Unemployment and intimate-partner violence: A gender-identity approach

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Abstract

This paper analyzes the causal relationship between unemployment and intimate-partner violence (IPV) introducing a gender-identity approach. I argue that local social predominance of different family structures (stem vs nuclear) in the past shaped distinct present cultural norms regarding the appropriate role of men and women, and that as a result IPV responds differently to changes in relative unemployment rates of men vs women. Coresidence of younger couples with in-laws in stem families in the past reduced the burden of household work, allowing a higher contribution of the younger wife to nondomestic work. In nuclear families, conversely, wives' activities were more confined to the domestic sphere. I construct an exogenous measure of unemployment and find heterogeneous impacts: for individuals living in territories with a nuclear-family tradition, a decrease in female unemployment relative to male unemployment increases IPV, potentially because men feel their traditional breadwinner role threatened. These effects are offset, and sometimes even reversed, for individuals living in provinces where the stem family was socially predominant in the past. I propose a new rationale for IPV in which violence is a way to reinstate the loss of utility generated by what some men perceive as an insult, and provide evidence in favor of this novel explanation.
Keywords: historical family structure, cultural norms, persistence.
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1 Introduction

Violence against women is a widespread behavior that has serious consequences for women's health and economic development. Although it is recognized as a social justice issue and a public health priority, our understanding of its causes remains incomplete. This paper analyzes the relationship between intimate-partner violence (IPV) and unemployment using individual IPV data of the highest quality for Spain. The main contribution is the inclusion of *gender identity norms* in the analysis: I find that the impact of female vs male unemployment on IPV depends on underlying cultural norms about the appropriate role of men and women, which are in turn determined by the family type that historically prevailed in each region.

I focus on the stem and nuclear family types—the two patterns that predominated in Spain, roughly from the Middle Ages until the second half of the XXth century. In stem families, one child remains in the parental household with spouse and children, whereas in nuclear families all children leave the household upon marriage. In Tur-Prats (2015) I argued that in stem families the coresidence of the younger wife with other women (usually the mother-in-law) reduced the burden of household work, freeing up her time for nondomestic work. This increased female contribution to family subsistence in stem families fostered a cultural norm in which both men and women were providers, and which persisted even after the stem family disappeared.[1] In nuclear families, however, wives would typically assume the whole burden of household work and child rearing. Consequently, the cultural norm observed for centuries prescribed that men should be the main breadwinners, whereas women's activities were generally restricted to the domestic sphere.[2]

My hypothesis is that local gender identity norms—shaped by traditional family structure—will determine the individuals' reactions to changes in the gender gap in unemployment. In territories where the nuclear-family tradition gave rise to a male breadwinner culture, a decrease in female unemployment relative to male unemployment may be perceived by men as

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[1]In the last century, the importance of the stem family has decreased dramatically, and is no longer socially prevalent in any province.

[2]The main finding in Tur-Prats (2015) is that areas where stem families were socially predominant in the past currently have a lower IPV rate.

a threat, leading to violence against their partners to reinstate their authority. By contrast, in stem-family territories, where both partners were traditionally contributing to the household income, I do not expect changes in the relative risk of unemployment between men and women to pose a significant threat to men's notion of masculinity. This hypothesis is conceptually framed adapting the Akerlof and Kranton (2000) identity model to the study of domestic violence. I present evidence that shows the persistence of cultural norms regarding the ideal family arrangement and suggests that departure from these norms can cause distress and, eventually, violence.

The data I use for IPV come from four cross-sectional surveys on violence against women in Spain conducted in 1999, 2002, 2006 and 2011. For each of these four editions, I compute the contemporaneous (same-quarter) and lagged (previous-quarter) unemployment rate using the *Active Population Survey*, conducted quarterly by the Spanish Institute of Statistics and routinely used to estimate unemployment. In my main empirical analysis, I relate each woman's experience of IPV to the unemployment rate of her age-peers (both male and female) in her province. I measure the past predominance of one or another family type in each province through the 1860 census, using the average number of married and widowed women in the household. The heterogeneous impacts of unemployment on IPV are examined by including interaction terms between female and male unemployment and historical family type.

The results are consistent with the gender identity explanation and show that a decrease in female unemployment relative to male unemployment is associated with an increase in IPV only for provinces with a nuclear family tradition (i.e. where the social norm prescribes that men should be the main contributors to household income). This effect is neutralized, and even reversed in some specifications, in provinces that developed more gender-equal attitudes towards work (i.e. those with stem family prevalence in the past). I include a large set of individual controls and province-year fixed effects in my specifications. One caveat is that potential endogeneity issues arise if changes in relative unemployment rates reflect changes in unobservable characteristics of workers that might be correlated with IPV. Therefore, to rule out these composition effects, I construct a measure of unemployment based on the work initiated by Bartik (1991): I interact the baseline industry composition of employment in a

given province with the industry-specific unemployment rate at the national level over time. The results found using this exogenous measure of unemployment point in the same direction as my other results, and the magnitudes are higher.

Alternatively, these findings could also be explained by the so-called instrumental theory of violence, in which an improvement in job opportunities for women might boost IPV if male partners use violence as a tool to either extract resources from their female partners or to deter them from entering the labor force. To better understand the nature of violence in this context, I consider different types of IPV and controlling behavior: physical and sexual violence, appropriation of financial resources, and decision-making control. I find that relative changes in unemployment and their interaction with underlying gender identity have no significant impact on appropriation of resources or controlling behavior. When looking at physical and sexual violence only, instead, the effects are strengthened, which is consistent with the gender-identity explanation in which violence is viewed as an aggressive reaction by male partners to an insult in order to redress their challenged identity.

I examine which labor market situations might prompt this reaction and conclude that the impact of unemployment on IPV seems to be driven by the perceived risk of unemployment, rather than by actual employment status or provincial peer-group risk of unemployment. Furthermore, I run a placebo test in which I interact unemployment with two different measures of past economic development (population density and urbanization rates in 1860), as well as with provincial GDP per capita measured at the time of the survey, and with a current measure of political beliefs. I do not find any effect, which confirms that historical family structure –rather than degree of economic development or political ideology– is a key determinant of gender roles. These findings are robust to alternative definitions of family type and to a collinearity check. As a last robustness check, I apply a control function approach and a 2SLS procedure; reassuringly, the results are similar to the 'reduced-form' approach with the exogenous measure of unemployment.

This paper contributes to the economics literature on IPV in three main areas. First, it adds to the literature that analyzes the causal effect of unemployment on IPV. Second, it contributes to a growing literature on the importance of considering cultural values, and in particular

gender-related norms, when explaining current economic and behavioral outcomes. Insofar as these cultural norms will determine the impact of a policy, it is crucial to understand them in order to design suitable policies to reduce violence against women. Third, this is the first economics paper that introduces social context when modeling domestic violence and, therefore, proposes a new way of conceptually analyzing IPV in economics.

The remainder of the paper is organized as follows: Section 2 reviews the related literature and Section 3 presents the conceptual framework. Section 4 documents the data used and presents some figures and descriptive statistics. The empirical strategy and the results are reported in Section 5. In Section 5.1 I analyze the heterogeneous effects of unemployment on IPV based on underlying gender identity, and in Section 5.2 I construct an exogenous measure of unemployment. In Section 5.3 I analyze other potential mechanisms of violence and in Section 5.4 I introduce alternative measures of unemployment in my analysis. I run a placebo test in Section 5.5, using measures of economic development and political beliefs instead of historical family type. Several robustness tests (alternative definitions of family types, a collinearity check, and an instrumental variable approach) are discussed in Section 5.6. In Section 6 I conclude.

2   Related Literature

Despite the general perception that domestic violence is likely to increase with economic recessions, the evidence is inconclusive. Some studies find near-zero effects of *total* unemployment on domestic violence (Aizer 2010, Iyengar 2009), while other authors (Van der Berg and Tertilt 2012) find a positive effect. Regarding potential mechanisms, the latter findings of positive effects of total unemployment on IPV could be explained by the aggressive behavior triggered by an economic downturn,[3] or by the difficulty of breaking with a badly matched spouse or partner during a recession.[4] Similarly, a model of exposure reduction would also predict a decline in domestic violence after a decrease in unemployment since partners would then spend

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[3]Card and Dahl (2011) look at the link between emotional cues and domestic violence.

[4]Stevenson and Wolfers (2006) find that the introduction of unilateral divorce caused a decline of domestic violence as well as a decline in female suicide and in murders of women by their intimate partners.

less time together (Dugan, Nagin, and Rosenfeld 1999).

When looking at *relative* male vs female unemployment, Anderberg et al. (2016) find effects going in opposite directions. They show that a relative increase in male unemployment decreases the incidence of IPV, while a relative increase in female unemployment expands domestic violence. Their findings could be explained using a standard bargaining model: a decrease in female unemployment, relative to male unemployment, improves women's outside options, which leads to less violence against them (Aizer 2010).

Conversely, a sociological model of "male backlash" predicts that a decrease in female unemployment might actually increase IPV, because men would feel their traditional gender role threatened (Macmillan and Gartner 1999). Using Canadian data, these authors show that a decrease in female unemployment relative to male unemployment "challenges the culturally prescribed norm of male dominance and female dependence. Where a man lacks this sign of dominance, violence may be a means of reinstating his authority over his wife". They find that the effect of a woman's employment status on her risk of spousal violence is conditioned by the employment status of her partner. Using Spanish data, Alonso-Borrego and Carrasco (2017) also show evidence consistent with this backlash model. They find that male partner employment plays a major role in the risk of violence, and that women whose male partner is not working are at the highest risk of violence.

