

# Regional unemployment, Marriage and Divorce

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**Abstract:** In this paper, we examine the role of business cycle on marriage and divorce. To do that, we use Spanish data since the differences between recession and expansion periods across regions are marked in that country. We find that the unemployment rate is negatively associated with the marriage rate, pointing to a pro-cyclical evolution of marriages; however the response of the divorce rate to the business cycle is mixed. Results show the existence of different patterns depending on geography: divorce rates in coastal regions are pro-cyclical, while in inland regions divorces react to unemployment in a counter-cyclical way. Other factors such as changes in divorce law and duration of the marriage also have a significant effect on divorce rates.

**Keywords:** Divorce, marriage, unemployment, business cycle, geography.

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## 1. Introduction

Most of the scarce economic literature studying the impact of business cycles on marriage and divorce has focused on the US case, generally finding a negative effect of the unemployment rates on both outcomes (Amato and Beattie, 2011; Hellerstein and Morrill, 2011; Schaller, 2013). Less work has been done on the analysis of this issue for other countries; as an exception we find the studies by Fischer and Liefbroer (2006) examining the Netherlands case, Jensen and Smith (1990) for Denmark, and Ariizumi et al. (2015) for Canada. In our work, we analyse the Spanish case. Spain is characterized as a country with pronounced recessions and great volatility (Bentolilla et al., 2012). For instance, before the last Great Recession Spain exhibited unemployment rates around 8% (INE, *Instituto Nacional de Estadística*) while, in the US, unemployment was around 4-5% in the period 2005-2007 (US Bureau of Labor Statistics). However, in Spain, the rise in the unemployment rate reached up to 25% during the economic crisis (INE) tripling that of the economic expansion period, whereas in the US the maximum rate was around 10% in 2009 and now is almost 6% (US Bureau of Labor Statistics, 2014). Do these great variations in the unemployment rate affect marriage and/or divorce decisions?<sup>1</sup>

From a theoretical point of view, the relationship of the unemployment rate with both marriage and divorce is ambiguous. The early studies of Becker on marital decision-making (Becker, 1973), which are based on utility-maximizing individuals who choose to marry when the expected lifetime utility derived from marriage exceeds the expected utility from remaining single, predict a positive relationship between male job losses and the likelihood of remaining single under a specialization framework where the man is the breadwinner. According to Hoynes et al. (2012), since empirical evidence indicates a greater negative impact on male employment than in females in time of economic crisis, it would be expected a negative association between unemployment rates and marriage rates. Other researchers suggest an opposite relationship because marriage is considered as an insurance against poor economic conditions (Shore, 2009; Stevenson and Wolfers, 2007). Then, following their argument, marriage and unemployment should be positively associated.

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<sup>1</sup> Of course, there are more determinants of divorce; e. g., unilateral divorce reforms (Friedberg, 1998; Wolfers, 2006), child custody and child support laws (González-Val and Marcén, 2012), price stability (Nunley, 2010) or culture (Furtado et al., 2013) among others.

In the case of divorce, Becker et al. (1977) extend Becker's model to marital instability. In this Beckerian framework, male job losses should increase the likelihood of divorce considering again specialization. Contrary to this prediction, when marriage is viewed as insurance against economic problems, it should be expected that the greater the unemployment rate the lower the divorce rate. More recently, Ariizumi et al. (2015) suggest that the sign of the relationship between divorce and the unemployment rate depends on the balance of the economic crisis impacts on the gains derived from marriage, and on the quality of those without a partner that divorcees may potentially match with. It is also possible to find other theoretical alternatives to explain the impact of the business cycle on divorce; for example, Amato and Beattie (2011) propose three perspectives: the psychosocial stress perspective, the cost of divorce perspective, and the hybrid perspective. The first perspective leads to a positive association between unemployment rate and divorce, although the effect should be greater when variables are lagged since the stress of decreasing employment opportunities takes time to affect the marital stability. In the cost of divorce perspective, a job loss can generate economic constraints making difficult the access to a costly divorce; for that, the increase in the unemployment rate should be inversely related to the divorce rate. In the last case, combining the other two perspectives, those authors suggest that the unemployment rate should be negatively associated with the divorce rate when both rates are measured in the same year and positively associated when the divorce rate is measured in subsequent years. Therefore, a priori, the relationships between the business cycle and the marriage and divorce patterns are not clear.

To shed light on this theoretical debate, few papers have empirically studied the role of business cycle fluctuations in determining marriage and divorce rates. Early studies conclude that both marriage and divorce rates are pro-cyclical (Ogburn and Thomas, 1922; Stouffer and Spencer, 1936; Kirk and Thomas, 1960; Silver, 1965). More recent works using state-level data or individual-level data for the US also obtain a negative effect of economic recession on divorce rates (Amato and Beattie, 2011; Hellerstein and Morrill, 2011; Hellerstein et al., 2013; Schaller, 2013; Baghestani and Malcolm, 2014) and on marriage rates (Schaller, 2013). As an exception, South (1985) detects a small positive relationship between the unemployment rate and the divorce rate using US national-level data. In the case of the Netherlands, Fischer and Liefbroer (2006) show a negative effect of consumer confidence on divorce rate. For Denmark,

Jensen and Smith (1990), utilizing panel data for a sample of married couples, suggest that unemployment is an important determinant of marital instability. Their results indicate an immediate positive effect of husband job loss on divorce probability. Similarly, Doiron and Mendolia (2011) show evidence that involuntary job losses have a positive impact on the probability of divorce using the British Household Panel Survey. However, Ariizumi et al. (2015) do not determine any effect of unemployment on divorce in the analysis of the Canadian case, but their findings indicate a clear negative impact of male unemployment on the Canadian marriage rate. By using Spanish data, to our knowledge, there is not any other paper examining this issue. The only related study is the paper by Gutiérrez-Domènech (2008), who finds that the negative impact of unemployment on fertility decisions in Spain may be due to the postponement of marriages, which point to an inverse relationship between unemployment and marriages.

In our main empirical analysis, we use Spanish data on marriage and divorce rates from 1998 to 2013 measured at the province level (NUTS III regions). As in prior studies, to capture the business cycle behaviour we use information on regional unemployment rates during the same period. By estimating the average effect of unemployment on divorce, we do not find statistically significant results after including controls for unobservable characteristics that can vary over time and for other observable characteristics. The same result is obtained by using the male unemployment rate instead of the whole unemployment rate. Moreover, we repeat the analysis splitting the sample into two periods to check for whether our results are driven by legislation variations. In 2005 there was a significant divorce law reform that reduced the divorce costs making it more accessible for those couples with economic constraints. Even with this liberalization of the divorce law, results show a clear negative relationship between the unemployment rate (regardless of the way in which this is measured) and the divorce rate after the divorce law reform.

Additionally, we take into consideration regional characteristics in the analysis inasmuch as Spain presents clear dissimilarities in the divorce and unemployment patterns across regions, with those regions having high divorce rates and also high seasonality in the employment demand mainly located in the coast. Differences in the attitudes towards divorce and unemployment can be driven our results if, for instance, a divorce because of a job loss in an area with high seasonality in the employment

demand would be less acceptable than in a region where an unemployment situation is indicative of less economic suitability as a partner (Doiron and Mendolia, 2011). Our findings point to clear different regional patterns. Results suggest that the divorce rate responds in a counter-cyclical way in inland regions but in a pro-cyclical way in coastal regions.

This work also explores the relationship between the business cycle and different kinds of divorce (with/without mutual consent). This analysis provides further evidence in favour of the relevance of the business cycle in divorce decisions. When couples divorce under mutual consent, the divorce process normally ends in few months and so, the effect of the contemporary business cycle situation should be detected for them. Nonetheless, those that do not agree in their divorce process usually spend a lot of time involved in judicial processes (even several years); then, for those couples we would not expect any relationship between the contemporary business cycle and the contemporary divorce rate since the business cycle situation when they took the divorce decisions may not correspond to the situation when the divorce process finalizes.

If economic constraints vary during marriage, it would be expected that the response of married individuals to the business cycle variations changes depending on the number of years of marriage (Arkes and Shen, 2014). For example, a job loss in a young married couple can indicate a lower economic suitability of a partner which decreases the potential gains derived from marriage. In addition, those that have been married during less years are less likely to have children and less likely to have several assets in common, so divorce would be potentially less costly for them. Therefore, for those young couples we would expect a positive relationship between unemployment and divorce. Similarly to Arkes and Shen (2014), we find differences in the relationship between divorce and unemployment by stage of marriage.

Regarding the association between marriage and unemployment, our findings always point to a pro-cyclical response of the marriage rate regardless of the sample used, the geography, the measure of marriage and unemployment rates and the controls for unobserved and observed characteristics. The inverse relationship between marriage and unemployment rate is observed in both coastal and inland regions. Nonetheless, those living in inland regions are less likely to get married when the unemployment rate increases than those living in coastal regions. This is consistent with our findings on the

relationship between divorce and unemployment suggesting that unemployment is less acceptable in marriage for those living in inland regions.

Taking into consideration the works of Schaller (2013) and Amato and Beattie (2011), we can hypothesize that there can be a lag impact of the unemployment rate on divorce and marriage rates. This is so since couples may react by putting off their marital decisions if there are changes in labour market conditions. To examine this issue, we have considered in the analysis lagged unemployment rates. Albeit the length of the lag is not clear, we use lags from 1 to 2 years since in Spain the minimum legal separation period required to get divorced was 2 years until the divorce law reform in 2005, and even after the known as ‘express divorce law,’ there can be a period of time between the decision to divorce and when the divorce process can be finalized. Results show that the contemporary unemployment rate impact both marriage and divorce, but no dynamic effects can be found.

Since divorce rates are quite different between coastal and inland regions, it is possible to argue that our results are just consequence of a non-linear response of that variable to the business cycle variations instead of an opposite response of divorce to the unemployment rate in coastal and inland regions. To tackle this issue, we explore the potential non-linear response of marriage and divorce rates to the fluctuations of the business cycle by using quantile regressions. Our results show that, depending on the level of marriage and divorce rates, the impact of unemployment rate on marital decisions does not substantially vary. This is even more remarkable when we examine the differences in the impact of unemployment by coastal and inland regions where, for instance, the relationship of the unemployment rate and the divorce rate in inland regions remains almost unchanged regardless of the level of the divorce rate.

The remainder of the paper is organized as follows. Section 2 presents the data used. In section 3, we describe the methodology and the main regression results. Section 4 shows the lag specifications. The non-linear analysis is presented in Section 5, and Section 6 concludes.

## **2. Data**

In order to implement this analysis, we use data from 50 Spanish provinces (NUTS III regions).<sup>2</sup> The divorce rate is defined as the annual absolute number of divorces per thousand inhabitants in each region. The available data on divorce covers the period 1998 to 2013 (INE).<sup>3</sup> This ‘crude’ divorce rate represents the standard measure of the level of, and changes in, divorce. Nonetheless, the rates might be affected by the marital status structure of the populations to which they relate. Divorce rates may be low either because marriage rates are low, or because marriages are less likely to end in divorce. To explore this issue, we could have used an alternative definition of divorce rates, measured as annual number of divorces per 1,000 married population. This analysis would have been less reliable due to the scarcity of data on the total number of marriages, which is only available when each census is collected, normally every 10 years (see Furtado et al., 2013). For that reason, we favour the use of the crude divorce rate although all the analysis has been repeated with the divorce rate calculated as annual number of divorces per 1,000 married inhabitants. Results do not change.<sup>4</sup>

The evolution of the crude divorce rate at the national level is presented in Figure 1. The average divorce rate slightly increases from 1998 to 2004. After that, it is observed a sharply rise in this rate until 2006 coinciding with the introduction of the so-called ‘express divorce law’ in 2005. This law reform eliminated the legal separation period requirements to get a divorce and introduced the unilateral divorce in Spain. Under this new regime, divorce can be granted at the request of either spouse if both spouses have been married during at least 3 months.<sup>5</sup> From 2006 the divorce rate decreases and has been maintained around 2.1 divorces per thousand individuals since 2008 until the end of our sample in 2013. The average marriage rate is also plotted. This rate is calculated as the annual number of marriages per thousand inhabitants in each region. As in the case of the divorce rate, this is a common measure of marriage in the literature but it does not properly consider the population that could legally get married. To tackle this issue, we have also re-run all this work using as dependent variable a rate calculated as the number of annual number of marriages per thousand non-married inhabitants and results are maintained<sup>6</sup> even being aware of the concerns that the scarce

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<sup>2</sup> Ceuta and Melilla, located in the African coast, are excluded from the analysis.

<sup>3</sup> There is no information on the Spanish divorce rate at the province level for the period 1981 to 1997.

<sup>4</sup> These results are shown in the Appendix, see Tables A1 to A3 and A6.

<sup>5</sup> As can be seen in the next Section, we take into account this change in the divorce law in the empirical analysis.

<sup>6</sup> These results are shown in the Appendix, see Tables A4, A5 and A7.

information on that population (non-married inhabitants) normally available every 10 years can generate. As shown in Figure 1, the marriage rate increased a little until 2000. That is followed by a period of relative stability around an average rate of 5.1. After 2005, a fall in the marriage rate is observed that continues until 2011 with the drop being more pronounced since 2007. In 2012, the average marriage rate increased a little, decreasing again in 2013.

