Demography (2013) 50:1499–1520
DOI 10.1007/s13524-013-0229-x

The Educational Gradient in Marriage: A Comparison of 25 European Countries

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Published online: 4 July 2013

Abstract Previous research has suggested that a new marriage gradient has emerged in the United States, with marriage becoming increasingly the privilege of the better-educated. This article examines whether this is true for Europe and explores differences in the marriage gradient among 25 European countries, using multilevel models. The focus is on the chances of living in a marital (or cohabiting) union during midlife (ages 40–49). Multilevel analyses show that the direction and strength of the gradient depend on the societal context. In countries where gender roles are traditional, better-educated women are less likely to be married than less-educated women; in gender-egalitarian countries, better-educated women are more likely to be married. For men, the educational effect on marriage is absent in traditional countries but becomes positive as gender roles become more equal. Inequality in a society also modifies the gradient: if the degree of economic inequality between educational groups in a society is strong, better-educated men are more likely to be married than less-educated men. In general, the results suggest that there may be an accumulation of social and economic disadvantages for the less well educated in more-developed countries.

Keywords Marriage · Divorce · Education · Gender roles · Inequality

Introduction

Several American authors have suggested that a positive association is emerging between education and marriage (Cherlin 2009; Fischer and Hout 2006; Goldstein and Kenney 2001; White and Rogers 2000). Although the better-educated have always married later than others because of extended schooling and the tendency not to marry while in school (Blossfeld and Huinink 1991; Thornton et al. 2007),

Electronic supplementary material The online version of this article (doi:10.1007/s13524-013-0229-x) contains supplementary material, which is available to authorized users.

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when the focus is on later ages, the evidence seems to indicate that better-educated men and women in the United States are now *more* likely to live in a marital union than less-educated men and women (Cherlin 2010; Fischer and Hout 2006; Goldstein and Kenney 2001; Martin 2004; Schoen and Cheng 2006; Thornton et al. 2007). Some decades ago, the association between education and marriage in the United States was negative (Goldstein and Kenney 2001; Torr 2011). That the association is now positive is in part because the better-educated are more likely to ever marry (Goldstein and Kenney 2001), and in part because they are currently less likely to divorce (Martin 2006; Raley and Bumpass 2003).

Less evidence exists on the educational gradient in other developed countries. In a study of 17 (mostly European) countries, Härkönen and Dronkers found a negative effect of education on divorce in only two European countries: Austria and Lithuania (Härkönen and Dronkers 2006). In the Netherlands and Sweden, education also has a negative effect on divorce in recent marriage cohorts (Blossfeld et al. 1995; De Graaf and Kalmijn 2006; Hoem 1997). For marriage entry, evidence is less conclusive because most analyses focus on the time-varying risk of entering marriage, and this is affected by the timing of marriage (Billari and Philipov 2004; Blossfeld et al. 2005). Because the better-educated marry later, such analyses tell us little about the prevalence of marriage among different educational groups. One study conducted in the Netherlands showed that better-educated men and women born between 1923 and 1963 were less likely to ever marry than less-educated men and women (Dykstra and Poortman 2010). How the chances to marry vary by education in recent cohorts is not well known.

In this article, I examine differences between educational groups in the propensity of living in a marital (or cohabiting) union in 25 European countries. The focus is on men and women who were aged 40–49 in the 2000s. Given this age range, issues of marriage timing will play only an indirect role in the educational gradient. Two research questions guide the analyses. First, is there a positive association between education and marriage in Europe? By answering this question, I assess whether the American pattern is more generally true for Western countries. Given the social, cultural, and economic heterogeneity within Europe it is unlikely that there will be a single educational gradient. Hence, my second question is, Are there variations across European countries in the strength and direction of the gradient? When looking at the American trends, one might expect that a positive gradient is typical of the more modernized and developed countries in Europe and not of the more traditional countries in Europe. In developing and testing this general idea, I also address several other issues, such as whether the educational gradient is similar for men and women and whether it is caused by differences in the propensity to divorce or by differences in the propensity to marry. I also consider the role of unmarried cohabitation.

Why should we be concerned about the link between education and marriage? Marriage—or, more generally, living with a partner—has several individual advantages (Waite 1995). Research shows that married persons have better mental and physical health and live longer than those who never marry and those who divorce and do not remarry (Berkman et al. 2000; Lillard and Waite 1995). Married and cohabiting persons experience higher levels of well-being and lower levels of loneliness than people who are single (Dykstra and De Jong-Gierveld 2004; Soons et al. 2009). The partner is also the most crucial source of social, emotional, and practical

support, especially during old age (Pinquart and Sorensen 2011). Finally, fathers and mothers who are married receive more support from adult children than parents who are divorced or separated (Kalmijn 2007). Although the effects of marriage are partly caused by selection into marriage, there is considerable evidence of a protection effect as well (Berkman et al. 2000).

Because marriage has beneficial effects on individuals, the educational gradient in marriage will have important implications for inequality in modern society. Inequality is usually measured in terms of economic outcomes, such as earnings, household income, or consumption. Especially in wealthy countries, however, considering social and emotional outcomes is important as well. If there are positive effects of education on marriage, this would suggest an accumulation of disadvantages for the less-educated. If the less-educated are less likely to find attractive jobs and less likely to marry, they are economically and socially disadvantaged. Such a scenario would be consistent with a more general claim that in highly developed countries, education has become the most important individual determinant of a wide range of outcomes in life (Fischer and Hout 2006; Kalmijn and Kraaykamp 2007; Van de Werfhorst and De Graaf 2004).

My analysis is different in three respects from the previous research literature. First, rather than analyzing the risk of entering marriage or the risk of experiencing a divorce via event history models, I analyze whether a person is married (or cohabiting) in midlife. In event history analyses, effects on marriage timing and effects on the occurrence of marriage are combined, and this may be problematic if factors that delay marriage (e.g., education) also increase the probability that a person eventually marries. Second, in previous research, entry into marriage and exit from marriage (via separation or divorce) are often analyzed in separate studies. Although these transitions clearly have their own explanations, there are also similarities, especially when arguments about economic characteristics are concerned. It is therefore useful to analyze the two together. Third, rather than analyzing countries one by one, I analyze multiple countries in a single step, using multilevel models. This allows me to test whether educational effects on marriage vary significantly across countries and to determine whether this variation is systematically related to societal characteristics.