A model of instrumental violence would again predict that an improvement in female labor market conditions could increase the prevalence of domestic abuse if male partners use violence as an instrument to thwart their victims' employment (Anderberg and Rainer 2013) or to extract monetary transfers.[5]

Other studies have tested the relevance of cultural values as a factor mediating the impact that a change in the share of resources controlled by each partner will have on wife abuse. Atkinson, Greenstein, and Lang (2005) construct an index of "traditionalism" using U.S. survey data, and find that wives' share of relative income is positively associated with domestic violence for traditional husbands only. Angelucci (2008) uses experimental data for Mexico

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[5]Bolch and Rao (2002) show how, in the Indian rural context, husbands can use violence to extract financial resources from their wives' families. Hidrobo, Peterman, and Heise (2016) cannot rule out such extractive behavior, although they do not find direct evidence of it in the context of a randomized trial in Ecuador.

and finds that while small cash transfers to women reduce wife abuse by alleviating poverty, large transfers—also handed only to women—increase the aggressive behavior of traditional husbands (characterized by low education and large spousal age difference). Using data for Bangladesh, Heath (2014) documents a positive correlation between work and domestic violence, but only among women with low education or young age at marriage.

These cultural values can also be determined at the macro or contextual level, as in Cools and Kotsadam's (2017) study of the relationship between resources and IPV in Africa. They find that employed women face a greater risk of domestic violence in areas where prevailing cultural norms are such that wife abuse is more accepted.[6] Patterns can also originate from inherited ethnic characteristics: Alesina, Brioschi, and La Ferrara (2016) analyze the long-term determinants of violence against women in Africa, and show that ancestral socioeconomic arrangements determine persistent cultural values regarding violence against women. They find a higher incidence of domestic violence among women who are currently employed and they show that this effect is reversed in societies which exhibited features in the past that were linked to a higher economic value of women (such as the practice of bride price or a reliance on gathering).

Finally, Bertrand, Kamenica, and Kan (2015) document an aversion to a situation where the wife earns more than the husband. Since standard economic models cannot account for this behavior, they claim that *gender identity norms* explain current social and economic outcomes, such as marriage formation and satisfaction, likelihood of divorce, division of home production, and wives' labor force participation and income. In the next Section I argue that these gender identity norms can also shape the use of domestic violence as a reaction to changes in the relative unemployment rate.

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[6]Heise and Kotsadam (2015) find less IPV in countries where a higher share of women are working in the formal sector, but working for cash is positively associated to wife abuse in countries where the female employment rate is low.

3 Conceptual Framework

The instrumental nature of violence, as a tool for either controlling the victim's behavior or extracting resources, is one of the justifications of IPV found hitherto in the literature. For instance, Bolch and Rao (2002) model violence as a means for extracting transfers from the wife's family in the Indian rural context. Another interpretation of domestic violence commonly used in the economics literature treats violence as an expressive behavior that provides direct gratification to the perpetrator (see, for instance, Tauchen, Witte, and Long 1991; Aizer 2010; Card and Dahl 2011). These studies employ a model of bargaining in which women receive transfers from their husbands in compensation for violence. Card and Dahl (2011) alternatively propose a loss-of-control model, in which they assume that men are more likely to lose control –and therefore be violent against their intimate partners– when they have been exposed to a negative emotional shock.[7]

My findings can be instead rationalized using the Akerlof and Kranton (2000) identity model. Essentially, this allows us to go beyond individual motivations and tastes and introduce the social context when modeling domestic violence. Akerlof and Kranton specify three key elements that define the social context: social categories, the norms or ideals ascribed to each category, and the identity utility –i.e. the increase in utility when actions conform to norms and ideals and the corresponding decrease when they do not. By including the identity parameter in the individual's utility function, they propose a culturally based conception of individual decision-making that is able to explain destructive behavior.

In the present setting there are two sets of social categories in terms of how they deal with gender identity roles: the first set has greater differentiation between men and women, the second is more egalitarian. To define the gender identity norms in question, I focus on the two family structures traditionally found in Spain: stem and nuclear families. In stem families, only one child stays in the parental household with spouse and children, whereas in nuclear families all children leave the household upon reaching adulthood. In Tur-Prats (2015) I investigated

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[7]Waelde (2015) provides a more general framework of stress and coping where violent behavior is also at least partly beyond the control of an individual.

the medieval origins of these family types in Spain,[8] and showed that in territories where the stem family prevailed, coresidence of the wife with other women (usually the mother-in-law) reduced her burden of household work, freeing up her time for nondomestic work.

I argue that the stem family, with its increased female contribution to economic subsistence, fostered a cultural norm in which both husbands and wives were providers. In nuclear families, instead, lack of supplementary help made wives responsible for all household and child-rearing work; hence, the cultural norm regarded men as the main earners, and women's activities were typically restricted to the domestic sphere. Each social category prescribes a different behavior: men assigned to differentiated gender identity norms (i.e. living in areas with nuclear family prevalence in the past) are expected to be the breadwinners, whereas men assigned to egalitarian gender identity norms (i.e. living in areas where the stem family prevailed in the past) share this responsibility with their partners. These cultural norms about the appropriate role of men and women may be transmitted across generations and persist even after the customary family type is no longer prevalent.[9]

To show the persistence of these cultural norms and their correlation with historical family types I use two data sources. First, I take the Spanish sample of the *World Values Survey* and analyze the degree of agreement or disagreement with the statement "Both the husband and wife should contribute to household income". Second, using survey data from *CIS* (Spain's *Centro de Investigaciones Sociológicas*, or Sociological Research Center), I look at how the ideal family arrangement today, in terms of the distribution of paid work and housework between the couple, is related to historical family types. Table 1 shows these results. Respondents living in regions where the stem family was more socially predominant in the past are more likely to

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[8]I argued that we can trace back the origins of family structures in Spain to the Christian conquest (722-1492), in which several Christian kingdoms took control from Islamic rulers and repopulated significant parts of the Iberian Peninsula.

[9]Alesina, Brioschi, and La Ferrara (2016) show that norms regarding marriage patterns, living arrangements and the productive role of women in ancient times are correlated with contemporary violence against women in Africa, even when the initial conditions change. They find that where the stem family was socially predominant in the past, both men and women currently tend to be less favorable to gender violence. They also explain these results by building on my hypothesis—namely, that wives in stem families (where their mother-in-law takes care of the children) have more time to work on the farm, and hence become more 'valuable'.

state that both partners should contribute to family income, and they also tend to prefer family arrangements in which both partners work outside the home (as opposed to having only one partner working for cash while the other stays at home).

In the identity-based model, failure to follow the appropriate role of your assigned social category generates losses in identity utility.[10] According to this framework, the fact that female unemployment decreases relative to male unemployment may trigger anxiety and discomfort in men assigned to differentiated gender identity norms. As a response to this perceived insult, these men may use violence against their intimate-partners as a way to reinstate their wounded masculinity.[11] Conversely, in stem-family territories, since both partners are expected to contribute to the family income, I do not expect a change in the relative risk of unemployment to pose a relevant threat on their gender identity.

I investigate this mechanism using, once again, survey data from the Spanish sample of the *World Values Survey* and from Spain's *Centro de Investigaciones Sociológicas* (CIS). Using the first dataset, I analyze to what extent respondents agree with the statement "If a woman earns more money than her husband, it's almost certain to cause problems" and I find that individuals are indeed more likely to agree if they live in regions where the nuclear family was socially prevalent in the past. Along the same lines, using the second dataset, I find that individuals who live in provinces with a nuclear-family custom are more likely to consider that unemployment could unleash domestic violence. By contrast, when looking at alternative triggers (e.g., drug use, alcohol abuse, poverty, psychological problems, etc.) I do not find any statistically significant impact of historical family structure.[12] Table 2 reports these results.

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[10]I assume the set of social categories is assigned according to the province where the individual resides.

[11]In an experiment conducted in a US college, Nisbett and Cohen (1996) found that, after being bumped and insulted, male students from the South were more likely than male students from the North to behave aggressively. Moreover, the Southerners were more concerned that the people who saw the insult had a lower opinion of their masculinity.

[12]This last set of results is available upon request.

4 Data and Descriptive Statistics

4.1 Intimate-Partner Violence Data

Intimate-partner violence (IPV) data come from four cross-sectional surveys on violence against women in Spain. Three of these surveys, which I analyzed in Tur-Prats (2015), were conducted by telephone in 1999, 2002 and 2006 (sample sizes 20,552, 20,652 and 28,423, respectively). In the present paper I add a further in-person survey conducted in 2011 (sample size 7,898), expanding an already broad and representative sample of adult women ($\geq$ 18 years old) living in Spain (n=77,525). While IPV in the surveys is both self-assessed and determined through answers to objective questions, in this paper (as in Tur-Prats 2015) I use the responses to objective questions only, since self-reported measures of domestic violence tend to underestimate it (Ellsberg et al. 2001). Survey data of this type is close to the gold standard set by the World Health Organization (2013) for estimating the prevalence of any form of violence against women, since generic questions that mention "violence" or "abuse" are less likely to elicit information than direct questions about specific acts of violence. Twenty-six situations related to domestic violence are put to the respondents, and positive answers to thirteen of them qualify as standalone indicators that domestic violence is taking place (see Table 3). Violence can be classified, on this basis, as physical, sexual, psychological, economic, structural, or spiritual.

My measure of IPV is an indicator variable that takes the value 1 if the woman answers "often" or "sometimes" for at least one of these thirteen questions, and 0 otherwise. To restrict the focus to IPV, I only count answers from respondents who report that the author of the acts of violence is their partner or former partner (thus excluding violence by other members of the household). Additionally, rich information is obtained from the surveys regarding the respondent's family life, including level of education, marital status, religious beliefs, head of the household, presence of children in the household, and partner's level of education.

