Divorce laws and fertility decisions

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Abstract:

This paper explores the effect of divorce law reforms on fertility. By modifying the value of marriage, the introduction of divorce law reforms may impact fertility decisions. To identify the effects of those reforms on fertility, we use a quasi-experiment exploiting the legislative history of divorce liberalization across Europe. Results suggest that divorce law reforms have a negative and permanent effect on fertility. Divorce reforms decreased the Total Fertility Rate by about 0.2. The magnitude of the effect is sizable, taking into account that the average Total Fertility Rate declined from 2.84 in 1960 to 1.66 in 2006. These findings are robust to alternative specifications and controls for observed (such as the liberalization of abortion and the availability of the birth-control pill, among others) and unobserved country-specific factors, and time-varying factors at the country level. Supplemental analysis, developed to understand the mechanisms through which divorce law reforms affect fertility, shows that both marital and out-of-wedlock fertility decline, but that the impact on marital fertility varies, depending on whether couples are married prior to or after divorce law reforms.

Keywords: Fertility Rate, Divorce Law, Abortion Law, Oral Contraception

JEL: J13; J12; K36

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I. Introduction

Over the past fifty years, European countries have experienced a considerable decrease in the fertility rate, from a Total Fertility Rate (TFR), defined as *the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year*, of 2.84 on average in 1960, to a TFR lower than 1.9 in almost all European countries in 2006, with the lowest TFR being for Greece (1.4), Italy (1.34), Spain (1.38), and Portugal (1.36), according to Eurostat. These levels, below the replacement rate of 2.1, are an ongoing concern for policy-makers and researchers alike. The search for explanations of this decline in fertility (see for a review Feyrer et al. 2008) has covered much ground: the dramatic increase in female labour force participation (Ahn and Mira 2002; Brewster and Rindfuss 2000; Engelhardt et al. 2004; Michael 1985), the increase in earnings that increased the opportunity cost of women's time (Becker 1981), the technological progress (Galor and Weil 1996; Greenwood and Seshadri 2002), the decline in infant mortality (Doepke 2005; Sah 1991), the law reforms that made abortion more accessible, and the availability of the birth control pill (Ananat et al. 2007; Goldin and Katz 2000, 2002; Guldi 2008), among others. In this paper, we present evidence suggesting that divorce law reforms have also played an important role.

We are not the first to study empirically the effect of divorce law reforms on fertility but, to our knowledge, there is no existing literature that has examined reform's impact on European fertility rates. The majority of papers have focussed on the effect of public policies that regulate the aftermath of divorce in the US. Aizer and McLanahan (2006) studied the effect of the enforcement of child support on fertility, and they determined that it affects the birth selection process. Halla (2013) showed that the adoption of the joint custody regime positively affects fertility in the US. Less work has been done on the analysis of the fertility effects of the divorce law reforms that regulate how spouses obtain a divorce. Alesina and Giuliano (2007) and Drewianka (2008), both using US data, found that the implementation of divorce law reforms has a negative effect on the fertility rate.

By reducing the value of marriage relative to divorce, the liberalization of divorce laws is expected to impact fertility. The decrease in the costs associated with divorce due to legal reforms (Brinig and Crafton 1994; Peters 1992), which make out-of-marriage options more relevant under the bargaining approach (Brinig and Crafton 1994, McElroy and Horney 1981); the weakening of marriage as an insurance under the new divorce law regimes (Grossbard-Shechtman et al. 2002); and the decline in the benefits derived from marriage due to divorce law reforms (Allen 1992), all make marriage less attractive, not only for those who are married, but also for those contemplating marriage. This decline in the value of marriage is predicted to

negatively affect marital fertility in the extent to which children are considered as marriage-specific capital (Becker et al. 1977; Stevenson 2007; Weiss and Willis 1985). However, out-of-wedlock fertility should remain constant or grow, since there are more single people who may wish to bear children. Thus, the effect on the whole fertility rate should be negative or non-significant, if the increase in out-of-wedlock fertility compensates for the decline in marital fertility. It is also possible to find other explanations in the economic literature for the impact of divorce law reforms on fertility. As the costs of divorce have been reduced with the liberalization of divorce laws, the costs of entering into a bad marriage (in which couples are more likely to divorce) are also reduced. Then, the decision to marry may be easier to take, especially if there are individuals who want to have children in a marital setting (Alesina and Giuliano 2007; Drewianka 2008). As a consequence, we would expect a decrease in out-of-wedlock fertility and an increase in marital fertility. Marital fertility can also rise because couples who are already married may utilize investment in marriage-specific capital, strategically over-investing in children to increase the value of their marriage, when divorce reforms are adopted (Stevenson 2007). On the other hand, if agreements are difficult to sustain when divorce is easier to obtain under a new divorce law regime (Stevenson 2007), we would expect that couples would not want to procreate until they envision good long-term prospects for their relationships. In the same way as those who are married, couples who cohabit can also have less incentive to rear children until they are sure that their relationship is lasting, due to the increase in outside options (more divorces) generated by divorce liberalization. In this setting, we would expect a decline in fertility by delaying births. Thus, given that there are several forces operating through marital and non-marital fertility, whether divorce law reforms have an impact on fertility decisions appears to be an empirical issue.

In our analysis, we construct a panel of 18 European countries spanning the period from 1960 to 2006, using data from Eurostat, to analyze the effect of changes in divorce laws on fertility rates.[1] We identify the relationship by exploiting the legislative history of divorce liberalization across European countries. Our results suggest that the introduction of divorce law reforms decreases fertility rates, and that the effect appears to be permanent. These results are consistent with the use of different measures of fertility rates - the main measures used are the Total Fertility Rate, the Crude Birth Rate, measured as the annual number of births per 100 inhabitants, and the Completed Fertility Rate, defined as the average number of children born to a cohort of women up to the end of their childbearing age, from the cohort´s beginning of exposure to risk (at age 15) up to the age when all members of the cohort have reached the end of their reproductive period (at age 49) - and with the use of fertility rates by age of the mother.

[1] The countries considered in the analysis are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Results show that fertility falls in all age groups, with the decline being greater for women between 20 and 34 years old.

These findings contribute to the growing literature on the impact of changes in divorce laws on socio-economic outcomes. Using methodologies very similar to ours, much of the recent literature has focused on the impact of divorce law reforms on divorce rates, generally finding a positive relationship between the permissiveness of the laws and the probability of divorce (Friedberg 1998; González-Val and Marcén 2012b; Gray 1998; Peters 1986, 1992; Wolfers 2006, for the US; and González and Viitanen 2009; González-Val and Marcén 2012a, for Europe). Other researchers have studied the effect of the change in divorce laws on suicide, domestic violence, and spousal homicides (Dee 2003; Stevenson and Wolfers 2006), marriage rates (Drewianka 2008; Mechoulan 2006; Rasul 2006), marriage-specific investments (Stevenson 2007), labour supply (Gray 1998; Peters 1986), and child outcomes (Gruber 2004; Johnson and Mazingo 2000). Not only do we add to this literature by examining the effect of divorce law reforms on fertility, but we provide additional evidence implying that our results are not driven by unobserved country-specific factors, time-varying factors at the country level, the liberalization of abortion, reforms of cohabitation laws, or the availability of the birth-control pill.

We introduce controls for fixed and trending unobserved factors at the country level that may be correlated with fertility. In addition, we include in our main specification a host of country level variables that appear to be related to fertility rates. For instance, given that fertility rates are lower among women who participate in the labour market (Alba et al. 2009; Kalwij 2000) and among those who are more educated (Bloemen and Kalwij 2001; Breierova and Duflo 2004; Leon 2004), the massive incorporation of women to work since the 1970s may be driving our results. After including all these controls, the coefficients that capture the effect of divorce law reforms change very little. A potential concern with this analysis is that it omits reforms that introduced changes in the abortion and cohabitation laws, the introduction of the oral contraceptive pill, and other family policies. To examine this issue, we add to our main specification controls for legislative variations across countries in the timing of abortion and cohabitation reforms, for the introduction of the pill, and for several variables capturing family policies. Results are robust to the introduction of all these controls. These findings suggest that our analysis is identifying the role of divorce law reforms, as opposed to other reforms affecting the ability to control fertility, and also to fixed and time-variant (observed and unobserved) factors at the country level.

In the final section, we examine how divorce law reforms operate by analysing the effect on out-of-wedlock fertility and on marital fertility, separately. We find that the marital fertility rate decreases as a consequence of the liberalization of divorce laws, but that the effect is transitory; after a decade, no effect can be discerned. On the contrary, the impact on out-of-

wedlock fertility is not clear (coefficients measuring this effect are not significant in all specifications) until 7 to 8 years after the adoption of divorce law reforms, when out-of-wedlock fertility begins to negatively respond to the new divorce laws. Thus, our results suggest that the decrease in the TFR might be driven by two forces: first, after the adoption of reforms, the TFR may fall due to the reaction of marital fertility, and after 7 to 8 years it may be driven by the reaction of out-of-wedlock fertility. We also explore whether the timing of marital births is influenced by divorce law reforms, using data from several issues of the UN Demographic Yearbooks. Results suggest that divorce law reforms may have different effects on fertility, depending on whether couples were married before, or after, the divorce law reforms.

The remainder of the paper is organized as follows. Section II presents the empirical strategy. Section III describes the data. Baseline results and robustness checks are discussed in Section IV. In Section V, we analyse the mechanisms through which divorce law reform operates, and Section VI sets out our main conclusions.

II. Empirical Strategy

Our empirical approach makes use of the variations in the timing of divorce law liberalization across European countries, to identify the effects of those reforms on fertility rates. The reforms consist of any change in divorce laws that liberalizes divorce by expanding the grounds of divorce, such as irretrievable breakdown, irreconcilable differences, and/or incompatibility, and of those changes that introduce implicitly (at least after a required separation period) or explicitly (divorce can be granted at the request of either spouse) unilateral divorce. It is known as no-fault unilateral divorce reforms. This is a standard strategy in the economic literature analysing the effects of divorce law reforms for the case of the US and Europe (see for example Friedberg 1998; González and Viitanen 2009, and Wolfers 2006). But, is it a natural experiment? To utilize the legislative history of divorce laws to make inferences about the causal effect of divorce reforms, the variation in the timing of liberalization should not mirror pre-existing divergences in country-level specific characteristics. In order to evaluate this assumption, we use country-level characteristics for each of the 18 countries. Data come from a variety of sources (see Appendix). As dependent variable, we use the "time to liberalization", measured as the year in which divorce law reforms were adopted in each country, minus 1970, the year in which the first reform in the period analysed was introduced (see for a similar strategy Bailey 2006, although she studied the availability of the contraceptive pill).

Table 1 presents the estimates and robust standard errors from cross-country regressions of "time to liberalization" on selected 1960 (Panel A) and 1970 (Panel B) country-level attributes. As can be seen, none of the characteristics is statistically significant. Although these results should be taken with precaution due to the scarcity of data, the absence of a statistical

relationship to those potential determinants of divorce law reforms gives more credibility to our empirical strategy, considering divorce reforms as a valid natural experiment. [2] Despite these striking findings, we certainly acknowledge that differences in social norms, divorce taboos, countries' judiciary, legislatures, and political regimes, could result in considerable variation in the timing of the implementation of the reforms, but the exact year in which divorce law reforms were adopted appears to be exogenous. As in prior works, and given the results reported in Table 1, we favour the use of the legislative history of divorce law reforms to capture the effects of those legal changes on fertility.

Initially, our estimation strategy follows the methodology proposed by Friedberg (1998) to capture the effect of divorce law reforms. We estimate the following expression:

$$Fertiltiy\ rate_{s,t} = \beta Reform_{s,t} + \Sigma_s\ Country\ fixed\ Effects_s + \Sigma_t\ Time\ fixed\ Effects_t +$$

$$[\Sigma_s\ Country_s * Time_t + \Sigma_s\ Country_s * Time^2_t] + \varepsilon_{s,t} \quad (1)$$

where $Reform_{s,t}$ is a dummy variable that takes a value of "1" when country s has a no-fault unilateral divorce law regime in year t, and "0" otherwise. The parameter β is interpreted as the average change in the total fertility rate that can be assigned to the change in the legal system of divorce. From a theoretical point of view, as mentioned above, the sign of this parameter is not clear, since these new divorce regimes can have positive and negative effects on fertility. Equation (1) also includes country fixed effects and year fixed effects to control for evolving unobserved country attributes, and linear and quadratic trends, which allow us to capture trends in country-level unobserved factors affecting fertility. Regressions are estimated by population-weighted least squares. [3]

This methodology only identifies a discrete series break (static model). However, it is conceivable that the impact of divorce law liberalization has very different short-run and long-run effects, which may induce a gradual change in fertility rates. To tackle this issue, we also estimate the dynamic response of fertility rates to divorce law reforms (dynamic model) as in Wolfers (2006):

$$Fertility\ rate_{s,t} = \Sigma_k\ \beta_k Reform_{s,t,k} + \Sigma_s\ Country\ fixed\ Effects_s + \Sigma_t\ Time\ fixed\ Effects_t +$$

$$[\Sigma_s\ Country_s * Time_t + \Sigma_s\ Country_s * Time^2_t] + \varepsilon_{s,t} \quad (2)$$

[2] We also repeat the analysis by including data from 1960 to 1969 and results suggest that some of these variables are correlated with the differences in the time to liberalization. However, they fail to predict the exact year in which divorce law reforms took place, again suggesting that the exact date of divorce law reforms can be considered exogenous.

