ISSN 2042-4116

ESRC Centre for Population Change • Working Paper 53 • August 2014

CPC

centre for population change

Partnership patterns in the United States and across Europe: "Diverging destinies" or "diverging contexts"?

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ABSTRACT

Patterns of partnership formation and dissolution are changing dramatically across the Western world. McLanahan (2004) argued that these changes are the result of social and economic changes which have led to "diverging destinies," with the highly educated postponing marriage and the lower educated more likely to divorce or cohabit. Evidence for these arguments is primarily from the United States, and less is known about the educational gradient of partnership trajectories in other countries. At the same time, the variation in partnership behavior has also increased across countries, suggesting that country context plays an important role. Here we use latent class growth models to compare the educational gradient of partnership trajectories in the United States and 14 countries in Europe and to test whether education or country matters more. Our results indicate a consistent positive educational gradient for partnership patterns showing the postponement of marriage, but a less consistent gradient for patterns reflecting long-term cohabitation and union dissolution. Although the U.S. results support the "diverging destinies" hypothesis, the evidence from the other countries is weak. Instead, country context explains more of the variation in class membership than education, with context becoming more important over time. The divergence in behaviors across country contexts suggests that social, cultural, political, and economic developments are essential for changes in partnership formation and dissolution - more important than educational level.

An extended version of this work has now been published:
Perelli-Harris, B. and Lyon-Amos, M. (2016) Partnership Patterns in the United States and across Europe: The Role of Education and Country Context. *Social Forces,* 95 (1), 251-282.

KEYWORDS

Partnership; cohabitation; marriage; divorce; separation; Europe; United States.

EDITORIAL NOTE

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ACKNOWLEDGEMENTS

Thank you to Christine Schwartz, Jennifer Holland, and other members of the University of Southampton for insightful comments. Thank you to everyone who helped collect, clean, and harmonize the Harmonized Histories data, especially Karolin Kubisch at the Max Planck Institute for Demographic Research. The GGS data were obtained from the GGP Data Archive and refer to the publication that contains the model survey instruments: United Nations 2005. Generations & Gender Programme: Survey Instruments. New York and Geneva: UN, 2005. Please see www.nonmarital.org for further acknowledgments. Models were estimated using the iridis-3 high performance computing facility at the University of Southampton. This project was funded by the European Research Council Starting Grant CHILDCOHAB.

The ESRC Centre for Population Change Working Paper Series is edited by Teresa McGowan.

PARTNERSHIP PATTERNS IN THE UNITED STATES AND ACROSS EUROPE: "DIVERGING DESTINIES" OR "DIVERGING CONTEXTS"?

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1. INTRODUCTION

Patterns of partnership formation and dissolution are changing dramatically across the Western world: marriage is being postponed, divorce is increasing, and cohabitation is now an alternative living arrangement for unmarried adults (Sobotka and Toulemon 2008, Kennedy and Bumpass 2008). Some scholars have argued that trajectories of union formation and dissolution are diverging by education, with the higher educated postponing but eventually marrying and the lower educated more likely to cohabit or divorce if they do marry (McLanahan 2004, Cherlin 2009, Perelli-Harris et al 2010). Many of these arguments have been made and tested primarily in the United States, where economic inequality has been increasing (McLanahan and Percheski 2008), but also in other countries such as Australia and New Zealand (Heard 2011). While evidence from some countries in Europe indicates that the educational gradient for having a birth within cohabitation is negative (Perelli-Harris et al 2010), the evidence for union trajectories as a whole is scant. Indeed, the association between education and analyses of individual events (e.g. divorce, marriage, and cohabitation) differs across countries and over time (Härkönen and Dronkers 2006, Sobotka and Toulemon 2008, Kalmijn 2013, Matysiak et al 2013, Neels and Perelli-Harris 2013). Thus, it is not clear that the association between patterns of partnership formation and education are universal or can be generalized to other industrialized countries.

In addition, levels of union formation and dissolution have not been increasing uniformly across countries and instead appear to be diverging (Billari and Liebroer 2010). The proportion that has ever married is higher in Southern Europe than in Northern Europe, while the proportion that has ever cohabited is higher in Northern Europe compared to Southern Europe (Neels and Perelli-Harris 2013, Sobotka and Toulemon 2008). The median age at marriage varies from around 22 in parts of Eastern Europe to over 31 in Northern Europe (Billari and Liefbroer 2010). The percentage of women who ever experienced union dissolution ranges from less than 10% in Southern and some Eastern European countries to over 40% in Norway and the US (Galezewska et al 2013). This divergence in behaviors across countries suggests that social, cultural, political, and economic context is essential for understanding changes in partnership formation and dissolution, and that they may be more important than the processes producing a divergence in behaviors by educational level.

Thus, although education may be key to understanding changes in certain aspects of union formation or in certain countries, it is not clear that trajectories are diverging by education everywhere or that education is more important for predicting partnership patterns than country of residence. In this paper, we investigate the following main research questions: How do the educational gradients for patterns of partnership formation differ across Europe and the United States and over time? Are certain partnership patterns more likely to be consistently associated with education than others? And what is more important for determining partnership patterns - education or country?

To answer these questions, we study the association between women's education and holistic partnership trajectories using latent class growth models (LCGM). Most studies of union formation and education only model single events, which show the association with a particular type of union behavior, but do not show how education is associated with partnership trajectories as a whole. Given that partnership behavior has become much more complex and de-standardized, with individuals experiencing cohabitation, union dissolution, and multiple partnerships (Perelli-Harris and Lyons-Amos 2013, Elizinga and Liefbroer 2007), studying a single event at a time does not show the total association between education and partnership behavior across the lifecourse. Thus, it is necessary to examine holistic partnership trajectories to show how education is associated with partnership formation and dissolution across the lifecourse.

The study contributes to the literature in several ways. First, by using latent class growth models, it presents an innovative way of modeling partnership formation by simultaneously examining the timing, sequencing, and quantum of events. Although previous studies in demography have used this method (e.g. Dariotis et al 2011, Goldberg 2013), they have rarely been used for comparing family formation across multiple countries and with such large datasets. Second, the study examines to what extent the association between partnership patterns and education is similar across countries. These findings place the United States in context to Europe and provide insights into whether the underlying reasons for family change are universal. Third, the study assesses the relative contribution of education and country to the probability of membership in a given class. This provides evidence for whether the diverging destinies phenomenon is

common throughout industrialized countries or whether country-specific contexts play a greater role.

2. THEORETICAL FRAMEWORK

2.1. EDUCATION AND PARTNERSHIP PATTERNS

With the decline in marriage and rise in divorce throughout the 1970s and 1980s, economic and ideational theories posited that highly educated women were more independent, allowing them to live outside of marriage by never marrying, cohabiting, and divorcing if they did marry (Becker 1991, van de Kaa 1987, Lesthaeghe 2010, Lesthaeghe and Neidert 2006). Most recent explanations, however, have tended to stress that women's higher education is beneficial to marriage and protects against divorce (Oppenheimer 1988, Oppenheimer 1997, Goldstein and Kenney 2001, Sweeney 2002, McLanahan 2004, Cherlin 2009, Perelli-Harris et al 2010). Higher educated women may postpone marriage, but as their economic potential becomes more similar to men's, they become more attractive to prospective spouses, which results in higher marriage rates compared to their less educated counterparts (Oppenheimer 1997, Sweeney 2002, Goldstein and Kenney 2001). In addition, the resources which highly educated women bring to the union reduce risk and stabilize marriage, resulting in lower divorce rates (Oppenheimer 1997, Matysiak et al 2013).