Summary statistics for the sample used in the estimation are presented, together with the average IPV prevalence associated to some socio-demographic groups in Table 4. During the period of analysis (1999-2011), on average 8.95% of women living in Spain experienced abuse from their intimate-partner. IPV rates in Spain went down from 1999 to 2006, and then in-

creased slightly in 2011. The presence of children in the household (reported by 67% of all respondents) is associated with a higher risk of abuse. Prevalence of violence increases with age: 4% of young women aged 18-24 suffered IPV, whereas the rate increases to 12% for women aged 45-65. Education is negatively correlated with violence: the higher the educational achievement –both the respondent's and her partner's– the less violence the woman is likely to suffer. Inactive women are more likely to experience violence than working or unemployed women. Being the head of the household, i.e. contributing the highest share of household income, a situation that affects 17% of respondents, is associated with a lower rate of abuse. Regarding marital status, married women are on average more exposed to violence. The incidence of IPV among divorced, single and widowed women, though lower, confirms that IPV can also come from ex-partners and boyfriends. Finally, respondents who declare themselves Catholics (85% of the sample) report a slightly higher rate of IPV.

4.2   Unemployment Data

Data on unemployment used in this paper come from Spain's *Active Population Survey*, routinely used to estimate the unemployment rate. It is a cross-sectional survey conducted quarterly by the National Institute of Statistics for all the Spanish provinces. For each of the four editions of the violence-against-women survey I compute the contemporaneous (same-quarter) and lagged (previous-quarter) unemployment rate. The period of analysis thus covers 1999 through 2011 and I use data for 8 quarters: the first and second quarter of 1999 (n=130,767 and n=129,491 respectively), the fourth quarter of 2001 and first quarter of 2002 (n=113,107 and n=114,046 respectively), the fourth quarter of 2005 and first quarter of 2006 (n=98,902 and n=101,794 respectively), and the fourth quarter of 2010 and first quarter of 2011 (n=110,323 and n=110,818 respectively). Table 5 presents descriptive statistics for unemployment in Spain for the period 1999-2011. The average unemployment rate in Spain for the entire period has been 14.6%, higher for women (18%) than for men (12%). Before the economic recession unemployment presented a downward trend, from 17-16% in 1999 to 9% in 2006, and then increased up to 20-21% in 2011. Younger cohorts (aged 16-24) experienced a much higher unemployment rate (28.5%) than the older population.

Figure 1 shows the evolution of the unemployment rate by gender from 1999 to 2011. Even though female unemployment on average has been higher than male unemployment at each period, in the last years the gap has narrowed dramatically. In 2011 female and male unemployment rates were similar, and male unemployment even surpassed female unemployment for 16-24 year-olds, as shown in Figure 2. This reflects the fact that the recession has had a stronger impact on male rather than female unemployment.[13]

Figure 3 presents female and male unemployment rates over time together with the IPV rate. Similar to the unemployment rate, IPV shows a gentle downward trend from 1999 to 2006 and then a change of slope until 2011.

5 Empirical Strategy and Results

As a prior step, I explore the relationship between domestic violence and business cycles by looking at the impact of the overall unemployment rate on IPV and I do not find any statistically significant effects (Table 6 illustrates this). I then focus on the relative impact of female and male unemployment in my main empirical analysis. The gender gap in unemployment would appear to be a better measure of relative labor market conditions than the gender wage gap if there is a high degree of uncertainty in the labor market, a salient factor in Spain. Specifically, I relate each respondent's IPV status to the unemployment rates of her peers (males and females in her age group and in her province).[14]

In a standard bargaining model, the outcome of the within-couple negotiation is going to be determined by relative labor market prospects at the threat point (i.e. each partner's potential earnings in the event of divorce). Therefore, according to this theoretical framework, what matters in terms of explaining IPV is the risk of unemployment, rather than the actual individual's work status.[15] This might be also true in my identity-based model. The factor

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[13] Albanesi and Sahin (2013), in their study of gender differences in unemployment in the US, find that during recessions men's unemployment typically exceeded women's, even though after 1980 the unemployment gender gap virtually disappeared.

[14] There are three age groups: 16-24, 25-44, 45-65; and 50 provinces.

[15] Aizer (2010) and Anderberg et al. (2016) also focus on potential relative labor market conditions, not on the

that challenges the prescribed norm (and thus generates a loss of utility) could either be the actual unemployment status of the individual—relative to his partner—or the different risk of unemployment. In Section 5.4 I explore further this empirical question by including the current individual's job status in the regression analysis, and conclude that the main determinant of IPV is individual risk of unemployment.

To study the relationship between IPV and unemployment I start by estimating the following equation:[16]

$$IPV_{iapy} = \alpha + \beta^f Unemp^f_{apy} + \beta^m Unemp^m_{apy} + \gamma X_{iapy} + \lambda_p Provin_p + \theta_y Year_y + \epsilon_{iapy} \qquad (1)$$

where IPV_{iapy} is a binary variable that indicates if the woman i in age group a from province p on survey year y is experiencing violence from her intimate-partner; $Unemp^f_{apy}$ and $Unemp^m_{apy}$ are the female and male unemployment rate for each age group, province and year, respectively; X_{iapy} is a vector of individual-level control variables; $Provin_p$ are province fixed effects, to control for unobserved fixed differences between provinces; $Year_y$ are survey-year fixed effects, to control for countrywide policy changes, such as laws or welfare reforms, that might affect rates of domestic violence; and ϵ_{iapy} is the error term. All models include age-group fixed effects, the presence of children in the household, and respondent's level of education as control variables. Additional individual-level controls include partner's level of education, marital status fixed effects, and respondent's religion. In all regressions, standard errors are clustered at the province level.

Table 6 reports these results. In Panel A I analyze contemporaneous effects by using the unemployment rate in the same quarter of the survey on violence against women, whereas in Panel B I study lagged effects by using the unemployment rate in the previous quarter of the survey. Regardless of the measure of unemployment used, I find non-statistically significant and near-zero effects in most of the specifications. As shown in columns (5) and (6) in Panel A, only the coefficient of contemporaneous female unemployment in the own-age group is

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actual wages and unemployment status of the individuals involved.

[16] I estimate linear probability models (LPM). In Section 5.6 I apply a control function approach in which I estimate a probit model, and the results are similar to the ones obtained with the LPM.

statistically significant at the 10% level and the effect is small: an increase of 1 percentage point in own-age female unemployment is associated with a 0.06-0.05 percentage-point decrease in the probability of IPV (or 0.6% of the sample mean).

5.1 Heterogeneous Impacts

In line with the conceptual framework presented in Section 3, I then move to study the heterogeneous impacts of own-age female and male unemployment on domestic violence, based on underlying gender identity norms. My hypothesis is that the social predominance of different family structures in the past (namely, nuclear vs stem families) shaped distinct gender identity norms across the Spanish provinces, and that gender identity norms determine the impact that unemployment has on IPV.

To test this I add to equation (1) an interaction term between the own-age female and male unemployment and gender identity norms proxied by the historical family type that prevailed in each Spanish province:

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\begin{aligned}
IPV_{iapy} = \alpha &+ \beta_1^f Unemp_{apy}^f + \beta_1^m Unemp_{apy}^m \\
&+ \beta_2^f Unemp_{apy}^f Stem_p + \beta_2^m Unemp_{apy}^m Stem_p \\
&+ \gamma X_{iapy} + \lambda_p Provin_p + \theta_y Year_y + \epsilon_{iapy}
\end{aligned}
\tag{2}
$$

I measure the predominance of family types in Spain through the 1860 census (as in Mikelarena Peña 1992, and Tur-Prats 2015), as it is the first dataset that allows us to reliably measure household types for the whole country. To measure family structure I compute the average number of married and widowed women per household at the province level.[17] Higher values represent a higher prevalence of the stem family pattern.

Figure 4 shows family types in Spain in 1860. Values range from 0.87 to 1.34, with an average of 1. Although this represents only one specific point in time, some authors (Reher 1996, García González 2011) present data that show that these patterns remained stable at least from the seventeenth century through the beginning of the 1970s. The social and economic changes

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[17]In Section 5.6 I use alternative definitions of family type.

operated in Spain during the twentieth century (full industrialization, demographic transition, and mass migration to cities) have weakened the traditional peasant stem family pattern, and stem families are currently residual, at best, and no longer prevalent in any province.

Results are shown in Table 7. The family-type variable is recentered by subtracting its minimum value, so we should interpret the coefficient for the own-age female and male unemployment as the effect of a 1 percentage-point increase in the unemployment rate on IPV at the value taken by the province that exhibited the highest social predominance of nuclear family in 1860.

Again, Panel A is showing the contemporaneous effects of unemployment and Panel B the lagged effects. In models (1) and (2), apart from province and year fixed effects, I also add an interaction term between the survey-year dummies and historical family type to allow for family-type specific effects over time. When looking at the effects of contemporaneous unemployment, I find a negative impact of female unemployment on IPV in provinces that had the highest prevalence of nuclear families. In particular, a 1 percentage point increase in own-age female unemployment is associated with a 0.12 percentage-point decrease in IPV (or 1.35% of the sample mean). The coefficient of the interaction with traditional family type has the opposite sign, meaning that the negative effect of female unemployment on domestic violence found in nuclear-family provinces vanishes as we move to provinces with a higher social predominance of stem families. In fact, when evaluating the impact of own-age female unemployment on domestic violence for individuals living in the context with the most 'egalitarian' gender identity norms, i.e. the province that exhibited the highest social predominance of the stem family in 1860, the effect of female unemployment is positive and statistically significant, which suggests that behavior in those provinces might be consistent with the prediction of a standard bargaining model.

In model (3) I introduce province-year fixed effects that control for any unobserved province-specific factors affecting IPV that vary over time. By including these fixed effects I am ruling out any potential omitted variable correlated both with unemployment and IPV that could bias my results. For instance, unemployment could trigger crime, and the provincial authorities' response to this increased criminal activity through its judiciary system or police forces can have

in turn an impact on domestic violence. Having included these fixed effects, the identification of the impact of gender-specific unemployment on IPV comes from within-province-within-year variation across different age groups in male and female unemployment. The negative and significant coefficient of female unemployment and the interaction term with the traditional family type both persist, and the magnitudes are slightly higher when I include this last set of fixed effects.