The other variable of interest in this work is the unemployment rate. Unemployment refers to the share of the labour force that is without a job, but is available for and seeking employment. It is a quite common indicator of economic conditions, highly publicized and used, which captures not only the effects of individual job losses but also the variations in economic uncertainty. As Schaller (2013) explains, the unemployment can be useful in analysing marital behaviour, since it is less likely to be endogenous to divorce and marriage decisions than other income or employment variables, such as own wages. The unemployment rate is defined here as the percentage of unemployed individuals in the labour force (sum of the employed and unemployed), data is provided by the *Instituto Nacional de Estadística* (the Spanish Statistical Office). It includes changes in both labour demand and labour supply. As Schaller (2013) points out, despite the weaknesses of this variable (it can understate the magnitude of a recession by not incorporating discouraged workers, and it can be a lagged indicator of economic recession), it is considered the best available proxy to capture changes in the labour market conditions of married and unmarried individuals. Data on the unemployment rate come from the Labour Force Survey<sup>7</sup> and it is available for all the period considered in this analysis at the regional level (NUTS III regions). Its pattern of behaviour is presented in Figure 1. As mentioned above, the fluctuations of this variable in Spain are considerable. From 1998 to 2001, the average unemployment rate dramatically falls. After a stable rate around 10% until 2004, it is detected another fall until 2007. Since then, the rate has followed a very steep slope reaching levels of almost 25% during the period known as the Great Recession.

Another potential problem with the use of the unemployment rate is that variations in the unemployment rate can be due to changes in marriage and divorce situations (Schaller, 2013). Non-married women appear to be more likely to enter in the

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<sup>7</sup> The Labour Force Survey is collected using the same EUROSTAT methodology in all European countries.



labour market than married women; then, in the case that fewer individuals married or many individuals get divorce, more women might be participating in the labour market (Fernández and Wong, 2014a; 2014b). Nevertheless, it is not clear whether decreases or increases in women's participation in the labor market correspond with variations in the overall unemployment rate (Schaller, 2013). Additionally, the rise in divorce rates has been found to account for a very small part of the increase in female employment rates (Eckstein and Lifshitz, 2011). To tackle this issue, as proposed by Schaller (2013), we also use the male unemployment rate (the percentage of men in the labor force who are without a job but available for and seeking employment) in the analysis for the same period because men are less likely to change their participation in the labour market depending on their marital situation. Figure 1 also displays the evolution of the male unemployment rate. As can be seen there, the pattern is similar to that of the total unemployment rate, although until 2008 this rate is lower than the total unemployment rate since in Spain female unemployment rates are traditionally higher. After that, both total and male unemployment rates almost coincide; thus, male and female unemployment rates were quite similar during the economic crisis.

This quick glance at the temporal evolution of the average marriage and divorce rates does not appear to reveal a clear relationship between the unemployment rate and the marital decisions. It is worth noting that the decline of the marriage rate was greater in the period of the Great Recession, and that the divorce rate also decreases in that period. At the regional level, see Figure 2, significant differences across regions in the rates of divorce, marriage and unemployment can be observed, but once again a clear pattern cannot be discerned. But exploring the average marriage, divorce, and unemployment rates over the sample period for each region, Table 1, it is possible to infer some regional patterns. Those regions with low divorce rates also have low marriage rates with the exception of those settled in the Canary Islands, which present high divorce rates and low marriage rates. For the unemployment rate, the variations at the regional level are also quite relevant and persistent over time (Bentolila, 1997; Jimeno and Bentolila, 1998). Some regions maintained an average unemployment rate around 8% whereas this average rate was higher than 20% in other regions during the same period. These huge dissimilarities are also detected when the evolution of these variables is plotted at the regional level, Figure 2, suggesting that economic constraints for couples can vary at the regional level.

The considerable differences highlighted in the previous paragraph may indicate the necessity of a regional analysis of the impact of unemployment on both marriage and divorce. Additionally, using data at the national level could be problematic since NUTS II regions have different divorce and marriage laws. For example, there are differences in the property regimes and in the child custody laws; then, as suggested by Wolfers (2006) and González-Val and Marcén (2012), dissimilarities in those legal frameworks may influence both marriage and divorce decisions. If divorce is less costly in one region than in other, variations in the unemployment rate may have different effects in those regions.

### 3. Methodology and results

Initially, we estimate the following equation:

$$Y_{it} = \alpha + \beta Unemp_{it} + \Gamma' X_{it} + \Pi' T_{it} + \phi \eta_i + \varepsilon_{it}, \quad (1)$$

where  $Y_{it}$  is the divorce (marriage) rate of region  $i$  in period  $t$  and  $Unemp_{it}$  is the unemployment rate of region  $i$  in period  $t$ .  $X_{it}$  is a set of demographic, geographic and weather controls, whereas  $\eta_i$  is a vector of region fixed effects ( $\sum_{i=1}^{n-1} Region_i$ ) that allows us to pick up the impact of unobserved characteristics that can vary at the regional level.  $T_{it}$  is a matrix of time variables, incorporating: a linear time trend starting in 2005 to capture the influence of the divorce law reform approved in 2005 (Express divorce  $\cdot Time_t$  since 2005), called as the ‘express divorce law,’ the corresponding quadratic trend to measure the nonlinear effect of the express divorce law reform (Express divorce  $\cdot Time_t^2$  since 2005), time fixed effects ( $\sum_{t=1}^{t-1} Year_t$ ), region-specific linear time trends ( $\sum_{i=1}^{n-1} Region_i \cdot Time_t$ ) and quadratic region-specific time trends ( $\sum_{i=1}^{n-1} Region_i \cdot Time_t^2$ ) that allows us to control for unobserved characteristics that vary over time.  $\varepsilon_{it}$  is the error term. This framework exploits variation across regions in unemployment behaviour over time as in Schaller (2013) and in Amato and Beattie

(2011). The identification strategy of the relationship between unemployment rates and both marriage and divorce rates is based on the exogeneity of variation in region unemployment rates (Schaller, 2013). Theoretically, it is not clear whether marriage and divorce rate respond in a pro-cyclical way, or not. Then, the sign of the  $\beta$  coefficient could be positive (counter-cyclical response) or negative (pro-cyclical reaction).

### 3.1 Divorce results

Table 2 reports the estimates for Equation (1) when the dependent variable is the divorce rate. As can be seen in the first column, which do not include any control, the estimated coefficient capturing the effect of the regional unemployment rate is not statistically significant whereas the coefficient picking up the effect of the regional male unemployment rate in the regression without controls, column (2), is positive and statistically significant, pointing to a counter-cyclical response of divorce to the fluctuations of the business cycle. Note that, as we explain above, we have repeated all the analysis using male unemployment rates since it allows us to tackle the concerns that the use of female unemployment can generate.

In columns (3) and (4) we include controls for region and year fixed effects, and for region-specific linear and quadratic time trends. We also add controls for observable characteristics. A geographical coastal region dummy is incorporated since one can suggest that divorce incentives change between coastal and inland provinces because of the differences in the attitudes towards divorce. Those regions having high divorce rates, normally coastal regions, are more likely to be more acceptable of divorce (Furtado et al., 2013). Besides the localization of the regions, demographic characteristics of the population can also matter. If older individuals are less likely to get divorced (Peters, 1986) and they are less likely to be unemployed, then the older the population, the lower would be the expected unemployment and divorce rates. Thus, it is possible to conjecture that our results are driven by the differences in the age structure of the population, in addition to the relationship between unemployment rates and divorce rates. To tackle this issue, we include as a control the median age at the regional level.<sup>8</sup> Both a linear time trend and a quadratic time trend starting in 2005 are also included in those specifications to capture the influence of the divorce law reform approved in 2005. After the inclusion of all these controls, results on our variable of

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<sup>8</sup> Data come from the Spanish Statistical Office.

interest suggest that there is no significant relationship between unemployment and divorce. Coefficients picking up the effect of the unemployment rate (total in column (3) and male unemployment in column (4)) are not statistically significant, albeit negative. As suggested by Schaller (2013), this is presumably because in these specifications, not only we remove region fixed characteristics but also time-varying unobservable factors that could bias the results presented in columns (1) and (2). With respect to the estimated points capturing the effect of the controls, it is observed a striking inverse relationship between being in the coast and the divorce rate. We revisit this issue below since this suggest that the differences in the employment structure between coastal and inland regions have an impact on our results. The impact of the median age is not statistically significant, which is in line with the findings of Bruze et al. (2015) who find that the costs of divorce are similar in the earlier and later stages of marriage, pointing to a lesser importance of the age-structure. The relationship between the liberalization of the divorce law and the divorce rate appears to have an inverted U-shape. As we have described in the previous section, after the divorce law reform the divorce rate considerably increases and some years later it is observed a fall in the rate. This is also observed in the reaction of divorce rates to divorce reforms in other countries (Wolfers, 2006; González and Viitanen, 2009; González-Val and Marcén, 2012a, 2012b).

In the last column of Table 2, the employment rate is added following Schaller's (2013) advice. Although these results should be taken with caution since the employment rate incorporates the participation of women in the labour market, which, as explain above, can generate problems of endogeneity in this specification, it is comforting that our results do not vary after its incorporation. The effect of the employment rate is not statistically significant, suggesting that there is no relationship between the employment rate and the divorce rate. This finding is not what someone could expect if the higher the divorce rate the more likely would be the participation in the labour market, reducing the endogeneity concerns.

Although the inclusion of express divorce law controls does not appear to affect our estimates on the relationship between unemployment and divorce, we provide additional evidence by repeating the analysis splitting the sample into two periods. We do that in order to test whether our results are driven by the liberalization of the divorce law that could change divorce incentives by making divorce easier. This is relevant in the analysis if the reduction in the divorce costs makes divorce more attractive for

unemployed individuals in the post-reform period than in the pre-reform period. The pre-reform period covers from 1998 to 2004 and the post-reform period from 2005 onwards. Results are shown in Table 3. On the one hand, columns (1) to (3) present the estimates corresponding to the pre-reform period, where we do not find any significant coefficient on the impact of unemployment on divorce. On the other hand, using the post-reform sample, columns (4) to (9), the estimates capturing the impact of unemployment on divorce (regardless of the measure of unemployment and of the controls incorporated) are always negative and statistically significant, albeit only at the 10% level of significance for the total unemployment rate. Contrary to our expectations, in a framework of low divorce costs, it is observed a clear negative relationship between unemployment and divorce, whereas in the pre-reform period no effect is detected. This could be explained by the long separation requirements (normally 2 years) of the pre-reform period which can make that the contemporary divorce and unemployment rates would not be related. However, during the pre-reform period when both members of a married couple want to divorce, usually they lied about the real separation period to considerably reduce the divorce process making possible the association between contemporary divorce and unemployment rates. These findings can also be due to the fact that during the pre-reform period the unemployment rate remained stable in many regions, see Figure 2. Considerable differences on the evolution of the unemployment rate are only observed in few regions. Without important variations in the unemployment rate the divorce rate is maintained almost flat, see Figure 2, and that is what we observe in the estimates.<sup>9</sup> Another possibility is that regional differences in the response of the divorce rate to the unemployment rate are driving previous results.

As mentioned above, in Spain, regions with high divorce rates are mainly located in the coast (including the two archipelagos), see Table 1. The map in Figure 3 shows the spatial distribution of divorce rates in 2010, confirming a clear spatial pattern in divorce rates across regions.<sup>10</sup> Following the argument that points to the high divorce rates areas as having more accepting attitudes towards divorce, it is possible to conjecture that, in those areas, divorce costs are lower, considering both the divorce process and the social costs in terms of social ostracism (Fenelon, 1971; Furtado et al.,

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<sup>9</sup> Note that there was a methodological change in the Spanish Labour Force Survey in 2001, which generates a sudden change in the series in that period. To address this change we add year fixed effects to our regressions.

<sup>10</sup> The maps for other periods, available from the authors upon request, are similar.

2013; Glenn and Shelton, 1985). Then, we would expect that a job loss which entailed economic constraints would be more likely to generate a divorce in a region with high divorce rates than in a region with low divorce rates. We cannot forget that a job loss also produces social costs and lower economic expectations for the unemployed member of a couple. In this setting, the lower the social approval of a job loss for a member of a couple, the lower the gains derived from marriage and so the higher the probability of divorce. In Spain, we would expect to observe greater acceptance of the unemployment situation in coastal regions since those areas are characterised by seasonality of the employment demand mainly due to the tourism industry.<sup>11</sup> Additionally, since tourism has also greater capacity to generate employment even in times of economic crisis (Sánchez-Ollero et al., 2014), unemployed individuals in tourist areas have greater expectations of finding a job which may decrease the probability of divorce. However, a divorce can be more acceptable in an area with lower attitudes towards divorce if a partner is unemployed since it indicates that he/she is not an economic suitability partner (Doiron and Mendolia, 2011). Thus, the divorce decisions under a situation of unemployment will depend on the balance between the social costs of divorce and that of unemployment. To examine this issue, we introduce an interaction between the unemployment rate and a dummy that takes the value of 1 if a province is located in the coast or in an archipelago and 0 otherwise. Columns (1) to (3) of Table 4 report the estimates. Results indicate that a one-percentage-point increase in the unemployment rate in an inland region involves 0.017 more divorces per thousand inhabitants, whereas in a coastal region it involves 0.015 fewer divorces per thousand inhabitants. Both effects are statistically significant. The opposite behaviour that these results suggest could help us to explain the estimates shown in Table 2, where no relationship is detected between unemployment and divorce. The coefficients remain unchanged regardless of the unemployment rate measure, and do not vary with the introduction of the employment rate in column (3). The impact is small, that is not surprising in the literature (see for example Schaller, 2013), but significant, representing around 1% of the average divorce rate in Spain during the period considered.

