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W O R K I N G P A P E R 2 0 1 1 / 1 3

The educational gradient
in marital disruption:
A meta-analysis of European
longitudinal research

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The educational gradient in marital disruption: A meta-analysis of European longitudinal research¹

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Abstract

A large number of empirical studies have investigated the role of education in the changes in union dissolution in Europe, but these studies have so far produced inconsistent results. This paper seeks to assess the relationship between educational attainment and the incidence of marital dissolution by systematizing the existing empirical evidence on the topic. To this end, we have conducted a quantitative literature review (a meta-analysis). This review allowed us to assess the relationship in a quantitative manner and to investigate its temporal change, net of the across-study differences. Our results illustrated that a reversal in the educational gradient from positive to negative has occurred over time. The findings also showed that the change in the educational gradient was happening in parallel to an increase in access to divorce. Finally, the findings suggested that women's empowerment has played a greater role in explaining the changing educational gradient of divorce than the liberalization of divorce laws.

Keywords: divorce, education, socioeconomic status, meta-analysis, marriage, social change.

¹ This paper is also available in the Working Paper Series of the Institute of Statistics and Demography of the Warsaw School of Economics: http://www.sggw.waw.pl/instituty/isd/publikacje?set_language=it. Each author contributed to the paper equally, and the names are listed in alphabetical order. The paper was prepared as part of the research project "Family Change and Subjective Well-Being" (FAMWELL), which was financed by the National Centre for Research and Development under the LIDER Programme. The authors wish to express their gratitude to Anna Rybińska, who collected and organized time series on contextual indicators used in the study. The authors would also like to thank all of the experts in the field of marital dissolution dynamics who provided recommendations for the meta sample.

I. INTRODUCTION

Europe has witnessed a substantial increase in the incidence of marital disruption in recent decades. This process is most advanced in Nordic countries, where more than half of marriages end in divorce, followed by Western and Central and Eastern European countries (Prskawetz, Mamolo, & Engelhardt, 2010; Sobotka & Toulemon, 2008)². Divorce rates are lowest in Mediterranean Europe, as this part of the continent has traditionally been characterized by a strong attachment to Christian values and a delayed diffusion of new family behaviors (Dalla Zuanna & Micheli, 2004; Hantrais, 2005). Nonetheless, even in these countries, the process of marital disruption has accelerated over the past decade (Bernardi & Martinez-Pastor, 2010; Vignoli & Ferro, 2009).

A plethora of empirical research has been conducted in response to these developments, with the goal of learning more about the correlates, if not the determinants, of marital disruption. Whereas empirical studies yield consistent findings with respect to divorce correlates such as age at marriage formation, parental divorce, premarital childbearing, or marriage duration (e.g., Amato & Rogers, 1997; Goode, 1962; Levinger, 1965; Liu, 2002; Lyngstad & Jalovaara, 2010; Teachman, 2002; White, 1990); the impact of other determinants of divorce is much less understood. For example, it is unclear what effect women's educational attainment has on marital disruption. At the same time, women's education has attracted considerable attention, as it is considered a measure of individual social status, earning potential, labor market performance, and intellectual abilities; as well as a marker of individual autonomy and independence of social norms. On the one hand, the economic theory formulated by Becker (1981) predicted that highly educated women would be more likely to divorce, as these women have better labor market opportunities than their less educated counterparts, and are therefore more economically independent (see also Levinger, 1965; Ruggles, 1997; White, 1990). As a result, highly educated women may be more likely to be able to afford the legal costs

² It is to be noted, however, that CEE countries reveal a lot of diversity with respect to divorce rates with Czech Republic, Hungary and post-soviet countries displaying very high and Poland and Romania very low divorce rates.

of divorce and to maintain themselves economically after separation. Additionally, they may hold more liberal values, be more resistant to social norms, and be better equipped to understand complex divorce procedures (Blossfeld, De Rose, Hoem, & Rohwer, 1995). On the other hand, it has also been argued that highly educated women may form higher quality relationships, as they might be more attractive in the marriage market and have better social, communication, and cognitive skills that may help them in resolving marital conflicts (e.g., Amato, 1996). Finally, highly educated women may experience less marital strain as they enjoy higher living standards (Hoem, 1997; Jalovaara, 2003). Empirical research has also produced conflicting findings regarding the educational gradient of divorce. While some studies have shown that highly educated women are more likely than less educated women to divorce (i.e., Blossfeld et al., 1995 for Italy, Sweden and West Germany; Poortman & Kalmijn, 2002 for the Netherlands), other studies have yielded contrary results (Berrington & Diamond, 1999 for Great Britain; Boyle, Kulu, Cooke, Gayle, & Mulder, 2008 for Austria; Trussel, Rodriguez, & Vaughan, 1992 for Sweden).

One of the explanations for this puzzle about the educational gradient in marital disruption has been provided in the works of William J. Goode (1962, 1970, 1993). Since they first appeared, these studies have been the most influential reference source for researchers investigating the link between marital breakdown and societal factors. Goode argued that, at least initially, only couples from the highest social strata would have the intellectual and economic means to divorce; but that, as the social acceptability of divorce increases and the legal and economic barriers to divorce fade away, the relationship between social status and divorce becomes less significant and may even reverse its sign. Thus, at the end of this process, marriage dissolution could be even more common at the bottom of the social hierarchy. A direct implication of Goode's hypothesis is, therefore, a reversal in the educational gradient of divorce from positive to negative, with a weakening in the cultural, economic, and legal barriers to marital disruption; and, hence, increased access to divorce.

A rise in women's labor force participation rates might be one the major factors that have contributed to the eradication of cultural and economic barriers to marital disruption. Initially, as the presence of women in the labor market was marginal, most of the women who were involved in paid employment were highly educated. But as labor force participation among women became widespread, better opportunities to earn an independent income—and, therefore, to afford to get divorced—were opened to the less educated as well. It has been argued in the literature that, under such circumstances, it might no longer be purely the transfer of income and the household division of labor that affect couples' decisions to remain married, but also personal satisfaction with the quality of the union (Cherlin, 2000; Poortman & Kalmijn, 2002; Jalovaara, 2003; Raz-Yurovich, 2011). Hence, the gradual retreat from the traditional role specialization within a couple might have led to a change in the educational gradient of marital disruption.

The impact of the increase in women's labor force participation on the changing educational gradient of divorce can be further mediated by economic conditions that affect partners' employment opportunities. But the direction of this effect is not clear. On the one hand, worsening macroeconomic conditions could lead to higher divorce risks as the economic strain on couples increases, particularly on less educated couples who are most exposed to unemployment (Conger et al., 1990; Waters & Ressler, 1997). On the other hand, less educated women might be most exposed to joblessness and experience the greatest deterioration in their earning opportunities, which may discourage them from seeking a divorce, at least until there is an improvement in the macroeconomic situation (Fischer & Liefbroer, 2006).

Another factor that could lead to a reversal in the educational gradient is the introduction of legal reforms that make divorce easier. Jacobson (1959), for example, argued that the large differences in the divorce rates of U.S. states can be partly explained by differences in divorce laws. In general, empirical findings have shown that the liberalization of divorce laws has led to an increase in divorce rates, although the extent of this growth seems to depend on

the stage of the liberalization process. Whereas unilateral divorce practices have been found to have had a significant impact on divorce rates (Friedberg, 1998; Gonzalez & Viitanen, 2009), the introduction of legal rights to unilateral divorce was found to have had no long-run effects (Kneip & Bauer, 2010). In line with Goode's hypothesis, the liberalization of divorce laws may have facilitated marital disruption among the lower social strata, as easier divorce procedures are less costly and less difficult to understand for people with low levels of education.