When using the lagged unemployment rate in Panel B, only the interaction term of the traditional family type with female unemployment is statistically significant at 10%, but these effects do not hold when adding the province-year fixed effects. This differs from Van der Berg and Tertilt (2012), who found the strongest impact when using one-quarter-lagged unemployment.

5.2 Exogenous Measures of Unemployment

The analysis conducted so far has treated unemployment as an exogenous regressor. Concerns about potential omitted variable bias are mitigated by the inclusion of province-year fixed effects that control for any unobserved heterogeneity across provinces and time that is likely to be correlated with local labor market conditions and IPV. Additional individual-level controls include partner's level of education, which might be correlated with both violence and unemployment.

Still, changes in local unemployment might reflect changes in the underlying characteristics of workers in the province that could be correlated with violence. If, for instance, there is selective migration of aggressive men from provinces with high unemployment to provinces with low unemployment, it would create a downward bias, since these violent men have a higher propensity to abuse their partners than less aggressive men.

To address this potential source of endogeneity I construct an exogenous measure of unemployment that rules out these composition effects. I follow the work initiated by Bartik (1991), and applied more recently by Aizer (2010) and Bertrand, Kamenica and Pan (2015), and interact the initial industry composition of employment in a given province with the industry-specific unemployment rate at the national level over time. More specifically, the measure of own-age

group female and male unemployment is computed as follows:

$$\widehat{Unemp}_{apy}^{g} = \sum_{j} \psi_{jap}^{g} Unemp_{jay,-p}^{g} \tag{3}$$

where g indexes gender (female or male), ψ_{jap}^{g} is the share of workers working in industry j at the baseline (1999) from age group a and province p, and $Unemp_{jay,-p}^{g}$ is the industry- and age-group–specific unemployment rate in year y for all of Spain excluding province p.[18]

By keeping industry composition constant over time and measuring unemployment over all industries Spain-wide excluding the focal province, this measure removes local sorting into industries. Moreover, changes in the unemployment rate at country level are plausibly unrelated to the underlying characteristics of workers in a given province. Provinces where a very large share of the labor force is working in industries heavily affected by the economic recession (e.g., construction) will experience larger increases in the unemployment rate than provinces in which many workers are employed in sectors less affected (e.g., public administration, education and health care).

Table 8 shows the results using this exogenous measure of unemployment. I again estimate equation (2) adding the interaction terms between the (exogenous measure of) own-age female and male unemployment and the gender identity variable (measured by historical family type in the province of residence), and I include the same set of additional covariates and fixed effects as in Table 7.

The coefficients for the own-age female unemployment point in the same direction and the magnitudes are higher. I now find a positive and statistically significant effect of male unemployment on IPV for individuals living in provinces where men tended to be the main breadwinners (i.e. nuclear-family provinces); interestingly, this effect is again reversed as we

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[18]I consider ten industry sectors: farming, forestry and fishing; the food, textile, leather, wool, and paper industries; the oil-refining, extractive, chemical, rubber manufacturing, metalworking, energy and water industries; machine manufacturing, electrical equipment, transport material, and manufacturing industries; construction; the retail and hotel industries; the transport industry; financial intermediation and real estate; public administration, education and health care; other services. The data were obtained from the Active Population Survey referenced in Section 4.2.

move to provinces in which both partners traditionally contributed to household income (i.e. stem-family provinces).

In my preferred specification, model (3), the coefficient of male unemployment shows that for an individual living in the provinces with the highest prevalence of nuclear family in the past, a 1 percentage point increase in own-age male unemployment is associated with a 0.37 percentage point increase in IPV (or 4.2% of the sample mean). Conversely, a 1 percentage point increase in own-age female unemployment is associated with a 0.56 percentage point decrease in IPV for these same individuals (or 6.3% of the sample mean). The coefficients for the interactions of both male and female own-age unemployment with a stem family tradition take the opposite sign (with statistical significance in the case of female unemployment), meaning that for individuals living in provinces with a more gender-equal view of work I find neither a positive impact of male unemployment nor a negative impact of female unemployment on domestic violence.[19]

5.3 Other Potential Mechanisms

The finding that a decrease in female unemployment relative to male unemployment increases the prevalence of IPV for individuals with differentiated gender identity norms could be consistent with alternative conceptions of violence. In particular, given a relative improvement in women's labor market prospects, husbands with differentiated gender roles could be using violence as a tool to extract financial resources from their wives. Likewise, they might use violence to prevent their wives from entering the labor market or to lower the chances that they actually find a job (Anderberg and Rainer 2013).

The surveys on violence against women used in this paper contain rich information on different types of abusive and controlling behavior that can help us to better understand the cause

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[19]The coefficients for female and male unemployment at the province with the highest value for the stem family pattern are 0.39 (p-value=0.215) and -0.23 (p-value=0.435), respectively. When using lagged unemployment rates, as in Panel B of Table 7, the coefficients for unemployment at its interaction with gender identity norms are statistically significant at 10% in only some of the specifications, and they always take a lower magnitude. These results are available upon request.

of violence. To examine whether male partners are being abusive to obtain more resources from their female partners I look at the question "How often does your intimate partner take the money you make or doesn't give you enough money to live on?" and construct a binary variable that takes the value 1 if the respondent answers 'often' or 'sometimes', and zero otherwise.[20] The first model shown in Table 9 reports the results of equation (2) using the above-mentioned variable as the dependent variable. I do not find any significant or differential effect of male and female unemployment on this type of behavior.

Similarly, I analyze whether husbands are reacting to the relative change in female vs male labor market opportunities by controlling their partners further using another survey question. I replicate the analysis above, this time using as a dependent variable an indicator that takes the value 1 if the respondent answers 'often' or 'sometimes' to the question as to how often her intimate partner does not allow her to work or study, and zero otherwise. Model (2) in Table 9 again shows no significant impact of male or female unemployment on this controlling behavior.[21]

To shed more light into the proposed identity-based mechanism I focus on physical and sexual violence.[22] If IPV is a reaction to what is perceived as an insult by male partners with more unequal gender roles, we should observe more action in the form of violent physical or sexual outbreaks rather than in less fierce psychological abuse. As reported in the last column of Table 9, this is indeed the case: estimates for physical and sexual violence are larger and statistically significant:[23] a 1-percentage point increase in own-age male unemployment relative to female

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[20]This question is listed as the second item on Table 3 and is a subset of the IPV measure used so far.

[21]Since in both cases the prevalence of these behaviors is low (0.4 and 0.7%, respectively), I repeat the analysis using a bundle of questions related to resource extraction and controlling behavior instead of using the standalone indicators. These results, available upon request, again show no significant impact of unemployment on either type of behavior.

[22]In the survey, physical and sexual violence are measured by two statements from Table 3: "Insists on having sex even though he or she knows that you don't want to", and "Shoves or beats you when he or she is feeling angry".

[23]Estimates for psychological, spiritual, economic, and structural violence (all behaviors listed in Table 2 that are not physical and sexual violence) follow, in general, the same pattern as total IPV, although they are mostly non-statistically significant and relatively smaller in magnitude. Anderberg et al. (2016) find similar effects for

is associated with a 0.3-percentage point increase in this type of violence for individuals living in provinces with the highest nuclear-family prevalence in the past, or 9.1% of the sample mean. Inversely, an increase of 1 percentage point in own-age female unemployment is associated with a decrease of around 0.5 percentage point in the rate of sexual and physical abuse, or 14.5% of the sample mean. This positive (negative) effect of male (female) unemployment is not found in provinces where the steme family was socially prevalent in the past.[24]

5.4   Alternative Measures of Unemployment

The measure of unemployment I use in equation (2)—unemployment rate by age group, province, period and gender—represents the (relative) unemployment risk for the individual as well as for his or her peers. Regarding this measure, two questions arise. First, does actual unemployment matter more to the individual than potential risk of unemployment? And second, to what extent is the individual influenced by his or her peers' prospects?

To answer the first question I exploit individual-level information about labor status provided by the surveys on violence against women. We know whether the respondent is either working, unemployed or inactive, and whether her partner (if any) had any job in the last year.[25] The problem with these variables is that due to potential unobserved heterogeneity at the individual level their estimated coefficients might be biased.[26] I thus include them as additional control variables in equation (2) and report the results of the exogenous measure of unemployment in Table 10. By and large, the effect of the female and male unemployment rate

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physical and non-physical abuse and explain their results using a signaling model in which male partners choose to conceal their violent type when facing high unemployment risk.

[24]In fact, the coefficients for female and male unemployment evaluated at the province with the highest stem-family value are 0.31 (p-value=0.145) and -0.20 (p-value=0.330), respectively.

[25]Regarding the partner's job status, surveys in 1999, 2002 and 2006 asked whether he had any job in the last year, whereas in 2011 we know the partner's current labor status (working, unemployed or inactive). I construct a binary indicator that takes the value 1 if the partner had any job in the last year or is currently working, and 0 otherwise.

[26]A panel dataset would solve this issue by allowing us to introduce individual fixed effects. However, reverse causality would still be a concern.

on IPV remains significant and remarkably stable when introducing the respondent's and her partner's work status. This means that, even after we take into account the actual work status of an individual, their labor market prospects have a key role in explaining IPV.