Many of these shifts have been the result of widespread social and economic developments that have altered the institution of marriage, thereby facilitating the gains to marriage for highly educated women (Cherlin 2009, Stevenson and Wolfers 2007). In many industrialized countries, marriage now appears to be shifting away from a dependent, patriarchal relationship towards a more egalitarian partnership with both partners contributing to the relationship (Heard 2011, Kalmijn 2013). Changes in lifestyles have led marriage to be advantageous for those who complement each other, rather than those who specialize in different domains (Stevenson and Wolfers 2007). In addition, new labor market demands and middle class aspirations have resulted in many choosing a dual-earner model, which often benefits those with greater economic potential. Having a higher shared income allows the couple to maintain a higher standard

of living and protect against unemployment or illness, resulting in increased relationship stability.

In the U.S., the emerging positive educational gradient of marriage (Isen and Stevenson 2010) has led some researchers to claim that marriage is becoming a status symbol reserved for the economic elite (Cherlin 2009, Coontz 2005). Increases in income inequality have made it even more difficult for low educated couples to achieve the standard of living perceived necessary for marriage (McLanahan and Percheski 2008). Qualitative studies from the U.S. also indicate that low-income couples would like to marry, but often lack the financial stability to do so (Reed 2006, Gibson-Davis 2007, Smock et al 2005). In addition, low-income couples who do marry face a greater risk of divorce, due to strains brought about by employment instability and job loss (Edin and Kefalas 2005).

The corollary to this argument is that in places with a high economic bar for marriage, couples who are not ready or able to marry live together in cohabiting unions. Couples with weak economic prospects – usually the least educated – are most likely to cohabit (Oppenheimer 2003, Kalmijn 2011). Studies from the U.S. show that the least educated do not have the financial or emotional resources to convert their cohabiting relationships into marriage, and instead find themselves in cohabiting relationships or cycling through multiple partnerships (Kennedy and Bumpass 2008, Lichter et al 2010). Thus, even though couples of all educational level increasingly begin their relationships with cohabitation, as relationships progress and individuals reach later adulthood, the more highly educated are most likely to marry. This results in an increasingly negative educational gradient for cohabitation, especially by the time of first birth (Perelli-Harris et al 2010). In addition, given that cohabiting unions are more likely to dissolve (Heuveline, Timberlake, and Furstenberg 2003, Galezewska et al 2013), the least educated would be more likely to experience the dissolution not only of their marriages, but also their cohabiting unions. Hence, the least educated would be most likely to end up "churning" through relationships (Cherlin 2009).

Although a great body of literature in the United States provides evidence for a positive educational gradient for marriage and a negative educational gradient for cohabitation and divorce (see McLanahan and Percheski 2008, Carlson and England

2011), the findings in Europe are more inconsistent and depend on type of transition, time period analyzed, and method of measurement. In most countries, higher education does lead to the postponement of marriage (Blossfeld and Huinink 1991; Goldstein and Kenney 2001; Thornton, Axinn, and Teachman 1995, Köppen 2011, Coppola 2004, Kalmijn 2007), but the association with marriage is less consistent (Kalmijn 2013). The educational gradient for the percent of women who have ever cohabited is mixed: for example, France, Spain, Austria, and the Netherlands have a positive educational gradient; Bulgaria and Russia have a negative educational gradient; and Germany, Poland, Belgium, and Romania have an inconsistent or flat gradient (Neels and Perelli-Harris 2013). In addition, the educational gradient may depend on the point in the lifecourse analyzed; more highly educated women are as likely to enter cohabitation as their less educated counterparts, but more likely to marry before the first birth (Mikolai et al 2014). Thus, it is unclear whether the educational gradient for cohabitation and the transition to marriage is consistent across the lifecourse.

Likewise, the evidence for the relationship between education and divorce is mixed. In the U.S, the educational gradient of divorce has reversed from positive to negative (Martin 2006). In Europe, the educational gradient for divorce appears to switch as the prevalence of divorce increases; the gradient is positive in countries where divorce has just begun to emerge and negative in countries where divorce is more common (Härkönen and Dronkers 2006, Matysiak et al 2013). A meta-analysis of studies on divorce indicate that the educational gradient for the Nordic countries is now significantly negative, but only recently reversed. Throughout the Mediterranean countries the effect was positive, while in Continental Europe and UK the effect size was close to zero. In Central and Eastern Europe, however, educational differences were not significant (Matysiak et al 2013). Hence, the educational gradient of divorce is not uniform, raising questions about whether divorce can be considered a universal component of diverging destinies.

2.2. COUNTRY CONTEXT AND PARTNERSHIP PATTERNS

Although social and economic change may be leading to different partnership trajectories by education, the role of country has also been found to be one of the most enduring factors shaping family formation. Numerous studies have found that countries, or states defined by national borders, have been very important for defining demographic processes across space (e.g. Klüsener et al 2013, Coale and Watkins 1986, Billari and Liefbroer 2010, Reher 1998, Sobotka and Toulemon 2008). By developing standard policies, education, communication, transport and media, the modern state has organized and structured populations, resulting in greater homogenization of behaviors within countries (Watkins 1991). Country borders continue to be very important for defining behaviors, such as levels of nonmarital fertility (Klüsener et al 2013). Countries delineate the space in which people are exposed to economic, social, political, and cultural factors, which in turn influence individual behaviors that aggregate to population level behavior.

Social change also does not happen randomly in space, but is generally concentrated within the borders of countries. Within countries, underlying cultural propensities and historical kinship systems (Reher 1998) coupled with social and political developments lead to the diffusion of new ideas and the practice of new behaviors (Lesthaeghe and Neels 2002). Some populations adopt new behaviors quickly, while others maintain traditional behaviors for decades. For example, cohabitation and divorce have only recently started to increase in southern Europe due to the persistence of "strong family ties" (Reher 1998). Catholicism has slowed the diffusion of cohabitation and divorce in Italy (Vignoli and Salvini 2014) as well as other Catholic countries such as Poland and Lithuania (Mynarska and Bernardi 2007, Katus et al 2007). On the other hand, Protestantism may have promoted more liberal values in countries such as Estonia (Katus et al 2007) and the Nordic countries. In general, the Nordic countries experienced an earlier orientation towards gender equality, female participation in the labor force, and the institutionalization of these goals in state policies (Bernhardt et al 2008), all of which facilitated women's independence and potentially led to the increase in cohabitation and divorce. However, much of western Germany also has Protestant roots and cohabitation has continued to remain low, due to the maintenance of conservative orientation towards motherhood and the breadwinner model (Konietzka and Kreyenfeld 2002). Thus, the

factors influencing family behavior and facilitating changes in family behavior cannot be decanted down to one factor, such as religion, but instead are multi-faceted and complex.

In addition, globalized processes of change may interact with local conditions to produce specific effects. Although the emergence of feminism and individualization may have been important for liberalizing attitudes across countries, globalization of labor markets throughout the 1980s and 1990s may have produced uncertainty that led to postponed marriage or temporary relationships (Mills and Blossfeld 2005, Perelli-Harris et al 2010). Yet the impact of uncertainty may have different effects on union formation in different countries. For example, youth unemployment and temporary employment have been linked to the postponement of marriage but with little premarital cohabitation in Spain (Castro-Martin et al 2008), while unemployment and fear of job loss has been associated with higher levels of cohabitation and nonmarital fertility in Eastern Germany (Konietzka and Kreyenfeld 2002). Thus, ideational change coupled with changes in economic conditions has led to increases in new patterns of union formation behavior, but also differentials in behaviors across Europe and the United States.