Our goal in this paper is to assess the relationship between educational attainment and the divorce risk by systematizing the existing empirical evidence for Europe on the topic. Instead of conducting a comparative cross-country study, we perform a quantitative literature review (a meta-analysis). The crucial advantage of using this approach, rather than conducting a single comparative study, is the generality of the findings across several research works. Such approach allows us to assess the relationship in a quantitative manner and to investigate its temporal variation, net of the across-study differences. Additionally, we test whether an increase in women's social and economic independence, as well as the liberalization of divorce laws, contributed to the changes in the educational gradient in marital disruption.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

Goode's hypothesis on the changing educational gradient in marital disruption attracted the attention of researchers, who tried to verify its validity. For instance, Blossfeld et al. (1995) compared educational differences in divorce in Sweden, West Germany, and Italy; that is, three countries that represent "different stages in the development and differentiation of socially accepted living arrangements and different levels of divorce rates" (p. 202). Using data stemming from the Fertility and Family Survey (FFS) program, they found a positive educational gradient in the three countries. The magnitude of this effect was shown to be highest in Italy and lowest in Sweden. The authors explained this finding by asserting that these countries are at different stages in a transition from a social context marked by low divorce rates to one with

high divorce rates, and noted that their study provided evidence for a decline in the “liberating” impact of women’s higher educational attainment on marital disruption that comes with an increase in access to divorce.

Some deeper insights into the situation in Italy were provided by Salvini and Vignoli (2011). In this country, divorce has been possible only since 1970, and divorce rates have been very low. Consistent with Goode’s hypothesis, empirical studies have found a positive educational gradient in Italy (e.g., De Rose, 1992). Recently, however, the period total divorce rate has increased dramatically (by more than 100% between 1995 and 2008 – Vignoli, Gabrielli, & Gualtieri, 2011). In this particular period, when separation spread rapidly, Salvini and Vignoli (2011) found some evidence of a reversal in the educational gradient, as the rate of separation was increasing more abruptly among the less educated, while it leveled off among the highly educated. A change in the educational gradient of divorce from positive to negative was also demonstrated for the United Kingdom by Chan and Halpin (2005), and for Sweden by Hoem (1997).

A crucial contribution to the debate on the educational gradient in marital disruption was made by Härkönen and Dronkers (2006). They examined the relationship between female educational attainment—considered as a time-varying covariate—and the risk of divorce across marriage cohorts in 16 European countries using FFS data. They found a cross-country variation in the educational gradient in divorce. With a few exceptions, such as those of Austria or Flanders, their findings seem to support Goode’s hypothesis that there is a positive association between the costs of divorce and educational attainment or social class. They also found evidence of a shift toward a more negative educational gradient of divorce in nine out of 17 countries, and demonstrated that this shift was mainly driven by social changes toward more unconventional family types and less marriage-centered family institutions. This factor turned out to be even more important than the increase in women’s labor force participation, which was shown to be significant unless it was introduced into the model together with

unconventional family types; and to be far more important than the liberalization of divorce laws, which turned out to be insignificant. But the authors concluded by saying that “while we have been able to establish cross-national variation in the partial correlation between female education and divorce, further research on the changes in the educational gradient – with larger national datasets – would be welcomed” and underline that it is “to test the robustness of these findings and interpretations” (p. 514).

Our paper is a response to the call by Härkönen and Dronkers (2006) for more research on the link between education and marriage dissolution. The study presented here goes beyond comparative studies that are restricted to a certain data set covering certain countries and calendar years, and that use a particular analytical method. Instead, we perform a meta-analysis of published longitudinal research on the impact of women’s educational attainment on marital disruption in Europe. This approach allows us to make use of the abundance of empirical findings obtained on various data sets with the use of a wide variety of research methods. The crucial advantage of a meta-analysis over a single comparative study is the generality of the findings of a meta-analysis across several studies, each of which usually refers to a single set of circumstances and is based on certain assumptions. This paper thus adds on to the ongoing debate on the topic by providing a quantitative systematization of the available literature for Europe, as well as by generalizing the findings of the available comparative studies.

A series of research hypotheses are tested. First, we verify whether the available empirical evidence indeed suggests there has been a reversal in the educational gradient from positive to negative (H1). In doing so, we standardize the available research findings by across-study differences, which may affect the comparability of results. Second, we test whether the change in the educational gradient was indeed happening in parallel to an increase in access to divorce (H2). Finally, we investigate whether the reversal in the educational gradient can be linked to a gradual eradication of socioeconomic and legal barriers to divorce. To this end, we verify whether the educational gradient becomes more negative with an increase in women’s

economic and social independence, reflected in an increase in women's labor force participation and employment opportunities (H3), and a liberalization of divorce laws (H4).

III. DATA AND METHOD

The meta-analysis has been increasingly employed in the social sciences (Amato & Keith, 1991; Jose, O'Leary, & Moyer, 2010; Matysiak & Vignoli, 2008; Proulx, Helms, & Buehler, 2007; Twenge, Campbell, & Foster, 2003; Vemer, Colema, Ganog, & Cooper, 1989; Wagner & Weiss, 2006; Waldorf & Byrun, 2005; Weichselbaumer & Winter-Ebmer, 2005). This form of analysis was developed in order to synthesize, combine, and interpret the abundance of empirical evidence on a certain topic. It offers a clear and systematic way to compare the results of different studies, standardized for across-study differences. In practice, in order to conduct a meta-analysis, research papers on the topic of interest are collected in a systematic manner. First, estimated coefficients are selected across studies and recalculated in a standardized way into comparable indicators (i.e., effect sizes). The indicators reflect the magnitude of the association in each study. Next, these indicators are combined into single summary indicators. If the computed effects contain a large amount of heterogeneity, regression techniques are applied.

META SAMPLE

A crucial step in carrying out a meta-analysis is the construction of a new set of meta data. Our search strategy consisted of three stages: first, we accessed Web of Knowledge (WoK), a universal research database³; second, we checked the references in the articles we located via WoK; and, third, we asked experts for their recommendations.

We were able to cover all published longitudinal research concerning Europe up to 2010. The search was performed over two months, starting from the middle of September 2010. In

³ Web of Knowledge (WoK) is an academic citation and search service that encompasses 23,000 journals from sciences, social sciences and humanities. The advantage of the WoK is that it allows to search multiple databases simultaneously.

order to collect a representative sample of high quality studies, we focused solely on reviewed articles and chapters in books and monographs, leaving out working papers and internal research reports. We limited our selection to longitudinal studies. Our systematic search was conducted using a specific combination of selected general keywords (divorce OR "union dissolution" OR "union disruption" OR "union breakdown" OR "marital instability" OR "marital stability" OR "marriage stability" OR "marriage instability"). We ended the search at a saturation point; that is, when, after combining the different keywords and adding new ones, we obtained only articles already selected. English-, German-, Italian-, and Polish-language articles were considered in the first step. In the second step, we also contacted a French and a Spanish expert for recommendations of articles published in French and Spanish. The omission of studies published in other languages may have led to an under-representation of some countries in our analysis. This is a common problem in literature reviews. On the other hand, we did not find any studies of this kind in the literature sources we consulted.

Using our search strategy, we initially found 74 potential papers. Nine of these studies were eliminated because they included men and women in a single model and no specific control for women's education. Additionally, 12 studies were excluded for reasons of incomparability. For example, in nine German studies the highest educational level covered all individuals who passed the final exam at the end of higher secondary school (*Abitur*), which in Germany is a prerequisite for attending university. These studies were excluded because passing this exam is not equivalent to obtaining a university degree. Three more studies were dropped because education was implemented in a way that could not be used for our study; for example, as an aggregate for several countries or with levels that were not explained. This left us with 53 papers, of which 15 were explicitly devoted to testing the role of women's education on marital disruption risks, and 38 treated women's education as a control variable (see the appendix for the list of articles included in our meta sample).