[3] We also repeat the analysis by introducing clusters at the country level. Results do not substantially change.

with the variable $Reform_{s,t,k}$ being a dummy set equal to "1" when country *s* has implemented a no-fault unilateral divorce law regime in year *t* for *k* periods, and "0" otherwise. These dummy variables are supposed to capture the entire dynamic response of fertility to the new legal regime, while the country-specific time trends identify pre-existing trends. A negative sign of the β parameter indicates that the fertility rate in country *s* has fallen after *k* periods since the change in divorce law. The interpretation of a positive sign would be just the opposite.

III. Data

For the main analysis, we use the Total Fertility Rate (TFR) for the period 1960 - 2006. [4] The data for the fertility rate are publicly available from Eurostat. TFR is defined there as "*the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year. It is therefore the completed fertility of a hypothetical generation, computed by adding the fertility rates by age for women in a given year (the number of women at each age is assumed to be the same).*"

Figure 1 shows the temporal evolution of the Total Fertility Rate in Europe. From 1960 to 1964, the average Total Fertility Rate slightly increases, reaching a level of 2.88. Subsequently, there is a clearly observed decline in the average Total Fertility Rate until 1994, with this average rate being lower than the replacement level since 1975. That was followed by a period of relative stability, around an average rate of 1.60. This stable rate was interrupted by an acceleration since 2003 that continues until the end of our sample in 2006. Additionally, we have plotted the evolution of the TFR in the years prior to and after the divorce law reform of each country, and introducing the average TFR of the remaining countries that have not changed their divorce laws before or during the period considered (see similar figures in Ayres and Levitt 1998). We show as an example the cases of Portugal and the Netherlands (see Figures 2 and 3). We observe that, as expected, there is a greater decrease in the TFR of the country that experienced the divorce law reform than in that of those countries that do not change their divorce laws during the period. This behaviour is not limited to the TFR. Other measures represented in Figure 4, such as the Crude Birth Rate (measured as the annual number of births per 100 inhabitants) and the Birth Rate (annual number of births per 100 women) for Europe, have a similar pattern to that of the average Total Fertility Rate.

[4] To fill in the gaps, we use data from several issues of the UN Demographic Yearbooks, and the available data points, plus a linear, a quadratic trend, and mid-points. We also run regressions with the unbalanced and shorter versions (considering fewer years in the sample and dropping each country in turn) of the panel. Results are quite robust to all these samples.

This quick glance at fertility rates does not appear to reveal the presence of a causal link between the reforms of divorce laws and those rates. However, given that the drop in the Total Fertility Rate continued while European countries introduced their reforms, it is possible to argue that those reforms impacted the Total Fertility Rate. The timing of the main reforms in no-fault and unilateral divorce laws is summarized by Gonzalez and Viitanen (2009). The period of reforms began in 1970, when Denmark implemented a divorce law reform that allowed unilateral divorce after a period of separation. After 1970, four European countries allowed divorce (Italy (1971), Portugal (1976), Spain (1981) and Ireland (1997)); two passed only no-fault divorce (Ireland and Italy); eleven permitted divorce when a couple had lived apart for a specified period of time, allowing unilateral divorce after separation in the 1970s and 1980s (Austria (1978), Belgium (1975), France (1976), Germany (1977), Greece (1979) Luxembourg (1979), The Netherlands (1971) and the UK (1971)); two allowed this regime in 1993 (Iceland and Norway), and another in 2000 (Switzerland). Only two countries (Finland (1988) and Sweden (1974)) recognized unilateral divorce, the right to divorce at the request of either spouse. In our empirical analysis, we categorize all these legal changes as *no-fault unilateral divorce* because all reduce the value of marriage, regardless of the regime (as described previously), and because the empirical literature does not distinguish between these types of reform, as in the case of US divorce law reforms. This strategy can make our results comparable with prior works. [5] In the following sections, we provide evidence of the effect of those divorce law reforms on fertility rates.

IV. Results

A. Baseline Regression

Table 2 reports the estimates for Equation (1). As can be seen in the first column, which includes country and year fixed effects, a change in divorce law is associated with a decline in the fertility rate. This is maintained even after adding country-specific linear and quadratic time trends in Columns (3) and (5), although the estimated coefficient on the divorce law reform increases (decreases in absolute value) by around 14% after including those controls in the specifications. This is presumably because, in these specifications, not only are we removing country fixed characteristics but also time-variant unobservable factors that could bias the results presented in Column (1).

To examine the impact of the liberalization of divorce laws, we also use an alternative strategy proposed by Wolfers (2006), which allows us to analyse the dynamic response of the

[5] As a robustness check, we re-run the baseline analysis by including a dummy variable that controls for those countries introducing divorce for the first time during the period considered. Results for our variables of interest do not vary.

fertility rate to the implementation of divorce law reforms. Table 2 also shows regressions for Equation (2) in Columns (2), (4) and (6). In all these specifications, the dynamic estimates show a negative response of fertility following the adoption of no-fault unilateral divorce, and that this effect does not fade over subsequent years. As in the previous case, the magnitude of the impact of divorce law reforms decreases in absolute value when quadratic trends are added. All in all, results suggest that divorce reforms that occurred in Europe contributed to the decline in fertility, and that the impact was not transitory.

We also provide evidence to demonstrate that our results are not driven by omitted economic and demographic variables. The impact of these variables correlated with the outcome of interest, if omitted, would be captured by the coefficients measuring the effect of divorce law reforms. We add controls to our baseline regression for several standard determinants of TFR that could explain the drop in our outcome of interest (see Tables 3 and 4).

The first variable considered is Female Labour Force Participation, with data from the OECD (see Appendix). The relationship between Female Labour Force Participation and the Total Fertility Rate has been extensively analyzed in the economic literature, establishing a negative relationship between both (Mishra and Smyth 2010; Smith-Lovin and Tickamyer 1978). Then, it is arguable that the increase in Female Labour Force Participation that occured since the mid-1960s (see Figure 5) could cause the decline in the Total Fertility Rate, although other papers suggest that it was the drop in the Total Fertility Rate that instigated the rise in Female Labour Force Participation (Bloom et al. 2009; Mishra et al. 2010). Despite the endogeneity concerns that the introduction of this variable may generate, its inclusion in Column (2) of Table 3 does not change the estimated coefficients of the impact of divorce law reforms. The striking feature is that the coefficient picking up the Female Labour Force Participation effect is not significant. This could be due to the fact that this coefficient may not be fully capturing the relationship between both variables. Ahn and Mira (2002) suggested that the relationship between Female Labour Force Participation and the Fertility Rate is not linear but has a U-shape. Until the early 1980s, a negative relationship is observed between both variables, but since the late-1980s, the relationship between them turns out to be positive. [6] To examine this issue, we have also included a quadratic term for Female Labour Force Participation in Column (2) of Table 4. In this case, the coefficients picking up the effect of Female Labour Force Participation on the Total Fertility Rate are significant, pointing to a quadratic relationship between them. With respect to the effect of divorce reforms, results do not change; the coefficients are still negative and significant.

[6] Other papers, such as Kogel (2004), do not find a positive correlation between fertility and female employment. They simply present evidence of a reduction in the negative association between them since the mid-1980s, (see Engelhardt et al. 2004, for a review of this literature).

The fall in the Total Fertility Rate can also be attributed to the rise of female schooling in the European countries considered (Leon 2004). Female education can lower fertility by way of an increase in the opportunity cost of women's time (Barro and Becker 1988; Willis 1973), or by increasing the age at marriage (Breierova and Duflo 2004), which can delay births and so lower the level of completed fertility (Kalwij 2000). To capture the impact of female education, we introduce the Female Gross Enrolment Ratio constructed by UNESCO (see Appendix) in Column (3) of Table 3. Results on the effect of divorce law reforms do not change, even after the inclusion of a quadratic term for female education in Column (3) of Table 4.[7] The quadratic term for the female education proxy is also significant, but negative, pointing to an inverted U-shaped relationship between the Female Gross Enrolment Ratio and the Total Fertility Rate.

The decline in the infant mortality rate could also contribute to the decline of the Total Fertility Rate. The lower the infant mortality, the fewer children need to be replaced. On the other hand, falling mortality rates lower the cost of having a surviving child, and for this reason fertility should increase as mortality declines (Doepke 2005; Sah 1991). To control for this determinant of fertility, we incorporate in the analysis the ratio of the number of deaths of children under 1 year old during the year, to the number of live births in that year, using data from Eurostat. After adding this variable, the dynamic response of the Total Fertility Rate to the introduction of the new divorce regimes is quite similar (Column (4) in Tables 3, linear relationship, and 4, quadratic relationship).

The per capita GDP has also been included as a control in Column (5) of Table 3 and Table 4 (with a quadratic term), since several studies have found that fertility has fallen in economic expansions and risen during contractions (Butz and Ward 1979; Hazan and Berdugo 2002).[8] Results are unchanged to the introduction of per capita GDP. Unstable employment and unemployment might also influence the variation in the Total Fertility Rate by increasing uncertainty about future wages, which may encourage women to postpone (or even abandon) childbearing (Adserà 2004; Ahn and Mira 2001; Gutierrez-Domenech 2007; Doiron and Mendolia 2011).[9] Column (8) of Table 3 and Column (7) of Table 4 (adding the quadratic term) show the estimated effect of the unemployment rate on the Total Fertility Rate, with the expected negative sign. Our coefficients of interest are not sensitive - they are still negative and statistically significant - to its inclusion in the model.[10]

[7] Results are also quite robust to the use of other measures of female education provided by UNESCO, which allow us to consider separately the Gross Enrolment Ratio by level of education (secondary and tertiary) and the introduction of the Total Gross Enrolment Ratio (male and female education).

[8] The per capita GDP can also be considered as a proxy of the increase in female and male earnings, which are also expected to affect fertility decisions (Galor and Weil 1996; Macunovich 1995; Ward and Butz 1980).

[9] Although we have not included a control for male employment, which is another potential determinant of fertility (Ahn and Mira 2001), the introduction of the unemployment rate may be partly capturing the importance of both female and male employment.

[10] The youth unemployment rate and the great number of temporary contracts may also have an important effect on the drop in the fertility rate by increasing uncertainty regarding future careers and earnings, as well as by lowering current income for young men and women. But, because of the scarcity of the data, which are only available since the

Other public policies, such as tax exemptions, maternity leave, and parental benefits, can account for a sizable fraction of the fluctuation in the Total Fertility Rate (see, for example, Acs 1996; Averett and Whittington 2001; Demeny 1986; Dickert-Conlin and Chandra 1999; Gauthier and Hatzius 1997; Georgellis and Wall 1992; Kearney 2004; Lalive and Zweimüller 2009; Manuelli and Seshadri 2009; Milligan 2005; Whittington 1992; Whittington et al. 1990; Zhang et al. 1994). This is relevant to our analysis, since improvements in family policies may raise the level of fertility (Björklund 2006), compensating for the impact of divorce law reforms. Thus, we include a wide range of controls for family policies in columns (12) to (21) of Table 3, including the total number of weeks of maternity, parental, and childcare leave; the cash benefits during them;, the monthly family allowances for the first, second and third child; the value of transfers to a family type; and an index of direct and indirect cash benefits (variables properly defined in Appendix). We observe that, regardless of the measure of family policy included in our estimates, and even including all of them in the same specification, the negative and statistically significant effect of divorce law reforms on fertility is maintained. In addition, and recognizing the importance of these family policies as fertility determinants, we include two different proxies for the effect of public policies. First, we use per capita GDP, since the greater the GDP, the more family policies may be implemented. As shown before, this does not affect our estimates. Another possibility is the use of data on women in parliament, since female legislators are more likely to place priority on women's, children's and family issues (Chattopadhyay and Duflo 2004; Swers 2002). We then introduce the percentage of women in each national parliament on the total of seats in the parliament, as a proxy of the variation in public policies, using data from the Inter- Parliamentary Union, in Columns (6) and (7) (adding the per capita GDP) of Table 3 and in Column (6) of Table 4 (with the quadratic term). Our results are robust to the inclusion of all these controls.

The marriage rate is another variable added as control to our main specification, since it is considered to be one of the principal determinants of fertility (Bongaarts 1978). The lower the marriage rate, the lower the marital fertility. Since children are a marital-specific investment (Becker et al. 1977; Stevenson 2007), we would expect that the decline in the marriage rate, which can be seen in Figure 5, leads to a drop in the Total Fertility Rate. Following this argument, we can justify the introduction of the divorce rate, since the greater the divorce rate, the lower the marital fertility. Again, our results do not vary substantially, even after adding quadratic terms for all these regressors (see Tables 3 and 4). Similarly, changes in cohabitation decisions can also affect the fertility decisions of women. To examine this issue, we incorporate in our analysis changes in cohabitation laws that were approved during recent decades in several

1980s, we cannot add these as regressors. We have a similar problem with the fluctuations of the price of housing. We would expect that these effects can be captured by the controls for fixed and trending unobserved factors at the country level, incorporated in the analysis.

European countries in order to increase protections for cohabiting couples (see column (4) of Table 5). The introduction of these laws took place several years (in certain cases, decades) after the introduction of divorce law reforms. Then, the permanent impact of divorce law reforms on fertility observed in our baseline estimates may be capturing the effect of both cohabitation laws and divorce law reform. Results are presented in Table 6. Our findings do not change, even after the introduction of controls for the cohabitation laws.