Background and Hypotheses

Arguments about how education—or social status, more generally—affects the formation and dissolution of marriage can be traced as far back as the early writings of Parsons (1949) and Goode (1951). Since then, authors have pointed to a variety of mechanisms underlying class or educational differences, such as financial stress (Cherlin 1979; Poortman 2005), cognitive abilities (Herrnstein and Murray 1994; South 2001), and norms and values (Cherlin 2009; Lesthaeghe 2002). In this article, I focus on arguments that not only explain how education affects marriage but also help us to formulate hypotheses about contextual differences in the educational effect. Toward this end, I rely on hypotheses about the employment uncertainty of men, the economic independence of women, sex role specialization in marriage, and competition on the marriage market. In applying these hypotheses, I focus on two characteristics of the social context: the degree of gender segregation in society and educational inequality in society.

Gender Role Segregation

In Europe, a distinction can be made between traditional and (gender) egalitarian countries (Fuwa 2004; Hook 2006; Knudsen and Waerness 2008). In traditional countries—such as Italy, Greece, and Spain—the roles of men and women in marriage are different, with men investing primarily in paid labor, and women investing primarily in domestic labor and child rearing. In these contexts, marriage is based on a model of specialization. In more egalitarian countries—such as Sweden and Denmark—women's wages are higher, and virtually all married women work for pay. In these contexts, role sharing is more common, although men still earn a larger share of the household income in these countries (Harkness 2010). Changes and differences in gender roles are believed to have had major repercussions for the formation and dissolution of marriage, and they also (at least theoretically) affect how education affects marriage (Dykstra and Poortman 2010; England and Farkas 1986; Kalmijn 2011; Ono 2003; Sweeney 2002; Torr 2011; White and Rogers 2000).

When gender roles are segregated, better-educated men would be more likely to enter marriage than less-educated men. Men in these contexts are the main breadwinner in the home, which gives men with good economic prospects a comparative advantage in the marriage market. Under these conditions, better-educated women would be less likely to marry. Better-educated women have better opportunities in the labor market than lower-educated women, which reduces their economic need to get married (Oppenheimer 1997) and perhaps also their desire to be married (Dykstra and Poortman 2010). Similar arguments can be made for exit from marriage. When men are the main breadwinner, men with poor economic prospects will be more likely to divorce (Hansen 2005; Jalovaara 2003; Poortman 2005), and women with better economic prospects will be more likely to divorce (Poortman and Kalmijn 2002; South 2001; Van Damme 2010).

When gender roles are more egalitarian, the marriage bargain is believed to change. If women also contribute to the household income, men's economic prospects would become less important for marriage formation (Kalmijn 2011; Sweeney 2002). Although in more egalitarian countries, women (on average) still do more household work and men work more hours for pay, the relative importance of men's and women's economic resources in marriage is quite different in egalitarian countries (Knudsen and Waerness 2008). For example, when married women work, a couple can live on the income of the wife for some time, making it easier for the husband to be temporarily unemployed or to experiment with his career. Similarly, when wives also work, men will increasingly compete for women's economic resources on the marriage market, just as women have traditionally competed for men's economic resources (Schwartz 2010). As a result, the marriage chances of better-educated women will have improved relative to the marriage chances of less-educated women. Better-educated women's desire for marriage will have increased as well because combining marriage and a career is now feasible.

In sum, my hypothesis is that the effect of men's education on marriage will be less positive when gender roles are more egalitarian. Similarly, the effect of women's education on marriage will be less negative when gender roles are more egalitarian. These hypotheses are based on an economic interpretation of the role of education. Education also has a cultural meaning, however, and this would suggest different hypotheses. First, well-educated men have more egalitarian gender role attitudes (Cunningham et al. 2005; Fan and Marini 2000) and participate more in childcare

during marriage (Sayer et al. 2004). This could make better-educated men increasingly attractive in the marriage market in egalitarian settings. Because similarity in preferences for an egalitarian division of labor is also an important determinant of marital satisfaction (Lye and Biblarz 1993), the unions of better-educated men may also be more stable. Finally, when men invest more in child care, this not only increases women's satisfaction with the marriage, it also increases marital specific capital and hence, reduces men's desire to leave a marriage (Becker et al. 1977; Kalmijn 1999). In sum, a cultural perspective on education would suggest that the effect of men's education on marriage will have increased rather than decreased as gender roles become more egalitarian.

Second, women's education may have been important in more traditional circumstances as well. For example, education is related to cognitive abilities (Herrnstein and Murray 1994) and is also strongly linked to cultural interests and participation (Kraaykamp et al. 2008). Under traditional circumstances, women may trade such non-economic resources for men's economic resources. Because both are related to education, better-educated women may always have been more attractive in the marriage market, also in more traditional settings.

Educational Inequality

So far, I have assumed that education plays a role in marriage formation because education is the main determinant of a person's socioeconomic resources. Countries differ, however, in the degree to which education affects outcomes, such as income, wages, and employment. For example, the wage returns to schooling tend to be lower in Northern European countries than in Western and Southern European countries (Harmon et al. 2001). Similarly, educational differences in employment are relatively small in Northern and Southern Europe, larger in Western European countries, and largest in Eastern Europe (McIntosh 2008). In Central and Eastern European countries, educational differences in a variety of life chances seem to have become quite large after the fall of communism (Heyns 2005). Changes and differences in the strength of the educational effect on socioeconomic outcomes are typically explained in terms of skill-biased technological changes on the one hand and the outsourcing of low-skilled work to foreign countries on the other hand. These two trends have presumably deteriorated the labor market opportunities of the less-educated (Gangl 2002; McIntosh 2008; Müller and Gangl 2003).