Some authors presented an analysis of more than one independent sample. These estimates were treated as independent, and were included in our analysis. We accepted estimates from final models only. When the same data set was used in multiple published studies but the models estimated were different, we included all estimates in order to avoid the possibility of a study selection bias. Overall, the search procedure gave us a total of 109 effect sizes. The collected studies encompass a fairly large selection of European countries (for details, see Table 1) and fairly broad calendar periods. The study that covered the oldest periods extended to the early 1940s, and the study that included the most recent calendar years reached 2006. The majority of our effect sizes referred to the dissolution of marriages (72). Some studies focused on all unions and analyzed the disruption of marriages and cohabitations in one analytical model. We included these studies in our meta-analysis, as marriages constituted the vast majority of unions analyzed in these studies.

Table 1. Meta sample composition

Country	No. of effect sizes	Country	No. of effect sizes
Nordic countries		Central and Eastern Europe	
Denmark	2	Czech Republic	1
Finland	8	East Germany	3
Norway	9	Estonia	2
Sweden	16	Hungary	4
Continental Europe and UK		Latvia	3
Austria	4	Lithuania	3
Belgium	3	Poland	3
West Germany	7	Russia	3
Germany	1	Slovenia	2
France	3	Southern countries	
United Kingdom	5	Greece	1
Netherlands	7	Italy	9
Switzerland	3	Spain	7

EMPIRICAL STRATEGY

For computing the effect sizes we used the natural logarithms of the relative divorce risks or odds ratios of the highly educated compared to those of the less educated. We

implemented a random-effects model for our analysis. A random-effects model releases the assumption implemented in the fixed-effects model that the true effect size is exactly the same in all reviewed studies (Borenstein, Hedges, Higgins, & Rothstein, 2009). Consequently, the variance of an effect size is computed as a sum of two components: the within-study variance, which in practice is the squared standard error of the parameter as reported in the study; and the between-study variance, caused by across-study differences, which is estimated according to the formula proposed by DerSimonian and Laird (1986).

Among the problems we encountered while calculating the effects of education on divorce risks were the different measures of education employed in the original studies. The majority of studies coded education as a categorical variable with three categories: low, medium, and high; where high corresponded to completed university education and low to compulsory primary education. Some studies also included lower secondary education in the low category. We included these studies in our analysis, bearing in mind that these study-specific features need to be controlled for in the meta regression framework. In other studies, each woman's educational attainment was introduced into the model in combination with her partner's educational level. In this particular case, we selected for our analysis the estimates of the effect of two highly educated partners versus the effect of two less educated partners, as the situation in which both partners in a couple had similar educational levels was the most common. This situation was also taken into account in our meta regression. Finally, some studies considered education as a continuous variable measured in the number of years studied since completing the compulsory level of education. In order to achieve comparable effect sizes, we converted the years of education into dummies. This was achieved by multiplying the natural logarithm of the estimate of the effect of education expressed in years by the number eight, which is usually the number of years that must be completed to obtain a university degree by a person who graduated from compulsory education. The same procedure was applied to recalculate standard errors.

A second problem we encountered was the lack of standard errors or other statistics which would allow us to calculate standard errors (e.g., t-statistics or at least P-values). Following the literature on meta-analysis, we made the following assumptions. When the result was marked significant and no other details were available, we set the P-value equal to 0.05. When the result was not significant and when the upper limit was 0.05, we set the P-value at 0.55. When the significance was marked with stars only, we assumed the P-value was equal to the midpoint of its interval.

In the first step, we conducted a descriptive analysis of our effect sizes. Even at this early stage, we tried to evaluate the direction and magnitude of the educational gradient in divorce. We also investigated whether the gradient underwent any temporal changes. For the purposes of descriptive analyses, we grouped European countries into four geographical clusters: Nordic countries, Continental European countries and the United Kingdom, Central and Eastern European countries, and Southern Europe. These four country groups differ with respect to family regimes, with the Nordic countries being the most advanced and the Southern countries being the least advanced in the process of family deinstitutionalization and destabilization (Hantrais, 1997; Sobotka & Toulemon, 2008, Prskawetz et al., 2011).

Our effect sizes were tested for homogeneity using the homogeneity test proposed by Hedges and Olkin (1985). The test confirmed our expectation that there would be a large variation in the estimated effect sizes. The source of the variation lies in the differences in the institutional and cultural contexts in which decisions about divorce are made, as well as in the peculiarities of the original studies. Therefore, in the second step we performed a series of meta regressions.

Our major explanatory covariate in the meta regressions was the midpoint of the calendar period covered by the study. We also introduced a series of variables into our meta regression that describe the characteristics of original studies, and that could have an impact on the estimation of educational differences in divorce risks. These were: (a) sample design (i.e.,

birth cohorts, marital cohorts and observation over a certain period of time), (b) union type covered by the study (focus on marriages only versus all unions), (c) method (discrete or continuous event history analysis), (d) control covariates used in original studies (i.e., educational homogamy; child-related factors, including the ages, number, and gender of children, as well as whether they were conceived or born prior to marriage; the socioeconomic status of a woman, including her economic activity and income; and the acknowledged gender ideology), and (e) the measurement of the educational level (continuous or categorical measurement; inclusion of lower-secondary education into the low education category; a woman's education introduced in interaction with her partner's education). All but two characteristics of the original studies appeared to be insignificant. The two significant covariates were the union type covered by the study and the introduction of a woman's education in interaction with her partner's education. Only these two covariates were retained in our final models.

As a result, our basic meta regression contains calendar period, union type, and the control for educational measurement (interaction of a woman's education with her partner's education). This model was estimated in order to investigate our H1 hypothesis on the reversal in the educational gradient. In the next step, we extended this model with certain contextual indicators in order to address our remaining research hypotheses. As these indicators are strongly correlated with each other, they were introduced into separate models in order to avoid multicollinearity problems. First, we introduced the total divorce rate (TDR) into our basic model in order to test the H2 hypothesis, which asserts that the educational gradient changes in parallel to an increase in access to divorce. This indicator reflects the intensity of divorce, and hence it captures legal, normative, and behavioral changes. Second, we addressed our H3 hypothesis on the link between the reversal in the educational gradient and the increase in women's economic and social independence, as well as in women's employment opportunities. To this end, we added the labor force participation rate and the total unemployment rate of women into our basic model. Finally, we investigated the association between the changing

educational gradient and the liberalization of divorce laws (H4) by introducing a set of variables into our basic models that capture the proportion of time covered by the study during which a certain divorce law was in force. This model was estimated for effect sizes that refer to marriages only. The data sources we used for the contextual indicators, as well as the information on how they were operationalized in our meta regressions, is presented in Table 2.

Table 2. Contextual indicators

Domain	Indicator	Measurement	Source
Access to divorce	Total divorce rate (TDR)	Average TDR over the study period	Council of Europe
Legal framework	Divorce laws	Proportion of the time period of the study when the law was in force	Gonzales & Vittanen (2002), Council of Europe, Commission on European Family Law
Women's emancipation and economic independence	Women's labor force participation rate (FLFP)	Average FLFP over the study period	OECD and ILO, supplemented with national data sources
	Total unemployment rate (UR)	Average UR over the study period	OECD and ILO, supplemented with national data sources

The robustness of our meta regression estimates was verified in a set of sensitivity tests. Specifically, we estimated our meta regressions another three times, dropping certain observations from our meta sample each time. In the first step, we dropped observations for Sweden. This allowed us to verify that our findings were not driven by patterns in the data observed in a country that dominates in our meta sample. In the second step, we dropped the effect sizes from the study by Härkönen and Dronkers (2006), which contained a large number of estimates, and which showed a reversal in the educational gradient of marital disruption. Finally, we reduced our meta sample randomly by 10%. The outcomes of these sensitivity tests are presented in Table 1 in the appendix. They largely correspond to the estimates from the models estimated on the full sample, which supports the robustness of our meta findings.