Along with cultural and economic developments, policies and legal systems are also important for understanding the variation in partnership behaviors across countries. Historical and cultural developments led to variation in the rights and responsibilities provided to married and cohabiting couples, which may in turn be related to the choices couples make about whether to marry or divorce (Perelli-Harris and Sanchez Gassen 2012). For example, the enactment of divorce laws, especially unilateral de facto divorce regimes, led to short-term increases in divorce, although these increases may have been the result of pent-up demand rather than a long-term effect (Kneip and Bauer 2009). Nonetheless, divorce laws can reflect and reinforce cross-national differentials in divorce. Likewise, laws on cohabitation and marriage differ considerably across Europe; some countries such as the Netherlands and Sweden have equalized many laws on cohabitation and marriage, while others such as Germany and Switzerland continue to maintain distinctions between marriage and cohabitation, especially in tax law (Perelli-Harris and Sanchez Gassen 2012). Different legal regimes may shape choices about marriage and cohabitation, although the correlation is far from perfect: for example, Spain introduced liberal cohabitation laws in the 1980s, but has had a slow diffusion of cohabitation, while

the U.K. had substantial increases in cohabitation, but continues to have a chaotic system of regulations (Perelli-Harris and Sanchez Gassen 2012, Barlow 2004).

Finally, it is important to keep in mind that certain factors may also mediate the relationship between education and union formation, resulting in different educational gradients depending on country. The diffusion of a behavior may result in the reversal of the educational gradient, as seen with divorce (Matysiak 2013, Härkönen and Dronkers 2006). The development of new values such as gender equality may be associated with cross-national educational gradients for marriage (Kalmijn 2013). In more gender-egalitarian countries, women with higher education are more likely to marry and stay in marriage, since men are more likely to contribute to the household and value women's contribution, while in countries with less equal gender roles, highly educated women are less likely to ever marry, because they are less dependent on a man's economic potential and more independent (Kalmijn 2013, Raymo 2003). Nonetheless, while gender equality may be important for influencing educational gradients of marriage, we do not know whether an individual's education or country context matters more for determining overall trajectories of union formation. Although some studies have looked at the interaction between country context and education on family formation behaviors (Kalmijn 2013, Matysiak 2013), none have looked at the direct effect of country versus education in predicting partnership patterns. Given the persistent and dynamic effects of culture, economic conditions, policy context, as well as the increasing effects of education on specific elements of union formation, it is important to see which matters more over the long-term: country or education.

3. DATA

To determine the educational gradient of patterns of union formation, we analyze retrospective union and fertility histories from 15 surveys that have been standardized in a dataset called the Harmonized Histories (Perelli-Harris, Kreyenfeld, and Kubisch 2010, and see *www.nonmarital.org*). The data for Austria, Belgium, Bulgaria, Estonia, France, Lithuania, Norway, Romania, and Russia come from the Generations and Gender Surveys (GGS), which interviewed nationally representative samples of the resident population in each country. These surveys broadly reflect vital registration indicators for marriage (Vergauwen et al 2012). Because the GGS is not available for all countries, we

also employed other data sources. The Dutch data come from the 2003 Fertility and Family Survey (FFS). The data for the UK are from the British Household Panel Survey (BHPS). The Spanish data come from the Survey of Fertility and Values conducted in 2006, and the Polish data are from the Employment, Family, and Education survey conducted in 2006. The U.S. data are from two rounds of the National Survey of Family Growth, conducted in 1995 and between 2006 and 2008. Table 1 shows the number of women aged 15-45 in each survey by cohort for the analysis sample

Country	Educational level	Birth cohort		
		1945-1954	1955-1964	1965-1974
Austria GGS[a]	Low		18.8 (31)	14.3 (158)
	Medium		66.0 (109)	65.4 (737)
	High		15.1 (25)	20.3 (229)
Belgium GGS	Low	41.3 (185)	29.9 (169)	14.7 (68)
	Medium	28.1 (126)	35.1 (198)	37.3 (174)
	High	30.4 (136)	34.9 (197)	47.9 (231)
Bulgaria GGS	Low	25.6 (195)	17.3 (195)	14.1 (207)
	Medium	50.5 (384)	55.2 (623)	55.3 (810)
	High	35.6 (181)	27.4 (309)	30.5 (461)
Estonia GGS	Low	13.9 (119)	6.3 (56)	8.2 (71)
	Medium	50.4 (429)	49.7 (438)	55.1 (440)
	High	35.6 (303)	43.8 (385)	36.6 (289)
France GGS	Low	44.0 (349)	29.9 (218)	17.7 (136)
	Medium	36.9 (293)	40.5 (295)	44.3 (342)
	High	19.0 (151)	29.4 (215)	37.9 (304)
Italy GGS	Low	66.6 (2209)	49.5 (1740)	41.0 (1166)
	Medium	24.2 (804)	40.2 (1417)	47.1 (1361)
	High	9.1 (302)	10.1 (357)	11.8 (336)
Lithuania GGS	Low	11.6 (67)	3.1 (21)	4.5 (31)
	Medium	66.8 (384)	67.5 (511)	68.1 (463)
	High	21.6 (124)	29.3 (221)	27.3 (186)
Netherlands FFS	Low	51.9 (489)	39.4 (425)	25.2 (248)
	Medium	30.7 (289)	38.6 (418)	50.9 (507)
	High	17.3 (163)	21.9 (237)	23.7 (237)
Norway GGS	Low	16.2 (195)	21.8 (280)	11.8 (171)
	Medium	49.2 (590)	41.1 (528)	37.1 (541)
	High	34.5 (414)	37.0 (475)	51.0 (752)
Poland EFES[a]	Low			42.4 (586)
	Medium			36.5 (505)
	High			20.9 (291)
Romania GGS	Low	54.4 (630)	31.1 (288)	28.3 (310)
	Medium	37.6 (436)	57.5 (535)	61.0 (667)
	High	7.9 (92)	11.3 (106)	10.5 (116)
Russia GGS	Low	8.6 (99)	2.3 (33)	3.3 (35)
	Medium	68.9 (792)	75.6 (1031)	73.1 (747)
	High	22.3 (257)	22.0 (302)	23.5 (239)
Spain SFS	Low	75.8 (723)	53.7 (716)	37.2 (506)
	Medium	15.9 (152)	29.0 (390)	39.9 (551)
	High	8.1 (78)	17.2 (230)	22.8 (318)
UK BHPS	Low	26.3 (201)	12.1 (105)	6.2 (56)
	Medium	15.9 (239)	34.9 (304)	37.7 (341)
	High	42.3 (323)	52.9 (460)	56.0 (551)
US NSFG	Low	12.9 (211[b])	12.5 (496[b])	16.5 (317[c])
	Medium	37.5 (612 [b])	40.8 (1596[b])	26.0 (495 [c])
	High	49.5 (809[b])	46.6 (1832 [b])	57.3 (1094[c])

Table 1: Distribution of educational attainment in each country by cohort before weighting (frequencies in parentheses).

Note: a) Histories were not collected for the 1945-1954 birth cohort in the Austrian GGS and the 1945-1954 and 1955-1964 birth cohorts in the Poland EFES.

b) Data are from 1995 National Survey of Family Growth

c) Data are from 2007 National Survey of Family Growth

Despite slightly different survey designs, the union histories are relatively comparable. Our data include the month of entrance into cohabiting and marital unions as well as separation and divorce. Questions about cohabitation generally refer to co-resident relationships with an intimate partner that last more than three months. Our analysis examines the relationship states that occur between the ages of 15 and 45. However, because most of our surveys interviewed women who were older than 45 at the time of the survey, we compare women born in 1945-1954, 1955-1964, and 1965-1974. In Austria, Poland, and the US, only women up to age 49 were interviewed; thus, we only include one or two cohorts from these surveys.