I obtain similar results when I restrict the sample to working partners only.[27] Corroboratively, in a survey conducted in Spain in September 2011, to the open question "What is the current problem that affects you, personally, the most?", unemployment and economic concerns were the issues reported by 69% of the individuals who held a job at that moment.[28]

In an attempt to address the second question, namely the extent to which individuals react to their peers' prospects, I conduct an out-of-sample test. From the survey on violence against women, I keep only respondents aged 65 or older, on the assumption that their partners would also be older than 65 and therefore already pensioners,[29] and I assign to each individual two measures of unemployment: (1) unemployment rate for the 45-65 age-group, and (2) general unemployment rate, in both cases at the province-quarter level, and by gender; I then run equation (2).[30] Since these men are most likely pensioners already out of the labor force, any impact of the relative rate of unemployment on their behavior should be explained by the presence of peer effects.[31] These results, reported in Table 11, show that older, inactive individuals do not react strongly to relative changes in the unemployment rate of their younger counterparts in the same province. Only the coefficient for male unemployment for the 45-65 age group interacted with historical family type in the province is statistically significant and negative. Taken

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[27]When I restrict the sample to working women and non-working women separately, results point in the same direction although they are weaker and less statistically significant. When looking only at non-working male partners the sample size is notably reduced and the results are not statistically significant. All these results are available upon request.

[28]Unemployment and economic concerns were the main issues for 90% of the unemployed and 57% of the inactive. The survey (No. 2911) was conducted by Spain's *Centro de Investigaciones Sociológicas* and interviewed 2,467 adults.

[29]The legal retirement age was 65 for both men and women throughout the period of analysis.

[30]In this regression I use the actual unemployment rate instead of the exogenous measure computed in Section 5.2 because potential changes in the underlying characteristics of workers due to changes in the unemployment rate are arguably uncorrelated with IPV for the inactive individuals in this subsample.

[31]Akerlof and Kranton's (2000) identity model contains possible externalities; i.e., the disutility can be a consequence of a person's own prospects but also of others' prospects.

together, these results suggest that the main IPV trigger might be individual risk of unemployment, rather than actual work status or the general employment status of peers (people of the same gender in the same province).

5.5 Placebo Test

I now turn to the significance of the historical family type variable that I use as an indicator of underlying gender identity norms. One potential concern is that my measure of family type—the average number of married and widowed women in the household at the province level in 1860—could be correlated with other variables, such as economic development, that might themselves be determinants of gender inequality. If this were the case, my estimates might just be picking up a different trend in the relationship between IPV and unemployment that has to do with economic development, rather than with gender roles derived from the family structure.

To rule out the possibility that the heterogeneous impacts of unemployment are coming from factors other than historical family type I run a placebo test, in which I take my preferred specification (i.e. equation (2) with additional individual controls and province-year fixed effects), but in place of family type, I interact unemployment rates with two measures of economic development in the past: population density and urbanization rate at the province level in 1860, separately.[32] In like manner, I also interact unemployment rates with current GDP per capita at the province level. Finally, I interact unemployment rates with an index of current political ideology, to test whether the differential impact is driven by political beliefs rather than gender identity norms

Results are shown in Table 12; model (1) reports coefficients of the interaction of unemployment with population density in 1860, model (2) with urbanization rates in 1860, model (3) with current GDP per capita, and model (4) with an index of political beliefs. The first three variables are log-transformed and all four variables are recentered by subtracting their minimum value. Reassuringly, I find no statistically significant effects in any of these measures of

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[32]These two variables are obtained from the same data source (the 1860 census) that I use to measure the family structure.

economic development and political ideology, and the coefficients of the interaction terms are close to zero and again non-significant in all four models.

5.6 Robustness Checks

To further test the validity of my estimates I look at three alternative family-type definitions. First, I use an indicator variable that takes the value 1 if the province had on average ≥ 1.075 married and widowed women per household in 1860, which corresponds to a 25% rate of complex households. According to Mikelarena Peña (1992), if a society reaches this threshold, the stem family can be said to be socially predominant. Second, I use a similar binary measure setting the threshold at 1.02 instead (which comprises the 70th percentile of the distribution). Third, I use the average number of married and widowed people (both men and women) in the household at the province level in 1860.

Panel A in Table 13 shows the results of running my preferred specification (i.e. equation (2)) with additional individual controls, province-year fixed effects, and using the exogenous measure of contemporaneous unemployment) with these alternative family-type measures. All three sets of results are consistent with the results already found. The coefficients using the binary measure are less precisely estimated than the ones using the continuous measure. Focusing on models (1) and (2), I find that in provinces characterized by the social prevalence of the nuclear family in the past (i.e. provinces in which men are regarded as the main bread-winners), own-age male unemployment has a positive effect on IPV whereas own-age female unemployment has a negative effect (although not statistically significant). In contrast, the co-efficients for provinces with more egalitarian gender identity norms in terms of work show the opposite sign and are statistically significant in most of the cases, meaning that these effects are reversed where stem family used to be predominant.

As reported in model (3), using the average number of married and widowed people in the household—which does not correct for selective male migration at that point in time—generates robust and statistically significant coefficients. If we evaluate the effect of female un-employment for individuals who live in the most egalitarian province, the effect is positive and

24

significant,[33] implying that their behavior might in fact be explained by the standard bargaining model—in other words, the relative deterioration of women's job prospects decreases their bargaining power within the couple, and they might endure more violence from their partners as a result.

In the next robustness test I run a collinearity check. Since female and male unemployment are highly correlated ($\rho = 0.926$ for the exogenous measures obtained from equation (3)), I run a model with the own-age linear gender gap in unemployment (i.e. female-male unemployment) to test the stability of the parameter.[34] These results, shown in Panel B of Table 13, are consistent with previous findings, which suggest that collinearity is not an issue in this setting. I find that an increase in the own-age female-male unemployment linear gap—due to either an increase in female unemployment or a decrease in male unemployment—reduces the IPV rate for individuals from nuclear-family-type provinces. This negative effect is reversed for individuals living in provinces where stem family was customary in the past, for whom a wider unemployment gender gap intensifies domestic violence.[35]

As a last robustness check I apply an instrumental variable (IV) approach. So far, I have taken a 'reduced-form' approach since the exogenous unemployment rates computed by equation (3) were the variables of interest in my regressions. To corroborate my results I now treat these exogenous measures of unemployment as instruments for actual unemployment rates by taking a control function approach and a 2SLS procedure, as suggested by Wooldridge (2010, 2015). Both techniques share a first stage in which I regress the actual (male and female) unemployment rate on all exogenous variables (including my excluded instruments). In the control function approach, I then include the predicted residuals from this first stage (and its interaction with family types) as additional variables in the main equation, in which I use a probit model to estimate the impact of the actual unemployment rate on IPV. In the 2SLS, I use the fitted values (and their interaction with family types) from the first-stage as *instruments* in an

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[33]The coefficient is 0.64 and p-value=0.084. For male unemployment, the coefficient evaluated at the highest value of the stem family is -0.43 and p-value=0.208.

[34]I am already controlling for the general unemployment rate in the province for each period by including province-year fixed effects.

[35]The coefficient evaluated at the highest value of egalitarian gender norms is 0.67 (p-value=0.018).

IV regression.[36] The results, shown in Table 14, are similar to the ones from the 'reduced form' regression shown in Panel B of Table 13, and confirm my previous findings.

6 Conclusion

In this paper I explore the relationship between unemployment and IPV in Spain by introducing a new approach. I find heterogeneous impacts of female and male unemployment depending on gender identity norms, which are determined by the traditional family type that prevailed in each Spanish province in the past. My hypothesis is that territories with nuclear-family dominance have developed more strongly differentiated gender roles in which masculinity is associated with being the main provider. Conversely, less differentiated gender roles are expected to be found in regions where the stem family was socially predominant in the past, since both partners would have typically contributed to the household income.

The results show that a decrease in female unemployment relative to male unemployment is associated with an increase in IPV only in provinces with the most differentiated gender roles (i.e. those with the highest prevalence of nuclear families in the past). This effect is offset and even reversed in some specifications for provinces with more gender-equal roles (i.e. those where the stem family used to be socially predominant). The near-zero average effects were masking significant heterogeneity that depends on the underlying gender identity norms.

One potential explanation is that men with a more differentiated gender identity norm perceive a relative improvement in female employment as an insult that calls into question their masculinity, and abuse their partners to alleviate these feelings. This explanation, an adaptation of the identity model proposed by Akerlof and Kranton (2000), is new to the economics literature on domestic violence and, fundamentally, introduces social context in the analysis, going beyond consideration of individual tastes and motivations. I present evidence of the persistence of gender-related cultural norms and their correlation with historical family types. Furthermore, I am able to rule out alternative rationales for violence, such as its use to extract

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[36]To minimize the number of endogenous variables to instrument in the main regression, I look at the linear gap in unemployment rate in both approaches.

resources or to control a partner's behavior.

To address concerns about the potential endogeneity of the unemployment variable, I follow a Bartik approach and construct a measure of local unemployment that rules out the variation in unemployment that might be caused by changes in the unobserved characteristics of individuals. My findings are robust to the inclusion of additional covariates, alternative family-type measures, collinearity checks, and instrumental variable approaches. The results also suggest that the main determinant of abuse is individual fear of unemployment, rather than actual employment status or peer-group employment prospects.

These findings contribute to the literature that tries to understand the relationship of unemployment with domestic violence, the long-term determinants of gender identity norms, and the relationship between gender identity norms and current social and economic outcomes. They emphasize the importance of taking into account cultural factors when designing policies that aim to eradicate gender violence.