To check whether our results are sensitive to the measure of fertility used in the previous analysis, we run several simple robustness checks. We use four additional common measures of fertility as dependent variables: the Crude Birth Rate, defined as the annual number of births per 100 inhabitants, the Birth Rate, measured as the annual number of births per 100 women, the Log(TFR), which is the Total Fertility Rate in logarithm, and the Completed Fertility Rate, which is the average number of children born to a cohort of women up to the end of their childbearing age, from the cohort´s beginning of exposure to risk (at age 15) until the age when all members of the cohort have reached the end of the reproductive period (at age 49).[11] Results for the first three dependent variables are presented in Figure 6, which shows that, though the magnitude of the impact varies a little, the behaviour of the impact is quite similar. The growing negative impact of the reforms stabilizes after 7-8 years of the adoption of no-fault unilateral divorce laws, and 13-14 years after the reforms, the negative and significant effect is smoothed. Meanwhile, in order to use the Completed Fertility Rate as dependent variable, we must re-define our variables of interest, which in this case are defined as the number of years that each cohort of women lives under the new divorce laws. Data on the Completed Fertility Rate was obtained from two different sources - from the Council of Europe (1940 to 1944 and 1961 to 1970), and computed by us using data from Eurostat and from the UN Demographic Yearbooks (several issues) for years 1945 to 1960. Then, we have the completed fertility rate of those women who were born from 1945 to 1970-. As expected, results show that the cohorts of women who spend more years under the new divorce laws experience greater declines in their completed fertility rate (see Table 7). This result is in the same vein as previous results using as dependent variable the Total Fertility Rate. It is not surprising, since certain papers have pointed to the close relationship between the Total Fertility Rate and the Completed Fertility Rate (Bongaarts 2002).

Finally, we have also used as a dependent variable the fertility rate by age of women, to test whether we are capturing the behaviour of a specific group of women (DeCooman et al. 1987). As an increase in women's education may decrease the fertility rate of younger women, one can argue that we are capturing the decrease in the Total Fertility Rate of those women who spend more years in education, rather than the entire response to divorce law reforms. Figure 7

[11] Since women are mainly the ones who decide to have children or not, we also use the Birth Rate, whose denominator is the total number of women.

presents the response of the TFR for women aged 15 to 19, 20 to 24, 25 to 29, 30 to 34, 35 to 39, and 40 to 44. All coefficients are negative, indicating that the Total Fertility Rate decreases as a consequence of the implementation of the new divorce law regimes, irrespective of the age of the women. However, there are slight differences; the greater impact is observed for those women aged 25 to 29, suggesting that women delayed their births, or that they do not have children at all.

B. Is it divorce law, or is it the liberalization of abortion laws?

While reforms in laws of divorce were introduced throughout Europe, all but one country (Ireland) established new abortion laws that overturned previous legislation. Eight of the eighteen countries permitted only abortion for cause since the mid-1960s, see Table 5. Under this regime, reasons for allowing abortion include: rape, incest, severe foetal abnormality, and physical and mental health problems of the mother. Five countries adopted abortion on demand, that is, without restrictions, although gestation limits (i.e. first trimester, or until viability) were established in most countries. The remaining four countries passed both regimes during the period analysed. Abortion laws were classified using Brooks (1992), Henshow and Morrow (1990), and information from the United Nations Population Division (2003).

These reforms decreased the cost of abortion, which of course could have an effect on fertility (Ananat et al. 2007; Guldi 2008; Levine et al. 1999). Women can now abort pregnancies that would have resulted in unwanted births. Another concern is that the effect of abortion reforms may be confounded with the impact of divorce law reforms. To tackle this issue, as in previous works on the impact of abortion laws on several socio-economic variables, we use a quasi-experiment exploiting the variation in the timing of abortion reforms to capture the effect of these abortion reforms on the Total Fertility Rate (see, for example, Ananat et al. 2007; Donohue and Levitt 2001; Guldi 2008). We introduce as explanatory variables dummies to control for the years since abortion laws by grounds (on demand or by cause) were adopted. [12]

Results are shown in Table 8. Columns (1), (3) and (5) include the estimates of the main specification, and Columns (2), (4) and (6) show the response of the Total Fertility Rate to the divorce law reforms, after adding controls for abortion law reforms. As can be seen, results are quite similar. Then, even adding controls for abortion, we find that divorce law reforms negatively impacts the Total Fertility Rate. With respect to the impact of abortion law reforms, the effect is not clear, although when country-specific linear trends are added, all the

[12] We have not incorporated in our analysis other methods that offer women a safe and quite effective alternative to the surgical abortion, such as mifepristone or RU-486, licensed in most European countries since the late 1980s, inasmuch as, despite the widespread introduction of this drug, women's access to and the use of this technology remains limited by the abortion legislation (see Entre Nous 2005).

coefficients are negative and significant, pointing to a decrease of the Total Fertility Rate as a consequence of the introduction of the new abortion laws. [13]

C. Is it divorce law, or is it the Pill?

Another important feature that began in the 1960s was the emergence of the oral contraceptive, better known as *The Pill*. It gave women the opportunity to safely decide when to have children and allowed the separation between sexual activity and procreation (Goldin and Katz 2000, 2002). This is important in our analysis, since one may surmise that it was the use of the pill that caused the drop in the number of births in Europe. Although, for the case of European countries, the literature is quite limited, several papers have pointed to the access to the Pill as an important determinant of the decline in post-1960 US fertility (Bailey 2006, 2009, 2010; Guldi 2008). [14] The *power of the Pill* is gaining attention among researchers, not only for the analysis of its impact on fertility, but also on other socio-economic outcomes - always using US data - such as female labour force participation (Goldin and Katz 2000, 2002), female education (Ananat and Hungerman 2012; Hock 2007), marriage (Edlund and Machado 2011), and even children's outcomes (Ananat and Hungerman 2012; Pantano 2007).

In the case of Europe, as can be seen in Figure 8, when the population with access to the Pill reached almost 50%, the Crude Birth Rate began to decrease. Note that, in Figure 8, we use information on the year in which the pill was first authorised but, in some countries (such as Spain and Ireland), it was not prescribed as a contraceptive until the late 1970s; its use was restricted to regulation of the menses.[15] Thus, it is possible that those restrictions delayed the decline in the Total Fertility Rate, if the Pill was the main determinant of this fertility behaviour. The information on the year in which the Pill was available was compiled by the authors from each National Agency for the Regulation of Medicines, and from the International Planned Parenthood Federation (IPPF) (see Table 5). To our knowledge, there is no prior research using this kind of information for all the European countries considered in this analysis.

To capture the effect of the Pill, we use a similar quasi-experiment to that utilized for the case of divorce law reforms, and for the abortion laws. This natural experiment is also a common strategy in the Pill literature (see, for example, Bailey 2006, 2009, 2010; Guldi 2008).[16] In our work, we add to the main specification dummies to control for the years since the Pill is accessible. Table 9 reports the results. Columns (1), (3) and (5) include the baseline estimates of Equation (2), and Columns (2), (4) and (6) show the dynamic response of the Total

[13] Note that we do not aim to study the effect of abortion law reforms on fertility (see Ananat et al. 2007, for an extensive analysis using US data).
[14] See Carro and Mira (2006) for an analysis of the Spanish case.
[15] We have also run the analysis using the information on the year in which the Pill was allowed as a contraceptive. Results are quite similar.
[16] An alternative strategy could be the use of data on the use or sales of the Pill, but this is not possible since this information is quite scarce.

Fertility Rate to divorce law reforms, after controlling for access to the Pill. Once again, our results on the Total Fertility Rate's reaction to divorce law reforms are not being much affected. More surprising are the differences in the short- and long-run effects of the Pill; it appears not to have decreased the Total Fertility Rate until 13 years after it was introduced.

Finally, Table 10 presents the results of the main specification in Columns (1), (3) and (5), and the estimates after adding all controls that are available for the 18 countries in our analysis in Columns (2), (4) and (6).[17] Although the magnitude of the negative effect diminishes after adding all controls, we still find that divorce law reforms had a negative and significant effect on the Total Fertility Rate, and that this effect is lasting. After this analysis, we are confident that we are capturing the effect of divorce law reforms, rather than other observed or unobserved factors, or other reforms that directly affect family planning.[18] Our estimates suggest that the introduction of the new divorce law regimes decreased the Total Fertility Rate by about 0.1 to 0.2. The magnitude of the effect is sizable, taking into account that the average Total Fertility Rate declined from 2.84 in 1960 to 1.66 in 2006.

V. How do divorce laws operate through marital and non-marital fertility?

A. Fertility by marital status

Up to this point, we have empirically studied the impact of divorce law reforms on the Total Fertility Rate. In this section, we explore the mechanisms through which these reforms affect fertility. To address this issue, we would have liked to have information on what motivates fertility decisions, but this information is not available for all countries analysed, in the period covered. Instead, we examine whether fertility's response to divorce law reforms differs depending on the marital status of individuals. This is also an interesting issue since, as explained above, it has been suggested that these legal reforms affect marital and non-marital fertility in different ways.

Results on the marital fertility rate are shown in Table 11. There, the dependent variable is defined as the number of births within marriage per 500 inhabitants (see Appendix).[19] The dynamic estimates show that the negative effect on marital fertility rates, following the adoption

[17] Data on family policies are not available for Iceland. We re-estimate this regression including also data for family policies available from 1960 to 2006, and results are quite similar.
[18] Of course, these estimates should be treated with a certain caution, since we have included some variables that may generate endogeneity concerns.
[19] We also re-ran the analysis using as dependent variable the number of births within marriage over the number of women, and over the number of women aged 15-49. Results are quite similar.

of no-fault unilateral divorce, dissipates over the subsequent decade. Coefficients become non-significant, although negative, so the effect of divorce law reforms on the marital fertility rate appears to be transitory. These findings are consistent with certain theoretical predictions proposed in the economic literature. The decrease in the value of marriage because of the fall in divorce costs (Brinig and Crafton 1994; Peters 1992), in addition to the rise in the couple's instability, as expected, seem to drive the behaviour of the marital fertility rate at least until 10 years after the legal shift in divorce laws. However, thenceforth, no effect is observed. This could be due to an increase in the number of marriages, since the decision to marry can be less difficult to take under the new divorce law regimes (Alesina and Giuliano 2007; Drewianka 2008). It could also be due to an increase in the number of couples already married who decide to have children to compensate for the decrease in the value placed on the marriage institution (Stevenson 2007), although we admit that this change in the behaviour of married couples seems at odds, given that it has been found that children have a negative effect on the duration of relationships (Svarer and Verner 2008).

Another possibility is that the reaction in marital fertility is driven by the decisions of those who married after the reform. As time went by, the number of couples who married before the reform grew older, and so they were less likely to have children, but the number of marriages that took place after the adoption of the new divorce law regime increased. Since, as documented by Weiss and Willis (1997), the divorce law regime at the time of marriage is relevant in determining the likelihood of divorce, if a great number of couples who married under the new divorce law regime are those who were able to sort themselves better at marriage, in order to enhance the stability of their marriages and increase the quality of the match, then the divorce rate for them should fall (Matouschek and Rasul 2008; Mechoulan 2006; Weiss and Willis 1997). This is considered in the literature as the *selection effect*. As a consequence of that, we would expect the marital fertility rate to remain constant or even increase as the number of couples married under the new law grows. This potential explanation can shed light on the somewhat puzzling change in the response of marital fertility over time. A more detailed analysis of marital fertility by duration of marriage (see the following subsection) helps us to confirm this prediction.

The effect on the non-marital fertility rate, calculated as non-marital births per 500 inhabitants (see Appendix) is not so clear immediately after the reform, but 3-4 years later the effect is negative and significant. [20] Results are reported in Table 12. When using the illegitimacy ratio, defined as the number of non-marital births per 10 births, the negative and statistically significant impact of divorce law reforms on the illegitimacy ratio is not observed

[20] As in the case of the marital birth rate, we have also run this analysis changing the denominator of the dependent variable to the total number of women and the number of women aged 15-49. Results do not vary.

until 7-8 years after the adoption of the new regimes (see Table 13). [21] Our findings are in line with those of Drewianka (2008), who suggested that unilateral divorce law increases the legitimacy ratio. As proposed in the theoretical literature, the decrease in the costs of divorce can make entering marriage easier, even for those who are more likely to enter into a low quality match (Alesina and Giuliano 2007; Drewianka 2008). This could explain the reduction in the non-marital birth rate. Additionally, since divorce law reforms increased the number of outside options, not only for those who are married, but also for those who cohabit (there are more divorced people to enter into a new relationship), individuals would be less likely to bear a child until they envision a stable relationship.

Our findings suggest that the negative effect on the Total Fertility Rate, which encompasses both in- and out-of-wedlock fertility, after the adoption of the new divorce regimes, appears to be driven by the reaction of the marital fertility rate. But, 7-8 years later, the reduction in the Total Fertility Rate is maintained by the decrease in the non-marital fertility rate.

B. Fertility by duration of marriage

For further evidence on the mechanisms through which divorce law reforms operate, we also examine its impact on marital fertility, considering marriages of the same duration. As described in Lillard (1993), the probability of pregnancy in a marital setting rises during the first five years of marriage, and declines thereafter, but if divorce law reforms increase the probability of marital dissolution over the marriage duration, this pattern can change. Since divorce costs are reduced with the liberalization of divorce laws, the decision to marry immediately after becoming pregnant can be easier, since a bad marriage can more easily be dissolved (Alesina and Giuliano 2007; Drewianka 2008), and it would be reasonable to expect an increase in the fertility of those married for less than a year. However, the considerable increase in the likelihood of marital dissolution over the first year of marriage (Lillard 1993), due to the new divorce regimes, can reduce the number of conceptions. Thus, the impact of divorce law reforms on marital fertility during the first year of marriage seems to be an empirical question.