The regional pattern described above can also be explained by population movements. During economic recessions people are less likely to move to tourist areas because of the economic constraints. However, they can go out in greater proportion in

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<sup>11</sup> Yearly data on employment by industry by region is not available, but differences in productive structures across regions should be controlled with the region fixed-effects.

their residence areas, increasing the probability of meeting new potential partners, which following Ariizumi et al. (2015) may increase the likelihood of divorce, whereas, in coastal regions, there are less potential partners to match with (decreasing the probability of divorce). One can also surmise that the differences in the impact of the economic crisis on the assets can be driven these results if, for instance, the economic crisis decreases the price of the houses more in coastal regions than in inland regions. Then, married couples in coastal regions would postpone their divorce decisions in greater proportion than those couples living in inland regions although, with this explanation, opposite results are not expected.<sup>12</sup> Additionally, since there is a huge number of married couples who reside in inland areas having a second residence in the coast, the variation in the price of the houses in the coast would also impact their divorce decision which can make that their behaviour would be more similar to that of married couples residing in the coastal regions, contrary to our findings.

Weather conditions can also be responsible, at least in part, of the possible social interactions that can justify those results and the potential divorce decisions of couples. As explained by Connolly (2013), weather conditions impact both mood and prosocial behaviour. Then, it would be arguable that the better the weather conditions the higher the possibility of meeting more potential partners for divorcees to match with because people spend more time out and the number of social interactions increases. Apart from that, the better the weather conditions in a region the more likely is that region to receive tourists, and so, to increase the employment demand of the tourist industry which may decrease the probability of divorce. Therefore, if controls for weather conditions are not added, results can be biased. Taking into account this issue, we add to the specification the following weather controls: the annual average precipitation, the annual number of cloudless days, the annual average temperature, the annual number of days with temperatures greater than 25°C, and the annual number of days with temperature lower than 0°C, all measured at the regional level.<sup>13</sup> Table 4 shows the estimated coefficients in columns (4) to (7). Results appear to confirm the opposite response in the coastal and inland regions even after the inclusion of those weather variables, confirming that the divorce rate behave in a counter-cyclical way in inland regions but in a pro-cyclical way in coastal regions.

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<sup>12</sup> Only the opposite movement in the houses prices in inland and coastal regions can explain an opposite reaction of couples. However, this was not the case in Spain.

<sup>13</sup> Data come from the INE.

A placebo test is also carried out. If it is the business cycle variation what matters, we would not expect to find any relationship between the unemployment rate and the divorce rate for divorces without mutual consent. The contemporary economic situation is not relevant in those cases since the divorce processes without mutual consent take a lot of time to be finalized, usually years with long judicial proceedings. But, when couples divorce under mutual consent, the process finalizes in few months, and so, we would expect a significant effect of the contemporary business cycle situation on the divorce rate. Table 5 shows the results. Reinforcing our argument that the business cycle plays a role in divorce decisions, it is observed that after separating the sample by divorce type (with/without mutual consent), for those divorces under mutual consent dominate the pro-cyclical response in coastal regions and the counter-cyclical in inland regions, while, as expected, no effect is obtained when married couples do not achieve any agreement to divorce.

Finally, as in Arkes and Shen (2014) by examining the impact of the business cycle variations in divorce rates at different stages of marriage we can provide additional empirical evidence on the role of business cycle fluctuations on divorce decisions. As explained above, we would expect a positive relationship between unemployment and divorce for young married couples since they are less likely to have children and assets in common, so their divorce costs are lower than those in other stages of marriage. Additionally, a job loss in a young couple may indicate the non-economic suitability of the unemployed member of the couple, which would decrease the potential gains derived from marriage making divorce more attractive. As times passes, individuals are more likely to have children and assets in common which considerably increases the costs of divorce, so, in this case, it would be expected a negative association between unemployment and divorce. Nevertheless, after some years, children leave the nest and mortgages have been already paid, then once again the costs of a possible divorce decreases, so unemployment and divorce should be more likely to be positively associated. These results are presented in Table 6, where the divorce rate varies depending on the years of marriage. As can be seen in that table, we only obtain a negative association of those variables for those couples married during 11 to 19 years, while in the rest of cases there are no statistically significant estimates. In Table 7 the regional differences are included. Then, the positive association between divorce and unemployment, as expected, is observed for young and old married couples in inland regions and an inverse relationship is detected only for those married 11 years



or more, with the impact being lower for those married individuals living in coastal regions during more than 20 years, suggesting that the divorce costs argument presented here may play a role.

### **3.2 Marriage results**

Another objective of this work is to explore the relationship between marriage and the business cycle. Similarly to the analysis of the divorce rate, we use the unemployment rate as a proxy of the business cycle situation. Although from a theoretical point of view the effect is not clear, using Spanish data we find evidence pointing to the dominance of the pro-cyclical behaviour as in the studies by Schaller (2013) and Ariizumi et al. (2015). Note that, since the information on the marriage rate was collected at the regional level during more years than that of the divorce rate,<sup>14</sup> we can repeat the analysis using a longer period, from 1985 to 2013. Results are reported in Table 8.<sup>15</sup> All but one of the estimated coefficients on the relationship between unemployment and marriage are negative and statistically significant. The only one which is not statistically significant, albeit negative, is located in a regression without controls (column 1), although in this case we are not controlling for the possible unobserved heterogeneity. It is worth noting that when the employment rate is added to the specifications, see columns (11) and (12), the coefficient capturing the effect of this variable is not statistically significant albeit positive after the inclusion of all controls, as in the case of the divorce rate analysis; this is not what someone could expect if there were opposite reactions when couples change their marital status, reducing our concerns with the possible endogeneity problem. Our findings indicate that a one-percentage-point increase in the unemployment rate involves around 0.030 (0.033 in the case of the male unemployment rate) fewer marriages per thousand inhabitants regardless of the period considered. As in the case of the relationship between the divorce rate and the unemployment rate, the response of the marriage rate appears to be small but it represents almost 1% of the average marriage rate in Spain.

To study whether there are differences due to the localization of the regions, we have also re-run the analysis including an interaction between the unemployment rate

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<sup>14</sup> The average marriage rate by region for the sample covering the period from 1985 to 2013 is shown in Table 1. The unemployment rate is also calculated for the same period. Data come from the INE.

<sup>15</sup> We do not include controls for the weather conditions since this information is not available at the regional level from 1985 to 1997.

and a dummy that takes the value of 1 if a province is located in the coast or in an archipelago and 0 otherwise. Table 9 reports the estimates. In contrast to that observed in the case of divorce, results suggest that both those married couples living in coastal and in inland regions behave in a similar way. The response of the marriage rate to the variations in the unemployment rate appears to be pro-cyclical regardless of the sample used and the measure of the unemployment rate. We find that a one-percentage-point increase in the unemployment rate involves around 0.037 (0.040 in the case of the male unemployment rate) fewer marriages per thousand inhabitants in inland regions and 0.027 (0.029 in the case of the male unemployment rate) fewer marriages per thousand inhabitants for those living in coastal regions. Thus, the reduction in the number of marriages is greater in inland regions than in coastal regions. This is consistent with the results on the divorce rate suggesting that those living in inland regions prefer not to be married in greater proportion than those in coastal regions when the economic constraints increase, since when unemployment rise they get married in lower proportion than those in coastal regions, and they prefer to divorce if they are married. Therefore, it appears that individuals in inland regions are less likely to view the marriage as insurance although it can also be argued that, even being regions with low divorce rates, thus, less acceptable of divorce decisions, in inland regions the postponement of marriage or divorce decisions are more acceptable during economic recession.

#### **4. Lag specification**

Up to this section, we have explored the contemporary relationship between unemployment rates and marriage and divorce rates. However, it is possible to surmise that couples react to changes in economic conditions by putting off their marital decisions. For example, for those expecting to get married, an unemployment situation can generate budget constraints. Thus, those willing to spend a large amount of money on their own wedding may postpone their marriage. A job loss can also produce even a situation of high emotional stress that can affect the stability of the relationships, which may cause a decline in the number of marriages (Schaller, 2013). For the case of those already married, as in the case of non-married couples, the unemployment of one of the members of the couple or even of both of them produces cash-constrains. Thus, it is possible to argue that those married individuals are more likely to support themselves

together and postpone divorce decisions because they cannot afford to pursue costly divorce.

To address this issue, we have included in the analysis lagged unemployment rates. As Schaller (2013) and Amato and Beattie (2011) explains, the length of the lag is not clear. We use lags from 1 to 2 years since the minimum legal separation period required to get divorce in Spain until 2005 was 2 years. After the express divorce law approved in that year, albeit legal separation requirements were eliminated, it can also possible to argue that the inclusion of lags is needed since there can be a period of time between the divorce decision and when the divorce process finalizes. Results using the divorce rate as the dependent variable are shown in Table 10. Once again, we have incorporated all the specifications with and without controls. As can be observed in that table, when we do not add any control, the coefficients capturing the impact of the contemporary unemployment rate (total or male unemployment) are positive and statistically significant, whereas the coefficients picking up the effect of the lagged unemployment rate are negative and statistically significant, see columns (1) and (2). After adding all controls, we find that only the coefficient picking up the effect of the unemployment rate lag one period is statistically significant and negative, columns (3) and (4). But, when the possible regional differences are taken into consideration in columns (5) to (7), it is observed that the contemporary unemployment rate is statistically significant, once again pointing to an opposite response of those married couples living in inland areas and in coastal areas. The estimates on the lagged unemployment are not significant, although the sign of the coefficients coincide in coastal and inland regions when the unemployment rate is lagged one period, which may explain why the estimates on the lagged unemployment rate are statistically significant in columns (3) and (4). These findings indicate that the contemporary unemployment rate is the only one relevant in divorce decisions.

In Table11, we present the results on the impact of the variations on the business cycle on marriage. In specifications without controls, columns (1) to (6), the sign of the relationship between unemployment rate and marriage rate appears to change over time. However, as previously, those results can be biased. Then, we should focus on the estimated coefficients presented in columns (7) to (12). In that case, it is observed that the contemporary unemployment rate is negatively associated with the marriage rate, pointing to a pro-cyclical behaviour of this variable regardless of the rate used (total or

male unemployment rate). The rest of coefficients on the lagged regional unemployment rate are not statistically significant, columns (7) and (8). When the period considered is extended from 1985 to 2013, the coefficient on the unemployment rate lagged one period is also statistically significant, albeit at the 10% level of significance, columns (9) and (11), but negative; then, once again pointing to a pro-cyclical response of marriage rate to the business cycle fluctuations.

## 5. Nonlinear analysis

In this section, we use an alternative approach. One important issue with the previous estimations derived from linear models is the existence of possible non-linear behaviours. Some of the variation in divorce and marriage rates may reflect the fact that the influence of some regional characteristics, particularly the unemployment rate, is not the same across the distribution of divorce and marriage rates. This is relevant in our analysis since we observe a different response of the divorce rate to the unemployment rate between coastal regions (normally characterised with high divorce rates) and inland regions (usually with low divorce rates). It can be conjectured that those differences are due to a non-linear response of the divorce rate to the unemployment rate. Thus, if it is just the level of the divorce rate what matter, for example, we would observe that the greater the divorce rate in an inland region the more likely are those individuals living in those regions to behave as those in coastal regions, and then, the respond in a pro-cyclical way.

To model these possible heterogeneous effects of the unemployment on the divorce and marriage rates, we estimate quantile regressions (Koenker and Bassett, 1978). The quantile regression version of the linear model shown in Equation (1) can be written as

$$Y_{it} = \alpha(\tau) + \beta(\tau)Unemp_{it} + \Gamma'(\tau)X_{it} + \Pi'(\tau)I_{it} + \phi(\tau)\eta_i + \zeta_{it}. \quad (2)$$

Note that the estimated parameters are  $\tau$ -dependent in this case, where  $\tau$  is the corresponding quantile of the divorce (marriage) rate. Thus, quantile regressions provide a richer characterization of the data, allowing us to consider the impact of the unemployment rate on the entire distribution of  $Y$  and not merely its conditional mean. Quantile regressions take into account unobserved heterogeneity and allow for

heteroskedasticity among the disturbances, non-normal errors, and they are more robust to outliers than standard OLS regressions.<sup>16</sup>

Figures 4 and 5 show the quantile regression results for the divorce and marriage rates models of Equation 2, respectively (the estimated coefficients are shown in Tables A8 to A13 in the Appendix). The different graphs display the estimates of the coefficients and the 95% confidence intervals for the unemployment rate across the nine quantiles considered (ranges from 0.1 to 0.9). The models include all the controls, and our estimates are weighted by population. As in the previous estimates, we do not find statistical significant coefficients on the impact of unemployment on divorce, only the male unemployment rate appears to have an effect on divorce on the top quantile (0.9), see Figure 4. This would suggest that the unemployment situation is not relevant in divorce decisions. When we separate the impact between coastal and inland regions, Figure 5, it is clearly observed the two opposite patterns also detected with the OLS estimations that could explain the previous result on the no effect of unemployment on divorce. Not only that finding is relevant, with these estimates we are interested in studying whether there is a different response of the divorce by the level of the divorce rate. For example, focusing in the case of those living in inland regions for which a positive impact is obtained, the statistically significant estimates of the quantile regressions on the relationship between unemployment and divorce are all around 0.012 and 0.014. Then, the response does not appear to be different in inland regions with low and high divorce rates. These findings suggest that it is not only the level of the divorce rate what matters. In the case of marriage, all coefficients are negative and statistically significant, again indicating that marriages respond in a pro-cyclical way to the business cycle variations. Although there are little changes in the estimates by quantile, a U-shape pattern can be observed: the decrease in the number of marriages, when the unemployment rate increases, appears to be lower for those situated in the bottom and top quantiles, but the response of marriage rate does not change so much to that observed in the linear analysis.