In the current study, I examine whether educational inequality in socioeconomic terms is associated with educational differentials in marriage. The hypothesis is that when educational inequality in economic terms is high, educational differences in marriage will be large as well (White and Rogers 2000). In other words, social and economic inequalities by education may coincide. This linkage will largely be indirect: education affects socioeconomic outcomes, and these outcomes in turn affect marriage. For example, a lower educational level means employment uncertainty more often in countries with high levels of economic inequality than in countries with low levels of economic inequality. As a result, the effect of men's education on marriage should be stronger when there is more economic inequality. One would expect this to be more true for entry into marriage than for entry into cohabitation because cohabitation is less incompatible with employment uncertainty (Kravdal 1999; Oppenheimer 2003; Xie et al. 2003).

Other Characteristics of Countries

The degree to which gender roles are segregated in a society is part of a more general (post)modernization process (Inglehart 1997). As a result, the characteristics that I discussed earlier are correlated with other macro-level characteristics, such as economic development, fertility rates, divorce rates, individualization, secularization, and so forth. Not all these characteristics are equally relevant in the present case, but some may have an influence on the educational gradient in marriage and therefore need to be taken into account. In this article, I use two country-level control variables: the divorce rate and the level of economic development. For each, I explain how they may affect the educational gradient.

Several researchers have argued that a status-diffusion process has occurred during the divorce revolution (De Graaf and Kalmijn 2006; Goode 1951, 1962; Hoem 1997). When divorce was uncommon, members of higher social strata would be most likely to divorce. In this situation, the legal and normative barriers against divorce were high, and only the more secure and more progressive groups in a society were able to break those barriers. When marriage laws became more liberal and social norms against divorce became weaker, divorce would trickle down to the lower strata. Under these circumstances, divorce could even become *less* common among the better-educated, either because divorce would now be disapproved of in higher strata or because there is more financial strain among lower strata (De Graaf and Kalmijn 2006). Several studies have indeed shown that the effect of education on divorce has become (more) negative across marriage cohorts (Bernardi and Martínez-Pastor 2011; De Graaf and Kalmijn 2006; Härkönen and Dronkers 2006; Hoem 1997; Martin 2006). Following these findings, one would expect that in countries with a low divorce rate, the effect of education on marriage is negative (because of more divorce among the better-educated), whereas in countries with a high divorce rate, the effect of education on marriage is positive (because of a trickling down of divorce to the less-educated in combination with greater financial strain).

Economic development is the second macro-level factor that I take into account. Cherlin (2009) argued that although the practical meaning of marriage may have decreased in wealthy countries, such as the United States, the symbolic value of marriage may have increased. Marriage is increasingly a sign of achievement, and not *per se* a way to reach success or a social role that individuals automatically take on as they move through their life course (Cherlin 2009). In other words, marriage has become a symbol of status—and in that sense, one could expect that higher-status groups in society find marriage not only increasingly feasible but also increasingly attractive. Similar arguments have been made about childbearing outside marriage (Edin and Kefalas 2005; Perelli-Harris and Gerber 2011). A partly contrasting idea is that in more-developed countries, cohabitation has increasingly become a choice rather than a fallback option for the lower strata (Oppenheimer 2003). Instead of being the "poor man's marriage," unmarried cohabitation can also be an alternative lifestyle chosen by groups with liberal values. If this is true, the effect of education on marriage could actually be weaker in wealthier countries, at least when we contrast marriage to cohabitation (and not to being single). Because the focus is on experiences during midlife, this interpretation of cohabitation as an alternative lifestyle may

be especially relevant; most couples who cohabit before marriage usually complete this trial stage before midlife (Kiernan 2002). Couples who remain unmarried at those ages may use cohabitation as an alternative arrangement rather than a trial stage.

Data and Methods

I use cross-sectional data from five waves of the European Social Survey (ESS) (2002, 2004, 2006, 2008, 2010). The ESS was based on face-to-face interviews with large random samples of the population of almost all European countries. Although the ESS data are cross-sectional, they contain good questions on marriage and cohabitation. No beginning (or ending) dates are available, but the data contain information on past dissolutions of marriages and cohabiting unions. The main reason to use the ESS rather than life history data or panel studies lies in the goal to examine effects of the societal context on the educational gradient. My sample includes 25 European countries, providing a good design for examining micro/macro effects. From the data, I select all respondents who were between ages 40 and 49 at the time of the survey. The sample I consider was born between 1953 and 1971, with the median year of birth being 1962. The total number of cases was 33,062, with an average of 1,322 per country.

Measures

Education is coded in five categories in each country: primary, lower secondary, higher secondary, postsecondary, and tertiary. To make education comparable in each country and to simplify the models, a relative approach was used in which persons received rank scores depending on their educational level in each country. For example, an individual's score of .7 means that, on average, 70 % of the respondents in a particular country have a lower level of education (mean (M) = .50, standard deviation (SD) = .26). I also checked a quadratic term for education but found evidence for nonlinear effects of education in only three countries.

The following control variables are used: age (M = 44.4, SD = 2.9), immigrant status, and religiosity. Immigrant status indicates whether someone is born in a foreign country (M = .09). Religiosity indicates whether a person belongs to a church now or at any point in time in the past (M = .67). Age and birth cohort are also included. For the year of birth, I make a distinction between the baby boom generation (born between 1946 and 1964) and later generations (M = .67). Note that the range of cohorts is limited because of the age restrictions.

Gender roles in a society are measured with three items: the labor force participation rate of women aged 25–54, the degree to which husbands and wives divide household tasks equally, and attitudes about gender equality. The three indicators form a reasonably good scale at the societal level (Cronbach's alpha = .73). Information about the division of household tasks is obtained from the second round of the ESS and consists of two items: the relative share that a respondent has in household tasks on a typical weekday, and the relative share in household tasks in a typical weekend. The items are summed and then aggregated to the country level. Attitudes about gender equality are obtained from the harmonized European and

World Values Studies. From these data, I construct an index of four statements rated on a Likert-type scale: "men make better political leaders than women," "university is more important for boys," "a preschool child suffers if the mother works," and "what women really want is a home and children" (Cronbach's alpha = .71 at the individual level). The index is aggregated to the country level.