As long as the marriage continues, the probability of dissolution tends to decline, because those couples who survive are more experienced in dealing with potential breakdowns (Becker et al. 1977). For instance, they may be capable of behaving strategically by over-investing in children, a marital-specific investment (Stevenson 2007), bringing about an increase in marital fertility after the changes in the divorce law, to increase the value of their marriages and make them more difficult to break. It is not clear whether this impact can be

[21] Results are also consistent with the inclusion of all controls.

permanent though, the longer the duration of the marriage, the greater the hazard of another pregnancy (Lillard 1993), and the probability of over-investing in children is higher. Nevertheless, women, who have traditionally been responsible for the child after divorce, can also be less motivated to have another child if they feel more fearful of being deserted, which becomes easier under new divorce law regimes. This negative response is expected to be more pronounced after 9-10 years of marriage, which is the average duration of marriages prior to divorce (Stevenson and Wolfers 2007). Then, again, the response of marital fertility as the duration of marriage increases is ambiguous.

To explore this issue empirically, we use data from 1960 to 1998 on the number of births by total duration of married life. This dataset is available in several special issues of the UN Demographic Yearbooks.[22] The marital duration is defined as *the number of completed years elapsed between the exact dates of marriage of the wife and the exact date of birth of the child*. We recognise that this can bias our results, since it is not limited to first marriages, and the decision to become pregnant can differ if the wife has been married more than once. Another problem with this dataset is that the duration of marriage is not calculated simply by difference of years. This implies that the coefficients measuring the fertility response of couples of marital duration *r* to a divorce law reform *k* years after its adoption in year *t* are capturing the reaction of those who gave birth in year *t*, and the response of those who had a child in year *t+1* only if the time that elapsed between the exact date of marriage of the wife and the exact date of birth of the child is greater than *r* years but lower than *r+1*.[23]

Results on the dynamic response of fertility by duration of marriage are displayed in Table 14.[24] In all those regressions, the dependent variable is defined as the number of legitimate births of couples of marital duration *r*, over the total number of legitimate births. [25] We show results for 8 (under 1 year of duration, each two years since then until 9 years married, and the intervals 10-14, 15-19, 20 and over) of the 14 available categories in the UN Demographic Yearbooks. [26] Column (1) presents our estimates for the response of fertility to divorce law reforms, for those who have been married for less than 1 year. It is observed that the marital fertility rate decreases as a result of divorce law reforms 5-6 years after adoption. The effect is not significant immediately after the implementation of divorce law reforms. These

[22] Since 1998, this information has been removed from the minimum list of recommended tables and no data is shown in the UN Demographic Yearbooks. For robustness, we have also checked all our results by using data until 1998 and results are unchanged.

[23] For instance, the UN classifies in the category "births after 2 years of marriage" the child of a couple who was born in October 1973 and the parents were married in December 1970, rather than placing the child in the category "births after 3 years of marriage".

[24] Results are also quite similar after adding all controls, but because of endogeneity concerns we prefer the estimates without controls.

[25] We have also run this analysis using other denominators, such as the total number of births, the total population, the total number of women, and the number of women aged 15-49. Differences with the results shown here are not discernible.

[26] Results are quite similar in those categories not included in the paper (2 years married, 4 years married, 6 years married, and 8 years married). We excluded the category with duration of marriage "unknown".

findings suggest that the so-called "shot-gun" marriages are not driving the behaviour of the marital fertility of those married for less than 1 year. Rather, the unstable situation of couples during this first year of marriage, which increases after divorce law reforms (as time passes, the number of outside options also rises), is more likely to be the cause of the reduction in this marital fertility rate.

Column (2) shows results on the legitimate fertility of couples who have been married for 3 years. The dynamic response seems to be the same. All but one of our estimates are positive and statistically significant, pointing to an increase in the marital fertility rate of those married for 3 years, as a result of changes in divorce laws. This may indicate that couples decide to invest in children to compensate for the decrease in the value placed on the marriage after the reforms. One can also surmise that this response of the marital fertility rate is due to the fact that couples surviving three years of marriage are in a stable relationship, with a long-term perspective, and so they can feel more confident having a child. Although these explanations appear to be valid, since their predictions coincide with the results obtained, they have little to do with the changes in the behaviour observed when the marital duration increases.

Focusing on the dynamic effects of divorce law reforms on fertility, Columns (3), (4) and (5) of Table 14 - which report the response of those married for 5, 7, and 9 years, respectively we can clearly observe two distinct patterns in the reaction of those couples. After the adoption of the new divorce regimes, the effect is not significant, or negative and statistically significant, and some years later the impact becomes positive and significant. Note that this startling change in the behaviour of couples does not occur in the same period: the greater the duration of the marriage, the less the number of positive and significant coefficients found. Then, it is hard to find a unique explanation for this puzzling response, unless we consider that marriages that took place before and after divorce law reforms behave in different ways.

As explained above, since divorce law reforms also has a selection effect on the composition of marriages, those who were married under the new regimes are less likely to divorce (Matouschek and Rasul 2008; Mechoulan 2006), changing their incentive to have children. By using data on total marital fertility, this hypothesis was hard to test, but we can probe this further by using the dataset on births by duration of marriage, since it allows us to observe separately the responses of couples married under different regimes. For instance, the sample of marriages of 5 years duration contains both kinds of couple (couples married under the old regime and under the reformed divorce law), but our estimates of the dynamic effect do not consider the response of those couples together. For instance, the coefficient measuring the response of the marital fertility rate of those married 5 years ago, after 1-2 years of the adoption of the reform, is unable to capture the behaviour of those married under the new regime; the reaction of those who were married the same year as the changes in the law is picked up by the

coefficient measuring the impact of the divorce law reforms 5-6 years after adoption. The response of couples who married two years after the reform is captured by the coefficient measuring the effect of divorce law reforms 7-8 years after adoption, and so on.

Then, if the changing response is due to the selection effect, we would expect to observe a variation in the coefficients picking up the response of couples married under the new regime. Results presented in Columns (3) to (5) of Table 14 seem to confirm this forecast: the estimates that capture the reaction of the marriages that took place under the new divorce laws are always positive and significant, but the coefficients measuring the response of those married under the old regime are not significant, or negative and significant. It is important to note that, in some of our estimates, the response changes one year earlier than we would expect. In column (3) -those married for five years-, we would expect that the first positive and significant coefficient would be the estimate measuring the effect of divorce law reforms 5-6 years after adoption, since it is supposed to be capturing the behaviour of those married in the same year as the implementation of the divorce law reforms. However, we see that the coefficient picking up the impact of the reforms 3-4 years after implementation is also positive and significant. One can argue that this contradicts our prediction, but because of the way in which the duration of married life is calculated (see the explanation above), the coefficient measuring how divorce law reforms affect the marital fertility rate of those married for 5 years 3-4 years after the introduction of the legal reform, could be partly capturing the behaviour of those married under the new regime. A similar pattern is observed in Columns (4) and (5). Therefore, our findings suggest that the selection effect matters in determining how divorce law reforms operate through marital fertility.

When considering the fertility effect of divorce law reforms on marriages of 10 years or longer duration (see Columns (6), (7), and (8)), we observe that those reforms had a negative or non-significant effect on the marital fertility rate. As before, this can be explained by the selection effect, since in those cases almost all estimates capture the performance of those married under the old regime. The negative response is more clearly observed for those married under the old legal system and thus, since the average duration of marriage is about 9-10 years (Stevenson and Wolfers 2007), then wives married before divorce law reforms are more fearful of the break-up of their marriages, and under the new divorce regimes they are less likely to want a child. This decreases the marital fertility rate of these women.

VI. Conclusions

This paper analyses the impact of the liberalization of divorce laws on fertility. Since divorce law reforms may reduce the value of marriage, and given that children are considered to be a marital-specific investment, it is expected that the implementation of these new regimes affects fertility decisions. To examine this issue, we use data from 18 European countries for the period 1960 to 2006. Results suggest that divorce law reforms have a negative and permanent effect on fertility. The response of the fertility rate to divorce law reforms is quite robust to the introduction of a whole array of explanations that can also be responsible for the drop in the fertility rate since the late 1960s. These findings are also consistent to alternative specifications and controls for unobserved country-specific factors, time-variant factors at the country level, and different measures of fertility.

We further explore the mechanisms that conduct the reaction of fertility to divorce law reforms by analysing the effect on out-of-wedlock fertility, as well as on marital fertility. We find that both decrease after the introduction of divorce law reforms, but the fall in marital fertility does not seem to be permanent, indicating that the negative response of the fertility rate to divorce law reforms is maintained over time by the decline in the non-marital fertility rate.

We also study the impact of divorce law reforms on legitimate fertility by duration of marriage. The clear result of this analysis is that the fertility behaviour of couples who married under the new divorce law regimes differs from those married before the reforms. Thus, we suggest that the *selection effect*, which implies improvements in marriage match quality in response to divorce law reforms (Matouschek and Rasul 2008; Mechoulan 2006; Rasul 2006), plays an important role in fertility decisions.

Our findings may have economic consequences for women. Although we do not account for the possible effect on the participation of women in the labour market of a decline in fertility, the literature suggests that the decrease in fertility may instigate the rise in female labour force participation (see Bloom et al. 2009; Mishra et al. 2010). This also has consequences for women's education, since it can encourage women to invest in education due to the increase in the returns to women's education that generate the increase in participation of the labour market. The decline in the fertility rate, jointly with the constant aging of European society, may also have negative consequences for the European welfare system, and specifically the pensions system, based on the maintenance of benefits to seniors by the taxes paid by the young. Then, although the number of women contributing to the system increases as they join the labour market in greater numbers, the decrease in the number of young people involves a problem of large dimension, endangering the entire system.

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Table 1.- 1960 and 1970 Country-Level Predictors of Liberalization of Divorce Laws

(Dependent Variable: Time Elapsed since Liberalization)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A: Country-Level Characteristics from 1960									
	TFR	FLFP	Education: GER	% Infant Mortality	Per Capita GDP	% Women in Parliament	Unemployment Rate	Divorce Rate	Marriage Rate
Point estimate	-2.423	-0.068	-0.032	0.024	-0.054	-0.133	-0.127	-0.129	0.019
S.e.	(2.790)	(0.212)	(0.032)	(0.052)	(0.775)	(0.287)	(0.475)	(2.170)	(0.242)
R-squared	0.047	0.006	0.022	0.004	0.001	0.009	0.002	0.0001	<0.0000
B: Country-Level Characteristics from 1970									
	TFR	FLFP	Education: GER	% Infant Mortality	Per Capita GDP	% Women in Parliament	Unemployment Rate	Divorce Rate	Marriage Rate
Point estimate	2.544	-0.124	-0.019	-0.014	0.140	-0.088	-0.707	-1.319	-0.444
S.e.	(3.555)	(0.257)	(0.024)	(0.061)	(0.647)	(0.383)	(0.517)	(1.866)	(0.759)
R-squared	0.023	0.016	0.010	0.001	0.007	0.003	0.049	0.018	0.013

Note: The dependent variable is the year in which divorce law reform was adopted in each country, minus 1970, the year when the first reform in the period analysed was introduced. Regressors are population-weighted state aggregates. The point estimates are obtained by regressing the dependent variable on each country characteristic individually. Results from regressions including all the variables in a given panel are not altered. Robust standard errors are reported in parenthesis. There are 18 observations in each regression.