## 6. Conclusion

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<sup>16</sup> Moreover, quantile regressions are invariant to monotonic transformations of the dependent variable, such as logarithms.

This paper examines the relationship between the business cycle variations and the marriage and divorce rates. To do that, we use Spanish data mainly for the period covered from 1998 to 2013. Since Spain is a country with important business cycle fluctuations, we consider that this country provides an appropriate framework to explore how those changes impact marriage and divorce decisions. As a proxy of the evolution of the business cycle, the unemployment rate is used.

Although, from a theoretical point of view, it is proposed opposite responses of the marriage rate to the business cycle fluctuations, our results suggest that the procyclical behaviour dominates in the Spanish case. We find a negative relationship between the unemployment rate and the marriage rate regardless of the sample used, the measure of the unemployment rate, and the controls included in the analysis. Then, an increase in the unemployment rate is related with a decrease in the marriage rate, which is in line with the theoretical approaches which indicate that the economic constraints that a job loss can generate and/or the lower economic expectations during an economic recession period are associated with lower probabilities to enter a marriage.

Regarding the evolution of the divorce rate, we find opposite behaviours depending on geography. The divorce rate in inland regions increases when the unemployment rate rises, whereas the divorce rate in coastal regions decreases with the same movement of the unemployment rate. To our knowledge, there is not any theoretical approach that can explain these different responses in the same country. In this paper, we suggest that the differences in the level of divorce (with this being higher in coastal regions), which can be due to different attitudes towards divorce, in addition to the differences in the employment demand (with greater seasonality in the coast because of the tourism) can be responsible of that behaviour. Moreover, we also propose another alternative explanation. The access for possible divorcees of potential partners to match with decreases in coastal regions during economic crisis (because of the drop in the number of tourists), which can be translated in lower divorce rates, whereas in inland regions, the number of potential partners increases (people move in less proportion to tourist areas but increase their social activities in their residential areas) which can increase the probability of divorce.

We recognize that the impact of the unemployment rate in both marriage and divorce appears to be small although, in both cases, it represents around 1% of the average divorce and marriage rates. All these results are maintained after the

incorporation of controls for some observable characteristics such as the median age of the population, the weather conditions and even the divorce law reforms in addition to controls for unobservable characteristics that can vary at the regional level and over time. Our findings on the pro-cyclical response of marriage rates and the mixed results on divorce are also observed even when we consider a timing analysis by introducing lagged unemployment rates. Results suggest that the contemporary unemployment rate is the most important one in divorce and marriage decisions. Finally, the analysis of a possible non-linear response of our outcomes of interest (marriage and divorce) to the unemployment rate does not present quite different results with that of the linear analysis, although it is important to provide evidence on that our results are not driven by the differences in the levels of the divorce rate between coastal and inland regions.

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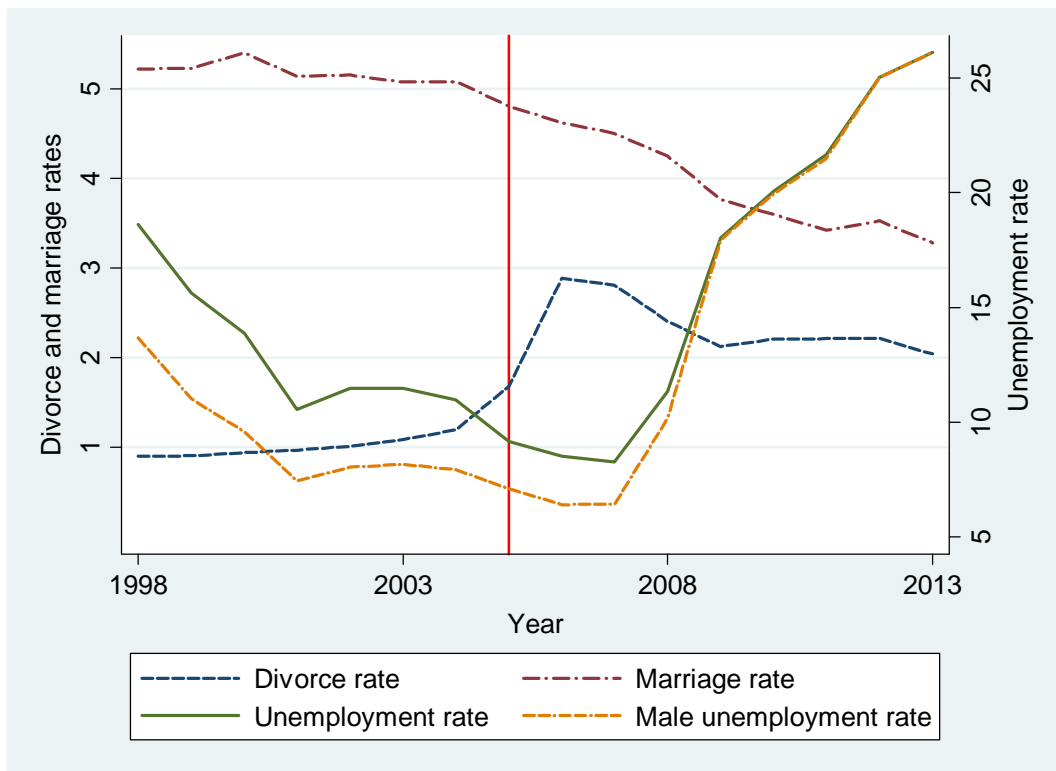
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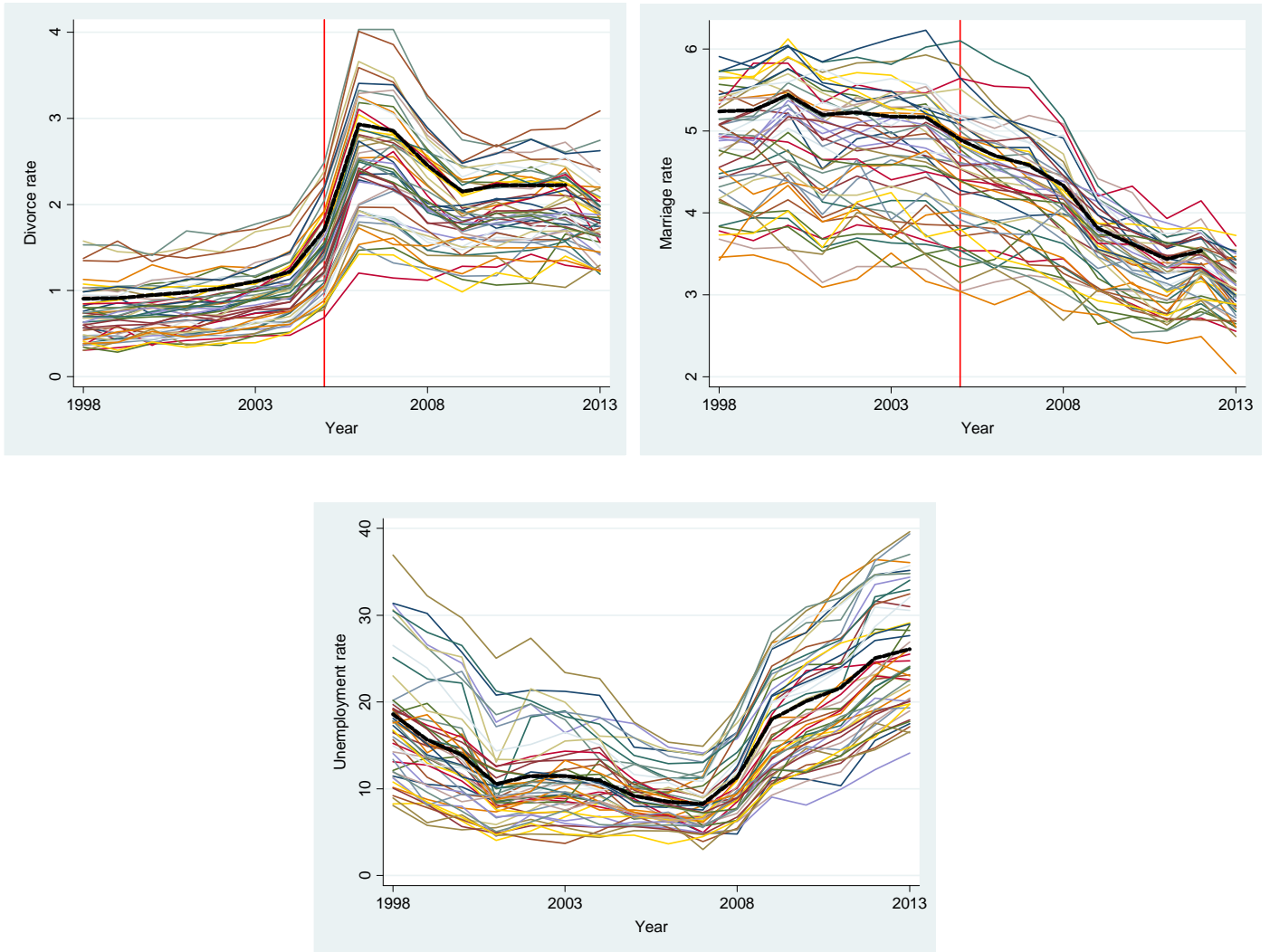
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**Figure 1. Divorce, marriage and unemployment rates in Spain, 1998–2013**



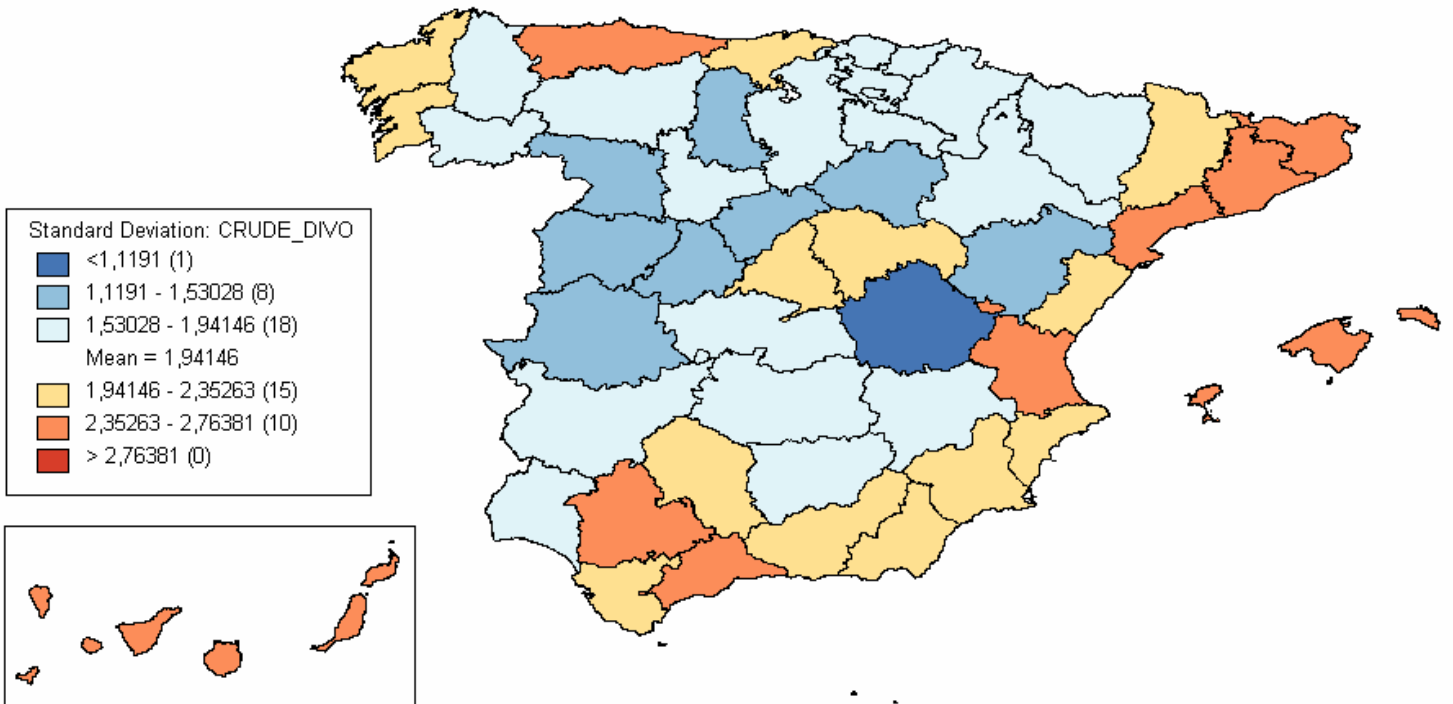
Notes: Data source: *Instituto Nacional de Estadística (INE)*. The vertical red line indicates the express divorce law reform approved in 2005.