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7 Figures and Tables

Figure 1: Unemployment rate by gender, 1999-2011
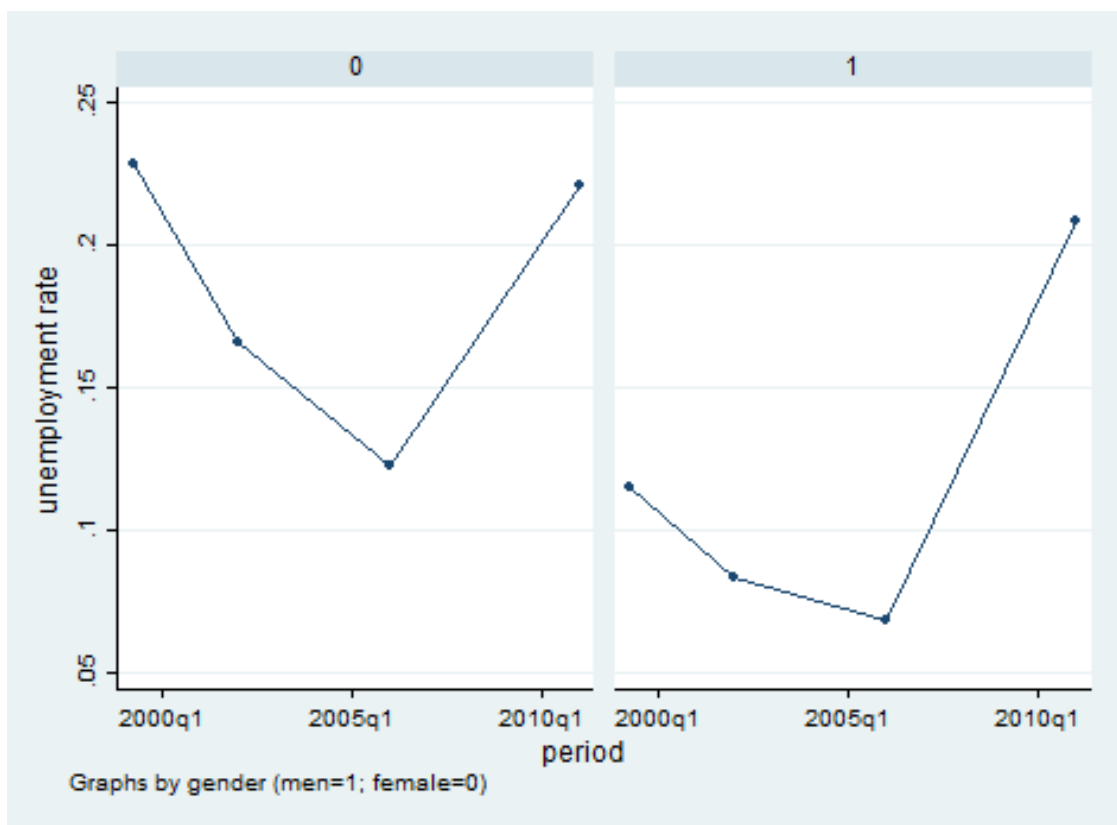
Source: Own calculations using Active Population Survey data.

Figure 2: Unemployment rate by gender and age group, 1999-2011
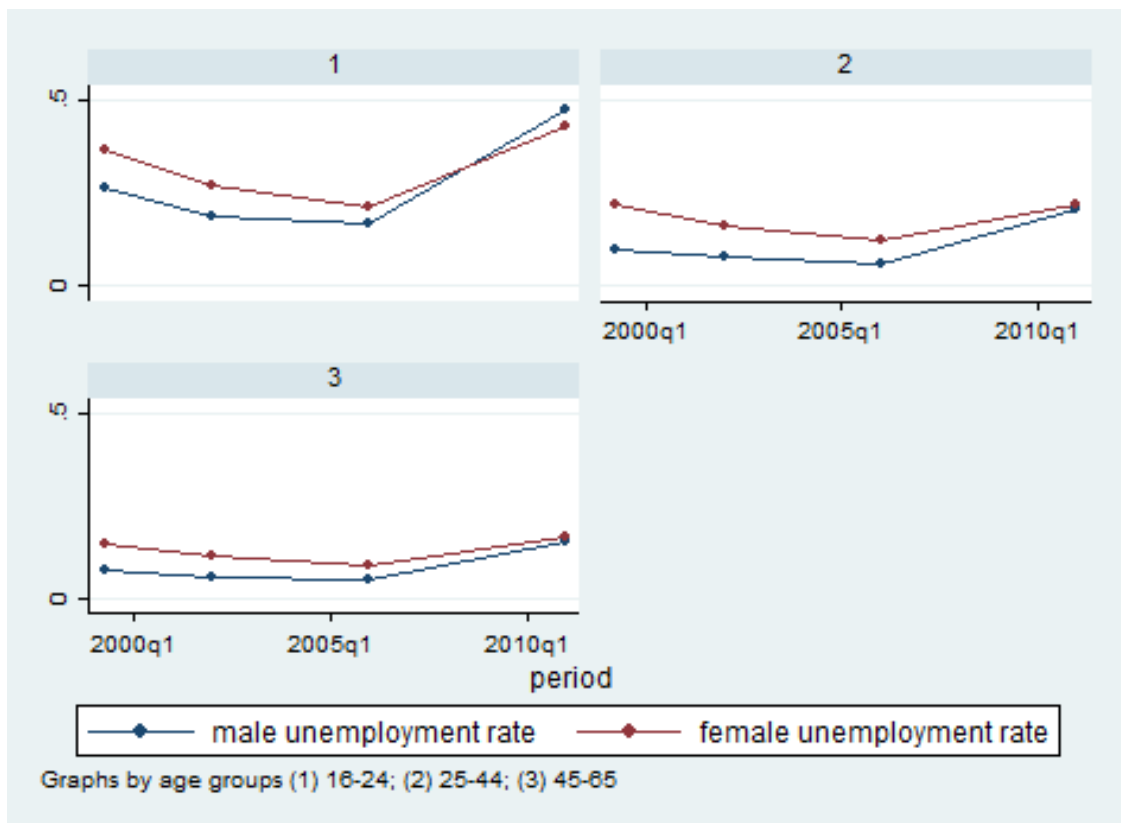
Source: Own calculations using Active Population Survey data.

Figure 3: IPV and Unemployment in Spain, 1999-2011
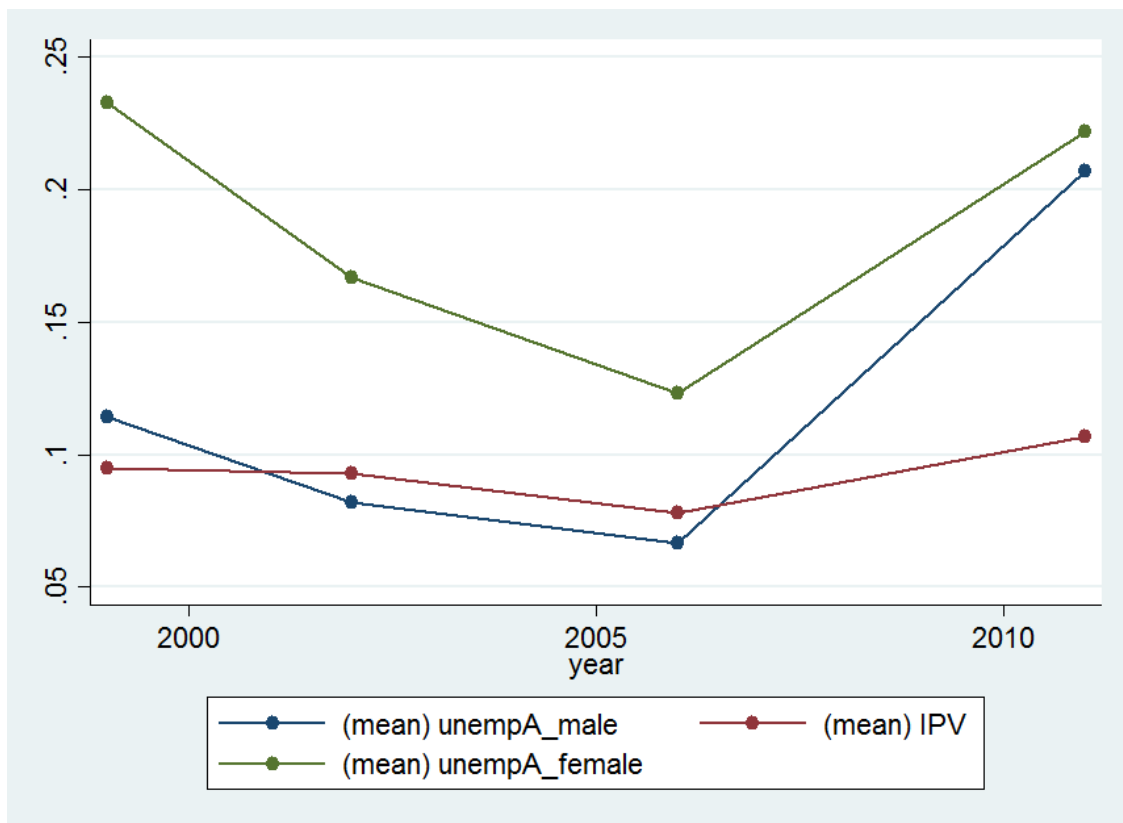
Source: Own calculations using Active Population Survey and Violence Against Women Survey data.