Although the Harmonized Histories surveys are relatively comparable, each survey's sampling strategy and response rates differ, which can have different implications for the creation of the latent classes. Some surveys do not require weights (for example, Bulgaria, Poland and Romania), while some surveys include sample weights at the individual level (Austria, France), or both the household and individual level (UK). Since our inference regards individual level behaviors, we apply the individual level weights where relevant. Where unavailable, we use a constant as the individual level weight. In addition, some surveys (i.e. Italy) have very large samples, which may dominate the results in a pooled dataset. To analyze the pooled dataset, we have transformed the weighting schemes in order to retain their internal consistency, but also provide meaningful cross-national solutions. To create a sample with each survey equally represented, we rescale the weighted population totals so that each survey contributes the same proportion to the total sample. This approach allows the internal validity of the surveys to be maintained (all the weights are adjusted), but ensures no one survey dominates the sample.

4. METHODS

We use a multi-stage process to examine the association between education and relationship patterns. 1) We determine the optimal number of latent classes that describe different relationship trajectories. 2) We use the latent classes as the dependent variable in a multinomial logit model with education and country included as explanatory variables. 3) We unpack these results to show the relative contribution of education compared to country-context in influencing the probability of latent class membership.

4.1. LCGM MODELS

To create the growth curves, we first expand the data into person-years. Although person-months would more accurately reflect changes in union status, computational limitations require the use of yearly intervals[1]. We then fit separate trajectories for each union status: never in a union, cohabiting, directly married, married having previously cohabited, and single after being in a previous union[2]. We distinguish between direct marriage and marriage preceded by cohabitation to show how entrance into marriage changes over time. This approach reveals to what extent cohabitation is emerging as a precursor to marriage or as a long-term relationship that lasts until the respondent is 45.

The response variable for the model is defined as the random variable y_i, which is defined at each year of the respondent's partnership history.

$$y_{i,age} = s \begin{cases} 0 & Never\ in\ a\ union \\ 1 & Cohabiting \\ 2 & Married\ preceded\ by\ cohabitation \\ 3 & Directly\ married \\ 4 & Single\ after\ separation \end{cases}$$

Respondents switch between these different states as they move along the lifecourse from ages 15-45. If two of these partnerships are present within the same year, the higher value state is selected (for example, if cohabitation transitions to marriage in the same year, the year is classified as y_{ij}=2 rather than 1). In certain circumstances, the selection of higher states will lead to the truncation of a relationship, for instance if a relationship starts during the same year as a separation. In order to avoid missing relationships, we overwrite years classified as separation with the new relationship status, although again these relationships may be truncated. As a result, periods of separation lasting less than one year could be missed. However, sensitivity analyses comparing multiple approaches show that the underestimation does not bias our results.

We then use the statistical software Mplus (Muthén and Muthén 2011) to calculate growth equations that describe different trajectories. Trajectories are combined

[1] We conducted robustness tests in individual countries to see whether a person-month specification resulted in different classes, and the results were roughly similar.
[2] Women are considered single at time of separation, not divorced. We also define those whose previous partnership ended in death of spouse as single.

to form each latent class, which describe different partnership patterns across the lifecourse. Each woman has a probability of being in each latent class; the more closely her observed partnership history is to the class trajectories, the higher the probability of class membership. The probability of being in partnership s at a given age is defined as $\pi_i^s = \Pr(y_{i,age} = s)$ (see Equation 1). *i* indexes the individual woman. The probability of partnerships across the lifecourse is modelled as a growth equation, where $y_{i,age}$ is a function of age and age^2.[3] A separate growth equation is specified for each class C_j, where *j* indexes the class and there are 1…*J* classes. For logit estimation, we set direct marriage as the reference category.

$$ln\left(\frac{\pi_{i,age}^s|C_j = j}{\pi_{i,age}^{s=3}|C_j = j}\right) = \alpha_j^s + \beta_{1,j}^s age_i + \beta_{2,j}^s age_i^2$$

$$j = \{1 \ldots . J\}, s = \{0 \ldots 4\}$$

Eq.1

In Equation 1, the class specific intercept is described by α_j^s, while the class specific growth curve is described by $\beta_{1,j}^s$ and $\beta_{2,j}^s$. All three of these parameters vary depending on membership in a particular class. In Equation 1, the trajectories differ only according to class membership, C_j.[4]

4.2. NUMBER OF CLASSES

One of the advantages of using Latent Class Growth Curve models is that statistical tests provide objective measures of the number of classes that optimally fit the data. We rely on the Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT Lo et al. 2001) to determine the number of classes, mirroring the recommendation of Nylund et al. (2007) and applied by Virtanen et al. (2011) which continues to add classes until reaching the first non-significant class. The LMR-LRT is similar to conventional Likelihood Ratio tests that interpret p-values below a certain threshold as indicative of an improvement in model fit,

[3] Other specifications of the underlying distribution did not substantially alter the results.

[4] Growth Mixture Models, an extension of Eq. 1, describe individual deviation from the overall growth curve within class j via random coefficients, and can extract fewer classes and estimate more parsimonious models. However, it was difficult to obtain convergent solutions for models with random coefficients, since in some classes the probability of certain states was approximated at zero (and the variance estimate was difficult to obtain). Therefore the models must be restricted to a LCGM only, which assume that variation in partnership trajectories is a function of class membership only.

where the p-value is adjusted to reflect the fact that the Likelihood does not follow a Chi-Square distribution.[5]

4.3. EDUCATION

Once we have created the latent classes, we assign respondents to the class which has the highest posterior probability of membership for that individual. This is expressed as a random variable, j_i, where the probability of class membership for individual i is $\pi_i^j = \Pr(C_J = j)$.We then apply the following multinomial regression model (Equation 2):

$$ln\left(\frac{\pi_i^j}{\pi_i^{j=1}}\right) = \boldsymbol{\beta^j x_i'} \qquad j = \{1 \ldots . J\}$$

Eq 2.

In this model $\mathbf{x_i}$ is a vector of dummy variables of individual characteristics (education, birth cohort and country) and $\boldsymbol{\beta^j}$ is a set of coefficients measuring their effect on class membership.

We allocate respondents to a class based on their posterior probability of class membership and estimate multinomial regression models in Stata SE 12.[6] While this is a potential limitation in models where classes are poorly defined (respondents can easily be allocated to the wrong class), the classes extracted in our models show excellent definition based on the class mean posterior membership probability (the lowest is 0.959 for classes 6 and 7). Therefore, it is unlikely that women would be misallocated in our analysis.

As discussed above, our main variable of interest is education, which we specify as three categories that have been standardized across countries. Each survey includes a six-category measure of highest level of education attained by time of interview based on the International Standardized Classification of Education (ISCED 1997). We collapsed

[5] Although the Bootstrap Likelihood Ratio test is better for testing the number of classes due to a lower false positive rate (Nylund et al. 1997), the test is too computationally intense for our data.
[6] We would prefer to estimate the model based on the pseudo-class method using Mplus (Wang et al. 2005, Nylund et al 2007), but this approach was too computationally intensive.

these six categories into three basic categories: low (ISCED 1 & 2), medium (ISCED 3 & 4), and high (ISCED 5 & 6). The lowest education level refers to less than completed basic secondary, medium refers to completed secondary school and any education beyond secondary education but less than completed college (including vocational and technical schools), and higher education refers to a bachelor's or university degree and higher. We recognize that these educational categories are crude and have context-specific meanings, but given the data limitations, they are the best way to make comparisons across a large number of countries. Note that the distribution of respondents by educational level differs across countries, with some countries having a much higher proportion of women with higher education than others (Table 1). However, because our intent is to compare the educational distribution within countries rather than across countries, these differences should be minimal.

The multinomial model predicts class membership based on education, birth cohort and country. We interact educational level with country and birth cohort to produce educational gradients for each national setting and measure change in these gradients over time. The models are then used to generate predicted probabilities, associated standard errors, and confidence intervals. Because educational gradients are unlikely to be linear, we assess gradients based on a significant difference between proportions based on a two-tail t-test.