Educational inequality in a country is based on two items (obtained from Eurostat). First, I construct the average of (1) the unemployment rate of tertiary-educated persons divided by the unemployment rate of secondary-educated persons and (2) the unemployment rate of secondary-educated persons divided by the unemployment rate of primary-educated persons. Overall, this (average) ratio is 1.9. The second measure is similar except that the outcome is the risk of poverty and social exclusion (defined as having one of the following conditions: living below the national poverty line, being materially deprived in terms of consumption, or living in a household with low work intensity). The average ratio is 2.1. All calculations are based on persons aged 25–54. The two items are standardized and summed (their correlation is .50).

The prevalence of divorce is measured as the net divorce rate. This is obtained by dividing published figures on the number of divorces in each country in a given year by the number of married women in that year obtained from tables based on census data (published online). Divorce rates are calculated for the late 1990s or early 2000s. Development is measured as the gross domestic product (GDP) per capita expressed in Euros in 2002. At the societal level, the index of egalitarian gender roles is positively correlated with the divorce rate ($r = .62$) and with development ($r = .55$). The measure of educational inequality is negatively correlated with GDP ($r = -.62$), showing that educational inequality is higher in less-developed countries. This is due in part to the higher level of inequality in several Central and Eastern European countries (Heyns 2005). Descriptive information on the macro-level variables is presented in Table 1.

Dependent Variable and Models

Three analyses are presented. In the first analysis, I consider the odds of being in a union rather than being single (thus combining married and cohabiting respondents). In a second analysis, I consider the odds of living in a marital union (rather than being single) and the odds of cohabiting (rather than being single). This is estimated with a multinomial logit model. Third, I consider past unions by analyzing two outcomes: the odds of ever having been married (what I call "entry"), and the odds of being divorced rather than married (what I call "exit"). This last outcome excludes persons who were never in a marriage.

All models are estimated by multilevel techniques in which individuals are nested in countries (using the program HLM). The models allow both the intercept and the educational effect to vary across countries. Interactions with macro-level characteristics are entered in a separate model. The macro-variables are standardized (at the macro level) so that the main effect of education applies to the "average" country. The advantage of using multilevel models is that the standard errors of macro-variables and their interactions with education are not underestimated, as they would be in standard logit models. Hence, I use a conservative test of the macro-level hypotheses.

Table 1 Characteristics of countries, average education and proportion in a union, by country

Country	Egalitarian Gender Roles[a]	Educational Inequality[a]	GDP per Capita[a]	Net Divorce Rate[a]	Education Unscaled[b]	Proportion in Union[b]
Austria	0.00	−0.29	0.58	0.80	3.15	0.76
Belgium	0.04	−0.12	0.51	0.75	3.44	0.79
Bulgaria	−0.70	0.08	−1.38	−0.85	3.34	0.80
Czech Republic	0.18	2.65	−0.91	0.96	3.27	0.74
Denmark	1.94	−1.30	1.15	1.00	3.81	0.80
Estonia	0.31	−0.46	−1.10	2.20	3.82	0.75
Finland	1.29	−0.19	0.62	1.11	3.62	0.77
France	−0.01	−0.49	0.42	0.17	3.33	0.70
Germany	0.24	−0.03	0.48	−0.73	3.66	0.75
Great Britain	0.71	−0.15	0.72	0.93	3.36	0.65
Greece	−2.17	−0.90	−0.44	−1.07	2.92	0.80
Hungary	−0.54	1.43	−1.00	0.43	3.05	0.79
Ireland	−0.27	−0.03	1.07	−2.01	3.35	0.78
Italy	−1.61	−1.00	0.22	−1.38	2.60	0.82
Latvia	−0.44	0.08	−1.22	0.47	3.56	0.77
Netherlands	0.75	−1.08	0.73	0.09	3.34	0.73
Norway	1.60	−0.83	1.98	0.71	3.80	0.77
Poland	−0.98	1.14	−1.12	−0.87	3.27	0.85
Portugal	−0.78	−0.59	−0.49	−0.37	2.10	0.76
Romania	−1.06	1.31	−1.37	−0.65	3.07	0.80
Slovenia	0.78	0.58	−0.58	−0.79	3.32	0.86
Slovakia	−0.05	1.98	−1.17	−0.21	3.22	0.83
Spain	−0.85	−0.43	−0.16	−1.09	2.88	0.81
Sweden	1.55	−1.01	0.80	1.03	3.33	0.78
Switzerland	0.06	−0.35	1.66	−0.62	3.54	0.71

[a] Standardized at the macro level. See the text for sources.

[b] *Source*: European Social Surveys 2002–2010.

In addition, multilevel models estimate the variance in the educational effect so that I can assess how much of the variance in the educational effect is explained by the chosen macro-level variables.

I first present models without macro-level variables to see how much the educational gradient varies across countries. Second, I present models that include interactions of the educational gradient with gender roles and educational inequality, the main variables of interest. Third, I take into account the macro-level control variables. Because of the correlations between the independent macro-level variables, including the four macro-level variables and their interactions with education simultaneously is problematic. The mean variance inflation factor for such a model is 7.22 for women and 7.74 for men, suggesting that multicollinearity may be a problem. For this reason, I add the control variables one at a time.

Descriptive Results

Descriptive analyses show that 77 % of the Europeans in the ESS samples are living in a union during midlife. The large majority of these are married (68 %), and only few are cohabiting (9 %). Cohabitation is apparently not a very common option in midlife. The remaining respondents (23 %) are not living in a union. The percentages single are the same for men and women. Of the people who are single, 12 % were divorced, 5 % had experienced dissolution of a cohabiting union, and 6 % were never in a union. Two important conclusions can be drawn from these percentages. First, the number of people who are living without a partner during midlife constitutes quite a sizable minority. Second, to understand who is single during midlife, differences in partnership dissolution—and especially divorce—are more important (numerically) than differences in union entry; only 6 % were never in a union.

In Fig. 1, I present the effects of education for each country separately for men and women. The effects are obtained from logit models for each county that also contain the other independent variables. There is substantial variation in the educational gradient, for both men and women. In some countries (e.g., Germany, Hungary, and Finland), men's education has a clear positive effect on being in a union. In other countries (e.g., the Netherlands and Bulgaria), the effects are very small. In most countries, the effect of women's education on being in a union is negative, but the magnitude varies from very strong and negative in Portugal and Greece, to absent or very small in Sweden, Belgium, and France. Also interesting is the positive correlation between men and women: in countries where the effect of men's education is more positive, the effect of women's education tends to be larger as well in the sense of being less negative.