**Figure 2. Divorce, marriage and unemployment rates by region, 1998–2013**

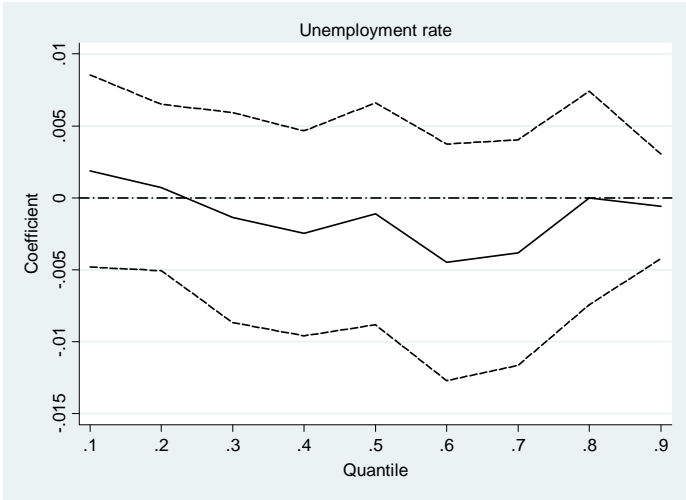


Notes: Data source: *Instituto Nacional de Estadística (INE)*. The vertical red line indicates the express divorce law reform approved in 2005.

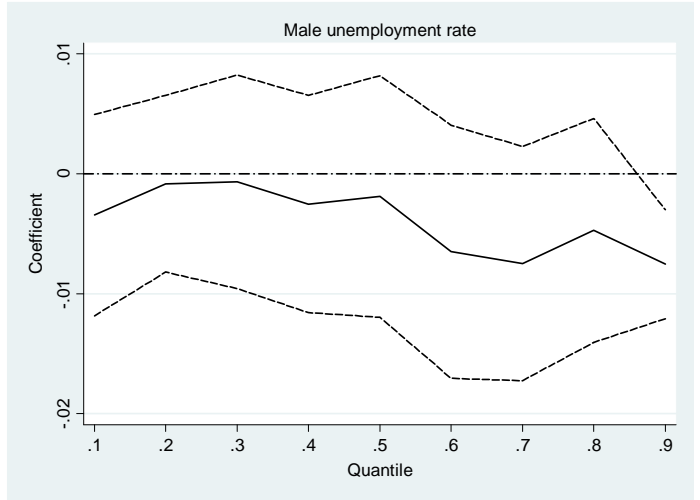
Figure 3. Divorce rate by region, 2010



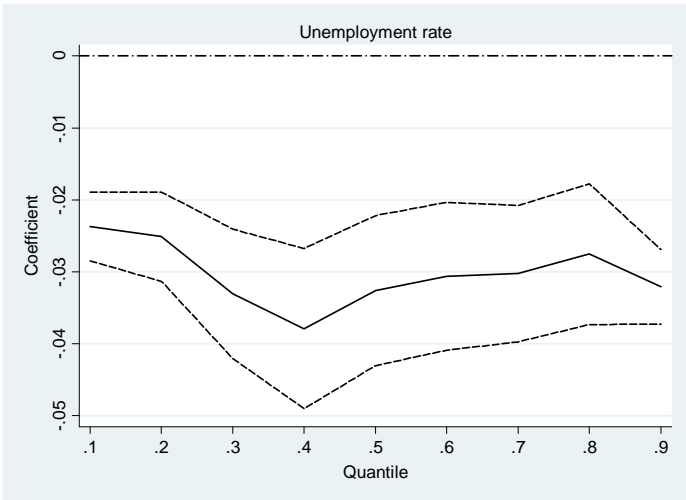
**Figure 4. Quantile regression estimates**



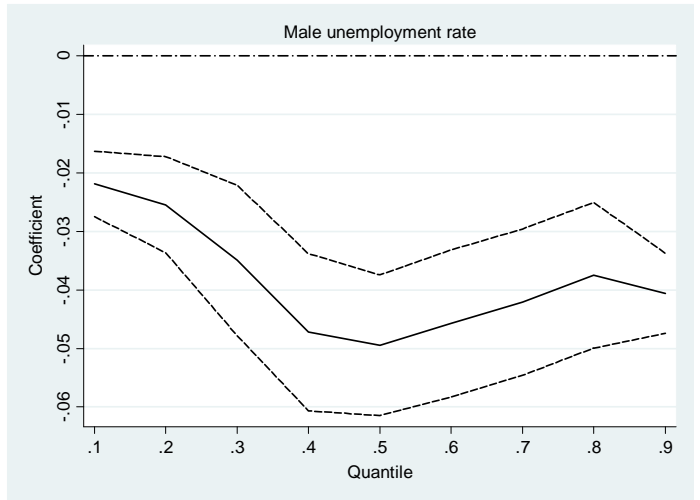
(a) Divorce rate vs. Unemployment



(b) Divorce rate vs. Male unemployment



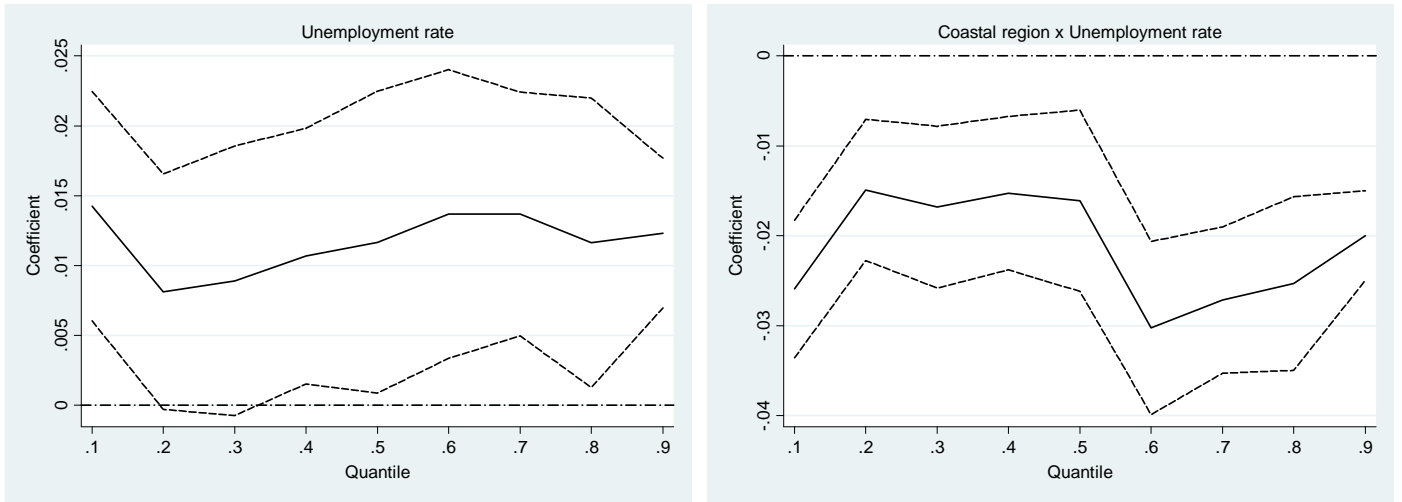
(c) Marriage rate vs. Unemployment



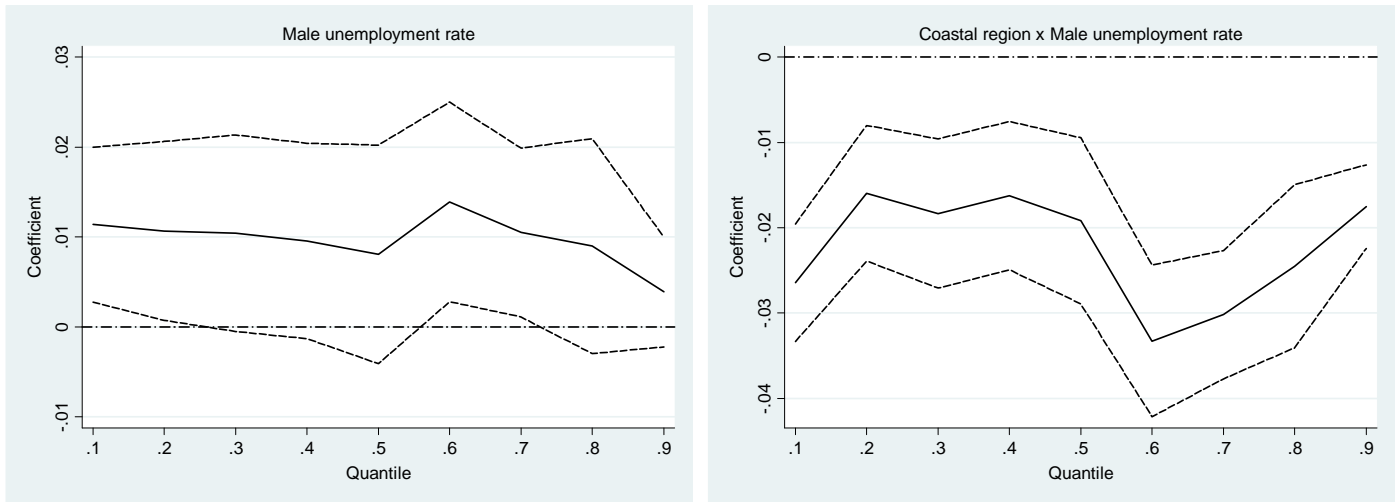
(d) Marriage rate vs. Male unemployment

Note: Endogenous variables: (a)-(b) Crude divorce rate, (c)-(d) Marriage rate. Estimates weighted by region population. All the models include a constant, the unemployment rate, the median age, a coastal region dummy, a linear and quadratic time trend starting in 2005 to capture the influence of the express divorce law reform approved in 2005, region fixed effects, region-specific linear and quadratic time trends and time fixed effects; (b) and (d) also include the employment rate. Estimated coefficients are shown in Tables A8 to A11 in the Appendix.

**Figure 5. Quantile regression estimates, divorce rate and geography**



(a) Unemployment and Coastal region x Unemployment rate



(b) Male unemployment and Coastal region x Male unemployment rate

Note: Endogenous variable: Crude divorce rate. Estimates weighted by region population. Both models include a constant, the unemployment rate, the interaction between the unemployment rate and the coastal status of the region, the median age, a coastal region dummy, a linear and quadratic time trend starting in 2005 to capture the influence of the express divorce law reform approved in 2005, region fixed effects, region-specific linear and quadratic time trends and time fixed effects; (b) also includes the employment rate. Estimated coefficients are shown in Tables A12 and A13 in the Appendix.

**Table 1. Average marriage, divorce, and unemployment rates by region**

Region	Unemployment (1998-2013)	Divorce (1998-2013)	Marriage (1998-2013)	Marriage (1985-2013)
Álava	9.84	1.41	4.32	4.58
Albacete	15.80	1.31	4.25	4.90
Alicante	16.14	1.87	4.40	4.79
Almería	18.96	1.55	4.45	5.12
Asturias	13.89	1.92	4.28	4.48
Ávila	14.17	0.84	3.38	3.76
Badajoz	22.32	1.12	4.39	4.89
Balears (Illes)	12.17	2.20	4.56	5.23
Barcelona	12.81	2.18	4.49	4.88
Burgos	11.16	1.10	3.85	4.12
Cáceres	19.23	1.06	3.73	4.36
Cádiz	26.96	1.63	4.87	5.28
Cantabria	12.11	1.68	4.75	4.74
Castellón	12.91	1.75	4.69	5.06
Ciudad Real	16.36	1.19	4.23	4.89
Córdoba	24.17	1.38	4.76	5.34
Coruña (A)	13.41	1.64	4.14	4.47
Cuenca	12.81	0.89	3.35	3.98
Girona	12.55	1.93	4.08	4.61
Granada	22.57	1.59	4.50	5.10
Guadalajara	12.02	1.35	5.05	5.13
Guipúzcoa	8.47	1.39	4.56	4.59
Huelva	22.83	1.54	4.72	5.06
Huesca	8.23	1.18	3.58	3.98
Jaén	21.85	1.23	4.40	5.05
León	13.65	1.40	3.44	3.87
Lleida	8.54	1.67	4.22	4.58
Lugo	10.44	1.25	3.20	3.65
Madrid	11.49	1.77	4.77	5.11
Málaga	21.24	1.89	4.74	5.12
Murcia	15.61	1.58	4.67	5.27
Navarra	8.63	1.35	4.48	4.72
Ourense	13.42	1.42	3.30	3.71
Palencia	12.36	1.09	3.57	3.98
Palmas (Las)	18.81	2.42	3.58	4.72
Pontevedra	15.59	1.75	4.19	4.42
Rioja (La)	10.05	1.47	4.41	4.66
Salamanca	15.45	1.14	3.82	4.16
Santa Cruz de Tenerife	17.87	2.43	3.65	4.53
Segovia	10.84	0.92	3.83	4.20
Sevilla	22.49	1.67	5.19	5.52
Soria	7.98	0.94	3.30	3.67
Tarragona	12.57	2.04	4.64	4.99
Teruel	8.60	0.85	3.45	3.86
Toledo	15.40	1.11	4.68	5.00
Valencia	15.44	2.06	5.05	5.26
Valladolid	13.79	1.37	4.51	4.39
Vizcaya	12.57	1.47	4.21	4.37
Zamora	14.38	0.95	2.95	3.45
Zaragoza	10.52	1.51	4.46	4.78
Total	14.63	1.49	4.20	4.61