4.4. RELATIVE CONTRIBUTION OF EDUCATION AND COUNTRY

Our second research question is to assess the relative contribution of education and country to the probability of falling in a given latent class. The multinomial logistic regression model can be used to predict the probability of class membership; however, because education, cohort and country are interacted with each other, the resulting complexity of the beta coefficients makes it difficult to assess whether education or country is the largest contributor to variation in the predicted probabilities. While we could incorporate a multi-level modelling strategy, with individual level effects (education) nested within context (country), this method is unsuitable. First, the specification of country as a random effect is methodologically questionable (Hox et al 2012) and only implemented in settings where other estimation techniques would preclude the inclusion of contextual information. Since our analysis does not include

country level data, there is no advantage to our analysis. Second, the specification of education as a fixed coefficient and country as a random effect means that it is difficult to make direct comparisons between the two. Third, the number of countries in our dataset is too low for an interpretation of the random component (Hox et al. 2012, Bryan and Jenkins 2013).

We therefore perform a series of ANOVA tests to determine which factor better explains variability in class membership. A higher proportion of variance (defined as partial Sum of Squares as a proportion of total Sum of Squares) explained by a factor in the ANOVA indicates a greater contribution to variation in predicted probabilities. ANOVAs are performed on the predicted probabilities of class membership for each latent class generated from the predictive model described in Eq. 2. ANOVA tests make the assumption that the response variable is normally distributed; thus, we transform the predicted probabilities (which are non-normal)[7]. We perform the analysis by birth cohort to detect whether there is a change in the contribution of education or country to the latent class, although we do not perform formal tests to determine whether the change over time is significant.

5. RESULTS

We first calculate the optimal number of latent classes that reflect relationships patterns across Europe and for the United States. The LMR-LRT p-values indicate that 8 classes optimally fit the pooled data; the addition of an 8th class improves model fit at the 1% level (LMR p-value is below 0.01), but the addition of a 9th class is not significant.[8] Figure 1 shows the 8 latent class trajectories extracted from the model. Note that the area under the curve represents the probability of being in a relationship state at a given age between the ages of 15 and 45. The blue line shows the probability of being never partnered; the orange line represents the probability of being in cohabitation that does not transition to marriage before age 45; the green line represents the probability of having a

[7] The low level of predicated probabilities means that the effect of transformation may vary depending on the choice of link function. To ensure robust results, we tested ANOVA results for both logit (yi=pi(1-pi)-1) and arcsine yi=sin-1(√pi) links, to ensure that divergence at the tail of the transformation does not unduly influence our conclusions. Because the arcsine links attained similar results, we only present logit links.

[8] The number of classes is sensitive to model specification; e.g. the number of countries can change the number of classes. Hence, the 8 latent classes are specific to this model specification.

direct marriage; the red line represents the probability of being in a marriage that was preceded by cohabitation; and the grey line represents the probability of being single after having separated from a previous relationship. Women can transfer between states at any point; for example, a woman may be never married, then directly marry, spend some time single after divorce, and then transfer back into cohabitation or marriage for higher-order unions. Re-partnering is incorporated into cohabitation, premarital cohabitation, or marriage.[9]

[9] We tried adding a trajectory for second and higher-order unions, but only 3classes emerged indicating a loss of diversity. Therefore, respondents must re-enter cohabitation or marriage after separation.

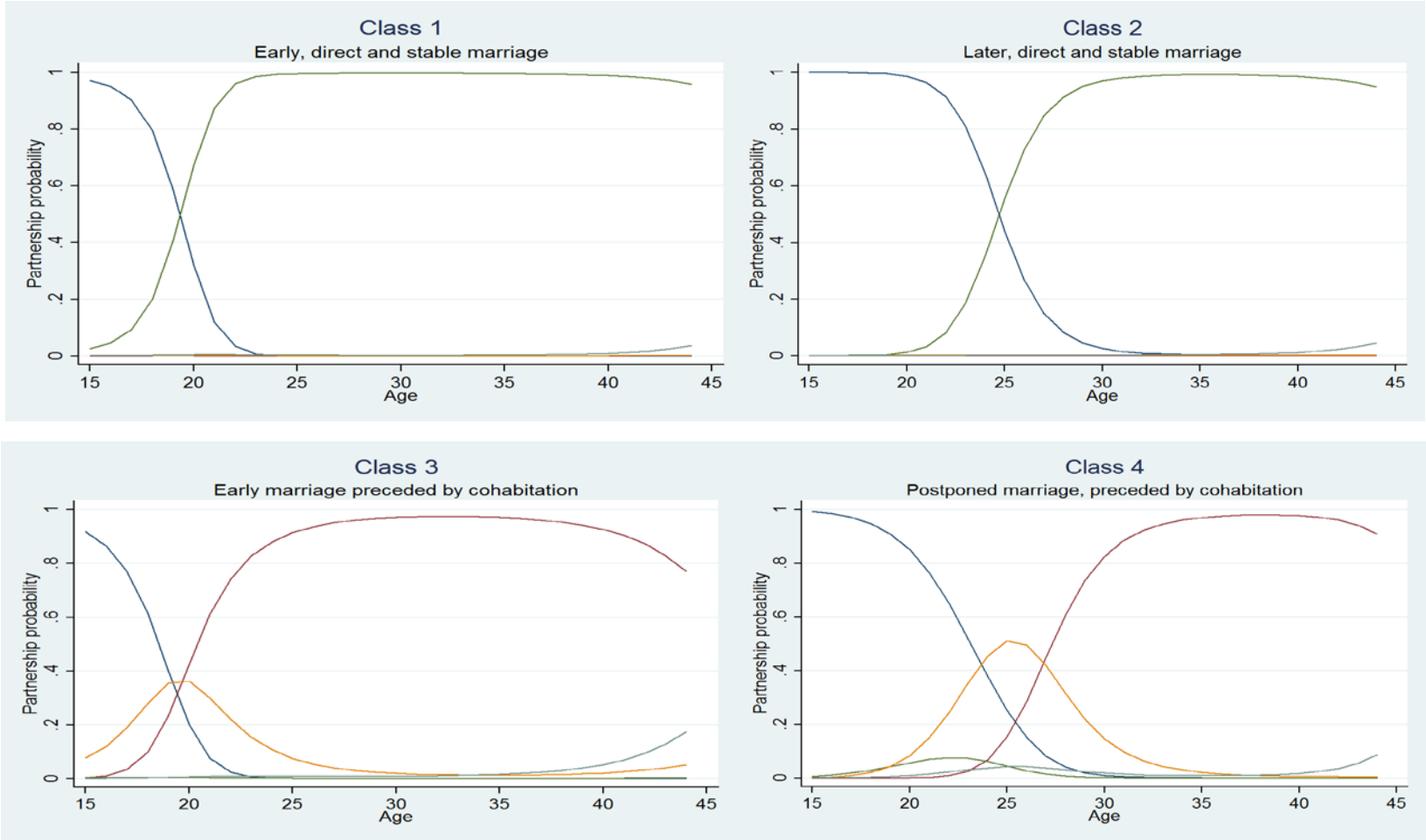

Figure 1: Latent classes based on models of growth trajectories.