Multilevel Results for Being in a Union

Table 2 presents the results for men. In the baseline model, education has a positive overall effect ($b = 0.59$). Hence, in Europe, better-educated men are more likely to be in a union than less-educated men. An increase of 1 standard deviation in men's education (i.e., 0.26) is thus associated with a 17 % increase in the odds of being in a union (i.e., $\exp(0.59 \times 0.26)$). This is a modest effect. The variance parameter shows that the educational effect varies significantly across European countries. I now turn to the models in which I try to explain this variation. Note that being in a union is more common for men with a religious background and for men who were born earlier. Immigrant status does not have an effect.

The models in which the two macro-variables and their interactions with education are included together (Model 3) show that both interaction effects are significant. The direction of the effect for educational inequality shows that the more educational inequality exists in a society, the more positive the effect of education on being in a union. This is in line with the hypothesis. We can calculate what the interaction implies for the educational effect in different countries. Using Model 3, I calculate that in the country with the lowest amount of educational inequality (i.e., −1.30), the implied effect of education is $0.60 + -1.30 \times 0.45 = 0.02$. In the country with the highest degree of educational inequality (i.e., 2.65), the implied effect is $0.60 + 2.65 \times 0.45 = 1.77$. This is a substantial effect in unequal societies: a 58 % increase in the odds for each standard deviation increase in education (i.e., $\exp(1.77 \times .26)$).

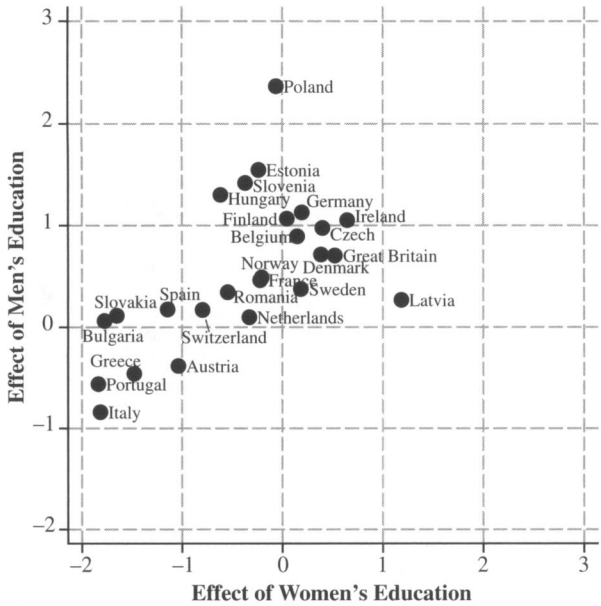

Fig. 1 Effects of relative education of men and women on the log odds of being in a union, by country

The interaction effect with gender roles in a society is not significant by itself (Model 1), but it is significant when the interaction with inequality is included (Model 3). The interaction effect with gender roles is positive, showing that the influence of men's education is more positive in more-egalitarian countries. This is in contrast to a purely economic hypothesis. Calculations based on Model 3 show that in the country that is the least egalitarian in terms of gender roles, the implied effect of men's education is −0.01; comparatively, in the most gender egalitarian country, the effect is 1.15. This shows not only that the direction of the interaction effect is contrary to the economic hypotheses but also that the effect of men's education is not positive in the most traditional countries.

When the macro-level control variables are added, the interactions with educational inequality and gender roles remain significant. Development and the divorce rate do not interact significantly with the educational effect. The variance in the educational effect is reduced by about one-half after the two macro-level interactions are included. Hence, these variables explain half of the cross-country differences in the educational effect, which is a substantial amount.

I now turn to the models for women, presented in Table 3. First, education has an overall negative effect on being in a union. Better-educated women in Europe, on average, are less likely to live in a union during midlife than less-educated women. An increase of 1 standard deviation in women's education is associated with a 9 % decrease in the odds of being in a union (i.e., exp(−0.37 × 0.26)). This is a modest effect, but the variance in the educational effect is again substantial and significant, showing that the differences observed in Fig. 1 are indeed significant. The other variables show that being in a union during midlife is more common for women born earlier and for women with a religious background.

Table 2 Multilevel logit model of being in a union at ages 40–49: Men in 25 European countries in 2002–2010 (N = 15,575)

	(1)	(2)[a]	(3)	(4)	(5)
Intercept	1.050*	1.050*	1.059*	1.095*	1.063*
	(.333)		(.345)	(.347)	(.345)
× Gender roles		–.104†	–.139*	–.049	–.164*
		(.059)	(.047)	(.052)	(.074)
× Inequality		–.098†	–.145*	–.239*	–.149*
		(.052)	(.059)	(.078)	(.063)
× GDP per capita		–.085		–.192†	
		(.060)		(.093)	
× Divorce rate		–.056			.039
		(.074)			(.085)
Age	–.005		–.005	–.006	–.005
	(.008)		(.008)	(.008)	(.008)
Year of Birth	–.155*		–.156*	–.164*	–.157*
	(.043)		(.043)	(.042)	(.043)
Immigrant	.161		.163	.166	.164
	(.103)		(.103)	(.104)	(.104)
Religious Background	.254*		.252*	.262*	.252*
	(.057)		(.055)	(.054)	(.056)
Education	.592*		.600*	.604*	.598*
	(.136)		(.115)	(.119)	(.114)
× Gender roles		.185	.283*	.329*	.334*
		(.140)	(.076)	(.097)	(.127)
× Inequality		.353*	.445*	.385*	.453*
		(.133)	(.154)	(.175)	(.153)
× GDP per capita		–.128		–.105	
		(.129)		(.167)	
× Divorce rate		.118			–.079
		(.146)			(.174)
Variance Intercept	.074*		.058*	.046*	.061*
Variance Education Effect	.309*		.134*	.149*	.139*
% Education Effect Explained			57	48	55

Note: Standard errors are in parentheses.

[a]Based on models with macro-level variables one by one. Individual-level variables are included but are not reported.