Table 2.- Baseline Regression: Static and Dynamic Effects of Divorce Law Reforms

(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral	-0.262***		-0.236***		-0.225***	
	(0.036)		(0.028)		(0.028)	
No Fault Unilateral 1-2		-0.179***		-0.167***		-0.166***
		(0.045)		(0.034)		(0.032)
No Fault Unilateral 3-4		-0.266***		-0.255***		-0.242***
		(0.048)		(0.036)		(0.036)
No Fault Unilateral 5-6		-0.332***		-0.325***		-0.297***
		(0.051)		(0.039)		(0.041)
No Fault Unilateral 7-8		-0.407***		-0.406***		-0.356***
		(0.056)		(0.043)		(0.048)
No Fault Unilateral 9-10		-0.403***		-0.411***		-0.331***
		(0.059)		(0.047)		(0.054)
No Fault Unilateral 11-12		-0.409***		-0.438***		-0.329***
		(0.063)		(0.051)		(0.060)
No Fault Unilateral 13-14		-0.406***		-0.447***		-0.311***
		(0.066)		(0.054)		(0.065)
No Fault Unilateral >15		-0.359***		-0.444***		-0.225***
		(0.067)		(0.059)		(0.075)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.865	0.869	0.925	0.929	0.943	0.946

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. The countries considered in the analysis are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

Table 3.- Robustness Check: Static and Dynamic Effects of Divorce Law Reforms

(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
No Fault Unilateral 1-2	-0.166***	-0.165***	-0.200***	-0.192***	-0.170***	-0.166***	-0.170***	-0.137***	-0.163***	-0.172***	-0.170***
	(0.032)	(0.032)	(0.031)	(0.030)	(0.032)	(0.032)	(0.032)	(0.030)	(0.032)	(0.031)	(0.027)
No Fault Unilateral 3-4	-0.242***	-0.243***	-0.289***	-0.251***	-0.249***	-0.242***	-0.250***	-0.214***	-0.253***	-0.248***	-0.256***
	(0.036)	(0.036)	(0.035)	(0.034)	(0.036)	(0.036)	(0.036)	(0.034)	(0.036)	(0.034)	(0.030)
No Fault Unilateral 5-6	-0.297***	-0.298***	-0.355***	-0.303***	-0.304***	-0.297***	-0.305***	-0.254***	-0.308***	-0.305***	-0.302***
	(0.041)	(0.042)	(0.040)	(0.039)	(0.042)	(0.042)	(0.042)	(0.039)	(0.041)	(0.039)	(0.035)
No Fault Unilateral 7-8	-0.356***	-0.358***	-0.416***	-0.359***	-0.369***	-0.356***	-0.371***	-0.331***	-0.372***	-0.378***	-0.385***
	(0.048)	(0.048)	(0.045)	(0.045)	(0.048)	(0.048)	(0.048)	(0.044)	(0.048)	(0.045)	(0.041)
No Fault Unilateral 9-10	-0.331***	-0.335***	-0.378***	-0.340***	-0.344***	-0.332***	-0.347***	-0.324***	-0.346***	-0.361***	-0.382***
	(0.054)	(0.054)	(0.051)	(0.050)	(0.054)	(0.054)	(0.055)	(0.050)	(0.054)	(0.051)	(0.045)
No Fault Unilateral 11-12	-0.329***	-0.333***	-0.364***	-0.345***	-0.341***	-0.329***	-0.344***	-0.303***	-0.341***	-0.353***	-0.356***
	(0.060)	(0.060)	(0.057)	(0.056)	(0.060)	(0.060)	(0.061)	(0.056)	(0.060)	(0.057)	(0.050)
No Fault Unilateral 13-14	-0.311***	-0.317***	-0.335***	-0.329***	-0.331***	-0.312***	-0.334***	-0.257***	-0.317***	-0.333***	-0.286***
	(0.065)	(0.066)	(0.062)	(0.061)	(0.066)	(0.065)	(0.067)	(0.061)	(0.065)	(0.062)	(0.055)
No Fault Unilateral >15	-0.225***	-0.238***	-0.218***	-0.270***	-0.254***	-0.226***	-0.260***	-0.208***	-0.224***	-0.260***	-0.223***
	(0.075)	(0.076)	(0.070)	(0.070)	(0.077)	(0.075)	(0.077)	(0.069)	(0.074)	(0.071)	(0.064)
% Female Labour Force Participation		0.003									0.002
		(0.004)									(0.004)
Gross Enrolment Ratio: Female Education			0.009***								0.004***
			(0.001)								(0.001)
% Infant Mortality				-0.046***							-0.039***
				(0.005)							(0.004)
Per Capita GDP (thousands)					0.021		0.024*				-0.042***
					(0.013)		(0.014)				(0.013)
% Women in Parliament						-0.0004	-0.002				-0.004*
						(0.003)	(0.003)				(0.002)
Unemployment Rate as % Civilian Labour Force								-0.035***			-0.029***
								(0.003)			(0.003)
Crude Divorce Rate									0.091***		0.149***
									(0.031)		(0.026)
Crude Marriage Rate										0.092***	0.071***
										(0.010)	(0.009)
Observations	846	846	846	846	846	846	846	846	846	846	846
R-squared	0.946	0.946	0.952	0.952	0.946	0.946	0.946	0.953	0.946	0.951	0.965

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%. * Statistical significance at 10% level. In all specifications are included: Year FE, Country FE, Country*Time and Country*Time^2.

Table 3.- Robustness Check: Static and Dynamic Effects of Divorce Law Reforms Including Variables of Family Policies

(Dependent Variable: Total Fertility Rate)

	(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
No Fault Unilateral 1-2	-0.166***	-0.166***	-0.171***	-0.128***	-0.177***	-0.166***	-0.164***	-0.234***	-0.063***	-0.062***	-0.036
	(0.033)	(0.033)	(0.034)	(0.034)	(0.033)	(0.033)	(0.033)	(0.032)	(0.023)	(0.023)	(0.022)
No Fault Unilateral 3-4	-0.242***	-0.241***	-0.247***	-0.198***	-0.251***	-0.238***	-0.239***	-0.336***	-0.130***	-0.130***	-0.109***
	(0.037)	(0.037)	(0.038)	(0.038)	(0.037)	(0.037)	(0.037)	(0.037)	(0.029)	(0.029)	(0.027)
No Fault Unilateral 5-6	-0.296***	-0.292***	-0.299***	-0.257***	-0.303***	-0.293***	-0.291***	-0.410***	-0.191***	-0.191***	-0.172***
	(0.043)	(0.043)	(0.043)	(0.043)	(0.042)	(0.043)	(0.043)	(0.043)	(0.034)	(0.034)	(0.032)
No Fault Unilateral 7-8	-0.356***	-0.350***	-0.359***	-0.321***	-0.361***	-0.350***	-0.348***	-0.495***	-0.264***	-0.265***	-0.249***
	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.050)	(0.041)	(0.041)	(0.038)
No Fault Unilateral 9-10	-0.330***	-0.320***	-0.335***	-0.294***	-0.343***	-0.318***	-0.318***	-0.483***	-0.269***	-0.273***	-0.258***
	(0.056)	(0.055)	(0.056)	(0.055)	(0.055)	(0.055)	(0.055)	(0.056)	(0.046)	(0.046)	(0.043)
No Fault Unilateral 11-12	-0.328***	-0.315***	-0.334***	-0.290***	-0.345***	-0.314***	-0.314***	-0.491***	-0.299***	-0.302***	-0.288***
	(0.062)	(0.062)	(0.062)	(0.061)	(0.061)	(0.062)	(0.062)	(0.063)	(0.051)	(0.051)	(0.048)
No Fault Unilateral 13-14	-0.310***	-0.295***	-0.317***	-0.266***	-0.325***	-0.293***	-0.293***	-0.478***	-0.314***	-0.319***	-0.295***
	(0.068)	(0.067)	(0.068)	(0.067)	(0.067)	(0.068)	(0.067)	(0.069)	(0.056)	(0.056)	(0.052)
No Fault Unilateral >15	-0.223***	-0.206***	-0.232***	-0.180**	-0.232***	-0.200***	-0.201***	-0.422***	-0.323***	-0.330***	-0.298***
	(0.077)	(0.077)	(0.078)	(0.076)	(0.076)	(0.077)	(0.077)	(0.079)	(0.063)	(0.063)	(0.059)
Total Weeks of Maternity Leave		-0.008***									0.011***
		(0.003)									(0.002)
Cash Benefits during Maternity Leave			-0.001								0.00003
			(0.001)								(0.001)
Total Weeks of Parental Leave				-0.001***							-0.001***
				(0.0003)							(0.0002)
Cash Benefits during Parental Leave					0.003***						0.001***
					(0.001)						(0.0005)
Total Weeks of Childcare Leave						0.002***					-0.0003
						(0.001)					(0.001)
Cash Benefits during Childcare Leave							0.005***				0.004***
							(0.002)				(0.001)
Monthly Family Allowances (First Child)								0.003			0.001
								(0.002)			(0.001)
Monthly Family Allowances (Second Child)								-0.005*			-0.0004**
								(0.003)			(0.002)
Monthly Family Allowances (Third Child)								0.0003**			0.002**
								(0.001)			(0.001)
Value of Transfers to Family Type									0.0001		0.0001
									(0.0001)		(0.0001)

Index of Direct and Indirect Cash Benefits										0.003	0.001
										(0.002)	(0.002)
Observations	799	799	799	799	799	799	799	759	587	587	587
R-squared	0.946	0.946	0.946	0.948	0.947	0.946	0.946	0.953	0.961	0.961	0.968

Notes: Each monetary value in this table is expressed in constant euros of 2005. Column (1) shows our baseline estimate. Column (12) includes a control for the total number of weeks of maternity leave. Column (13) includes a control for the cash benefits paid during maternity leave, as percentage of female wages in manufacture. Column (14) includes a control for the total number of weeks of parental leave. Column (15) includes a control for the cash benefits paid during parental leave, as percentage of female wages in manufacture. Column (16) includes a control for the total number of weeks of childcare leave. Column (17) includes a control for the cash benefits paid during childcare leave, as percentage of female wages in manufacture. Column (18) includes monthly family allowances for the first, second and third child (assuming a three-child family). Column (19) includes a control for the value of tax and benefit transfers of one-earner-two-parent two-child families (value calculated by subtracting the disposable income, after taxes and transfers, of a one-earner-two-parent-two-child family from that of a comparable childless single earner). Column (20) includes a control for the previous variable, but divided by the average gross earnings of a production worker. Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%. * Statistical significance at 10% level. In all specifications are included: Year FE, Country FE, Country*Time and Country*Time^2.

Table 4.- Robustness Check: Static and Dynamic Effects of Divorce Law Reforms

(Dependent Variable: Total Fertility Rate)

Controls:	(1)	(2) FLFP	(3) Education: GER	(4) % Infant Mortality	(5) Per Capita GDP	(6) % Women in Parliament	(7) Unemployment Rate	(8) Divorce Rate	(9) Marriage Rate
No Fault Unilateral 1-2	-0.166***	-0.145***	-0.219***	-0.180***	-0.121***	-0.149***	-0.119***	-0.108***	-0.157***
	(0.032)	(0.032)	(0.030)	(0.030)	(0.032)	(0.032)	(0.030)	(0.031)	(0.030)
No Fault Unilateral 3-4	-0.242***	-0.205***	-0.315***	-0.237***	-0.181***	-0.214***	-0.174***	-0.138***	-0.247***
	(0.036)	(0.036)	(0.035)	(0.033)	(0.036)	(0.036)	(0.034)	(0.036)	(0.034)
No Fault Unilateral 5-6	-0.297***	-0.244***	-0.385***	-0.284***	-0.218***	-0.256***	-0.213***	-0.203***	-0.312***
	(0.041)	(0.042)	(0.040)	(0.038)	(0.042)	(0.042)	(0.039)	(0.040)	(0.039)
No Fault Unilateral 7-8	-0.356***	-0.289***	-0.452***	-0.338***	-0.269***	-0.304***	-0.287***	-0.272***	-0.395***
	(0.048)	(0.049)	(0.046)	(0.044)	(0.048)	(0.048)	(0.045)	(0.046)	(0.045)
No Fault Unilateral 9-10	-0.331***	-0.255***	-0.423***	-0.315***	-0.229***	-0.272***	-0.288***	-0.248***	-0.381***
	(0.054)	(0.055)	(0.051)	(0.050)	(0.054)	(0.054)	(0.050)	(0.052)	(0.051)
No Fault Unilateral 11-12	-0.329***	-0.240***	-0.415***	-0.317***	-0.219***	-0.265***	-0.270***	-0.257***	-0.378***
	(0.060)	(0.062)	(0.057)	(0.055)	(0.060)	(0.061)	(0.055)	(0.057)	(0.056)
No Fault Unilateral 13-14	-0.311***	-0.221***	-0.392***	-0.300***	-0.200***	-0.240***	-0.198***	-0.216***	-0.364***
	(0.065)	(0.067)	(0.062)	(0.060)	(0.066)	(0.066)	(0.061)	(0.062)	(0.061)
No Fault Unilateral >15	-0.225***	-0.164**	-0.286***	-0.236***	-0.122	-0.161**	-0.172**	-0.139**	-0.303***
	(0.075)	(0.076)	(0.071)	(0.069)	(0.076)	(0.075)	(0.069)	(0.070)	(0.070)
Control		-0.072***	0.016***	-0.022***	0.228***	-0.021***	0.003	-0.609***	0.381***
		(0.015)	(0.002)	(0.006)	(0.030)	(0.005)	(0.008)	(0.077)	(0.057)
Control Square/100		0.118***	-0.006***	-0.044***	-0.533***	0.063***	-0.153***	18.926***	-1.958***
		(0.023)	(0.001)	(0.008)	(0.069)	(0.013)	(0.030)	(1.921)	(0.382)
Observations	846	846	846	846	846	846	846	846	846
R-squared	0.946	0.948	0.953	0.954	0.950	0.948	0.955	0.953	0.953

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%. * Statistical significance at 10% level. In all specifications are included: Year FE, Country FE, Country*Time and Country*Time^2.

Table 5.-Information on the Year of Introduction of Cohabitation andAbortion laws, and the Pill

	(1)	(2)	(3)	(4)
Country	Cohabitation Laws Changes	Abortion Laws Changes (for cause)	Abortion Laws Changes (on demand)	Pill Introduction
Austria	-	-	1974	1962
Belgium	1998	1990	-	1961
Denmark		1970	1973	1966
Finland		1970	-	1962
France	1999	-	1975	1967
Germany		1975	1995	1961
Greece	-	1978	1986	1980
Iceland	1990	1975	-	1962
Ireland	-	-	-	1976
Italy	-	-	1981	1968
Luxembourg	2004	1978	-	1967
The Netherlands	1998	-	1981	1962
Norway		1964	1978	1966
Portugal	1999	1984	-	1963
Spain	1987	1985	-	1964
Sweden	1987	-	1974	1964
Switzerland	-	1985	-	1961
United Kingdom	-	1967	-	1970

Note: Column (1) shows the year of the introduction of cohabitation laws in each country during the period analysed (1960-2006). Column (2) shows the year of the introduction of abortion laws for cause in each country during the period analysed (1960-2006). Column (3) shows the year of the introduction of abortion-on-demand laws in each country during the period analysed (1960-2006). Column (4) shows the year of the introduction of the oral contraceptive pill in each country during the period analysed (1960-2006).