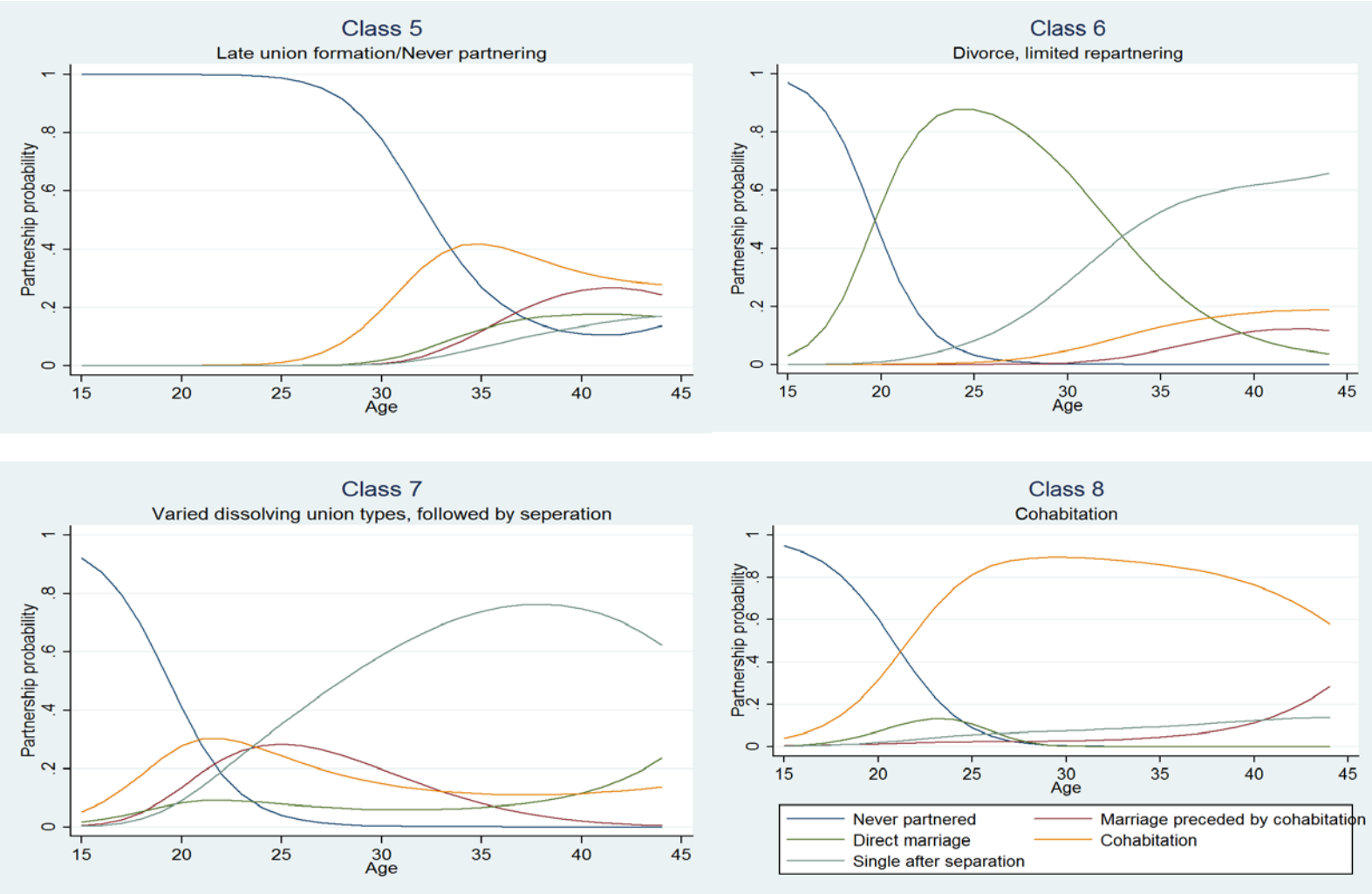

Figure 1 (cont.): Latent classes based on models of growth trajectories.

Each of the latent classes represents different trajectories of partnership formation. The classes and their sensitivity to robustness checks have been discussed in detail in (Perelli-Harris and Lyons-Amos 2013); therefore, we only briefly describe them here. The first four classes primarily reflect marriages that are unlikely to end in divorce by age 45: classes 1 and 2 only include direct marriage, while classes 3 and 4 reflect marriage preceded by cohabitation. Classes 1 and 3 show patterns of marriage that occur relatively early – the marriage trajectory starts to increase in the teens and peaks by age 25. Classes 2 and 4, on the other hand, reflect later marriage; in class 2 direct marriage starts shortly after age 20 and peaks in the late 20s, while in class 4 cohabitation peaks in the mid-20s, with marriage following in the late 20s. Class 5 reflects delayed partnership formation, with a strong increase in cohabitation occurring after age 30, some marriage in the late 30s, and a probability of never experiencing partnerships before age 45.

Classes 6 and 7 reflect partnership patterns that are dominated by separation and repartnering. Class 6 shows a strong increase in direct marriage in the 20s that peaks around age 25 and a gradual increase in being single after separation until over 60% of women are predicted to be single after separation. The trends in cohabitation and marriage preceded by cohabitation provide evidence of repartnering in the 30s. Class 7 starts out with cohabitation followed by marriage, but the class is dominated by a strong trend in single after separation. Although probability of direct marriage is low, the majority of women in this class are expected to remain single after separation into their 30s and 40s. Finally, class 8 is characterized by cohabitation with a small uptick in being single after separated. Note that the cohabitation class is not identical to the marriage classes, since it shows a strong decline in cohabitation in the 30s, due to transitions into marriage or dissolution.

5.1. EDUCATION

As discussed above, the first aim is to determine whether the 8 latent classes are significantly associated with education. We run multinomial models with the 8 classes as the dependent variable and education, country, and cohort as predictor variables. Tables 2a and 2b show the predicted probability of falling into each latent class by education, country, and cohort. The shaded results indicate a significant difference between high and medium or low and medium education (.05 level based on a two-tail t-test). Light grey

indicates that the educational gradient is negative; black indicates the educational gradient is positive; and medium gray indicates the gradient
is U-shaped

		Class 1 Early marriage			Class 2 Delayed marriage			Class 3 Early marriage with premarital cohabitation			Class 4 Delayed marriage with premarital cohabitation		
		1945-54	1955-64	1965-74	1945-54	1955-64	1965-74	1945-54	1955-64	1965-74	1945-54	1955-64	1965-74
Austria	**High**		0.16	0.05		0.12	0.09		**0.08**	**0.11**		0.36	**0.38**
	Medium		0.11	0.08		0.10	0.05		0.33	0.25		0.18	0.24
	Low		0.16	**0.22**		0.13	0.08		0.42	0.26		**0.00**	**0.14**
Belgium	**High**	**0.29**	**0.19**	**0.09**	**0.33**	**0.30**	0.18	0.13	0.12	**0.08**	**0.10**	**0.11**	0.26
	Medium	0.44	0.48	0.22	0.22	0.17	0.09	0.13	0.13	0.20	0.63	0.02	0.15
	Low	**0.56**	**0.37**	0.26	**0.12**	0.11	0.09	0.11	0.14	0.17	**0.04**	**0.08**	0.12
Bulgaria	**High**	**0.35**	**0.40**	**0.32**	**0.40**	**0.25**	**0.23**	0.09	0.14	0.19	0.04	**0.09**	**0.12**
	Medium	0.56	0.56	0.53	0.20	0.08	0.09	0.12	0.19	0.18	0.03	0.04	0.04
	Low	0.56	**0.41**	**0.36**	**0.06**	0.05	**0.01**	**0.25**	**0.33**	**0.34**	0.02	0.04	0.03
Estonia	**High**	0.30	0.29	0.16	**0.29**	**0.17**	0.07	0.09	0.16	0.19	0.08	0.10	0.13
	Medium	0.36	0.28	0.20	0.14	0.06	0.03	0.13	0.16	0.20	0.09	0.10	0.07
	Low	**0.27**	**0.16**	**0.14**	0.11	0.07	**0.00**	**0.18**	0.16	**0.26**	0.08	0.07	0.07
France	**High**	**0.26**	**0.18**	**0.03**	**0.25**	0.12	0.09	**0.08**	0.11	**0.14**	**0.11**	**0.23**	**0.34**
	Medium	0.51	0.31	0.09	0.17	0.07	0.05	0.04	0.15	0.23	0.05	0.13	0.22
	Low	0.59	0.32	**0.18**	0.14	0.10	0.05	0.03	0.17	**0.17**	0.03	0.09	**0.10**
Italy	**High**	**0.13**	**0.09**	**0.03**	**0.71**	**0.60**	0.61	0.00	0.01	**0.01**	**0.02**	**0.07**	**0.08**
	Medium	0.39	0.35	0.19	0.51	0.51	0.59	0.01	0.01	0.03	0.01	0.03	0.06
	Low	**0.63**	**0.60**	**0.43**	**0.33**	**0.29**	**0.39**	0.01	0.02	0.05	0.01	0.02	0.04
Lithuania	**High**	0.31	0.29	0.30	**0.43**	0.36	0.29	**0.00**	0.03	0.06	0.02	0.02	0.06
	Medium	0.43	0.38	0.44	0.29	0.22	0.17	0.02	0.05	0.05	0.02	0.03	0.03
	Low	0.45	0.42	**0.32**	0.24	0.17	**0.03**	0.06	0.04	0.06	**0.00**	**0.00**	**0.00**
NL	**High**	**0.33**	**0.13**	**0.04**	0.25	0.18	0.12	**0.09**	**0.08**	**0.06**	**0.14**	**0.31**	**0.39**
	Medium	0.47	0.33	0.11	0.24	0.14	0.09	0.04	0.18	0.16	0.09	0.17	0.32
	Low	0.57	**0.45**	**0.18**	0.22	0.10	0.11	0.03	0.15	0.20	**0.04**	**0.11**	**0.18**