Figure 4: Family Types in Spain in 1860

(1.025,1.34]
(.98,1.025]
(.95,.98]
[.87,.95]
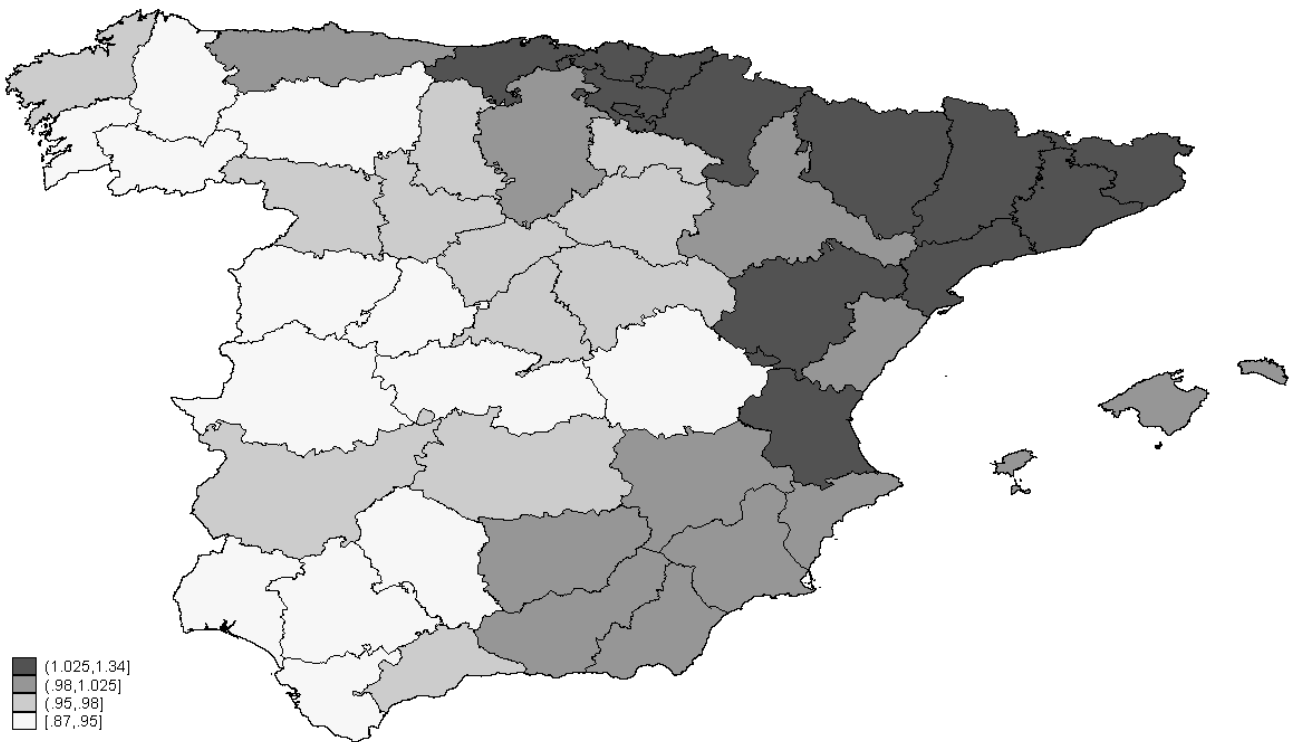
Source: Own calculations using 1860 census data. For each province, I compute the average number of married and widowed women in the household, as a measure of family structure. Values range from 0.87 to 1.34, with an average of 1. Provinces shown in darker grey are provinces where the average number of widowed and married women in the household is higher and, consequently, where the stem family is more prevalent.

Table 1: Historical Family Types and Current Gender Identity

	(1) Both should contribute	(2) Both should work
Mean dep. var.	0.91	0.87
Stem family	0.25**	0.23*
	(0.101)	(0.133)
Observations	2,104	2,236
R^2	0.03	0.07

Notes: *Stem family* is measured as the number of married and widowed women per household in 1860, averaged at autonomous community level in model (1) and at province level in model (2). *Both contribute* is coded as a binary variable that takes the value 1 if the respondent agrees (simply or strongly) with the statement "Both the husband and wife should contribute to household income", and 0 if they disagree (simply or strongly). Model (1) includes as control variables respondent's age, gender, number of children, educational level, marital status and job status fixed effects, year-of-survey fixed effects (for 1995 and 2000), GDP per capita and (female and male) unemployment rate at the autonomous community level. Since there are only 16 autonomous communities in my sample (as information on historical family types is missing for the Canary Islands) I compute the standard errors (in parenthesis) using a wild bootstrap-se procedure with clustering at the autonomous community level. *Both should work* is coded as a binary variable that takes the value 1 if the respondent's ideal family is one in which both partners work for pay (either equally or one full-time and the other part-time), and 0 if it is only one partner working and the other taking care of the house and children. Model (2) includes as control variables respondent's age, gender and fixed effects for educational level, marital status, employment status, and size of municipality, whether the respondent has any children studying or in school age, GDP per capita, and unemployment rate at the province level on the survey year (2011). Standard errors clustered by province in parentheses in Model (2). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Historical Family Types and Perception of Problems Related to Relative Income and Unemployment Causing IPV

	(1) Woman Earns More: Problem	(2) Belief that Unemployment Causes IPV
Mean dep. var.	0.30	0.60
Stem family	-0.24	-0.38***
	(0.204)	(0.130)
Observations	1,899	4,577
R^2	0.15	0.03

Notes: *Stem family* is measured as the number of married and widowed women per household in 1860, averaged at the autonomous community level in model (1) and at province level in model (2). *Woman Earns More Problem* is coded as a binary variable that takes the value 1 if the respondent agrees or agrees strongly with the statement "If a woman earns more money than her husband, it's almost certain to cause problems", and 0 if they disagree or disagree strongly. Model (1) includes as control variables respondent's age, gender, number of children, educational level, marital status and job status fixed effects, year-of-survey fixed effects (1995 and 2011), GPD per capita and (female and male) unemployment rate at the autonomous community (AC) level. Since there are only 16 ACs (information on historical family types is missing for Canary Islands) I compute the standard errors (in parenthesis) using a wild bootstrap-se procedure with cluster at the AC level. *Belief that Unemployment Causes IPV* is coded as a binary variable that takes the value 1 if the respondent considers that unemployment could be causing domestic violence and 0 otherwise. Model (2) includes as control variables respondent's age, gender, educational level, marital status, job status and size-of-municipality fixed effects, whether the respondent has any children, year fixed effects, GPD per capita, and unemployment rate at the province level on the survey year (2012 and 2013). Standard errors clustered by province in parentheses in Model (2). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Definition of Intimate-Partner Violence in the Survey

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

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

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

Calls you names or threatens you.

Decides the things you can or cannot do.

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

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

Makes you feel afraid.

Shoves or beats you when feeling angry.

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

Says everything you do is wrong, calls you clumsy.

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

Doesn't appreciate your work.

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

Table 4: Summary Statistics for the Gender Violence Survey, 1999-2011

	Mean	No. of observations
Intimate-partner violence	8.95	59,012
Year:		
1999	9.51	15,740
2002	9.28	15,654
2006	7.82	21,534
2011	10.67	6,084
	Mean	Mean IPV
Presence of children	67.09	11.56
Age 18-24	24.78	3.97
Age 25-44	46.07	9.64
Age 45-65	29.15	12.09
Respondent's level of education:		
Primary or lower	26.27	13.18
Secondary	52.60	8.28
College	21.13	5.25
Partner's level of education:		
Primary or lower	27.74	15.35
Secondary	51.76	9.50
College	20.51	7.17
Working	44.09	7.57
Unemployed	11.10	8.49
Inactive	44.81	10.43
Head of the household	17.29	6.5
Single	28.93	3.62
Married/cohabitating	63.17	11.83
Divorced/separated	4.44	8.61
Widowed	3.45	1.48
Catholic	84.84	9.27

Notes: Data used come from four cross-sectional surveys on violence against women in Spain, conducted in 1999, 2002, 2006, and 2011. I have restricted the observations to the sample used in the estimations (N=59,012). *Head of the household* shows the percentage of households in which the respondent contributes the highest share of household income.

Table 5: Summary Statistics for Unemployment in Spain, 1999-2011

Variables	Mean
Total unemployment	0.146
Unemployment 1999q1	0.173
Unemployment 1999q2	0.159
Unemployment 2001q4	0.107
Unemployment 2002q1	0.116
Unemployment 2005q4	0.088
Unemployment 2006q1	0.091
Unemployment 2010q4	0.205
Unemployment 2011q1	0.214
Female unemployment	0.182
Male unemployment	0.121
Age 16-24 unemployment	0.285
Age 25-44 unemployment	0.140
Age 45-64 unemployment	0.102

Notes: Data used come from eight quarters of the Active Population survey, from 1999 to 2011. I have restricted the observations to the sample used in the estimations (N=909,248). The table provides the average unemployment rate (unemployed/active population) using survey weights.

Table 6: Impact of Unemployment on IPV

	(1)	(2)	(3)	(4)	(5)	(6)
	Mean Dep. Var. (IPV)=0.089					
Panel A. Contemporaneous effects (unemployment in same quarter)						
Unemployment	0.06	0.06				
	(0.079)	(0.080)				
Male unemployment (all ages)			0.11	0.11		
			(0.142)	(0.143)		
Female unemployment (all ages)			-0.03	-0.03		
			(0.089)	(0.089)		
Male unemployment (own age group)					0.04	0.04
					(0.040)	(0.040)
Female unemployment (own age group)					-0.06*	-0.05*
					(0.029)	(0.029)
Panel B. Lagged effects (unemployment in the previous quarter)						
Unemployment	0.05	0.05				
	(0.074)	(0.076)				
Male unemployment (all ages)			0.03	0.03		
			(0.116)	(0.118)		
Female unemployment (all ages)			0.02	0.02		
			(0.066)	(0.064)		
Male unemployment (own age group)					-0.03	-0.03
					(0.035)	(0.035)
Female unemployment (own age group)					0.01	0.01
					(0.028)	(0.027)
Observations	57,095	57,095	57,095	57,095	57,095	57,095
Adj-R^2	0.023	0.034	0.023	0.034	0.023	0.034
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Additional individual-level controls	No	Yes	No	Yes	No	Yes

Notes: All models include age-group fixed effects, the presence of children and respondent's level of education fixed effects as control variables. Additional individual-level controls include partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Impact of Unemployment on IPV, by Historical Family Types