**Table 2. Divorce rate models, OLS estimates, 1998–2013**

	(1)	(2)	(3)	(4)	(5)
Unemployment rate	0.005 (0.005)		-0.006 (0.006)		
Male unemployment rate		0.022*** (0.004)		-0.007 (0.006)	-0.005 (0.006)
Employment rate					0.004 (0.008)
Coastal region			-2.495*** (0.693)	-2.388*** (0.699)	-4.003** (1.439)
Median age			-0.017 (0.095)	-0.018 (0.095)	-0.016 (0.095)
Express divorce law x Time			0.260*** (0.060)	0.271*** (0.064)	0.259*** (0.065)
Express divorce law x Time <sup>2</sup>			-0.018*** (0.003)	-0.019*** (0.003)	-0.018*** (0.003)
Regional fixed effects	N	N	Y	Y	Y
Year fixed effects	N	N	Y	Y	Y
Region x Time	N	N	Y	Y	Y
Region x Time <sup>2</sup>	N	N	Y	Y	Y
R <sup>2</sup>	0.002	0.052	0.983	0.983	0.983
Observations	800	800	800	800	800

Note: Endogenous variable: Crude divorce rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 3. Divorce rate and divorce law**

	Before express divorce law (1998-2004)				After express divorce law (2005-2013)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Unemployment rate	-0.006 (0.004)			-0.023* (0.012)	-0.023* (0.012)				
Male unemployment rate		-0.007 (0.007)	-0.005 (0.007)			-0.023** (0.009)	-0.023** (0.009)	-0.021** (0.009)	-0.021** (0.009)
Employment rate			0.005 (0.006)					-0.038 (12.312)	-0.038 (12.312)
Coastal region	-1.390*** (0.397)	-1.429*** (0.464)	-0.773 (0.770)	-1.382 (11.187)	-1.382 (11.187)	0.419 (11.987)	0.419 (11.987)	-0.372 (0.505)	-0.372 (0.505)
Median age	-0.010 (0.150)	-0.013 (0.152)	-0.002 (0.158)	-0.369 (0.482)	-0.369 (0.482)	-0.381 (0.501)	-0.381 (0.501)	0.005 (0.016)	0.005 (0.016)
Express divorce law x Time					0.178*** (0.047)		0.208*** (0.053)		0.201*** (0.057)
Express divorce law x Time <sup>2</sup>					-0.003 (0.005)		-0.006 (0.005)		-0.005 (0.005)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.988	0.988	0.988	0.973	0.973	0.974	0.974	0.974	0.974
Observations	350	350	350	450	450	450	450	450	450

Note: Endogenous variable: Crude divorce rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 4. Divorce rate and geography**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unemployment rate	0.017*** (0.006)			-0.006 (0.006)		0.018*** (0.006)	
Coastal region x Unemployment rate	-0.032*** (0.008)					-0.033*** (0.007)	
Male unemployment rate		0.017*** (0.006)	0.017*** (0.006)		-0.005 (0.006)		0.018*** (0.006)
Coastal region x Male unemployment rate		-0.032*** (0.008)	-0.032*** (0.008)				-0.033*** (0.007)
Employment rate			-0.0004 (0.008)		0.004 (0.008)		-0.001 (0.007)
Coastal region	1.063 (1.369)	0.350 (1.205)	0.035 (1.242)	-2.542*** (0.720)	-2.318** (0.841)	1.116 (1.316)	-0.027 (1.193)
Median age	0.036 (0.095)	0.047 (0.095)	0.047 (0.095)	-0.007 (0.092)	-0.007 (0.093)	0.048 (0.092)	0.058 (0.093)
Express divorce law x Time	0.265*** (0.066)	0.239*** (0.067)	0.240*** (0.072)	0.282*** (0.062)	0.260*** (0.064)	0.287*** (0.066)	0.243*** (0.070)
Express divorce law x Time <sup>2</sup>	-0.022*** (0.003)	-0.021*** (0.003)	-0.021*** (0.004)	-0.021*** (0.003)	-0.018*** (0.003)	-0.025*** (0.004)	-0.021*** (0.004)
Weather controls	N	N	N	Y	Y	Y	Y
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)	0.0408	0.0393	0.0723			0.0374	0.0508
R <sup>2</sup>	0.985	0.985	0.985	0.983	0.983	0.985	0.985
Observations	800	800	800	800	800	800	800

Note: Endogenous variable: Crude divorce rate, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level. Weather controls: Annual average precipitation, annual number of cloudless days, annual average temperature, annual number of days with temperatures greater than 25°C, annual number of days with temperature lower than 0°C measured at the province level.

**Table 5. Divorce rate with/without mutual consent**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	With mutual consent				Without mutual consent			
Unemployment rate	-0.006 (0.005)		0.012** (0.005)		-0.001 (0.004)		0.006 (0.005)	
Coastal region x Unemployment rate			-0.024*** (0.006)				-0.009** (0.004)	
Male unemployment rate		-0.005 (0.005)		0.011** (0.005)		-0.0003 (0.004)		0.007 (0.005)
Coastal region x Male unemployment rate				-0.023*** (0.006)				-0.010** (0.004)
Employment rate		0.007 (0.007)		0.003 (0.006)		-0.001 (0.005)		-0.003 (0.004)
Coastal region	-0.279 (0.624)	0.379 (0.727)	2.447** (1.132)	1.996* (1.086)	-2.128*** (0.444)	-2.734*** (0.393)	-1.156 (0.692)	-2.039*** (0.491)
Median age	-0.203** (0.088)	-0.201** (0.088)	-0.162* (0.087)	-0.156* (0.087)	0.200*** (0.049)	0.199*** (0.050)	0.214*** (0.048)	0.218*** (0.049)
Express divorce law x Time	0.308*** (0.057)	0.290*** (0.058)	0.312*** (0.062)	0.278*** (0.063)	-0.030 (0.032)	-0.034 (0.037)	-0.029 (0.031)	-0.039 (0.036)
Express divorce law x Time <sup>2</sup>	-0.014*** (0.003)	-0.012*** (0.003)	-0.017*** (0.003)	-0.014*** (0.003)	-0.006*** (0.002)	-0.006*** (0.002)	-0.007*** (0.001)	-0.007*** (0.002)
Weather controls	Y	Y	Y	Y	Y	Y	Y	Y
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)			0.0370	0.0609			0.4993	0.4690
R <sup>2</sup>	0.980	0.980	0.981	0.982	0.945	0.945	0.946	0.947
Observations	800	800	800	800	350	350	450	450

Note: Endogenous variable: Crude divorce rate, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 6. Divorce rate by duration of marriage**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1-2 years		3-10 years		11-19 years		More than 20 years	
Unemployment rate	-0.001 (0.001)		-0.001 (0.002)		-0.005** (0.002)		-0.002 (0.002)	
Male unemployment rate		-0.001 (0.001)		-0.002 (0.003)		-0.007*** (0.002)		-0.003 (0.003)
Employment rate		0.0003 (0.001)		-0.0004 (0.003)		-0.002 (0.003)		0.001 (0.003)
Coastal region	0.124 (0.190)	0.713*** (0.214)	-0.654* (0.385)	0.325 (0.384)	-1.467*** (0.280)	-0.639** (0.299)	-0.448 (0.279)	-0.590 (0.376)
Median age	-0.046** (0.022)	-0.046** (0.022)	-0.059 (0.041)	-0.061 (0.040)	0.007 (0.038)	0.001 (0.036)	0.066 (0.040)	0.065 (0.040)
Express divorce law x Time	0.129*** (0.021)	0.128*** (0.022)	0.318*** (0.040)	0.318*** (0.042)	0.160*** (0.040)	0.177*** (0.038)	0.150*** (0.042)	0.149*** (0.044)
Express divorce law x Time <sup>2</sup>	-0.012*** (0.002)	-0.012*** (0.002)	-0.031*** (0.003)	-0.030*** (0.003)	-0.017*** (0.003)	-0.018*** (0.003)	-0.019*** (0.003)	-0.018*** (0.003)
Weather controls	Y	Y	Y	Y	Y	Y	Y	Y
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.960	0.960	0.985	0.978	0.975	0.975	0.977	0.977
Observations	750	750	750	750	750	750	750	750

Note: Endogenous variable: Crude divorce rate, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 7. Divorce rate by duration of marriage and geography**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1-2 years		3-10 years		11-19 years		More than 20 years	
Unemployment rate	0.002*		0.008***		0.002		0.007***	
	(0.001)		(0.003)		(0.003)		(0.002)	
Coastal region x Unemployment rate	-0.003**		-0.013***		-0.009**		-0.012***	
	(0.002)		(0.003)		(0.003)		(0.003)	
Male unemployment rate		0.001		0.008***		0.0004		0.007***
		(0.001)		(0.002)		(0.003)		(0.002)
Coastal region x Male unemployment rate		-0.003*		-0.014***		-0.009**		-0.013***
		(0.002)		(0.003)		(0.004)		(0.003)
Employment rate	0.919***	0.0005	1.142**	-0.001	-0.265	-0.003	0.258	-0.0002
	(0.255)	(0.001)	(0.448)	(0.003)	(0.402)	(0.003)	(0.373)	(0.003)
Coastal region	-0.040*	0.912***	-0.036	1.194**	0.023	-0.049	0.089**	0.259
	(0.020)	(0.294)	(0.041)	(0.537)	(0.037)	(0.409)	(0.036)	(0.421)
Median age	0.129***	-0.040*	0.318***	-0.032	0.161***	0.021	0.151***	0.093**
	(0.021)	(0.021)	(0.041)	(0.041)	(0.040)	(0.036)	(0.038)	(0.037)
Express divorce law x Time	-0.012***	0.125***	-0.032***	0.307***	-0.018***	0.170***	-0.020***	0.139***
	(0.002)	(0.022)	(0.003)	(0.043)	(0.003)	(0.039)	(0.003)	(0.042)
Express divorce law x Time <sup>2</sup>	0.919***	-0.012***	1.663	-0.032***	-0.265	-0.019***	0.258	-0.019***
	(0.255)	(0.002)	(1.632)	(0.003)	(0.402)	(0.003)	(0.373)	(0.003)
Weather controls	Y	Y	Y	Y	Y	Y	Y	Y
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)	0.1948	0.2402	0.1390	0.0809	0.0029	0.0010	0.0065	0.0137
R <sup>2</sup>	0.961	0.961	0.979	0.979	0.976	0.977	0.979	0.980
Observations	750	750	750	750	750	750	750	750

Note: Endogenous variable: Crude divorce rate, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level. Climate controls included: Annual average precipitation, number of annual cloudless days, annual average temperature, number of days with temperatures greater than 25°C, number of annual days with temperature lower than 0°C.

**Table 8. Marriage rate models, OLS estimates**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013
Unemployment rate	-0.006 (0.007)	-0.050*** (0.009)					-0.034*** (0.004)	-0.030*** (0.006)				
Male unemployment rate			-0.023*** (0.009)	-0.062*** (0.007)	-0.067*** (0.011)	-0.033*** (0.010)			-0.034*** (0.006)	-0.033*** (0.007)	-0.033*** (0.008)	-0.032*** (0.009)
Employment rate					-0.078*** (0.012)	-0.002 (0.014)					0.001 (0.011)	0.001 (0.012)
Coastal region							1.424*** (0.159)	-3.893*** (0.701)	1.638*** (0.183)	-3.640*** (0.803)	1.636*** (0.183)	-6.864*** (2.230)
Median age							0.554*** (0.138)	0.427** (0.173)	0.555*** (0.140)	0.421** (0.167)	0.559*** (0.138)	0.421** (0.167)
Express divorce law x Time							-0.348*** (0.023)	-0.731*** (0.122)	-0.317*** (0.023)	-0.678*** (0.117)	-0.319*** (0.024)	-0.679*** (0.119)
Express divorce law x Time <sup>2</sup>							0.012*** (0.003)	0.045*** (0.006)	0.010*** (0.003)	0.041*** (0.006)	0.010*** (0.003)	0.042*** (0.006)
Regional fixed effects	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Year fixed effects	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Region x Time	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.002	0.181	0.038	0.318	0.251	0.251	0.963	0.981	0.963	0.981	0.963	0.981
Observations	1450	800	1450	800	1450	800	1450	800	1450	800	1450	800

Note: Endogenous variable: Marriage rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 9. Marriage rate and geography, OLS estimates**

	(1)	(2)	(3)	(4)	(5)	(6)
	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013
Unemployment rate	-0.035*** (0.008)	-0.037*** (0.010)				
Coastal region x Unemployment rate	0.008 (0.009)	0.010 (0.010)				
Male unemployment rate			-0.037*** (0.008)	-0.041*** (0.011)	-0.037*** (0.008)	-0.040*** (0.012)
Coastal region x Male unemployment rate			0.004 (0.008)	0.011 (0.010)	0.004 (0.008)	0.011 (0.010)
Employment rate					0.002 (0.012)	0.002 (0.012)
Coastal region	-3.832*** (1.393)	-4.981*** (1.388)	1.553*** (0.291)	-4.591*** (1.180)	1.551*** (0.293)	-7.357*** (2.263)
Median age	0.446** (0.200)	0.410** (0.173)	0.542*** (0.135)	0.398** (0.167)	0.547*** (0.130)	0.399** (0.167)
Express divorce law x Time	-0.353*** (0.033)	-0.733*** (0.120)	-0.314*** (0.024)	-0.667*** (0.116)	-0.316*** (0.024)	-0.673*** (0.120)
Express divorce law x Time <sup>2</sup>	0.019*** (0.003)	0.047*** (0.006)	0.010*** (0.003)	0.042*** (0.006)	0.010*** (0.003)	0.042*** (0.006)
Regional fixed effects	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)	0.0001	0.0002	0.0000	0.0002	0.0004	0.0027
R <sup>2</sup>	0.978	0.981	0.963	0.981	0.963	0.981
Observations	1450	800	1450	800	1450	800

Note: Endogenous variable: Marriage rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.