Table 2a: The predicted probability of women aged 15-45 ending up in each class by country, cohort, and educational level, classes 1-4.

Norway	**High**	**0.28**	0.14	0.05	**0.24**	0.12	**0.08**	0.10	0.15	**0.12**	0.14	**0.28**	**0.33**
	Medium	0.41	0.16	0.08	0.17	0.08	0.02	0.13	0.20	0.21	0.10	0.20	0.21
	Low	0.41	0.16	**0.03**	**0.11**	0.06	**0.05**	0.15	**0.28**	0.19	0.08	**0.11**	0.20
Poland	**High**			**0.30**			**0.46**			0.05			0.05
	Medium			0.50			0.27			0.03			0.04
	Low			**0.61**			**0.18**			0.04			**0.02**
Romania	**High**	**0.22**	**0.28**	**0.28**	**0.57**	**0.54**	**0.41**	0.02	0.03	**0.04**	**0.07**	**0.01**	**0.09**
	Medium	0.53	0.55	0.57	0.28	0.21	0.18	0.04	0.05	0.09	0.03	0.04	0.03
	Low	**0.68**	0.57	0.61	**0.12**	**0.13**	**0.05**	0.07	**0.13**	0.14	0.02	0.03	0.03
Russia	**High**	**0.32**	0.33	0.31	**0.27**	0.23	0.14	0.04	0.05	0.10	0.06	0.07	0.07
	Medium	0.42	0.42	0.40	0.14	0.13	0.06	0.08	0.08	0.11	0.06	0.04	0.05
	Low	0.43	**0.30**	0.36	0.10	0.15	**0.03**	**0.17**	**0.03**	**0.22**	0.06	0.03	**0.00**
Spain	**High**	**0.24**	**0.14**	**0.05**	**0.56**	**0.52**	0.47	0.03	0.03	0.03	**0.08**	**0.09**	**0.12**
	Medium	0.36	0.37	0.21	0.42	0.40	0.47	0.05	0.03	0.05	0.03	0.05	0.07
	Low	0.45	**0.52**	**0.32**	0.43	**0.31**	**0.35**	0.03	0.04	0.05	0.02	0.03	0.05
UK	**High**	**0.43**	**0.23**	0.07	0.22	0.16	0.13	0.04	0.09	0.10	0.06	0.15	0.25
	Medium	0.53	0.34	0.11	0.19	0.11	0.08	0.02	0.07	0.12	0.05	0.11	0.21
	Low	0.51	0.31	**0.07**	**0.12**	**0.07**	0.05	0.03	0.08	0.11	0.08	0.11	**0.07**
USA	**High**	0.31	0.23	0.12	**0.19**	**0.25**	**0.23**	0.06	**0.07**	0.08	0.10	0.13	0.19
	Medium	0.41	0.33	0.14	0.10	0.09	0.09	0.05	0.10	0.11	0.09	0.10	0.14
	Low	**0.34**	**0.25**	0.17	**0.06**	**0.05**	**0.05**	**0.08**	0.11	0.12	**0.04**	**0.07**	**0.08**

Table 2a (cont.): The predicted probability of women aged 15-45 ending up in each class by country, cohort, and educational level, classes 1-4.

Note: Bold figures indicate differences between educational levels are significant at the .05 level (two-tail t-test). Black indicates a positive educational gradient; grey indicates a negative educational gradient; and red indicates a U-shaped educational gradient.

Table 2a shows the probability of falling into the four stable marriage pattern classes. Immediately we can see that in most countries, the two early marriage patterns (classes 1 and 3) are dominated by light grey squares that indicate a negative educational gradient, while the two later marriage patterns (classes 2 and 4) are dominated by black squares that indicate a positive educational gradient. These results show that higher education is related to the postponement of marriage, a finding common throughout the literature. However, we can also see that the relationship between education and marriage timing holds regardless of whether the marriage was preceded by cohabitation; in most countries the least educated have earlier marriage patterns than the more educated, even when they experience premarital cohabitation. All in all, the patterns suggest that premarital cohabitation is becoming more common for all educational groups. Education consistently shapes the educational gradient of the timing of marriage, regardless of whether it was preceded by cohabitation.

Nonetheless, some nuances must be mentioned. First, the negative educational gradient is sometimes determined by a significant difference between the higher and medium educated, and sometimes between medium and low. In Class 1, early marriage, the educational gradient is significant across all educational levels only in Italy and Spain, and in the later cohorts in Poland, France, and the Netherlands. Second, some countries show a U-shaped educational gradient, for example the 1955-1964 cohort in Belgium and the latter two cohorts in Bulgaria. Third, in several countries the least educated have a lower probability of falling into the early marriage class than those with medium education, resulting in a positive educational gradient. In Norway and the UK, the least educated appear to be less likely to marry and more likely to be in the cohabitation or union dissolution classes; note that in the UK, low education is very selective (only 6%) and some of these women are single mothers who will never form unions. The results for the U.S. also reflect previous findings, with the least educated less likely to directly marry early than the medium educated and more likely to have union formation patterns characterized by cohabitation or separation. Nonetheless, for the two oldest cohorts in the U.S. and other countries, women with lower education have a higher probability of falling into the early direct marriage class than any other class, with the exception of Austria, Estonia, and Norway. Thus, Class 1 has been and remains one of the most common marriage patterns for all educational levels, although this is clearly changing for recent cohorts.

The consistency of the negative gradient for the early direct marriage class (class 1) is mirrored by the overwhelmingly positive gradient for the delayed direct marriage class (class 2). Austria and the Netherlands are the only countries with no significant upward gradient for any cohort. Despite the predominantly significant positive gradient, however, the significance of the positive gradient disappears in the latest cohort in Belgium, France, the Netherlands, and the U.K., which may reflect the recent shift from direct marriage to premarital cohabitation. In the class showing relatively early marriage preceded by cohabitation (class 3), the gradient is predominantly negative, similar to the early direct marriage class. However, Spain, Poland, and the UK have no significant differences by education, and the educational gradient for the youngest cohort in Lithuania and the U.S. is flat. The latest cohort in France has a significant U-shape, with the medium educated most likely to fall in this class. Also the 1945-1954 cohort in France and the Netherlands, and the 1955-1964 cohort in Russia show a positive educational gradient, although this relationship has reversed in more recent cohorts.