Table 6.- Dynamic Effects of Divorce Law Reforms after Adding Controls for Cohabitation Laws
(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)
No Fault Unilateral 1-2	-0.155***	-0.164***	-0.144***
	(0.043)	(0.034)	(0.032)
No Fault Unilateral 3-4	-0.234***	-0.249***	-0.211***
	(0.046)	(0.036)	(0.036)
No Fault Unilateral 5-6	-0.290***	-0.317***	-0.255***
	(0.049)	(0.039)	(0.041)
No Fault Unilateral 7-8	-0.354***	-0.392***	-0.307***
	(0.054)	(0.044)	(0.048)
No Fault Unilateral 9-10	-0.339***	-0.396***	-0.280***
	(0.058)	(0.048)	(0.054)
No Fault Unilateral 11-12	-0.335***	-0.419***	-0.271***
	(0.062)	(0.052)	(0.060)
No Fault Unilateral 13-14	-0.320***	-0.423***	-0.244***
	(0.065)	(0.056)	(0.065)
No Fault Unilateral >15	-0.244***	-0.408***	-0.167**
	(0.066)	(0.062)	(0.075)
Year FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Country*time	No	Yes	Yes
Country*time^2	No	No	Yes
Observations	846	846	846
R-squared	0.880	0.930	0.949

Note: Sample: 1960–2006, (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%. * Statistical significance at 10% level.

Table 7.- Static and Dynamic Effects of Divorce Law Reforms

(Dependent Variable: Completed Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral	-0.177***		-0.126*		-0.156**	
	(0.053)		(0.072)		(0.072)	
No Fault Unilateral 1-2		-0.130		-0.172*		-0.204**
		(0.093)		(0.093)		(0.082)
No Fault Unilateral 3-4		-0.142		-0.205**		-0.239***
		(0.088)		(0.097)		(0.092)
No Fault Unilateral 5-6		-0.183**		-0.288***		-0.324***
		(0.088)		(0.104)		(0.103)
No Fault Unilateral 7-8		-0.214**		-0.359***		-0.395***
		(0.088)		(0.111)		(0.115)
No Fault Unilateral 9-10		-0.198**		-0.383***		-0.417***
		(0.088)		(0.118)		(0.126)
No Fault Unilateral 11-12		-0.243***		-0.486***		-0.491***
		(0.075)		(0.129)		(0.142)
No Fault Unilateral 13-14		-0.210***		-0.524***		-0.513***
		(0.066)		(0.137)		(0.152)
No Fault Unilateral >15		-0.134**		-0.563***		-0.574***
		(0.059)		(0.145)		(0.160)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	434	434	434	434	434	434
R-squared	0.842	0.844	0.879	0.884	0.932	0.934

Note: Sample consists of cohorts of women who were born between 1940 and 1970 (balanced panel). The sample does not include data for Germany, United Kingdom, Sweden, and Spain, due to the lack of data. For this reason, the sample is formed by the remaining fourteen countries. Data on the Completed Fertility Rate come from the Council of Europe (cohorts 1940 to 1944 and 1961 to 1970) and the Eurostat and the UN Demographic Yearbooks (data on live births and total number of women born in each cohort, cohorts 1945 to 1960). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

Table 8.-Total Fertility Rate: Static and Dynamic Effects of Divorce Law Reforms and Abortion Law Reforms

(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral 1-2	-0.179***	-0.138***	-0.167***	-0.123***	-0.166***	-0.160***
	(0.045)	(0.045)	(0.034)	(0.033)	(0.032)	(0.031)
No Fault Unilateral 3-4	-0.266***	-0.236***	-0.255***	-0.219***	-0.242***	-0.265***
	(0.048)	(0.049)	(0.036)	(0.036)	(0.036)	(0.035)
No Fault Unilateral 5-6	-0.332***	-0.285***	-0.325***	-0.281***	-0.297***	-0.334***
	(0.051)	(0.052)	(0.039)	(0.039)	(0.041)	(0.041)
No Fault Unilateral 7-8	-0.407***	-0.344***	-0.406***	-0.315***	-0.356***	-0.377***
	(0.056)	(0.058)	(0.043)	(0.044)	(0.048)	(0.048)
No Fault Unilateral 9-10	-0.403***	-0.370***	-0.411***	-0.335***	-0.331***	-0.394***
	(0.059)	(0.062)	(0.047)	(0.049)	(0.054)	(0.054)
No Fault Unilateral 11-12	-0.409***	-0.441***	-0.438***	-0.404***	-0.329***	-0.474***
	(0.063)	(0.065)	(0.051)	(0.053)	(0.060)	(0.060)
No Fault Unilateral 13-14	-0.406***	-0.476***	-0.447***	-0.425***	-0.311***	-0.504***
	(0.066)	(0.068)	(0.054)	(0.057)	(0.065)	(0.065)
No Fault Unilateral >15	-0.359***	-0.471***	-0.444***	-0.429***	-0.225***	-0.438***
	(0.067)	(0.069)	(0.059)	(0.063)	(0.075)	(0.072)
Abortion on Demand 1-2		-0.030		-0.196***		-0.167***
		(0.049)		(0.038)		(0.035)
Abortion on Demand 3-4		0.011		-0.177***		-0.130***
		(0.049)		(0.039)		(0.037)
Abortion on Demand 5-6		0.034		-0.185***		-0.104**
		(0.049)		(0.039)		(0.040)
Abortion on Demand 7-8		0.059		-0.195***		-0.093**
		(0.050)		(0.041)		(0.044)
Abortion on Demand 9-10		0.056		-0.236***		-0.118**
		(0.050)		(0.043)		(0.048)
Abortion on Demand 11-12		0.061		-0.260***		-0.109**
		(0.050)		(0.044)		(0.052)
Abortion on Demand 13-14		0.071		-0.237***		-0.033
		(0.062)		(0.053)		(0.058)
Abortion on Demand >15		0.220***		-0.275***		0.031
		(0.047)		(0.056)		(0.066)
Abortion for Cause 1-2		-0.257***		-0.294***		-0.179***
		(0.050)		(0.038)		(0.035)
Abortion for Cause 3-4		-0.224***		-0.275***		-0.103***
		(0.052)		(0.040)		(0.039)
Abortion for Cause 5-6		-0.165***		-0.240***		-0.002
		(0.054)		(0.042)		(0.044)
Abortion for Cause 7-8		-0.127**		-0.223***		0.068
		(0.054)		(0.044)		(0.049)
Abortion for Cause 9-10		-0.160***		-0.266***		0.074
		(0.056)		(0.046)		(0.055)
Abortion for Cause 11-12		-0.174***		-0.315***		0.069
		(0.057)		(0.049)		(0.061)
Abortion for Cause 13-14		-0.079		-0.232***		0.199***
		(0.058)		(0.051)		(0.066)
Abortion for Cause >15		0.037		-0.188***		0.357***
		(0.045)		(0.051)		(0.076)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.869	0.885	0.929	0.941	0.943	0.958

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level. Adding the dynamic effect of abortion laws on demand and for cause.

Table 9.-Total Fertility Rate: Static and Dynamic Effects of Divorce Law Reforms and Oral Contraception

(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral 1-2	-0.179***	-0.210***	-0.167***	-0.193***	-0.166***	-0.204***
	(0.045)	(0.045)	(0.034)	(0.034)	(0.032)	(0.032)
No Fault Unilateral 3-4	-0.266***	-0.318***	-0.255***	-0.302***	-0.242***	-0.305***
	(0.048)	(0.048)	(0.036)	(0.036)	(0.036)	(0.036)
No Fault Unilateral 5-6	-0.332***	-0.399***	-0.325***	-0.388***	-0.297***	-0.377***
	(0.051)	(0.052)	(0.039)	(0.039)	(0.041)	(0.042)
No Fault Unilateral 7-8	-0.407***	-0.481***	-0.406***	-0.477***	-0.356***	-0.447***
	(0.056)	(0.056)	(0.043)	(0.043)	(0.048)	(0.048)
No Fault Unilateral 9-10	-0.403***	-0.475***	-0.411***	-0.485***	-0.331***	-0.424***
	(0.059)	(0.060)	(0.047)	(0.047)	(0.054)	(0.054)
No Fault Unilateral 11-12	-0.409***	-0.475***	-0.438***	-0.508***	-0.329***	-0.414***
	(0.063)	(0.064)	(0.051)	(0.051)	(0.060)	(0.060)
No Fault Unilateral 13-14	-0.406***	-0.459***	-0.447***	-0.508***	-0.311***	-0.386***
	(0.066)	(0.066)	(0.054)	(0.054)	(0.065)	(0.065)
No Fault Unilateral >15	-0.359***	-0.402***	-0.444***	-0.502***	-0.225***	-0.289***
	(0.067)	(0.067)	(0.059)	(0.059)	(0.075)	(0.073)
The Pill Allowed 1-2		-0.069		-0.016		0.009
		(0.045)		(0.038)		(0.035)
The Pill Allowed 3-4		-0.049		0.017		0.044
		(0.048)		(0.042)		(0.039)
The Pill Allowed 5-6		-0.039		0.043		0.068
		(0.051)		(0.047)		(0.044)
The Pill Allowed 7-8		-0.056		0.043		0.068
		(0.056)		(0.052)		(0.050)
The Pill Allowed 9-10		-0.134**		-0.019		0.003
		(0.060)		(0.058)		(0.055)
The Pill Allowed 11-12		-0.211***		-0.083		-0.065
		(0.064)		(0.062)		(0.060)
The Pill Allowed 13-14		-0.309***		-0.167**		-0.156**
		(0.068)		(0.067)		(0.065)
The Pill Allowed >15		-0.371***		-0.214***		-0.206***
		(0.072)		(0.072)		(0.073)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.869	0.876	0.929	0.934	0.943	0.950

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level. Adding the dynamic effect of the pill.

Table 10.-Total Fertility Rate: Static and Dynamic Effects of Divorce Law Reforms With All Controls

(Dependent Variable: Total Fertility Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral 1-2	-0.179***	-0.066**	-0.167***	-0.117***	-0.166***	-0.081***
	(0.045)	(0.031)	(0.034)	(0.024)	(0.032)	(0.024)
No Fault Unilateral 3-4	-0.266***	-0.070**	-0.255***	-0.144***	-0.242***	-0.102***
	(0.048)	(0.035)	(0.036)	(0.027)	(0.036)	(0.030)
No Fault Unilateral 5-6	-0.332***	-0.122***	-0.325***	-0.185***	-0.297***	-0.135***
	(0.051)	(0.037)	(0.039)	(0.029)	(0.041)	(0.034)
No Fault Unilateral 7-8	-0.407***	-0.174***	-0.406***	-0.236***	-0.356***	-0.183***
	(0.056)	(0.041)	(0.043)	(0.033)	(0.048)	(0.039)
No Fault Unilateral 9-10	-0.403***	-0.168***	-0.411***	-0.229***	-0.331***	-0.176***
	(0.059)	(0.044)	(0.047)	(0.037)	(0.054)	(0.044)
No Fault Unilateral 11-12	-0.409***	-0.179***	-0.438***	-0.241***	-0.329***	-0.186***
	(0.063)	(0.047)	(0.051)	(0.041)	(0.060)	(0.049)
No Fault Unilateral 13-14	-0.406***	-0.125**	-0.447***	-0.199***	-0.311***	-0.135**
	(0.066)	(0.050)	(0.054)	(0.045)	(0.065)	(0.055)
No Fault Unilateral >15	-0.359***	-0.112**	-0.444***	-0.225***	-0.225***	-0.102*
	(0.067)	(0.052)	(0.059)	(0.051)	(0.075)	(0.061)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.869	0.955	0.929	0.975	0.943	0.980

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level. Adding all controls.

Table 11.-Marital Birth Rate: How Does Divorce Law Reforms Operate Through Marital Status?

(Dependent Variable: Marital Birth Rate (Marital Births/500 Inhabitants)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral	-0.503***		-0.388***		-0.422***	
	(0.100)		(0.083)		(0.088)	
No Fault Unilateral 1-2		-0.291**		-0.203**		-0.235**
		(0.123)		(0.102)		(0.103)
No Fault Unilateral 3-4		-0.507***		-0.396***		-0.436***
		(0.131)		(0.109)		(0.116)
No Fault Unilateral 5-6		-0.620***		-0.486***		-0.535***
		(0.141)		(0.118)		(0.132)
No Fault Unilateral 7-8		-0.746***		-0.579***		-0.632***
		(0.153)		(0.129)		(0.152)
No Fault Unilateral 9-10		-0.620***		-0.430***		-0.479***
		(0.163)		(0.140)		(0.172)
No Fault Unilateral 11-12		-0.553***		-0.361**		-0.421**
		(0.173)		(0.152)		(0.191)
No Fault Unilateral 13-14		-0.476***		-0.277*		-0.340
		(0.182)		(0.162)		(0.209)
No Fault Unilateral >15		-0.257		-0.095		-0.150
		(0.185)		(0.177)		(0.238)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.924	0.926	0.951	0.952	0.958	0.959

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

Table 12.-Non-Marital Birth Rate: How Does Divorce Law Reforms Operate Through Marital Status?