**Table 10. Divorce rate models, lag specification**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unemployment rate	0.076*** (0.005)		-0.003 (0.005)		0.018*** (0.005)		
Unemployment rate t-1	-0.026*** (0.007)		-0.008* (0.004)		-0.002 (0.004)		
Unemployment rate t-2	-0.070*** (0.007)		0.001 (0.005)		-0.002 (0.007)		
Coastal region x Unemployment rate t					-0.030*** (0.008)		
Coastal region x Unemployment rate t-1					-0.004 (0.005)		
Coastal region x Unemployment rate t-2					0.004 (0.006)		
Male unemployment rate		0.080*** (0.004)		-0.003 (0.006)		0.020*** (0.005)	0.020*** (0.006)
Male unemployment rate t-1		-0.021** (0.008)		-0.008** (0.004)		-0.005 (0.005)	-0.005 (0.005)
Male unemployment rate t-2		-0.063*** (0.008)		0.002 (0.005)		0.002 (0.008)	0.002 (0.008)
Coastal region x Male unemployment rate t						-0.032*** (0.008)	-0.032*** (0.008)
Coastal region x Male unemployment rate t-1						-0.001 (0.006)	-0.001 (0.006)
Coastal region x Male unemployment rate t-2						-0.001 (0.007)	-0.001 (0.007)
Employment rate				0.004 (0.008)			-0.001 (0.007)
Coastal region			-1.991* (1.078)	-1.751 (1.136)	1.175 (1.863)	0.972 (1.804)	0.997 (1.810)
Median age			-0.008 (0.094)	-0.007 (0.094)	0.047 (0.091)	0.058 (0.093)	0.058 (0.093)
Express divorce law x Time			0.239*** (0.059)	0.252*** (0.063)	0.253*** (0.075)	0.233*** (0.073)	0.236*** (0.076)
Express divorce law x Time <sup>2</sup>			-0.016*** (0.003)	-0.017*** (0.003)	-0.021*** (0.005)	-0.020*** (0.005)	-0.020*** (0.005)
Weather controls	N	N	Y	Y	Y	Y	Y
Regional fixed effects	N	N	Y	Y	Y	Y	Y
Year fixed effects	N	N	Y	Y	Y	Y	Y
Region x Time	N	N	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	N	N	Y	Y	Y	Y	Y
R <sup>2</sup>	0.231	0.214	0.983	0.984	0.985	0.985	0.985
Observations	800	800	800	800	800	800	650

Note: Endogenous variable: Crude divorce rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table 11. Marriage rate models, lag specification**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013	1985-2013	1998-2013
Unemployment rate	-0.081*** (0.007)	-0.110*** (0.008)					-0.031*** (0.004)	-0.028*** (0.005)				
Unemployment rate t-1	-0.016* (0.009)	-0.032*** (0.006)					-0.007 (0.004)	-0.006 (0.006)				
Unemployment rate t-2	0.116*** (0.008)	0.128*** (0.011)					0.006 (0.006)	0.002 (0.008)				
Male unemployment rate			-0.091*** (0.007)	-0.102*** (0.007)	-0.095*** (0.007)	-0.102*** (0.007)			-0.031*** (0.005)	-0.030*** (0.007)	-0.030*** (0.006)	-0.030*** (0.008)
Male unemployment rate t-1			-0.013 (0.010)	-0.034*** (0.008)	-0.018* (0.009)	-0.034*** (0.008)			-0.008* (0.004)	-0.008 (0.006)	-0.008* (0.004)	-0.008 (0.006)
Male unemployment rate t-2			0.109*** (0.009)	0.108*** (0.013)	0.082*** (0.012)	0.106*** (0.015)			0.005 (0.005)	0.000 (0.007)	0.005 (0.005)	0.000 (0.007)
Employment rate					-0.051*** (0.012)	-0.004 (0.013)					0.001 (0.011)	-0.000 (0.012)
Coastal region							1.419*** (0.167)	-3.640** (1.526)	1.640*** (0.198)	-2.995* (1.543)	1.638*** (0.199)	-2.991* (1.578)
Median age							0.554*** (0.139)	0.430** (0.174)	0.555*** (0.141)	0.419** (0.168)	0.559*** (0.140)	0.419** (0.168)
Express divorce law x Time							-0.347*** (0.032)	-0.743*** (0.127)	-0.322*** (0.027)	-0.695*** (0.122)	-0.324*** (0.026)	-0.694*** (0.122)
Express divorce law x Time <sup>2</sup>							0.012*** (0.004)	0.047*** (0.007)	0.010** (0.004)	0.044*** (0.007)	0.010** (0.004)	0.044*** (0.007)
Regional fixed effects	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Year fixed effects	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Region x Time	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.257	0.494	0.274	0.504	0.344	0.504	0.963	0.981	0.963	0.981	0.963	0.981
Observations	1450	800	1450	800	1450	800	1450	800	1450	800	1450	800

Note: Endogenous variable: Marriage rate. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

## Appendix

**Table A1. Divorce rate models, OLS estimates, 1998–2013**

	(1)	(2)	(3)	(4)	(5)
Unemployment rate	0.014 (0.012)		-0.011 (0.013)		
Male unemployment rate		0.053*** (0.009)		-0.015 (0.013)	-0.015 (0.015)
Employment rate					0.0004 (0.008)
Coastal region			-5.601*** (1.570)	-5.165*** (1.556)	-1.728 (1.908)
Median age			-0.291 (0.229)	-0.293 (0.230)	-0.293 (0.228)
Express divorce law x Time			0.763*** (0.148)	0.786*** (0.155)	0.785*** (0.155)
Express divorce law x Time <sup>2</sup>			-0.052*** (0.007)	-0.054*** (0.007)	-0.053*** (0.007)
Regional fixed effects	N	N	Y	Y	Y
Year fixed effects	N	N	Y	Y	Y
Region x Time	N	N	Y	Y	Y
Region x Time <sup>2</sup>	N	N	Y	Y	Y
R <sup>2</sup>	0.004	0.056	0.982	0.982	0.982
Observations	800	800	800	800	800

Note: Endogenous variable: Divorce rate measured as annual number of divorces per 1,000 married individuals. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A2. Divorce rate and divorce law**

	Before express divorce law (1998-2004)				After express divorce law (2005-2013)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Unemployment rate	-0.011 (0.009)			-0.068** (0.032)	-0.068** (0.032)				
Male unemployment rate		-0.012 (0.014)	-0.010 (0.014)			-0.066*** (0.024)	-0.066*** (0.024)	-0.058*** (0.021)	-0.058*** (0.021)
Employment rate			0.009 (0.013)					0.018 (0.041)	0.018 (0.041)
Coastal region	-2.400*** (0.808)	-2.497** (0.962)	-1.375 (1.659)	2.514 (28.048)	2.514 (28.048)	7.915 (31.006)	7.915 (31.006)	6.222 (31.240)	6.222 (31.240)
Median age	-0.386 (0.340)	-0.394 (0.343)	-0.374 (0.361)	-1.533 (1.274)	-1.533 (1.274)	-1.573 (1.332)	-1.573 (1.332)	-1.539 (1.330)	-1.539 (1.330)
Express divorce law x Time					0.485*** (0.122)		0.571*** (0.143)		0.546*** (0.144)
Express divorce law x Time <sup>2</sup>					-0.001 (0.015)		-0.009 (0.013)		-0.007 (0.014)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y
R <sup>2</sup>	0.990	0.990	0.990	0.975	0.975	0.976	0.976	0.976	0.976
Observations	350	350	350	450	450	450	450	450	450

Note: Endogenous variable: Divorce rate measured as annual number of divorces per 1,000 married individuals. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A3. Divorce rate and geography**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unemployment rate	0.047*** (0.014)			-0.010 (0.013)		0.051*** (0.013)	
Coastal region x Unemployment rate	-0.080*** (0.019)					-0.082*** (0.018)	
Male unemployment rate		0.046*** (0.013)	0.042*** (0.014)		-0.014 (0.015)		0.045*** (0.013)
Coastal region x Male unemployment rate		-0.078*** (0.019)	-0.079*** (0.019)				-0.082*** (0.018)
Employment rate			-0.012 (0.019)		-0.001 (0.020)		-0.013 (0.019)
Coastal region	3.372 (3.198)	1.606 (2.815)	3.853 (2.893)	-5.676*** (1.595)	-1.964 (1.906)	3.515 (3.078)	3.735 (2.793)
Median age	-0.157 (0.235)	-0.132 (0.236)	-0.136 (0.234)	-0.269 (0.223)	-0.271 (0.223)	-0.129 (0.229)	-0.111 (0.231)
Express divorce law x Time	0.778*** (0.163)	0.707*** (0.169)	0.736*** (0.174)	0.798*** (0.153)	0.784*** (0.148)	0.810*** (0.165)	0.743*** (0.167)
Express divorce law x Time <sup>2</sup>	-0.062*** (0.008)	-0.058*** (0.009)	-0.060*** (0.010)	-0.056*** (0.008)	-0.054*** (0.007)	-0.066*** (0.009)	-0.062*** (0.009)
Weather controls	N	N	N	Y	Y	Y	Y
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)	0.0499	0.0410	0.0520			0.0491	0.0389
R <sup>2</sup>	0.984	0.984	0.984	0.982	0.982	0.984	0.984
Observations	800	800	800	800	800	800	800

Note: Endogenous variable: Divorce rate measured as annual number of divorces per 1,000 married individuals, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A4. Marriage rate models, OLS estimates, 1998–2013**

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.110*** (0.017)			-0.060*** (0.013)		
Male unemployment rate		-0.134*** (0.013)	-0.175*** (0.017)		-0.063*** (0.015)	-0.063*** (0.018)
Employment rate			-0.096*** (0.025)			0.0002 (0.023)
Average precipitation				-6.119*** (1.552)	-5.797*** (1.761)	-0.217 (2.289)
Coastal region				0.444 (0.321)	0.433 (0.317)	0.433 (0.317)
Median age				-1.099*** (0.227)	-0.996*** (0.223)	-0.996*** (0.230)
Express divorce law x Time				0.067*** (0.011)	0.059*** (0.011)	0.059*** (0.012)
Express divorce law x Time <sup>2</sup>	N	N	N	Y	Y	Y
Regional fixed effects	N	N	N	Y	Y	Y
Year fixed effects	N	N	N	Y	Y	Y
Region x Time	0.227	0.382	0.461	0.982	0.982	0.982
Region x Time <sup>2</sup>	800	800	800	800	800	800
R <sup>2</sup>	-0.110***			-0.060***		
Observations	(0.017)			(0.013)		

Note: Endogenous variable: Marriage rate calculated as annual number of marriages per 1,000 nonmarried individuals. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A5. Marriage rate and geography, OLS estimates**

	(1)	(2)	(3)
	1998-2013	1998-2013	1998-2013
Unemployment rate	-0.072*** (0.018)		
Coastal region x Unemployment rate	0.017 (0.020)		
Male unemployment rate		-0.078*** (0.020)	-0.076*** (0.022)
Coastal region x Male unemployment rate		0.019 (0.019)	0.019 (0.020)
Employment rate			0.003 (0.023)
Coastal region	-7.978*** (2.925)	-7.415*** (2.599)	-1.552 (2.807)
Median age	0.417 (0.319)	0.394 (0.314)	0.395 (0.315)
Express divorce law x Time	-1.101*** (0.224)	-0.977*** (0.220)	-0.985*** (0.230)
Express divorce law x Time <sup>2</sup>	0.069*** (0.011)	0.060*** (0.011)	0.061*** (0.012)
Regional fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
Region x Time	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y
p-value (F-test of Coastal region x Unemployment rate + Unemployment rate=0)	0.0007	0.0009	0.0047
R <sup>2</sup>	0.982	0.982	0.982
Observations	800	800	800

Note: Endogenous variable: Marriage rate calculated as annual number of marriages per 1,000 nonmarried individuals, 1998–2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A6. Divorce rate models, lag specification**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unemployment rate	0.180*** (0.013)		-0.004 (0.012)		0.050*** (0.013)		
Unemployment rate t-1	-0.061*** (0.016)		-0.017* (0.009)		0.001 (0.010)		
Unemployment rate t-2	-0.162*** (0.019)		-0.000 (0.010)		-0.002 (0.016)		
Coastal region x Unemployment rate t					-0.075*** (0.019)		
Coastal region x Unemployment rate t-1					-0.015 (0.012)		
Coastal region x Unemployment rate t-2					0.003 (0.014)		
Male unemployment rate		0.190*** (0.011)		-0.006 (0.014)		0.052*** (0.012)	0.047*** (0.013)
Male unemployment rate t-1		-0.053*** (0.019)		-0.024** (0.010)		-0.007 (0.012)	-0.008 (0.012)
Male unemployment rate t-2		-0.144*** (0.020)		0.003 (0.011)		0.010 (0.018)	0.009 (0.017)
Coastal region x Male unemployment rate t						-0.078*** (0.020)	-0.079*** (0.020)
Coastal region x Male unemployment rate t-1						-0.009 (0.013)	-0.008 (0.013)
Coastal region x Male unemployment rate t-2						-0.010 (0.015)	-0.010 (0.015)
Employment rate				-0.002 (0.020)			-0.013 (0.018)
Coastal region			-4.301* (2.523)	-3.487 (2.663)	5.064 (4.491)	4.552 (4.348)	4.793 (4.375)
Median age			-0.273 (0.230)	-0.270 (0.230)	-0.130 (0.224)	-0.102 (0.229)	-0.108 (0.225)
Express divorce law x Time			0.716*** (0.147)	0.738*** (0.153)	0.770*** (0.180)	0.709*** (0.176)	0.740*** (0.177)
Express divorce law x Time <sup>2</sup>			-0.047*** (0.008)	-0.048*** (0.008)	-0.062*** (0.012)	-0.059*** (0.012)	-0.061*** (0.012)
Weather controls	N	N	Y	Y	Y	Y	Y
Regional fixed effects	N	N	Y	Y	Y	Y	Y
Year fixed effects	N	N	Y	Y	Y	Y	Y
Region x Time	N	N	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	N	N	Y	Y	Y	Y	Y
R <sup>2</sup>	0.228	0.214	0.982	0.982	0.984	0.984	0.984
Observations	800	800	800	800	800	800	800

Note: Endogenous variable: Divorce rate measured as annual number of divorces per 1,000 married individuals, 1998-2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.



