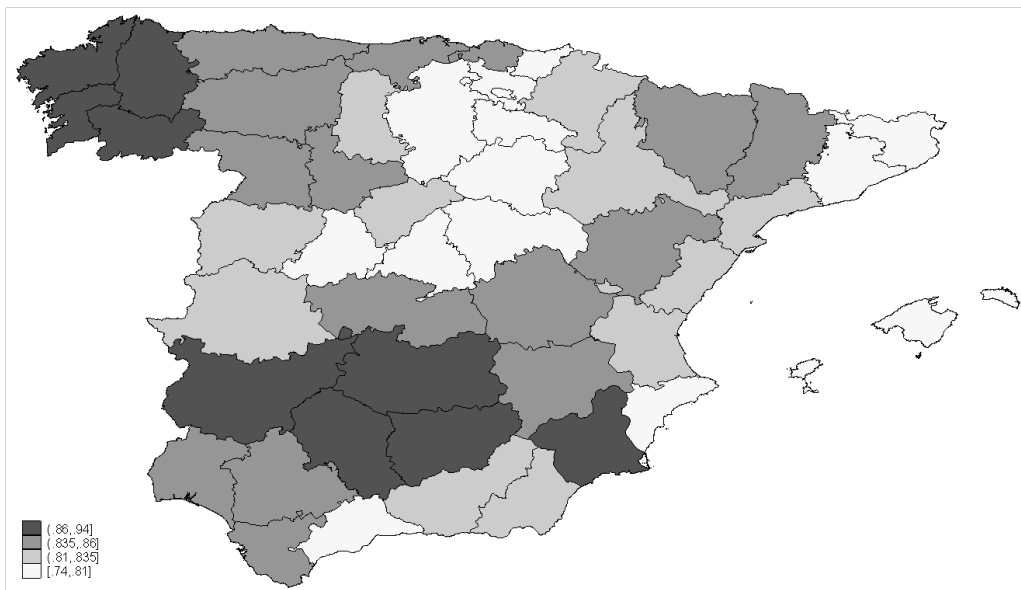Standard errors in parentheses computed applying a cluster structure by province.

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

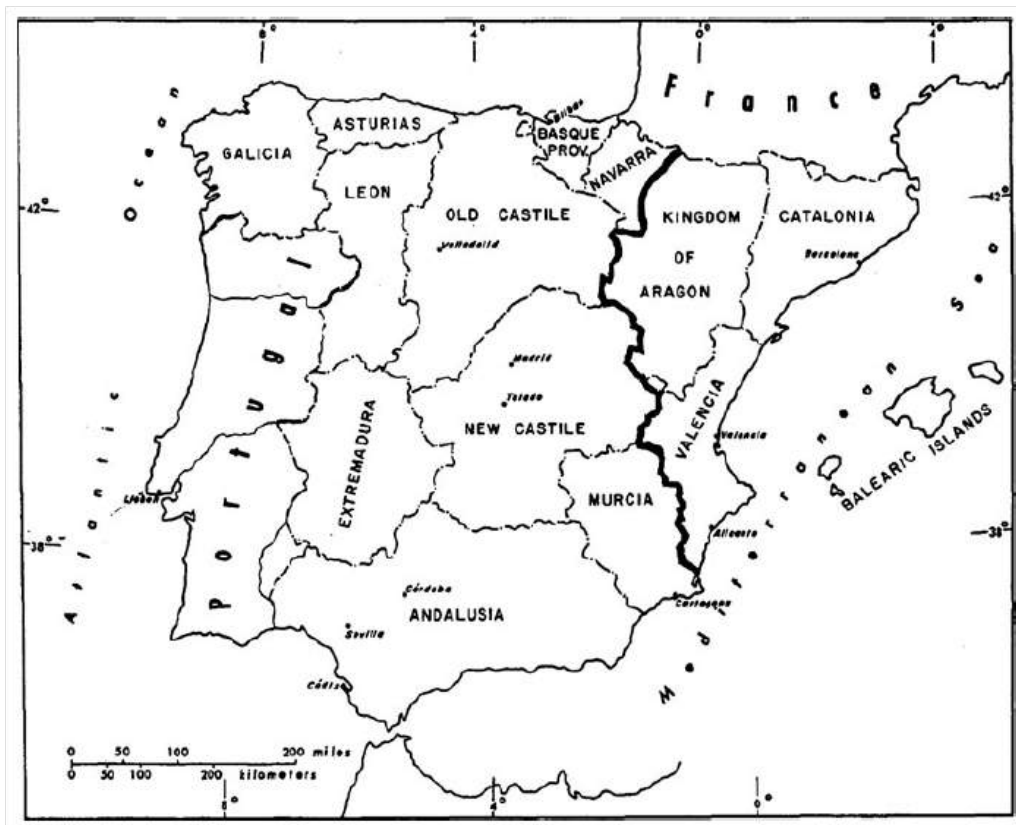Figure 7: Stem family in Spain, 1860
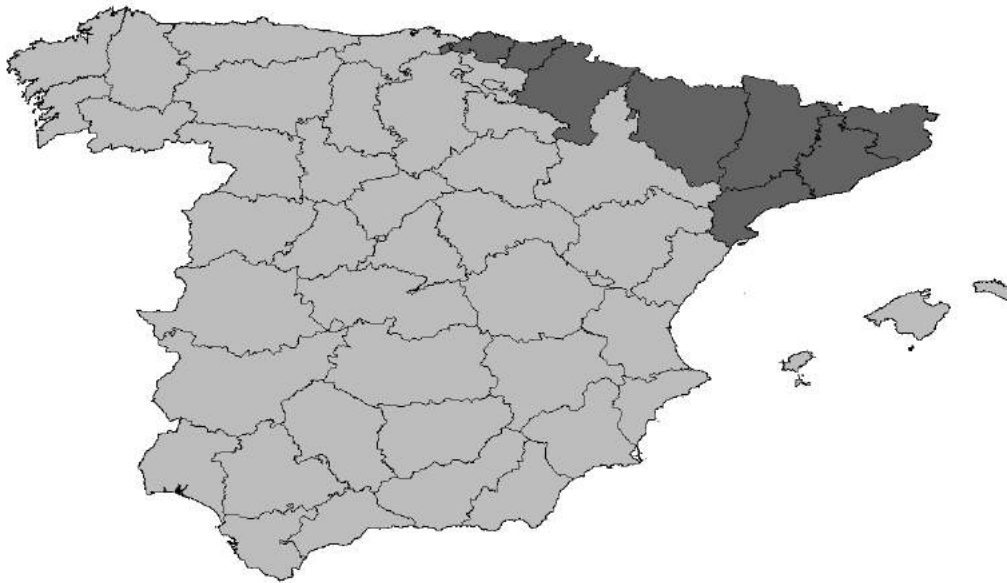
Source: Own elaboration using 1860 census. Provinces where the average number of widowed and married women in the household is ≥ 1.075.