(Dependent Variable: Non-Marital Birth Rate (Out of wedlock births/500 Inhabitants))

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral	-0.157**		-0.036		-0.048*	
	(0.061)		(0.029)		(0.025)	
No Fault Unilateral 1-2		-0.108		-0.012		-0.079***
		(0.076)		(0.035)		(0.028)
No Fault Unilateral 3-4		-0.152*		-0.040		-0.138***
		(0.081)		(0.037)		(0.032)
No Fault Unilateral 5-6		-0.199**		-0.072*		-0.204***
		(0.087)		(0.040)		(0.036)
No Fault Unilateral 7-8		-0.273***		-0.140***		-0.308***
		(0.095)		(0.044)		(0.042)
No Fault Unilateral 9-10		-0.331***		-0.204***		-0.408***
		(0.101)		(0.048)		(0.047)
No Fault Unilateral 11-12		-0.398***		-0.264***		-0.495***
		(0.107)		(0.052)		(0.052)
No Fault Unilateral 13-14		-0.424***		-0.291***		-0.549***
		(0.113)		(0.055)		(0.057)
No Fault Unilateral >15		-0.352***		-0.242***		-0.545***
		(0.115)		(0.060)		(0.065)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.813	0.816	0.962	0.964	0.977	0.980

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

Table 13.-Ilegitimacy Rate: Non-Marital Birth over Total Births: How Does Divorce Law Reforms Operate Through Marital Status?

(Dependent Variable: Out of Wedlock Births/10 Births)

	(1)	(2)	(3)	(4)	(5)	(6)
No Fault Unilateral	-0.182**		-0.033		-0.052	
	(0.089)		(0.043)		(0.036)	
No Fault Unilateral 1-2		-0.140		-0.020		-0.104**
		(0.111)		(0.053)		(0.041)
No Fault Unilateral 3-4		-0.171		-0.036		-0.161***
		(0.118)		(0.057)		(0.047)
No Fault Unilateral 5-6		-0.208		-0.061		-0.230***
		(0.126)		(0.061)		(0.053)
No Fault Unilateral 7-8		-0.264*		-0.119*		-0.339***
		(0.137)		(0.067)		(0.061)
No Fault Unilateral 9-10		-0.324**		-0.201***		-0.471***
		(0.146)		(0.073)		(0.069)
No Fault Unilateral 11-12		-0.389**		-0.272***		-0.584***
		(0.155)		(0.079)		(0.077)
No Fault Unilateral 13-14		-0.410**		-0.306***		-0.656***
		(0.163)		(0.084)		(0.084)
No Fault Unilateral >15		-0.300*		-0.254***		-0.672***
		(0.166)		(0.092)		(0.096)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*time	No	No	Yes	Yes	Yes	Yes
Country*time^2	No	No	No	No	Yes	Yes
Observations	846	846	846	846	846	846
R-squared	0.859	0.859	0.969	0.969	0.983	0.984

Note: Sample: 1960–2006 (balanced panel). Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

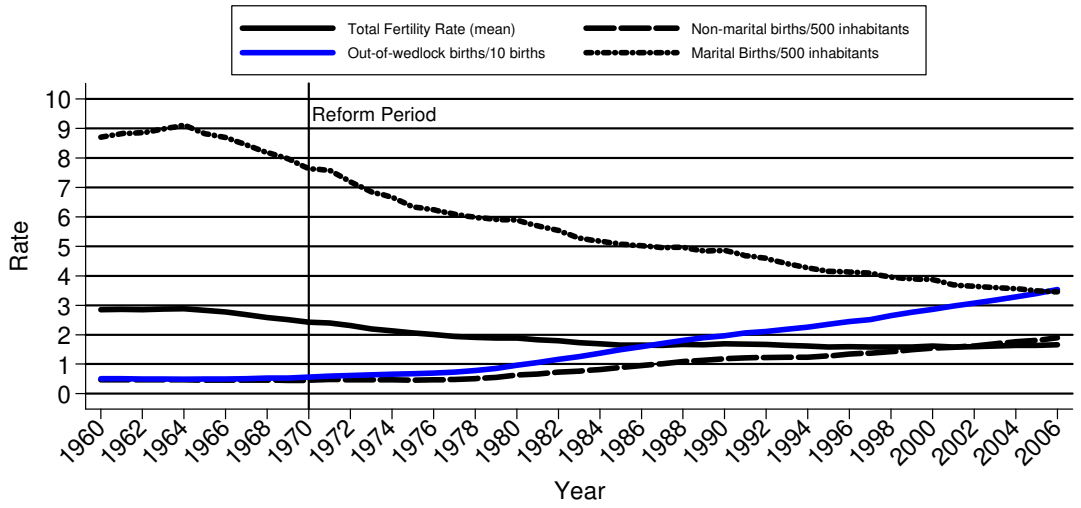
Table 14.-Marital Fertility (Varying by Duration of Marriage): Static and Dynamic Effects of Divorce Law Reforms

(Dependent variable: Marital Births / Total Marital Births)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No Fault Unilateral 1-2	0.003	0.006***	0.002	-0.001	-0.002***	-0.009***	-0.005***	-0.001***
	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.0003)
No Fault Unilateral 3-4	-0.010	0.011***	0.006***	0.0004	-0.002***	-0.010***	-0.006***	-0.001***
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.0004)
No Fault Unilateral 5-6	-0.023***	0.012***	0.010***	0.003**	-0.000	-0.008***	-0.007***	-0.001***
	(0.008)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.0004)
No Fault Unilateral 7-8	-0.032***	0.011***	0.013***	0.007***	0.001	-0.004	-0.007***	-0.001***
	(0.009)	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.001)	(0.0004)
No Fault Unilateral 9-10	-0.038***	0.007***	0.014***	0.009***	0.002*	-0.0004	-0.007***	-0.001***
	(0.011)	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.001)	(0.0005)
No Fault Unilateral 11-12	-0.039***	0.007**	0.013***	0.010***	0.004***	0.002	-0.006***	-0.001**
	(0.012)	(0.003)	(0.002)	(0.002)	(0.001)	(0.004)	(0.001)	(0.001)
No Fault Unilateral 13-14	-0.040***	0.007**	0.012***	0.011***	0.005***	0.004	-0.005***	-0.001**
	(0.013)	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)	(0.002)	(0.001)
No Fault Unilateral >15	-0.035**	0.003	0.011***	0.012***	0.006***	0.006	-0.004**	-0.001
	(0.015)	(0.003)	(0.003)	(0.003)	(0.002)	(0.005)	(0.002)	(0.001)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Country*time	YES	YES	YES	YES	YES	YES	YES	YES
Country*time^2	YES	YES	YES	YES	YES	YES	YES	YES
Observations	702	702	702	702	702	702	702	702
R-squared	0.887	0.905	0.905	0.861	0.874	0.892	0.949	0.970

Note: Sample: 1960–1998 (balanced panel). In column (1) the variable "marital births" includes live births of couples who have been married less than 1 year. In column (2) the variable "marital births" includes live births of couples who have been 3 years married. In column (3) the variable "marital births" includes live births of couples who have been 5 years married. In column (4) the variable "marital births" includes live births of couples who have been 7 years married. In column (5) the variable "marital births" includes live births of couples who have been 9 years married. In column (6) the variable "marital births" includes live births of couples who have been between 10 and 14 years married. In column (7) the variable "marital births" includes live births of couples who have been between 15 and 19 years married. In column (8) the variable "marital births" includes live births of couples who have been married 20 years or more. Estimated using country population weights. Standard errors in parentheses. ***Statistical significance at 1%. **Statistical significance at 5%.* Statistical significance at 10% level.

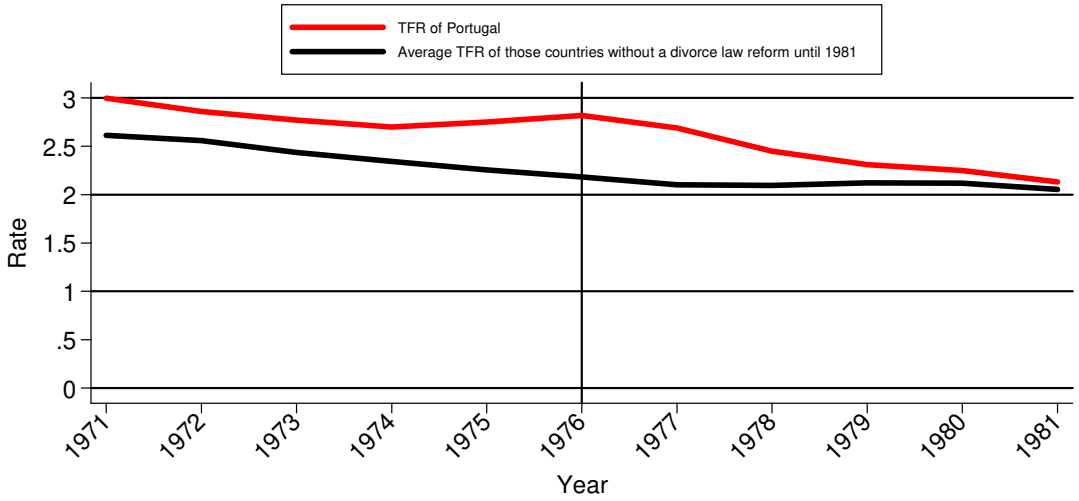
Figure 1:
TFR, Marital Births, and Out-of-Wedlock Births
Europe 1960-2006



Source: Eurostat

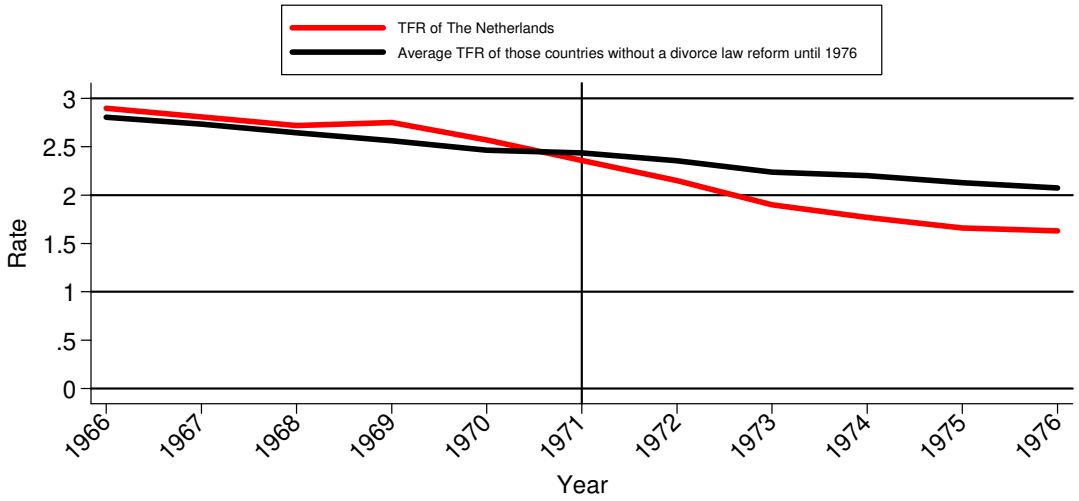
Notes: The countries considered in the analysis are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Figure 2:
Total Fertility Rate: Portugal



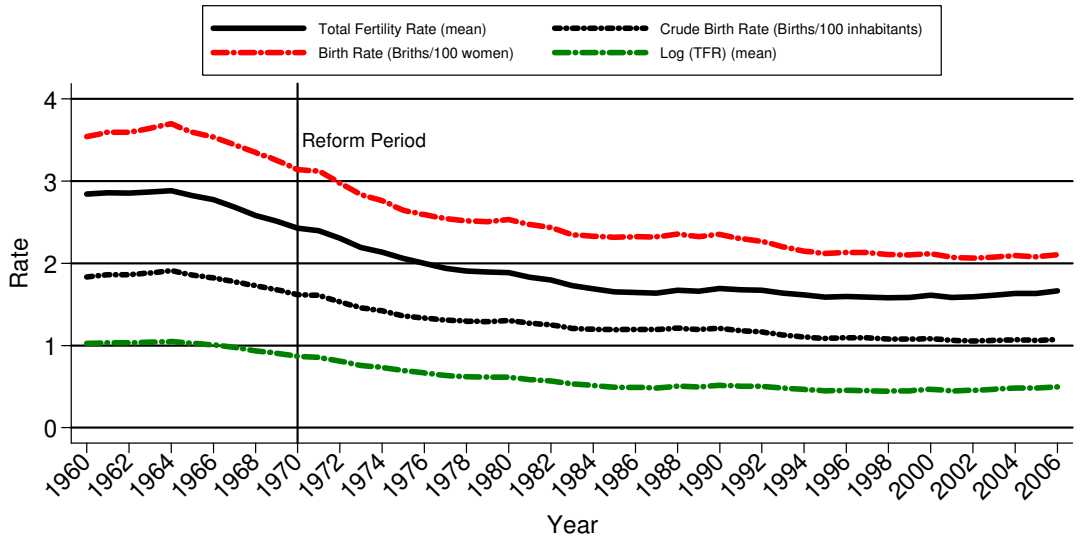
Notes
Source: Eurostat
Portugal implemented a divorce law reform in 1976