†$p < .10$; *$p < .05$ (two-tailed tests)

The most consistent finding in Table 3 is the interaction effect with gender roles. This effect is significant by itself and also significant when other macro-level control variables are included. The direction is positive: in line with the hypothesis, the

Table 3 Multilevel logit model of being in a union at ages 40–49: Women in 25 European countries in 2002–2010 (N = 17,375)

	(1)	(2)[a]	(3)	(4)	(5)
Intercept	2.092*	2.092**	2.130*	2.143*	2.128*
	(.340)		(.343)	(.337)	(.351)
× Gender roles		–.303*	–.315*	–.221*	–.227†
		(.077)	(.081)	(.092)	(.122)
× Inequality		.044	–.038	–.142	–.024
		(.122)	(.099)	(.111)	(.093)
× GDP per capita		–.246*		–.205	
		(.109)		(.156)	
× Divorce rate		–.272*			–.139
		(.109)			(.152)
Age	–.018*		–.019*	–.019*	–.018*
	(.008)		(.008)	(.008)	(.008)
Year of Birth	–.102*		–.105*	–.107*	–.104*
	(.048)		(.048)	(.048)	(.048)
Immigrant	–.082		–.079	–.079	–.079
	(.080)		(.080)	(.081)	(.080)
Religious Background	.297*		.297*	.299*	.293*
	(.050)		(.050)	(.050)	(.051)
Education	–.371*		–.395*	–.402*	–.395*
	(.154)		(.124)	(.121)	(.124)
× Gender roles		.457*	.506*	.424*	.498*
		(.093)	(.089)	(.112)	(.145)
× Inequality		.056	.193	.281†	.190
		(.173)	(.125)	(.159)	(.129)
× GDP per capita		.251		.178	
		(.160)		(.230)	
× Divorce rate		.299*			.011
		(.156)			(.192)
Variance Intercept	.277*		.204*	.190*	.206*
Variance Education Effect	.490*		.263*	.261*	.284*
% Education Effect Explained			46	47	42

Note: Standard errors are in parentheses.

[a]Based on models with macro-level variables one by one. Individual-level variables are included but are not reported.

†$p < .10$; *$p < .05$ (two-tailed tests)

educational effect is less negative in countries that are more gender egalitarian. Calculations for Model 3 show that in the least-egalitarian country, the implied effect of women's education is −1.49. In the most-egalitarian country, the implied effect is 0.59—a "reversal" of the educational gradient.

Is there also evidence for the hypothesis about educational inequality? For men, the evidence is fully convincing on this point, but for women, the interaction with educational inequality is not significant. When GDP per capita is included, the interaction with inequality becomes marginally significant (positive). GDP itself does not have a significant interaction effect with the gradient, however. Moreover, Model 3 explains as much of the variance in the educational gradient as the model with GDP (Model 4). The results therefore do not seem to support the hypothesis about inequality for women. There is also no evidence for an interaction with the divorce rate. This interaction is significant by itself (Model 2) but does not hold up in the multivariate models.

Marriage Versus Cohabitation

In Tables 4 and 5, I present multinomial multilevel logit models to examine effects on marriage and cohabitation separately. Note that cohabitation is not very common during midlife. This will reduce the statistical power to find significant interaction effects on cohabitation. For men, education has a somewhat stronger effect on marriage than on cohabitation (0.62 vs. 0.45). Although this finding appears to be in line with the hypothesis that uncertain labor market prospects are less incompatible with cohabitation than with marriage, the difference between these effects is not statistically significant. When focusing on the interactions with macro-level variables, the pattern of results found for marriage appears to be similar to the pattern of results previously found for being in a union. The results show that the more inequality exists in a society, the stronger the effect of men's education on marriage. Similarly, when gender roles are more egalitarian, the effect of men's education on marriage is more positive. For the odds of being in a cohabiting union, the interaction effects of education and the macro-level variables are not significant. Moreover, the effect of men's education on cohabitation does not vary significantly. The macro-level control variables (GDP and the divorce rate) have no significant interactions in Table 4.

The results for women in Table 5 show that education has a negative effect on both marriage and cohabitation. The effects are similar in magnitude. The pattern of results for marriage is again quite similar to the pattern of results for being in a union. The model shows that the educational gradient in marriage becomes less negative and eventually positive when countries are more egalitarian in gender roles. In the most traditional country, the educational gradient in marriage for women is −1.57; in the most gender egalitarian country, the gradient is 0.67. Hence, here too a reversal of the gradient occurs. There is no evidence that the gradient in women's marriage chances depends on educational inequality. The results for cohabitation show no interactions for gender roles and educational inequality. Hence, it seems that contextual differences in the educational gradient are primarily driven by marriage and not by cohabitation.

Adding the macro-level control variables for women does not change the results for educational inequality and gender roles. However, there appears to be a significant and positive interaction effect of education and development on cohabitation. The higher the level of development, the less negative the educational effect is on cohabitation (versus being single). Calculations suggest that in poorer countries,

Table 4 Multilevel multinomial logit model of cohabitation and marriage at ages 40–49: Men in 25 European countries in 2002–2010