IV. CHANGES IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION ACROSS EUROPE: A DESCRIPTIVE GLANCE

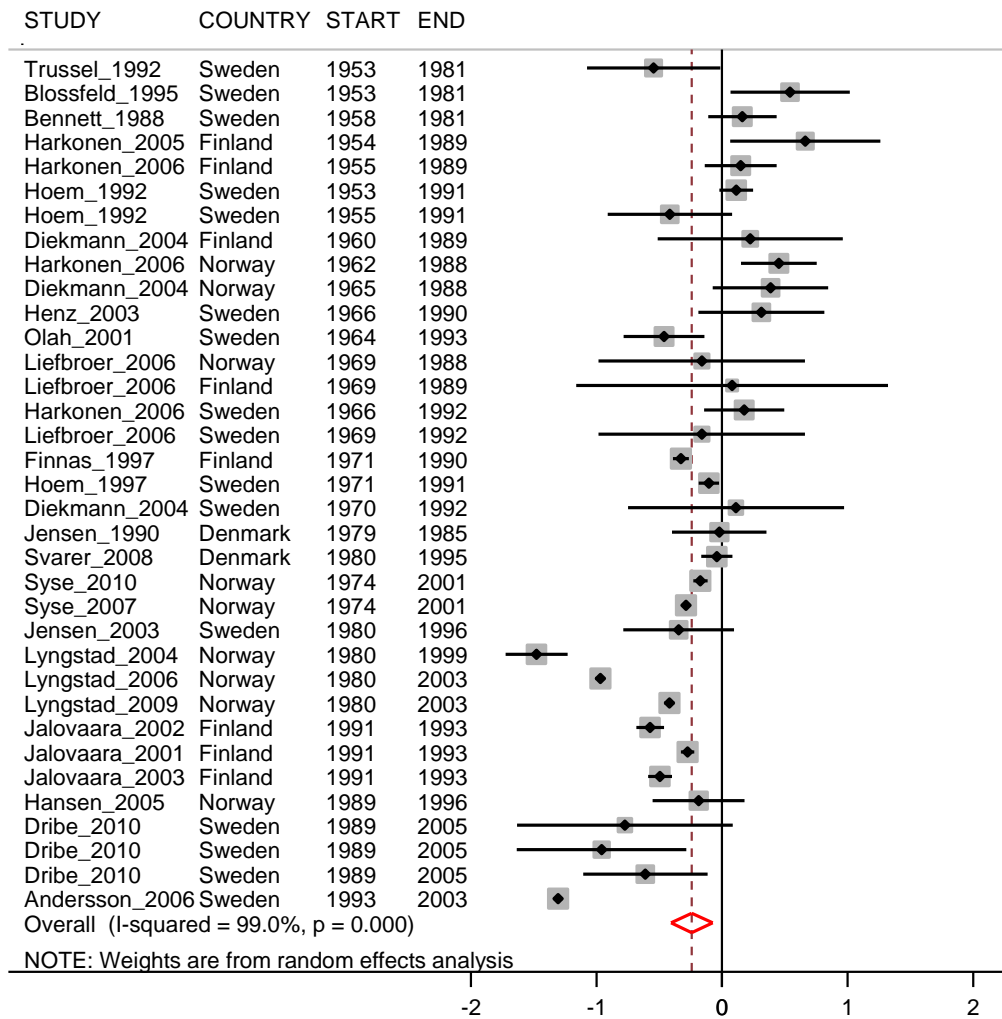
Our effect sizes are presented in Figures 1-4. Each figure displays effect sizes for a different country group. Within each country group, the effect sizes are organized in ascending order according to the midpoint of the time interval covered by the original study.

We start our discussion with the Nordic countries. This country group is most advanced in the process of family destabilization and deinstitutionalization in Europe, and has had the highest divorce rates on the continent since the early 1960s (Prskawetz et al., 2010). Currently, around 50% of marriages in Nordic Europe end in divorce. The Nordic countries are also the part of the continent where the liberalization of divorce laws proceeded the most quickly, and where de jure unilateral divorce laws were first introduced (Kneip & Bauer, 2010). Our meta results indicate that the average effect of education on marital disruption for all collected studies for the Nordic countries is significantly negative (as depicted by the diamond in Figure 1). However, the educational gradient in marital disruption has clearly changed its sign over time, turning from positive to negative. This temporal change in the sign of the effect size was observed within the whole country cluster, as well as within individual countries, such as Sweden, Norway, or Finland.

In contrast to the Nordic countries, the Mediterranean European countries have had the lowest divorce rates in Europe, with rates that were still below 0.2 in the early 2000s (Council of Europe, 2005). It is also notable that divorce was first introduced in Italy and Portugal in the 1970s, and in Spain in the early 1980s. It is therefore not surprising that, in contrast to the Nordic countries, we found the overall effect size in Mediterranean Europe to be significantly positive (Figure 2). Nevertheless, a temporal change in the educational gradient of marital disruption has been observed in this group as well. Our findings clearly demonstrated that the positive educational gradient in marital disruption has been gradually weakening, and approached insignificant values in the most recent studies. As in the Nordic countries, the

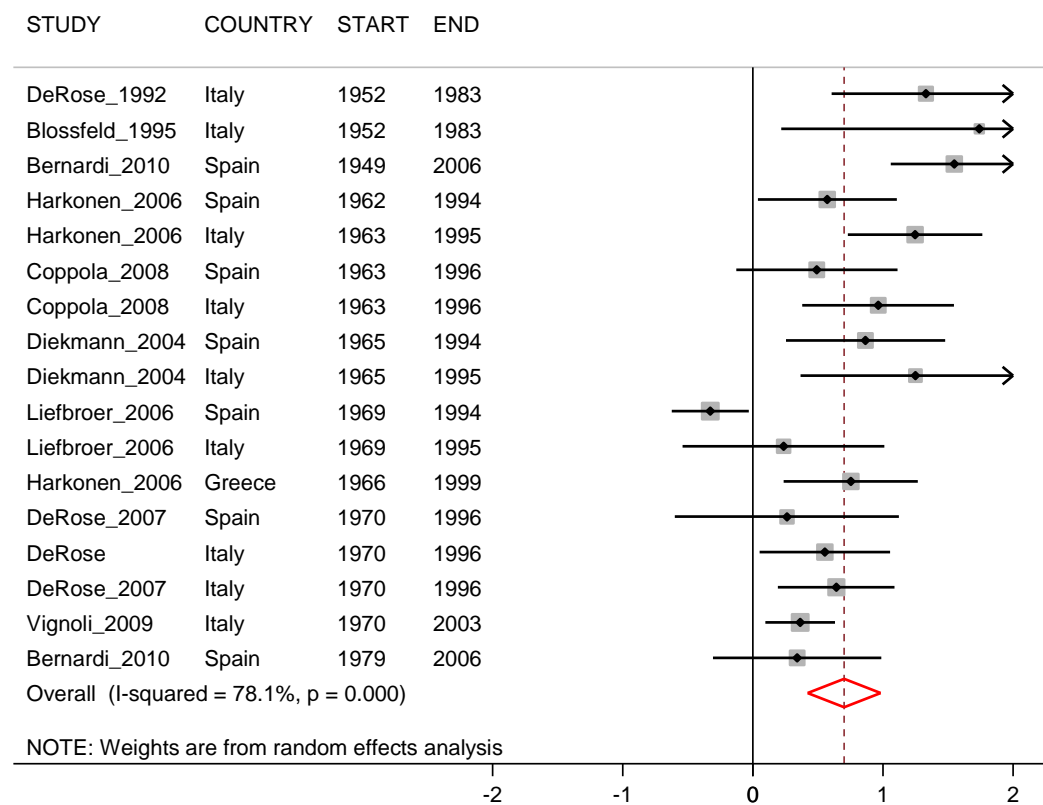
temporal change was visible not only in the country cluster, but also in individual countries, such as Italy or Spain.