Figure 3:
Total Fertility Rate: The Netherlands



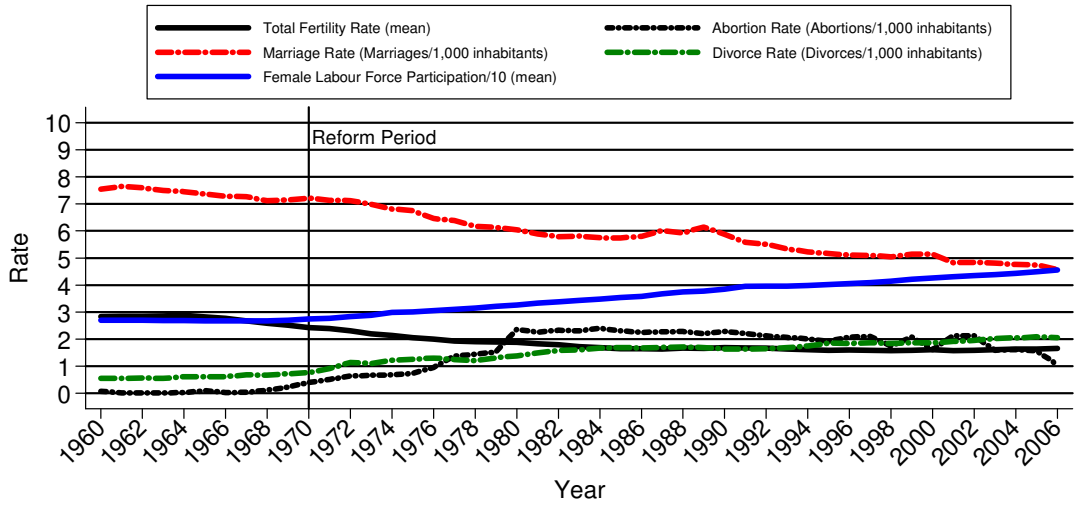
Notes
Source: Eurostat
The Netherlands implemented a divorce law reform in 1971

Figure 4:
Birth Rates, Europe 1960-2006



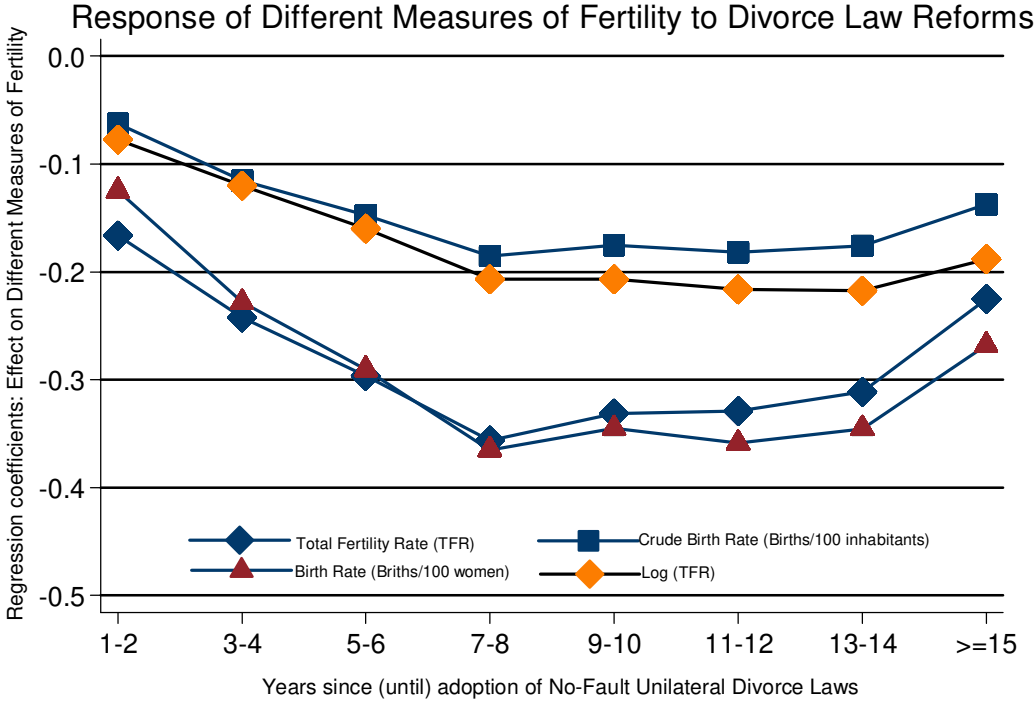
Source: Eurostat

Figure 5:
Births, Abortions, Marriages, FLFP, and Divorces
Europe 1960-2006



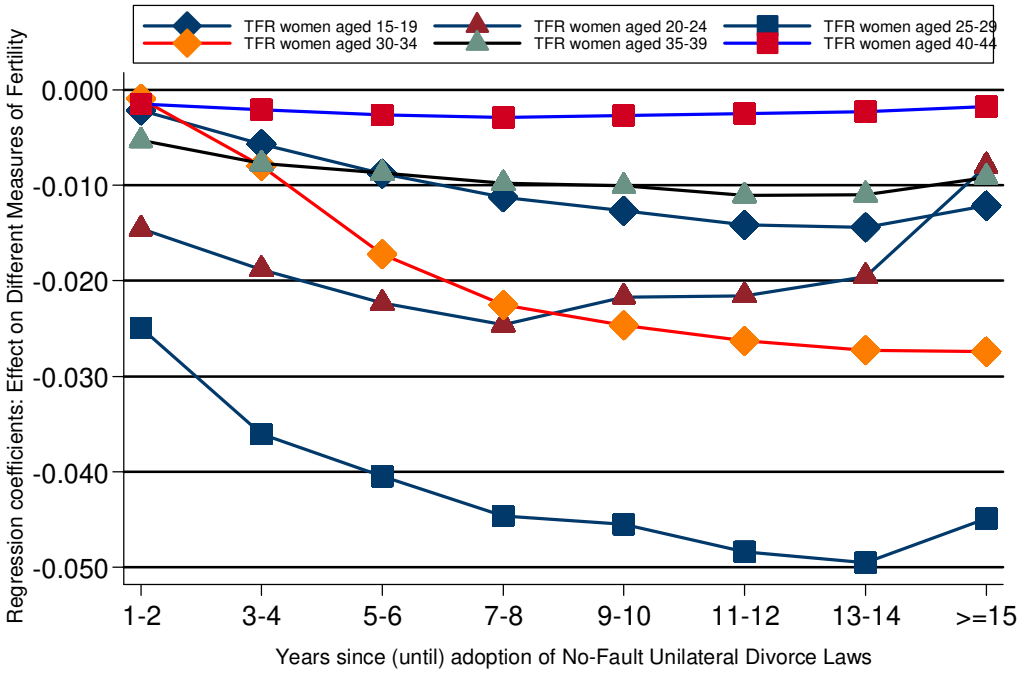
Source: See Appendix

Figure 6:
Response of Different Measures of Fertility to Divorce Law Reforms



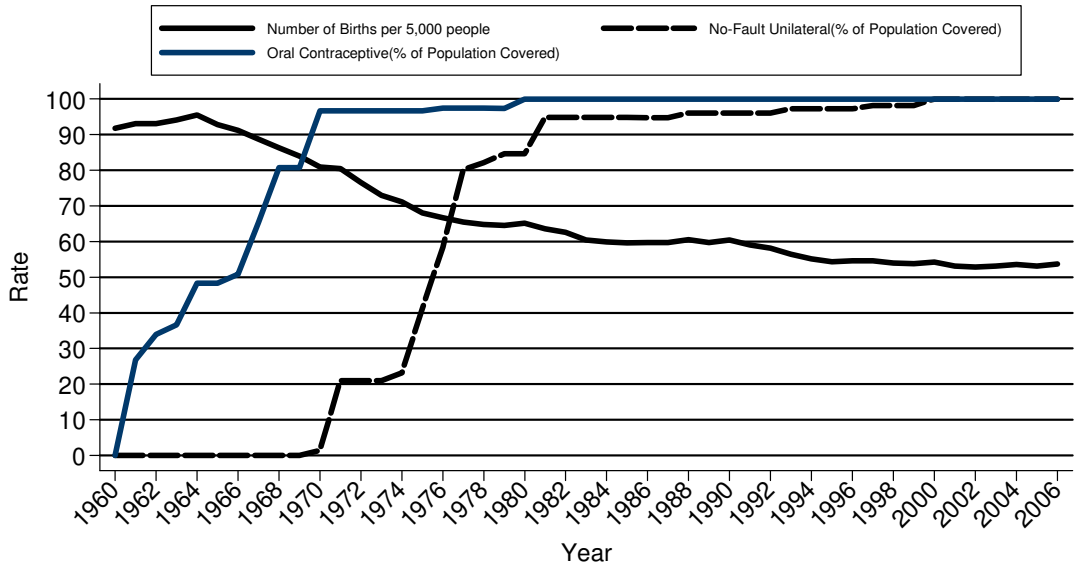
Notes: Estimated using country-specific quadratic trends. All coefficients are statistically significant at the 5% level.

Figure 7:
Response of TFR by Age of Women (15-44)



Notes: Estimated using country-specific quadratic trends. All coefficients but two ($\beta_{>15}$ and $\beta_{1\text{-}2}$ when the dependent variable is TFR of women aged 20-24 and 30-34, respectively) are statistically significant at the 5% level.

Figure 8: Coverage of Divorce Law Reforms, the Introduction of the Pill, and the Crude Birth Rate



APPENDIX Data sources and Definition of Variables

Variable	Definition	Source
Figure Variables		
Crude Birth Rate	Annual number of births per 100 inhabitants	Eurostat
Abortion Rate	Annual number of abortions per one thousand inhabitants	Eurostat
Marriage Rate	Annual number of marriages per one thousand inhabitants	Eurostat
Divorce Rate	Annual number of divorces per one thousand inhabitants	Eurostat
Birth Rate	Annual number of births per one hundred women	Computed by authors using data from the Eurostat
Dependent Variable		
Total Fertility Rate	The mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year.	Eurostat and UN Demographic Yearbook
Marital Birth Rate	Annual number of births within marriage per five hundred inhabitants	Computed by authors using data from the Eurostat
Non-Marital Birth Rate	Annual number of out of wedlock births per five hundred inhabitants	Computed by authors using data from the Eurostat
Ilegitimacy Ratio	Annual number of out of wedlock births per ten births	Computed by authors using data from the Eurostat
Completed Fertility Rate	The average number of children born to a cohort of women up to the end of their childbearing age, from the cohort´s beginning of exposure to risk (at age 15) until the age when all members of the cohort have reached the end of the reproductive period (at age 49)	Council of Europe (1940 to 1944 and 1961 to 1970), and computed by authors using data from the Eurostat and from the UN Demographic Yearbooks (several issues)(1945 to 1960)
Control Variables		
Female Labour Force Participation	Female Civilian Labour Force over number of women, in percentage	Computed by authors using data from the OECD and Eurostat
Gross Enrolment Ratio	Total female enrolment in education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education in given school-year	Unesco
Infant Mortality	The ratio of the number of deaths of children under one year of age during the year to the number of live births in that year. The value is expressed per 1,000 live births.	Eurostat
Per Capita GDP	Gross Domestic Product divided by the population of each country, expressed in thousands	Computed by authors using data from the United Nations
Women in Parliament	Percentage of women in each national parliament on the total of seats of the parliament	Computed by authors using data from the Inter Parliamentary Union
Unemployment Rate	Unemployment rate as percentage of the civilian labour force	OECD
Crude Divorce Rate	The ratio of the number of divorces during the year to the average population in that year. The value is expressed per 1000 inhabitants.	Eurostat

Crude Marriage Rate	The ratio of the number of marriages during the year to the average population in that year. The value is expressed per 1000 inhabitants	Eurostat
Monthly Family Allowances (First, Second and Third Child)	Monthly family allowances for the first, second and third child (assuming a three-child family), in constant euros of 2005. It is expressed in hundreds of euros.	Comparative Family Policy Database, by Anne H. Gauthier
Total Weeks of Maternity leave	Total number of weeks of maternity leave	Comparative Family Policy Database, by Anne H. Gauthier
Cash Benefits During Maternity Leave	Cash benefits paid during maternity leave (as a percent of female wages in manufacturing)	Comparative Family Policy Database, by Anne H. Gauthier
Total Weeks of Parental Leave	Total number of weeks of parental leave	Comparative Family Policy Database, by Anne H. Gauthier
Cash Benefits During Parental Leave	Cash benefits paid during parental leave (as a percent of female wages in manufacturing)	Comparative Family Policy Database, by Anne H. Gauthier
Total Weeks of Childcare Leave	Total number of weeks of childcare leave	Comparative Family Policy Database, by Anne H. Gauthier
Cash Benefits During Childcare Leave	Cash benefits paid during childcare leave (as a percent of female wages in manufacturing)	Comparative Family Policy Database, by Anne H. Gauthier
Value of Transfers to Family Type	Value of tax and benefit transfers of one-earner-two-parent two-child families. The value was calculated by subtracting the disposable income (after taxes and transfers) of a one-earner-two-parent-two-child family from that of a comparable childless single earner, in constant euros of 2005	Comparative Family Policy Database, by Anne H. Gauthier
Index of Direct and Indirect Cash Benefits	This indicator represents the difference between the disposable income of a two-child one-earner family and that of a single earner and is expressed as a percentage of the average earnings of a production worker, in constant euros of 2005	Comparative Family Policy Database, by Anne H. Gauthier