	(1)	(2)	(3)
Mean Dep. Var. (IPV)=0.089			

	(1)	(2)	(3)
Panel A. Contemporaneous effects (unemployment in same quarter)			
Male unemployment	0.02	0.03	0.03
	(0.061)	(0.060)	(0.067)
Female unemployment	-0.12**	-0.12**	-0.13**
	(0.054)	(0.053)	(0.055)
Male unemployment*Stem	-0.08	-0.11	-0.18
	(0.221)	(0.213)	(0.254)
Female unemployment*Stem	0.55**	0.54**	0.60**
	(0.271)	(0.265)	(0.252)
Panel B. Lagged effects (unemployment in previous quarter)			
Male unemployment	-0.05	-0.04	-0.08
	(0.058)	(0.058)	(0.070)
Female unemployment	-0.07	-0.07	-0.03
	(0.054)	(0.051)	(0.064)
Male unemployment*Stem	-0.13	-0.13	0.21
	(0.287)	(0.285)	(0.377)
Female unemployment*Stem	0.69*	0.67*	0.20
	(0.351)	(0.338)	(0.368)
Observations	54,768	54,768	54,768
Adj-R^2	0.023	0.034	0.036
Province and year FE	Yes	Yes	No
Traditional family type specific time FE	Yes	Yes	No
Province-year FE	No	No	Yes
Additional individual-level controls	No	Yes	Yes

Notes: *Stem* is defined as living in a province in which the stem family was the prevalent family type in the past, measured as the average number of married and widowed women in the household at the province level in 1860. All models include age-group fixed effects, the presence of children and respondent's level of education fixed effects as control variables. Additional individual-level controls include partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Impact of Unemployment on IPV, by Historical Family Types, with Exogenous Unemployment

	Mean Dep. Var. (IPV)=0.089		
	(1)	(2)	(3)
Contemporaneous effects (unemployment in same quarter)			
Male unemployment	0.42*	0.50**	0.37*
	(0.236)	(0.234)	(0.217)
Female unemployment	-0.68**	-0.71**	-0.56*
	(0.312)	(0.314)	(0.281)
Male unemployment*Stem	-1.71*	-1.88*	-1.26
	(0.934)	(0.951)	(0.852)
Female unemployment*Stem	2.51**	2.61**	2.02**
	(1.058)	(1.023)	(0.864)
Observations	54,768	54,768	54,768
Adj-R^2	0.023	0.034	0.036
Province and year FE	Yes	Yes	No
Traditional family type specific time FE	Yes	Yes	No
Province-year FE	No	No	Yes
Additional individual-level controls	No	Yes	Yes

Notes: *Stem* is defined as living in a province in which the stem family was the prevalent family type in the past, measured as the average number of married and widowed women in the household at the province level in 1860. All models include age-group fixed effects, the presence of children and respondent's level of education fixed effects as control variables. Additional individual-level controls include partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Impact of Unemployment on Different Types of IPV and Controlling Behaviors

	(1)	(2)	(3)
	Extract resources	Control behavior	Physical/sexual
Mean Dep. Variable	0.004	0.007	0.033
Male unemployment	0.02	0.05	0.32**
	(0.049)	(0.058)	(0.150)
Female unemployment	-0.04	-0.10	-0.48**
	(0.064)	(0.073)	(0.197)
Male unemployment*Stem	-0.15	-0.36	-1.09*
	(0.251)	(0.330)	(0.628)
Female unemployment*Stem	0.24	0.44	1.67***
	(0.259)	(0.303)	(0.592)
Observations	54,768	54,685	54,768
Adj-R^2	0.006	0.008	0.020
Province-year FE	Yes	Yes	Yes
Additional individual-level controls	Yes	Yes	Yes

Notes: The dependent variable in model (1) is "Takes the money you make or doesn't give you enough money to live on"; in (2) it is "Does not allow you to work or study" and in (3) it is physical and sexual violence. All models include age-group fixed effects, the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. In all the specifications I use the exogenous measures of unemployment. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Exploring Individual Unemployment

	(1)	(2)	(3)	(4)
Mean Dep. Var. (IPV)=0.106				
Male unemployment	0.51*	0.46*	0.50*	0.46*
	(0.253)	(0.253)	(0.253)	(0.254)
Female unemployment	-0.67**	-0.65*	-0.68**	-0.66*
	(0.333)	(0.335)	(0.335)	(0.336)
Male unemployment*Stem	-2.25**	-2.28**	-2.28**	-2.30**
	(1.030)	(1.027)	(1.033)	(1.030)
Female unemployment*Stem	3.05***	3.07***	3.09***	3.11***
	(1.021)	(1.009)	(1.035)	(1.022)
Observations	44,143	44,143	44,143	44,143
Adj-R^2	0.023	0.023	0.023	0.023
Respondent's work status	No	No	Yes	Yes
Partner's work status	No	Yes	No	Yes
Province-year FE	Yes	Yes	Yes	Yes
Additional individual-level controls	Yes	Yes	Yes	Yes

Notes: *Stem* measures the social prevalence in the past of the stem family. Respondent's work status takes 3 categories: working, unemployed and inactive. Partner's work status takes the value 1 if the partner had any job in the last year (for surveys 1999, 2002 and 2006) or if he is currently working (for survey 2011) and zero otherwise (for survey 2011 this means either unemployed or inactive). All models include age-group fixed effects, the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. In all the specifications I use the exogenous measures of unemployment. I have restricted the sample to those respondents for whom individual work status information was available for both them and their partner. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Inactive Respondents and Peers Effects

	Mean Dep. Var. (IPV)=0.075	
	(1)	(2)
	45-65 Unemp.	Unemp. All
Male unemployment	0.27	0.51
	(0.183)	(0.486)
Female unemployment	0.06	-0.03
	(0.144)	(0.346)
Male unemployment*Stem	-3.47**	-3.45
	(1.089)	(3.241)
Female unemployment*Stem	0.54	0.51
	(1.059)	(2.507)
Observations	15,169	15,169
Adj-R^2	0.06	0.06
Province and year FE	Yes	Yes
Traditional family type specific time FE	Yes	Yes
Additional individual-level controls	Yes	Yes

Notes: *Stem* measures the social prevalence in the past of the stem family. The unemployment rate is the actual unemployment rate for men and women at the province and quarter level, in model (1) computed for the 45-65 age group and in model (2) for all the working age population. All models include the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. I have restricted the sample to respondents aged 65 or older. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Placebo Test

	(1)	(2)	(3)	(4)
	Mean Dep. Var. (IPV)= 0.089			
'Var.'	ln(Pop.Den.1860)	ln(Urban.1860)	ln(GDP pc)	Polit. Beliefs
Male unemployment	0.04	0.11	-0.12	0.12
	(0.356)	(0.253)	(0.405)	(0.334)
Female unemployment	-0.25	-0.35	-0.30	-0.06
	(0.415)	(0.292)	(0.391)	(0.368)
Male unemployment*'Var.'	0.08	0.02	0.13	0.05
	(0.213)	(0.111)	(0.519)	(0.283)
Female unemployment*'Var.'	0.02	0.03	0.32	-0.22
	(0.226)	(0.115)	(0.566)	(0.299)
Observations	54,768	54,768	57,095	56,902
Adj-R^2	0.036	0.036	0.037	0.037
Province-year FE	Yes	Yes	Yes	Yes
Add. individual-level controls	Yes	Yes	Yes	Yes

I interact the exogenous unemployment rates with the population density, urbanization rates (both in 1860 at the province level), GDP per capita at the province-survey-year level and an index of political ideology (measured in 2012-2013). All *'Var.'* are recentered by subtracting their minimum value (lower values represent more left-wing ideology). All models include age-group fixed effects, the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 13: Robustness Tests

	(1)	(2)	(3)	(4)
Mean Dep. Var. (IPV)= 0.089				
Panel A: Alternative Family Types Measures				
Male unemployment	0.26	0.28	0.61**	
	(0.177)	(0.179)	(0.235)	
Female unemployment	-0.38	-0.37	-0.91***	
	(0.242)	(0.244)	(0.304)	
Male unemployment*Stem	-0.38	-0.42**	-1.47**	
	(0.269)	(0.204)	(0.663)	
Female unemployment*Stem	0.55**	0.52**	2.19***	
	(0.272)	(0.213)	(0.671)	
Panel B: Collinearity Check				
Female-male unemployment				-0.49**
				(0.224)
Female-male unemployment*Stem				2.45***
				(0.875)
Observations	54,768	54,768	54,768	54,768
Adj-R^2	0.036	0.036	0.036	0.036
Province-year FE	Yes	Yes	Yes	Yes
Additional individual-level controls	Yes	Yes	Yes	Yes

Notes: In Panel A column (1) *Stem* is measured as a binary variable that takes the value 1 if the average number of married and widowed women in the household at the province level in 1860 is greater than 1.075. In column (2) the threshold for defining a stem family province is lowered down to 1.02 (percentile 70 of the distribution). In column (3) I use the average number of married and widowed people (both men and women) in the household at the province level in 1860. In Panel B (column (4)) I compute the unemployment gap and measure family types in the standard way (i.e., as the average number of married and widowed women in the household at the province level in 1860). In all the specifications I use the exogenous measures of unemployment. All models include age-group fixed effects, the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 14: Instrumental Variables Results

	(1)	(2)
Mean Dep. Variable= 0.089		
	(1)	(2)
	Control Function	2SLS
Female-male unemployment	-0.43**	-0.46*
	(0.208)	(0.279)
Female-male unemployment*Stem	1.53*	4.25
	(0.830)	(2.856)
Observations	54,659	54,768
Pseudo/CenteredR^2	0.077	0.037
Province-year FE	Yes	Yes
Additional individual-level controls	Yes	Yes

Notes: I first regress male and female unemployment (separately) on all exogenous variables, including the Bartik-style unemployment rates. Then I compute the gap of the predicted residuals in model (1) and the predicted unemployment gender gap in model (2), and in both cases I construct the interaction with the family types. Finally, in model (1) I run a probit model including the endogenous unemployment linear gap, its interaction with family types, and the residuals from the first stage and its interaction. In model (2) I run a 2SLS regression instrumenting the unemployment linear gap and its interaction with the family types by the predicted unemployment gender gap and the constructed interaction. Coefficients reported in model (1) are the marginal effects from the probit model. All models include age-group fixed effects, the presence of children, respondent's and partner's level of education fixed effects, marital status fixed effects, and respondent's religion. Standard errors clustered by province in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.