Figure 1. The effect sizes over time, Nordic countries



Source: own calculations

Figure 2. The effect sizes over time, Mediterranean countries

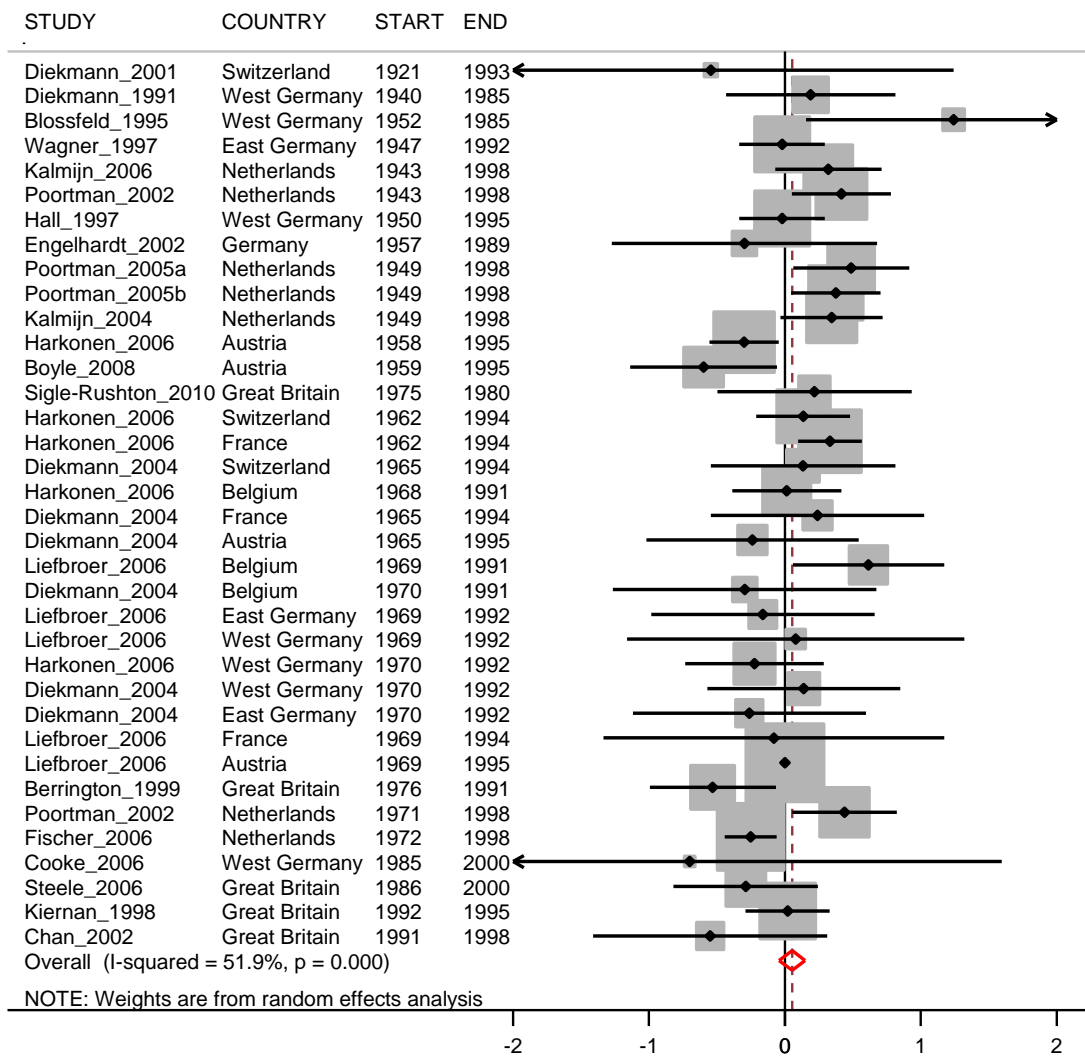


Source: own calculations

Continental Europe and the United Kingdom follow Nordic Europe in the degree of advancement in family disruption, although divorce rates among this group seem to be slightly more heterogeneous. At the beginning of the 2000s, the total divorce rate ranged between 0.37 (France and the Netherlands) and 0.54 (Belgium) for this group. The divorce laws are not as liberal in these countries as they are in Nordic Europe (for example, except in Belgium, de jure unilateral divorce is not available in Continental Europe), but certainly they are not as strict as in the Mediterranean countries (Gonzales & Viitanen, 2009). Our meta findings for Continental Europe and the United Kingdom provide further evidence that the educational gradient in marital disruption depends on the magnitude of the barriers to obtaining a divorce. In fact, the overall effect size in this part of Europe turned out to be insignificant (Figure 3). In addition, in this country cluster some signs of a temporal change in the educational gradient in marital

disruption are visible, although they are much weaker than in Southern or Nordic Europe. The less clear-cut pattern in the educational gradient over time in this part of Europe might be due to the greater heterogeneity of this country cluster than of the previous two groups.

Figure 3. The effect sizes over time, the Continental countries and the UK.