**Table A7. Marriage rate models, lag specification**

	(1)	(2)	(3)	(4)	(5)
Unemployment rate	-0.219*** (0.014)		-0.054*** (0.012)		
Unemployment rate t-1	-0.069*** (0.011)		-0.016 (0.011)		
Unemployment rate t-2	0.244*** (0.019)		0.000 (0.015)		
Male unemployment rate		-0.200*** (0.012)		-0.057*** (0.014)	-0.058*** (0.016)
Male unemployment rate t-1		-0.070*** (0.015)		-0.017 (0.011)	-0.017 (0.012)
Male unemployment rate t-2		0.196*** (0.023)		-0.006 (0.014)	-0.006 (0.014)
Employment rate					-0.003 (0.024)
Coastal region			-4.818 (2.889)	-3.534 (3.065)	-3.497 (3.139)
Median age			0.438 (0.322)	0.419 (0.318)	0.418 (0.319)
Express divorce law x Time			-1.142*** (0.232)	-1.046*** (0.227)	-1.040*** (0.231)
Express divorce law x Time <sup>2</sup>			0.072*** (0.013)	0.066*** (0.012)	0.065*** (0.012)
Regional fixed effects	N	N	Y	Y	Y
Year fixed effects	N	N	Y	Y	Y
Region x Time	N	N	Y	Y	Y
Region x Time <sup>2</sup>	N	N	Y	Y	Y
R <sup>2</sup>	0.507	0.531	0.982	0.982	0.982
Observations	800	800	800	800	800

Note: Endogenous variable: Marriage rate calculated as annual number of marriages per 1,000 nonmarried individuals, 1998–2013. All the models include a constant. Robust standard errors clustered by region. All regressions are weighted by region population.

\*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A8. Quantile regression estimates, divorce rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Unemployment rate	0.002 (0.003)	0.001 (0.003)	-0.001 (0.004)	-0.002 (0.004)	-0.001 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.000 (0.004)	-0.001 (0.002)
Coastal region	-16.757*** (5.989)	-17.823*** (5.189)	-19.102*** (6.548)	-18.423*** (6.388)	-11.386 (6.921)	-13.058* (7.374)	-11.700* (7.035)	-10.799 (6.652)	-8.926*** (3.272)
Median age	-0.177*** (0.063)	-0.131** (0.055)	-0.085 (0.069)	-0.047 (0.067)	-0.046 (0.073)	0.023 (0.078)	0.083 (0.074)	0.107 (0.070)	0.105*** (0.034)
Express divorce law x Time	-0.573 (0.596)	-0.183 (0.516)	-0.193 (0.651)	0.011 (0.635)	0.667 (0.688)	0.769 (0.733)	0.934 (0.700)	0.915 (0.662)	0.672** (0.325)
Express divorce law x Time <sup>2</sup>	0.015 (0.026)	-0.004 (0.022)	-0.003 (0.028)	-0.012 (0.027)	-0.039 (0.030)	-0.044 (0.032)	-0.051* (0.030)	-0.051* (0.028)	-0.042*** (0.014)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Crude divorce rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A9. Quantile regression estimates, divorce rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Male unemployment rate	-0.003 (0.004)	-0.001 (0.004)	-0.001 (0.005)	-0.003 (0.005)	-0.002 (0.005)	-0.006 (0.005)	-0.007 (0.005)	-0.005 (0.005)	-0.008*** (0.002)
Employment rate	0.005 (0.006)	0.005 (0.006)	0.005 (0.007)	0.004 (0.007)	-0.002 (0.008)	-0.004 (0.008)	-0.005 (0.007)	-0.007 (0.007)	-0.010*** (0.003)
Coastal region	-15.979*** (5.941)	-18.225*** (5.220)	-19.354*** (6.301)	-18.801*** (6.416)	-11.753 (7.136)	-12.778* (7.476)	-12.330* (6.913)	-11.261* (6.611)	-10.923*** (3.226)
Median age	-0.130** (0.062)	-0.079 (0.055)	-0.076 (0.066)	-0.065 (0.067)	-0.044 (0.075)	0.018 (0.079)	0.070 (0.073)	0.080 (0.069)	0.123*** (0.034)
Express divorce law x Time	-0.264 (0.592)	-0.215 (0.520)	-0.395 (0.628)	-0.087 (0.639)	0.658 (0.711)	0.803 (0.745)	1.003 (0.689)	0.835 (0.659)	0.696** (0.322)
Express divorce law x Time <sup>2</sup>	0.001 (0.026)	-0.002 (0.022)	0.006 (0.027)	-0.007 (0.028)	-0.038 (0.031)	-0.046 (0.032)	-0.054* (0.030)	-0.048* (0.028)	-0.045*** (0.014)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Crude divorce rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A10. Quantile regression estimates, marriage rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Unemployment rate	-0.024*** (0.002)	-0.025*** (0.003)	-0.033*** (0.005)	-0.038*** (0.006)	-0.033*** (0.005)	-0.031*** (0.005)	-0.030*** (0.005)	-0.028*** (0.005)	-0.032*** (0.003)
Coastal region	-16.030*** (4.287)	-12.927** (5.565)	-12.839 (8.062)	-10.153 (9.984)	-8.650 (9.357)	-9.242 (9.223)	-5.687 (8.504)	-4.710 (8.775)	-0.953 (4.658)
Median age	0.724*** (0.045)	0.715*** (0.059)	0.725*** (0.085)	0.596*** (0.105)	0.627*** (0.098)	0.612*** (0.097)	0.554*** (0.089)	0.608*** (0.092)	0.598*** (0.049)
Express divorce law x Time	-1.221*** (0.426)	-2.091*** (0.553)	-1.573* (0.802)	-2.736*** (0.993)	-2.970*** (0.931)	-1.460 (0.917)	-1.518* (0.846)	-0.633 (0.873)	-1.358*** (0.463)
Express divorce law x Time <sup>2</sup>	0.050*** (0.018)	0.086*** (0.024)	0.063* (0.034)	0.113*** (0.043)	0.120*** (0.040)	0.058 (0.039)	0.061* (0.036)	0.023 (0.038)	0.052*** (0.020)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Marriage rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A11. Quantile regression estimates, marriage rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Male unemployment rate	-0.022*** (0.003)	-0.025*** (0.004)	-0.035*** (0.007)	-0.047*** (0.007)	-0.049*** (0.006)	-0.046*** (0.006)	-0.042*** (0.006)	-0.037*** (0.006)	-0.041*** (0.003)
Employment rate	0.009** (0.004)	0.007 (0.006)	0.003 (0.010)	-0.014 (0.010)	-0.013 (0.009)	-0.011 (0.010)	-0.007 (0.009)	-0.001 (0.009)	0.001 (0.005)
Coastal region	-7.508* (3.953)	-8.600 (5.824)	-10.544 (9.096)	-8.691 (9.509)	-5.954 (8.514)	-3.861 (8.910)	-1.349 (8.857)	-1.304 (8.811)	2.592 (4.857)
Median age	0.692*** (0.042)	0.721*** (0.061)	0.724*** (0.096)	0.541*** (0.100)	0.582*** (0.089)	0.532*** (0.094)	0.578*** (0.093)	0.584*** (0.093)	0.648*** (0.051)
Express divorce law x Time	-1.690*** (0.394)	-2.103*** (0.581)	-1.106 (0.907)	-1.274 (0.948)	-2.461*** (0.849)	-1.716* (0.888)	-1.337 (0.883)	-0.764 (0.878)	-1.559*** (0.484)
Express divorce law x Time <sup>2</sup>	0.071*** (0.017)	0.087*** (0.025)	0.043 (0.039)	0.049 (0.041)	0.097*** (0.037)	0.069* (0.038)	0.051 (0.038)	0.028 (0.038)	0.062*** (0.021)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Marriage rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A12. Quantile regression estimates, divorce rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Unemployment rate	0.014*** (0.004)	0.008* (0.004)	0.009* (0.005)	0.011** (0.005)	0.012** (0.006)	0.014*** (0.005)	0.014*** (0.004)	0.012** (0.005)	0.012*** (0.003)
Coastal region x Unemployment rate	-0.026*** (0.004)	-0.015*** (0.004)	-0.017*** (0.005)	-0.015*** (0.004)	-0.016*** (0.005)	-0.030*** (0.005)	-0.027*** (0.004)	-0.025*** (0.005)	-0.020*** (0.003)
Coastal region	-11.615** (5.452)	-14.047** (5.590)	-14.607** (6.405)	-13.506** (6.071)	-6.900 (7.172)	-6.620 (6.854)	-4.356 (5.794)	-4.539 (6.871)	-6.436* (3.556)
Median age	-0.192*** (0.057)	-0.146** (0.058)	-0.036 (0.067)	-0.003 (0.063)	0.027 (0.075)	0.090 (0.072)	0.095 (0.060)	0.091 (0.072)	0.162*** (0.037)
Express divorce law x Time	-0.260 (0.535)	-0.041 (0.548)	0.293 (0.628)	0.112 (0.595)	0.355 (0.703)	0.474 (0.672)	1.106* (0.568)	0.760 (0.674)	0.848** (0.349)
Express divorce law x Time <sup>2</sup>	-0.001 (0.023)	-0.011 (0.024)	-0.026 (0.027)	-0.018 (0.026)	-0.029 (0.030)	-0.035 (0.029)	-0.061** (0.024)	-0.045 (0.029)	-0.053*** (0.015)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Crude divorce rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.

**Table A13. Quantile regression estimates, divorce rate model**

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Male unemployment rate	0.011*** (0.004)	0.011** (0.005)	0.010* (0.006)	0.010* (0.006)	0.008 (0.006)	0.014** (0.006)	0.011** (0.005)	0.009 (0.006)	0.004 (0.003)
Coastal region x Male unemployment rate	-0.026*** (0.004)	-0.016*** (0.004)	-0.018*** (0.004)	-0.016*** (0.004)	-0.019*** (0.005)	-0.033*** (0.005)	-0.030*** (0.004)	-0.025*** (0.005)	-0.018*** (0.002)
Employment rate	-0.002 (0.005)	-0.002 (0.006)	0.002 (0.007)	-0.000 (0.007)	-0.008 (0.008)	-0.005 (0.007)	-0.012** (0.006)	-0.010 (0.007)	-0.016*** (0.004)
Coastal region	-12.196** (5.037)	-14.880** (5.818)	-14.080** (6.395)	-13.943** (6.358)	-8.032 (7.113)	-4.227 (6.500)	-3.706 (5.495)	-8.852 (6.994)	-8.839** (3.578)
Median age	-0.137*** (0.053)	-0.111* (0.061)	-0.061 (0.067)	-0.023 (0.067)	0.045 (0.075)	0.075 (0.068)	0.098* (0.058)	0.083 (0.073)	0.095** (0.038)
Express divorce law x Time	-0.097 (0.497)	-0.092 (0.574)	0.281 (0.631)	0.150 (0.628)	0.431 (0.702)	0.428 (0.642)	1.304** (0.542)	1.031 (0.690)	0.868** (0.353)
Express divorce law x Time <sup>2</sup>	-0.007 (0.021)	-0.010 (0.025)	-0.026 (0.027)	-0.019 (0.027)	-0.033 (0.030)	-0.034 (0.028)	-0.070*** (0.023)	-0.059** (0.030)	-0.055*** (0.015)
Regional fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region x Time <sup>2</sup>	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: Endogenous variable: Crude divorce rate (1998–2013). Estimates weighted by region population. The model includes a constant. \*\*\* Significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level.