	Cohabiting[a]				Married[a]			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Intercept	.428	.362	.405	.370	.672*	.664*	.698*	.668*
	(.573)	(.530)	(.527)	(.538)	(.320)	(.334)	(.336)	(.333)
× Gender roles		.576*	.678*	.385*		–.216*	–.138*	–.210*
		(.095)	(.116)	(.098)		(.049)	(.058)	(.080)
× Inequality		–.008	–.100	–.043		–.135*	–.217*	–.134†
		(.108)	(.119)	(.083)		(.064)	(.083)	(.067)
× GDP			–.206				–.168	
			(.119)				(.102)	
× Divorce rate				.278*				–.012
				(.066)				(.092)
Age	–.036*	–.036*	–.037*	–.036*	–.001	–.001	–.001	–.001
	(.012)	(.012)	(.012)	(.012)	(.007)	(.007)	(.007)	(.007)
Year of Birth	.039	.045	.036	.043	–.186*	–.186*	–.194*	–.187*
	(.069)	(.070)	(.069)	(.070)	(.045)	(.044)	(.043)	(.044)
Immigrant	–.143	–.148	–.144	–.147	.206	.207	.211	.208
	(.126)	(.125)	(.127)	(.126)	(.107)	(.108)	(.109)	(.108)
Religious Background	–.265*	–.263*	–.251*	–.253*	.330*	.331*	.340*	.332*
	(.076)	(.077)	(.075)	(.075)	(.056)	(.055)	(.054)	(.056)
Education	.452*	.465*	.458*	.460*	.620*	.635*	.639*	.633*
	(.106)	(.133)	(.136)	(.133)	(.146)	(.118)	(.122)	(.118)
× Gender roles		–.247	–.280	–.128		.341*	.401*	.365*
		(.137)	(.171)	(.160)		(.073)	(.092)	(.128)
× Inequality		–.070	–.062	–.043		.473*	.400*	.476*
		(.232)	(.240)	(.219)		(.146)	(.167)	(.148)
× GDP		–.070	.054			.473*	–.132	
		(.232)	(.181)			(.146)	(.166)	
× Divorce rate		–.070		–.163		.473*		–.035
		(.232)		(.187)		(.146)		(.176)
Variance Education Effect	.055	.043	.075	.038	.376*	.145*	.159*	.155*
% effect explained		22	—	31		61	58	59
N for outcome	1,429				10,490			
N for base			15,575					

Note: Standard errors are in parentheses.

[a]Multinomial logit, with single as the reference category.

†$p < .10$; *$p < .05$ (two-tailed tests)

Table 5 Multilevel multinomial logit model of cohabitation and marriage at ages 40–49: Women in 25 European countries in 2002–2010

	Cohabiting[a]				Married[a]			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Intercept	1.348	1.297	1.339	1.322	1.766	1.779	1.792	1.776
	(.587)	(.586)	(.576)	(.577)	(.339)	(.333)	(.328)	(.343)
× Gender roles		.425*	.640*	.229		–.396*	–.325*	–.268*
		(.121)	(.102)	(.153)		(.083)	(.102)	(.122)
× Inequality		.026	–.191	–.009		–.023	–.099	–.004
		(.173)	(.179)	(.186)		(.099)	(.116)	(.089)
× GDP			–.458*				–.154	
			(.141)				(.166)	
× Divorce rate				.263				–.197
				(.146)				(.157)
Age	–.052*	–.051*	–.052*	–.052*	–.014	–.014	–.014	–.014
	(.013)	(.013)	(.012)	(.013)	(.008)	(.008)	(.008)	(.008)
Year of Birth	.041	.048	.040	.045	–.123*	–.124*	–.126*	–.123*
	(.070)	(.071)	(.069)	(.071)	(.052)	(.052)	(.052)	(.052)
Immigrant	–.435*	–.436*	–.437*	–.433	–.032	–.030	–.030	–.030
	(.119)	(.118)	(.120)	(.118)	(.088)	(.088)	(.088)	(.088)
Religious Background	–.137	–.143	–.134	–.134	.352*	.353*	.355*	.350*
	(.089)	(.090)	(.089)	(.089)	(.047)	(.048)	(.048)	(.049)
Education	–.364	–.352	–.370	–.371	–.380*	–.382*	–.387*	–.381*
	(.206)	(.222)	(.204)	(.215)	(.160)	(.125)	(.124)	(.125)
× Gender roles		.151	–.115	.312		.545*	.492*	.510*
		(.218)	(.187)	(.265)		(.092)	(.120)	(.145)
× Inequality		–.120	.146	–.091		.205	.259	.198
		(.306)	(.323)	(.320)		(.123)	(.161)	(.126)
× GDP			.568*				.115	
			(.226)				(.238)	
× Divorce rate				–.202				.051
				(.233)				(.196)
Variance Education Effect	.630*	.652*	.511*	.642*	.351*	.266	.281*	.289*
% Effect Explained		0	19	—		26	20	17
N for Outcome	1,392				11,941			
N for Base				17,375				

Note: Standard errors are in parentheses.

[a]Multinomial logit, with single as the reference category.

$^{\dagger}p < .10$; $^{*}p < .05$ (two-tailed tests)

cohabitation is more common among the less-educated (−1.15), whereas in wealthier countries, cohabitation is more common among the better-educated (0.75). Because this interaction is found for women only, it is not directly clear how to interpret this finding. In addition, the direction of the interaction with GDP (for cohabitation) is similar to the direction of the interaction with gender roles (for marriage). Wealthy countries tend to have egalitarian gender roles, and both interaction effects are positive.

Entry Versus Exit

So far, marriage and divorce have not been treated separately. A question that thus remains is whether education affects the entry into marriage in the same way as exit through divorce. Is the positive marriage gradient in gender egalitarian societies primarily due to a negative effect of education on divorce, or is it primarily due to a positive effect of education on marrying? To address these questions, I present a supplementary table in Online Resource 1 containing models for entry ("ever married" versus "never married") and exit ("divorced" versus "married") for men and women. The model for divorce applies only to men and women who ever married. People who cohabit or are single and had a cohabiting union dissolved are treated as never married.

Focusing first on the main effects of education, better-educated men are both *more* likely to ever marry and *less* likely to be divorced. For women, there is an effect only on marriage: better-educated women are less likely to ever marry but are not more likely to be divorced. These effects apply to the "average" European country (in terms of the contextual variables). The interaction effects with gender roles for women are significant for both entry and exit. The interactions imply that in the most–gender-egalitarian countries, education has a positive effect on women's marriage entry (0.61) and a negative effect on women's divorce (−0.83). Both effects are the opposite in countries with the most-traditional gender roles (−1.74 and 1.07, respectively). For men, the interactions with gender roles are also significant. The interactions imply similar effects in the most gender-egalitarian countries: a positive effect of men's education on entry (1.10) and a negative effect on divorce (−1.14). In the most-traditional country, these effects are negligible (−0.24 on entry and 0.24 on exit). In conclusion, the effects of education on being married in Tables 4 and 5, as well as their interactions with gender roles, are due to differences in both marriage and divorce.