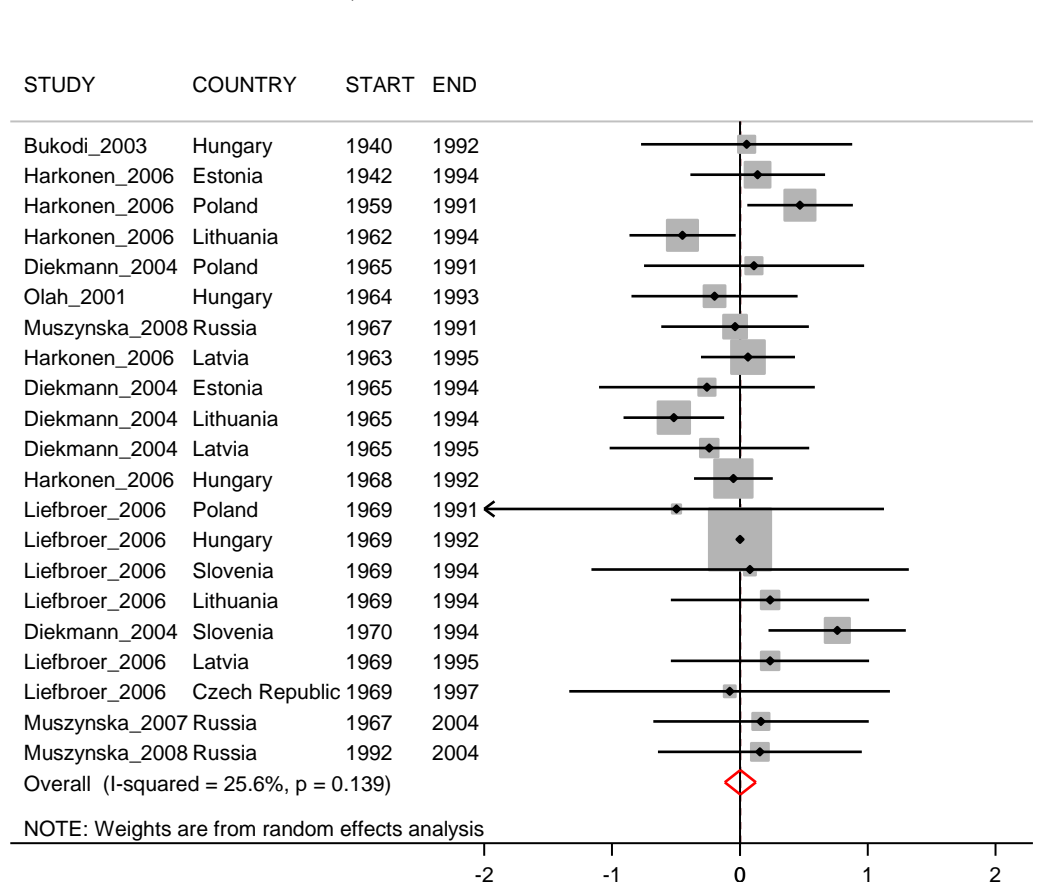


Source: own calculations

Finally, the last country group is made up by Central and Eastern European countries. This cluster displays the highest variation in marital disruption (Sobotka & Toulemon, 2008). The average TDR in this country group is around 0.35. Nonetheless, divorce rates in the Czech Republic, Hungary, and almost all of the post-Soviet countries clearly exceed this average,

reaching levels observed in Northern or Western Europe; whereas in Poland or Romania, the intensity of marital disruption is below average. The overall effect of education on marital dissolution in the group of the CEE countries was not found to be significantly different from zero (Figure 4). Unfortunately, no temporal pattern in the effect size could be identified, as the studies collected for this country group do not differ in the periods covered. Except for two studies for Russia, all of the others were conducted on the FFS data, and mainly covered the period from the 1960s until the early 1990s, with slight cross-country variation in the starting and end points of the observation periods caused by differences in the timing of the FFS fieldwork. The only observation that can be made on the basis of our meta data is that there were no significant educational differences in divorce risks across CEE countries in the postwar period.

Figure 4. The effect sizes over time, CEE countries



Source: own calculations

The *I*-statistic presented at the bottom of each graph measures the share of the between-study variance in the overall variation in effect sizes. Except for the CEE country group, the *I*-statistic exceeds 50%. This means that more than 50% of the variation in effect sizes can be attributed to across-study differences. In order to rule out the possibility that the observed temporal change in the educational gradient in marital disruption observed in Figures 1-4 is driven by the between-study differences, we ran a series of meta regressions. The midpoint of the calendar period covered by the study was our main explanatory covariate. Below we present only those meta regressions that include covariates that turned out to affect our effect sizes significantly.

V. CHANGES IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION: META REGRESSION

IS THERE A TEMPORAL CHANGE IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION?

We start the discussion with the simplest and most basic model. As can be seen in column M1 in Table 3, the coefficient describing the relationship between calendar time and our effect size is significantly negative (-0.024). Hence, our meta regression provides further support for a temporal decline in the educational gradient of marital dissolution. Interestingly, the temporal change was observed only for studies that analyze disruption of marital unions exclusively. Studies that included cohabitations in addition to marriages showed no significant change over time in the educational gradient (as the coefficient of the interaction effect “any union-calendar time” cancels out with the main effect of “calendar time”). This finding is not surprising given that the legal and social barriers to union disruption mainly affect marriages, and that these barriers have weakened over time. The other significant covariate in model M1 refers to the measurement of education in the original studies; namely, it captures differences in effect sizes between studies that introduced women’s education to the model and those that

interacted a woman's education with that of her partner's. It turned out that studies in which the effect of a woman's education was assessed in combination with her partner's gave more negative effect sizes than studies in which the average effect of woman's education was calculated.

In the next step, we introduced country group into the model (see column M2). This modification had no impact on the rate of temporal change in the educational gradient. The model also supported our descriptive findings on the differences in effect sizes across country groups, yielding the lowest educational gradient for the Nordic countries and the highest for Southern Europe. Finally, we allowed the rate of temporal change to differ across country groups by interacting the calendar time with country group (see column M3). Consistent with our descriptive analyses, the model indicated that the temporal change was significant in the Nordic and Mediterranean countries, but not in CEE and the country group covering Continental Europe and the United Kingdom.

Overall, our descriptive analyses presented in Figures 1-4, as well as our meta models M1-M3, provided clear support for our hypothesis H1 on the reversal in the educational gradient in marital disruption over time. They also suggested that the change indeed took place in parallel to increasing access to divorce and a weakening of barriers to marital dissolution. In the following sections of the paper, the validity of this statement is tested more deeply.

Table 3. Meta regression of the educational gradient of union dissolution

	M1	M2	M3
Calendar year	-0.024*** (0.006)	-0.025*** (0.005)	-0.059** (0.019)
Any union (ref=marriage)	-0.429† (0.217)	-0.417* (0.186)	-0.363† (0.194)
Any union * calendar year	0.025† (0.013)	0.022* (0.011)	0.018 (0.012)
Control on educ. measurement	-0.858*** (0.169)	-0.678*** (0.143)	-0.649*** (0.156)
Nordic (ref=Southern)		-0.735*** (0.111)	-1.241*** (0.332)
Continental + UK		-0.670*** (0.113)	-1.255*** (0.331)
CEE		-0.683*** (0.128)	-1.434*** (0.395)
Nordic * calendar year			0.033 (0.021)
Continental +UK * calendar year			0.040† (0.021)
CEE * calendar year			0.052† (0.026)
Constant	0.446*** (0.101)	1.063*** (0.127)	1.581*** (0.307)
Adj-R2	49.59%	70.03%	70.78%
Observations	109	109	109

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%

Standard errors in parentheses

Source: Own calculations

ACCESS TO DIVORCE AND THE TEMPORAL CHANGE IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION

We measured access to divorce using the TDR. In the first step, we introduced the TDR into our basic model M1 (see column M4a in Table 4). Next, we estimated a model for studies that analyze marriages only, excluding those that investigated union dissolution in general (see column M4b in Table 4). Our meta models M4a and M4b yielded a very strong and significantly negative effect of TDR on the effect size. Furthermore, after controlling for access to divorce, we found that the effect of calendar time became much weaker and less significant. The latter finding suggests that the increase in access to divorce fully explains the reversal in the

educational gradient of marital disruption, which is in line with Goode’s hypothesis and our hypothesis H2.

Table 4. Meta regression of the educational gradient of union dissolution with the TDR

	M1	M4a	M4b
Calendar year	-0.024*** (0.006)	-0.009 (0.006)	-0.004 (0.006)
Any union (ref=marriage)	-0.429† (0.217)	-0.420* (0.187)	- -
Any union * calendar year	0.025† (0.013)	0.024* (0.011)	- -
Control on educ. measurement	-0.858*** (0.169)	-0.680*** (0.141)	-0.689*** (0.155)
TDR		-2.072*** (0.320)	-2.615*** (0.396)
Constant	0.446*** (0.101)	0.779*** (0.101)	0.861*** (0.108)
Adj-R2	49.59%	69.07%	75.47%
Observations	109	109	72

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%

Standard errors in parentheses

Source: Own calculations

WOMEN’S SOCIAL AND ECONOMIC INDEPENDENCE AND TEMPORAL CHANGE IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION

Our next hypothesis, H3, suggests that the reversal in the educational gradient in marital disruption might have taken place in parallel to the increasing economic and social independence of women, as measured by women’s labor force participation rate. This effect might be further mediated by the employment opportunities for women, which are captured by the total unemployment rate. In a manner similar to the approach used in Section 5.2, we investigated the association between our effect sizes and women’s labor force participation, as well as unemployment, observed in (a) all of the studies considered for our meta study and (b) the studies that focused on marriages only.