Figure 8: Family structure nowadays

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

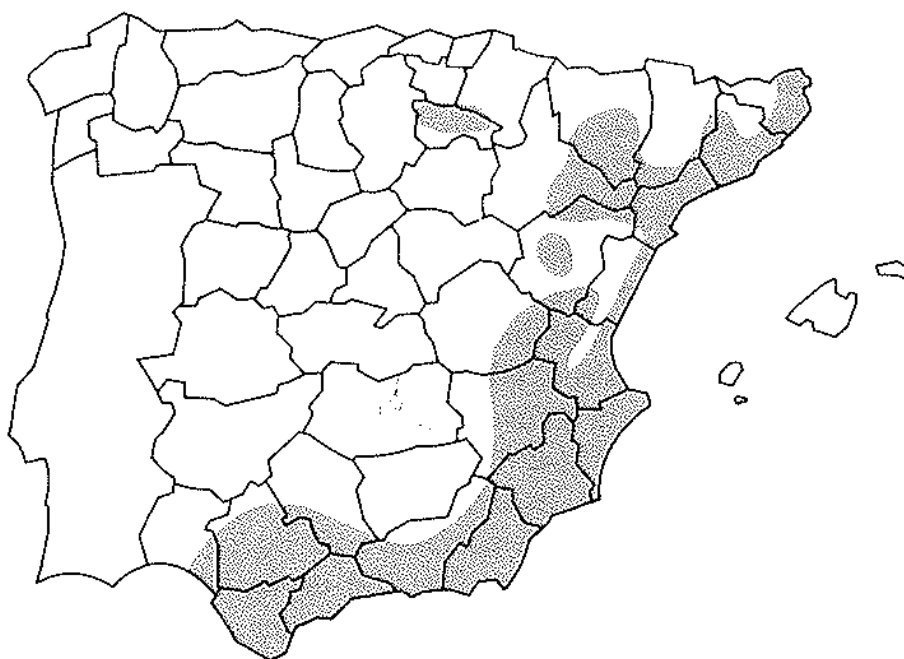Figure 9: Spanish regions in Early Modern Era

Source: Álvarez-Nogal and Prados de la Escosura, 2007

Figure 10: Provincial map of Spain

Figure 11: 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 γ_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 γ_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 γ_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 γ_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 γ_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 productivity loss of the wife due to violence is greater in absolute terms than the loss of productivity in the house, we will find that $\frac{\partial v^*}{\partial \gamma_m} < 0$.