The evidence for the role of educational inequality is also similar for the two outcomes. Hence, when educational inequality is stronger in a society, the effect of men's education on both entry and exit is stronger (more positive for entry and more negative for exit). For women, the interactions with inequality are less convincing. They are not significant for exit and lose significance for entry when the macro-level control variables are added. Also evident is a small negative interaction between GDP and men's marriage entry, suggesting that the educational effect on men's marriage entry is less positive for wealthier countries. For women, I do not find this interaction. We also find no interactions with the divorce rate in any model. In other words, when the focus is directly on divorce, rather than on being in a union or marriage, the expectation of "status diffusion" is not borne out, either.

Discussion and Conclusion

The educational gradient in marriage varies considerably among European countries. This study first shows that such differences are linked to gender role segregation in a society. In countries where gender roles are segregated, better-educated women are less likely to live in a marital union than lower-educated women. This gradient is considerably weaker when gender role segregation is weaker. The educational gradient for women is moderately positive in the countries that are the most gender egalitarian. For men, there is a positive overall educational gradient: better-educated men are more likely to be in a marital union during midlife than lower-educated men. There also is an interaction effect with gender roles, however. The direction of this interaction shows that the educational gradient for men is weak in traditional countries and increasingly positive when gender roles in a society are more egalitarian.

How can these results be interpreted? The results for women are consistent with theoretical expectations. Following the literature, I hypothesized a negative educational effect on marriage for women in traditional countries. In these countries, better-educated women are less dependent on marriage for financial security, have poorer chances on the marriage market because their economic characteristics in marriage are relatively unimportant, and have limited desire to be married because having both a career and a family cannot be combined very well. In countries that are more gender egalitarian, the independence argument becomes less relevant, and the marriage market chances of better-educated women improve because men begin to attach more weight to women's economic potential. Similar arguments can be made about marital (or union) dissolution. In countries with traditional gender roles, better-educated women have more labor force experience than lower-educated women, resulting in greater exit costs for lower-educated women. In more-egalitarian countries, the link between education and married women's employment is weaker (Harkness 2010), which has resulted in more equal exit costs for women with different levels of education.

For men, different theoretical expectations were formulated. Purely economic hypotheses suggest that the effects of men's education would become weaker as gender roles become more egalitarian. In gender-egalitarian countries, married women work more often and men contribute more often to domestic labor and child rearing. Although gender equality is certainly not reached in these settings, men's economic characteristics are still expected to be less important. The data refute this hypothesis when education is used as a measure of economic status. The effect of men's education becomes stronger rather than weaker as gender roles become more egalitarian. In a sense, the interactions for men are similar to those of women, even though the initial effects—for the more-traditional countries—are different. Probably the interaction for men is more consistent with a cultural interpretation of the educational effect, which emphasizes the association between men's education on the one hand and their gender role attitudes and involvement in child rearing on the other hand. Better-educated men have more-liberal views on women's work and are generally more willing to participate in child rearing (Cunningham et al. 2005; Sayer et al. 2004). This could make them more attractive to better-educated women and could also lead to more satisfaction in their marriage, leading to lower risks of divorce.

A second main finding of this study is that differences in the educational gradient are linked to the degree of educational inequality in a society. The positive effect of men's education on marriage is stronger in societies where inequality in socioeconomic outcomes between educational groups is stronger. The interpretation of this effect is that men's employment and income prospects are an important condition for entering marriage (Oppenheimer 2003). In addition, men's unemployment and low income increase the chances of divorce (Hansen 2005; Poortman 2005). If education is more strongly related to economic outcomes, it will therefore also affect marriage more strongly. In a descriptive sense, my findings suggest that economic and social inequalities coincide, a finding that has also been observed for trends in the United States (Fischer and Hout 2006). The extent to which the effects of education work via socioeconomic variables at the individual level remains to be seen. To assess this would require detailed life history data. Such data have obvious advantages, but they generally do not include enough countries for a convincing multilevel analysis.

There is little evidence that the educational gradient, or the interactions with gender roles and inequality, are affected by other macro-level variables. In most models, I do not find that the educational gradient was stronger in wealthier countries than in poorer countries. Egalitarian gender roles are positively associated with economic development, but after these two variables are included together, only gender role segregation has an effect. Hence, it does not seem that a more general underlying developmental factor is at work. I also find no evidence that the educational gradient depends on the level of divorce. It has been argued that as the barriers to divorce become weaker, because of increasing normative acceptance of divorce and more-liberal divorce laws, the educational gradient in divorce will change from positive to negative (De Graaf and Kalmijn 2006). Previous longitudinal findings in single countries supported such an interpretation, but the present cross-national analysis does not. One interpretation is that over-time designs are simply incomparable to between-country designs. A second interpretation is that previous comparisons over time have linked observed changes too quickly to changes in the level of divorce. Gender roles also change over time, and trends in the gradient by themselves therefore tell us little about the underlying causes. With comparisons of a handful of cohorts, disentangling the effects of changing levels of divorce and changing gender roles is difficult.

The aim of the current study is to understand differences between countries—not trends—over time. It is nonetheless interesting to note the similarities between the European and the American findings. Torr (2011) observed a reversal of the educational gradient for women in the United States over time when comparing data from 1940 to data from 2000. This "reversal" in the effect of women's education on marriage is also observed when I compare the most-traditional European country with the most–gender-egalitarian European country. Obviously, we should be careful in interpreting country differences and trends in the same way (Thornton 2001); hence, trend analyses *within* European countries are still needed to examine whether the American trend has also occurred in Europe. This is an important task for a future analysis with retrospective data. The general implication of my findings, however, remains more or less the same as that for the American case: in societies where gender inequality is reduced, new inequalities in the access to marriage may occur. Because marriage brings many social advantages, my findings also suggest that there

may be an accumulation of social and economic advantages for the better-educated in highly developed societies.

Acknowledgments Earlier versions of this article were presented at the Center for Demographic and Social Analysis, University of California, Irvine (May 2012); and at the Center for the Study of Poverty and Inequality at Stanford University (May 2012). Thanks to Paula England and the anonymous reviewers for helpful comments and to David Grusky for his hospitality during my stay at the Center for the Study of Poverty, where I wrote this article.

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