Irrespective of the focus of the original studies, our findings showed that the increase in female labor force participation was negatively correlated with the changes in the educational gradient of marriage dissolution (see columns M5a and M5b in Table 5). This result is consistent

with our hypothesis H3. Furthermore, an introduction of the women's labor force participation rate into our model led to a decline in the coefficient denoting the temporal change in the educational gradient. Nonetheless, the effect of calendar time on our effect size remained significant. This means that an increase in women's labor force participation does not fully explain the reversal in the educational gradient.

Table 5. Meta regression of the educational gradient of union dissolution with labor market indicators

	M1	M5a	M6a	M7a	M5b	M6b	M7b
Calendar year	-0.024*** (0.006)	-0.015* (0.006)	-0.037*** (0.007)	-0.019* (0.008)	-0.012* (0.006)	-0.039*** (0.008)	-0.018* (0.008)
Any union (ref=marriage)	-0.429† (0.217)	-0.431* (0.189)	-0.390† (0.205)	-0.422* (0.190)			
Any union * calendar year	0.025† (0.013)	0.024* (0.011)	0.024† (0.012)	0.024* (0.011)			
Control on educ. measurement	-0.858*** (0.169)	-0.705*** (0.143)	-0.773*** (0.158)	-0.701*** (0.143)	-0.718*** (0.156)	-0.808*** (0.185)	-0.714*** (0.155)
Female labor force participation rate		-0.016*** (0.003)		-0.015*** (0.003)	-0.020*** (0.003)		-0.018*** (0.004)
Unemployment rate			0.054*** (0.013)	0.012 (0.015)		0.065*** (0.017)	0.019 (0.017)
Constant	0.446*** (0.101)	1.258*** (0.160)	0.376*** (0.096)	1.161*** (0.201)	1.446*** (0.185)	0.357** (0.102)	1.305*** (0.226)
adj-R2	49.59%	67.94%	58.31%	67.93%	74.98%	62.59%	75.38%
Observations	109	109	109	109	72	72	72

† <.1, * <.05, ** <.01, *** <.001

Standard errors in parentheses

Source: Own calculations

The total unemployment rate was found to be positively associated with the educational gradient (models M6a and M6b). Of the two possible effects of unemployment on marriages formed by less educated women—a destabilizing effect due to economic stress or a stabilizing effect due to worse labor market opportunities for women with little human capital—the second mechanism was shown to be far greater. A decline in the coefficient for calendar year after controlling for the unemployment rate suggests that the educational gradient of marital disruption would have decreased even faster in time had it not been for the increase in unemployment.

The introduction of female labor force participation and the total unemployment rate into a single model (models M7a and M7b) did not contradict the previous conclusions, but the coefficient for total unemployment rate became insignificant.

DIVORCE LAWS AND TEMPORAL CHANGE IN THE EDUCATIONAL GRADIENT OF MARITAL DISSOLUTION

Finally, we address our hypothesis H4, which proposes that the reversal in the educational gradient in marital disruption took place in parallel to a weakening in the legal barriers to divorce. This hypothesis was tested on the meta sample of studies that investigated disruption of marital unions only (the benchmark model was therefore M1b). The process of liberalization in divorce laws was measured at two stages: first, at the introduction of divorce based on mutual consent; and, later, at the implementation of the de jure unilateral divorce. According to our results, none of the judicial changes appeared to be significantly correlated with the educational gradient in marital disruption. (M8) We thus found no support for our research hypothesis H4.

Table 6. Meta regression of the educational gradient of union dissolution with contextual indicators

	M1b	M8
Calendar year	-0.023** (0.007)	-0.019* (0.007)
Control on educ. measurement	-0.887*** (0.208)	-0.845*** (0.206)
Unilateral divorce		-0.194 (0.172)
No guilt divorce		-0.073 (0.217)
Constant	0.447*** (0.109)	0.565*** (0.166)
adj-R2	51.62%	53.11%
Observations	72	70

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%

Standard errors in parentheses

Source: Own calculations

VI. CONCLUDING REMARKS

The relationship between educational attainment and marital dissolution has attracted considerable attention among researchers. The empirical evidence produced by these studies has been equivocal and inconsistent, with some studies suggesting that the educational gradient in marital disruption is positive, and others yielding negative coefficients. But because micro level studies have often focused on a specific context, they have been able to offer only a piece of the overall puzzle of certain phenomena. In an effort to provide some general conclusions on this complex topic, we conducted a meta-analysis of published longitudinal research on the impact of women's educational attainment on marital disruption in Europe.

At least four conclusions can be drawn from our findings based on our research hypotheses. First, we found a reversal in the educational gradient over time from positive to negative. Second, we verified that the change in the educational gradient was indeed happening in parallel to an increase in access to divorce, as the direct (i.e., financial) and indirect (i.e., social acceptance) costs of divorce were weakening. Third, we proved that the increase in female labor force participation is negatively correlated with the changes in the educational gradient of marriage dissolution. Women's employment increases their independence by overthrowing traditional marriage norms and improving their economic situation (Spitze & South, 1985; Heckert, Nowak, & Snyder, 1998; Ono, 1998). Finally, we also demonstrated that the liberalization of divorce laws did not exert a statistically significant influence on the changes in the educational gradient in marital dissolution. Overall, our findings are in line with previous evidence (e.g., Härkönen and Dronkers 2006), while also providing a fresh contribution to the literature. Since our results are based on a meta-analysis of longitudinal research in marital disruption in Europe published over the recent two decades, they are robust to the type of data used or analytical method employed in original studies.

The major implication of our research is that the increase in access to divorce fully explains the reversal in the educational gradient of marital disruption, which is in line with

Goode's hypothesis. We can therefore predict that the correlation between socioeconomic status and divorce risk will turn from positive to negative over time in all European countries where divorce rates are on the marked increase. Another important finding is that the empowerment of women—both in the family and in society as whole—plays a greater role in explaining the changing educational gradient of divorce than the improvement in the legal regulations. Nonetheless, due to data limitations, we were not able to determine whether other factors have contributed to this change, such a decline in the relative earning power of men, changes and cross-country variations in public support for lone mothers, or changes in social norms on marital disruption and lone parenthood. Two clear implications for future research thus emerge from this study. The first is that access to contextual databases that contain reliable time series indicators for Europe should be improved. The second is that researchers should investigate the effects on the educational gradient in marital disruption of the changing relative positions of women and men in the labor market, of public assistance, and of social norms.

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APPENDIX 1 – SENSITIVITY ANALYSIS

Table A1. Sensitivity analysis after dropping all studies for Sweden

	M1	M2	M3	M4a	M4b	M5a	M6a	M7a	M5b	M6b	M7b	M8
Calendar year	-0.027*** (0.007)	-0.027*** (0.007)	-0.059** (0.020)	-0.008 (0.007)	-0.003 (0.007)	-0.015* (0.007)	-0.040*** (0.008)	-0.019* (0.009)	-0.012† (0.006)	-0.043*** (0.008)	-0.019* (0.009)	-0.022* (0.009)
Any union (ref=marriage)	-0.395 (0.316)	-0.427 (0.278)	-0.189 (0.322)	-0.497† (0.279)		-0.504† (0.282)	-0.319 (0.301)	-0.473† (0.285)				
Any union * calendar year	0.024 (0.020)	0.023 (0.017)	0.005 (0.021)	0.027 (0.017)		0.027 (0.018)	0.020 (0.019)	0.025 (0.018)				
Control on educ. measurement	-0.832*** (0.217)	-0.682*** (0.179)	-0.642*** (0.186)	-0.689* (0.175)	-0.657*** (0.171)	-0.688*** (0.179)	-0.764*** (0.200)	-0.687*** (0.179)	-0.659*** (0.173)	-0.754** (0.207)	-0.653*** (0.172)	-0.803** (0.235)
Nordic (ref=Southern)		-0.704*** (0.128)	-1.062** (0.376)									
Continental + UK		-0.679*** (0.117)	-1.266*** (0.337)									
CEE		-0.689*** (0.132)	-1.540** (0.426)									
Nordic * calendar year			0.025 (0.022)									
Continental +UK * calendar year			0.040† (0.022)									
CEE * calendar year			0.060* (0.029)									
TDR				-2.227*** (0.364)	-2.802*** (0.429)							
Female labor force participation rate							0.053*** (0.014)	0.013 (0.016)		0.066*** (0.017)	0.021 (0.018)	
Unemployment rate						-0.017*** (0.003)		-0.015*** (0.004)	-0.021*** (0.004)			
Unilateral divorce												-0.144 (0.191)
No guilt divorce												-0.070 (0.222)
Constant	0.513*** (0.116)	1.097*** (0.138)	1.582*** (0.312)	0.808*** (0.111)	0.885*** (0.114)	1.316*** (0.174)	0.434*** (0.111)	1.209*** (0.218)	1.494*** (0.191)	0.417** (0.114)	1.339*** (0.230)	0.587** (0.173)
adj-R2	40.66%	64.69%	65.86%	64.32%	73.52%	62.76%	51.17%	62.65%	72.63%	58.32%	73.30%	45.43%
Observations	93	93	93	93	65	93	93	93	65	65	65	63

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%. Standard errors in parentheses

Table A2. Sensitivity analysis after dropping the study by Harkonen and Dronkers (2006)

	M1	M2	M3	M4a	M4b	M5a	M6a	M7a	M5b	M6b	M7b	M8
Calendar year	-0.025*** (0.007)	-0.025*** (0.006)	-0.059** (0.020)	-0.009 (0.006)	-0.002 (0.007)	-0.013* (0.006)	-0.037*** (0.007)	-0.017* (0.008)	-0.009 (0.006)	-0.040*** (0.008)	-0.014 (0.009)	-0.019* (0.008)
Any union (ref=marriage)	-0.434† (0.224)	-0.418* (0.197)	-0.325 (0.218)	-0.427* (0.195)		-0.402* (0.194)	-0.366† (0.212)	-0.391* (0.196)				
Any union * calendar year	0.025† (0.013)	0.022† (0.011)	0.016 (0.013)	0.025* (0.011)		0.023* (0.011)	0.023† (0.012)	0.023* (0.011)				
Control on educ. measurement	-0.841*** (0.170)	-0.663*** (0.148)	-0.647*** (0.161)	-0.681*** (0.144)	-0.683*** (0.159)	-0.700*** (0.143)	-0.752*** (0.160)	-0.694*** (0.143)	-0.704*** (0.151)	-0.778*** (0.191)	-0.696*** (0.150)	-0.819*** (0.207)
Nordic (ref=Southern)		-0.725*** (0.125)	-1.280** (0.357)									
Continental + UK		-0.618*** (0.129)	-1.214** (0.353)									
CEE		-0.600*** (0.154)	-1.470** (0.491)									
Nordic * calendar year			0.036 (0.022)									
Continental +UK * calendar year			0.040† (0.022)									
CEE * calendar year			0.058† (0.031)									
TDR				-2.048*** (0.362)	-2.829*** (0.485)							
Female labor force participation rate						-0.017*** (0.003)		-0.015*** (0.004)	-0.023*** (0.004)		-0.021*** (0.005)	
Unemployment rate							0.052*** (0.014)	0.011 (0.016)		0.065** (0.019)	0.018 (0.019)	
Unilateral divorce												-0.209 (0.209)
No guilt divorce												-0.235 (0.287)
Constant	0.457*** (0.113)	1.024*** (0.145)	1.560*** (0.328)	0.781*** (0.116)	0.902*** (0.127)	1.250*** (0.175)	0.361** (0.110)	1.162*** (0.222)	1.532*** (0.208)	0.336** (0.118)	1.392*** (0.254)	0.719** (0.218)
adj-R2	52.61%	69.63%	70.32%	69.72%	77.82%	70.28%	60.43%	70.07%	80.22%	65.67%	80.49%	59.00%
Observations	93	93	93	93	56	93	93	93	56	56	56	54

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%. Standard errors in parentheses

Table A3. Sensitivity analysis after dropping 10% randomly selected studies

	M1	M2	M3	M4a	M4b	M5a	M6a	M7a	M5b	M6b	M7b	M8
Calendar year	-0.024** (0.007)	-0.024*** (0.006)	-0.070** (0.024)	-0.008 (0.006)	-0.002 (0.007)	-0.015* (0.006)	-0.036*** (0.007)	-0.017* (0.008)	-0.012† (0.006)	-0.039*** (0.008)	-0.016† (0.009)	-0.019* (0.008)
Any union (ref=marriage)	-0.449† (0.234)	-0.394† (0.203)	-0.368† (0.205)	-0.399† (0.203)		-0.441* (0.205)	-0.416† (0.222)	-0.439* (0.206)				
Any union * calendar year	0.024† (0.014)	0.019 (0.012)	0.018 (0.012)	0.022† (0.012)		0.024† (0.012)	0.023† (0.013)	0.024† (0.012)				
Control on educ. measurement	-0.844*** (0.177)	-0.678*** (0.152)	-0.647*** (0.163)	-0.676*** (0.149)	-0.695*** (0.161)	-0.698*** (0.151)	-0.770*** (0.167)	-0.698*** (0.152)	-0.714*** (0.163)	-0.825*** (0.194)	-0.716*** (0.164)	-0.833*** (0.213)
Nordic (ref=Southern)		-0.724*** (0.120)	-1.365** (0.382)									
Continental + UK		-0.676*** (0.124)	-1.436*** (0.382)									
CEE		-0.676*** (0.144)	-1.528** (0.466)									
Nordic * calendar year			0.044† (0.025)									
Continental +UK * calendar year			0.053* (0.025)									
CEE * calendar year			0.061† (0.033)									
TDR				-2.049*** (0.345)	-2.736*** (0.424)							
Female labor force participation rate						-0.016*** (0.003)		-0.015*** (0.004)	-0.021*** (0.004)		-0.019*** (0.004)	
Unemployment rate							0.053** (0.015)	0.006 (0.018)		0.069** (0.019)	0.014 (0.020)	
Unilateral divorce												-0.206 (0.182)
No guilt divorce												-0.071 (0.228)
Constant	0.442*** (0.106)	1.041*** (0.135)	1.704*** (0.357)	0.763*** (0.107)	0.862*** (0.113)	1.252*** (0.172)	0.364** (0.103)	1.201*** (0.225)	1.480*** (0.199)	0.334** (0.110)	1.371*** (0.253)	0.560** (0.172)
adj-R2	49.73%	68.32%	69.33%	67.98%	75.30%	67.02%	57.32%	66.50%	74.37%	61.01%	74.15%	52.40%
Observations	98	98	98	98	66	98	98	98	66	66	66	65

† significant at 10%; * significant at 5%; ** significant at 1%; *** significant at 0.1%. Standard errors in parentheses

APPENDIX 2 – LIST OF ARTICLES USED IN THE META-ANALYSIS

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