Correspondingly, the educational gradient for delayed marriage preceded by cohabitation is overwhelmingly positive. Only Estonia does not have any cohorts with a positive educational gradient, although the educational gradient for the 1945-1954 cohort for Belgium is U-shaped and the gradient for the 1955-1964 cohort in Romania is negative. Also, the gradient has only recently emerged in Russia and the UK and is not significant in the youngest cohort in Belgium. By and large, however, the results for this class show a strong and consistent relationship between higher education and entrance into marriage after cohabitation. The prevalence of this pattern is increasing across cohorts in every country, reflecting the popularity of premarital cohabitation and the delay of marriage, but not the rejection of marriage. And while this class is becoming increasingly popular for all groups, it is becoming even more so for the highly educated.

		Class 5 Delayed or no union formation			Class 6 Divorce, limited repartnering			Class 7 Union dissolution, some repartnering			Class 8 Cohabitation		
		1945-54	1955-64	1965-74	1945-54	1955-64	1965-74	1945-54	1955-64	1965-74	1945-54	1955-64	1965-74
Austria	**High**		0.16	0.12		**0.00**	**0.01**		0.04	0.07		0.08	0.17
	Medium		0.09	0.09		0.06	0.04		0.06	0.10		0.06	0.15
	Low		0.06	**0.04**		0.06	0.06		0.10	0.11		0.06	**0.10**
Belgium	**High**	0.09	0.14	0.14	**0.02**	0.01	0.01	0.02	0.08	0.09	**0.02**	0.05	0.15
	Medium	0.08	0.09	0.13	0.24	0.01	0.01	0.03	0.07	0.11	0.00	0.04	0.10
	Low	0.11	**0.19**	0.17	**0.02**	0.01	0.01	0.01	0.07	0.07	0.02	0.04	0.10
Bulgaria	**High**	0.07	**0.03**	0.04	**0.02**	0.05	0.05	0.02	0.03	0.02	0.01	0.01	0.03
	Medium	0.03	0.24	0.02	0.05	0.06	0.05	0.01	0.02	0.03	0.01	0.01	0.05
	Low	0.01	**0.02**	0.01	0.06	0.04	0.03	0.01	0.03	**0.06**	0.02	**0.07**	**0.15**
Estonia	**High**	0.05	0.05	0.07	0.12	0.13	0.06	0.05	0.06	0.10	0.02	0.05	0.22
	Medium	0.03	0.03	0.03	0.15	0.15	0.09	0.07	0.12	0.12	0.03	0.11	0.26
	Low	**0.01**	0.02	0.01	0.17	0.16	**0.01**	0.08	**0.18**	**0.19**	**0.11**	**0.18**	0.31
France	**High**	0.12	0.14	0.09	0.08	**0.03**	0.00	0.03	0.06	0.06	**0.07**	0.13	0.25
	Medium	0.08	0.09	0.08	0.09	0.08	0.01	0.03	0.05	0.08	0.03	0.11	0.23
	Low	0.08	0.09	0.13	0.09	0.10	**0.05**	0.03	0.05	0.08	0.02	0.08	0.24
Italy	**High**	**0.09**	**0.20**	**0.22**	0.01	**0.00**	**0.00**	**0.02**	**0.02**	**0.03**	**0.01**	0.01	**0.03**
	Medium	0.06	0.07	0.10	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.26
	Low	**0.02**	**0.04**	**0.06**	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.01	**0.02**
Lithuania	**High**	0.07	0.10	0.03	0.14	0.20	0.16	0.02	0.01	0.07	0.02	**0.00**	0.03
	Medium	0.05	0.04	0.03	0.14	0.23	0.18	0.04	0.04	0.06	0.01	0.01	0.03
	Low	0.04	0.04	**0.00**	0.16	**0.17**	**0.29**	0.01	**0.17**	**0.19**	0.03	**0.00**	**0.10**
NL	**High**	0.04	**0.11**	**0.10**	0.05	0.03	0.02	**0.06**	0.06	0.04	**0.04**	**0.10**	0.23
	Medium	0.04	0.04	0.05	0.07	0.05	0.02	0.03	0.05	0.05	0.01	0.04	0.20
	Low	**0.01**	0.02	0.04	0.09	0.06	0.02	0.03	0.06	**0.10**	0.01	0.05	0.16
		Class 5			**Class 6**			**Class 7**			**Class 8**		

Table 2b: The predicted probability of women aged 15-45 being in each class by country, cohort, and educational level, classes 5-8.

		Delayed or no union formation			Divorce, limited repartnering			Union dissolution, some repartnering			Cohabitation		
Norway	**High**	0.10	0.08	0.11	0.05	0.05	0.02	0.06	0.08	0.09	0.03	0.10	0.19
	Medium	0.08	0.11	0.09	0.06	0.05	0.01	0.04	0.08	0.14	0.01	0.12	0.25
	Low	0.08	0.10	0.11	0.09	0.06	0.02	0.05	0.11	0.12	**0.03**	0.12	0.28
Poland	**High**			**0.06**			**0.04**			0.01			0.02
	Medium			0.02			0.08			0.03			0.03
	Low			0.02			0.06			0.04			0.03
Romania	**High**	**0.05**	0.04	**0.07**	0.08	0.09	0.06	0.00	**0.01**	0.03	0.00	**0.00**	0.01
	Medium	0.01	0.02	0.03	0.09	0.08	0.06	0.01	0.03	0.02	0.01	0.01	0.02
	Low	0.01	0.01	0.01	0.05	0.07	0.03	0.01	0.01	0.04	0.03	0.05	**0.08**
Russia	**High**	0.09	0.04	0.04	0.13	0.19	0.11	0.08	0.07	0.13	0.02	0.03	0.10
	Medium	0.04	0.04	0.03	0.15	0.17	0.14	0.07	0.06	0.12	0.04	0.04	0.08
	Low	0.06	**0.00**	**0.00**	**0.08**	**0.24**	0.11	0.06	**0.12**	0.17	**0.00**	**0.12**	0.11
Spain	**High**	0.05	**0.13**	**0.22**	0.03	0.04	0.02	0.01	0.02	0.01	0.01	0.02	0.07
	Medium	0.09	0.07	0.10	0.05	0.05	0.04	0.01	0.02	0.02	0.01	0.03	0.06
	Low	0.03	0.04	0.07	0.02	0.05	0.05	0.00	0.01	0.02	0.01	0.01	0.08
UK	**High**	0.09	0.12	0.14	0.11	0.13	0.06	0.04	0.08	0.10	0.01	0.03	0.16
	Medium	0.05	0.14	0.12	0.14	0.17	0.07	0.02	0.03	0.11	0.00	0.04	0.17
	Low	0.07	0.12	**0.27**	0.16	0.19	0.05	0.01	**0.08**	**0.18**	0.01	0.04	0.20
USA	**High**	**0.07**	**0.05**	0.09	0.14	**0.11**	0.09	0.12	**0.12**	**0.16**	0.02	**0.03**	**0.05**
	Medium	0.03	0.03	0.08	0.19	0.19	0.11	0.09	0.17	0.24	0.04	0.06	0.11
	Low	0.05	**0.05**	0.06	0.18	**0.13**	0.11	**0.16**	**0.23**	0.23	**0.08**	**0.11**	**0.18**

Table 2b (cont.): The predicted probability of women aged 15-45 being in each class by country, cohort, and educational level, classes 5-8.

Table 2b shows partnership patterns that are not centred on long-term stable marriage (classes 5-8). The results for these classes are much more mixed with inconsistent educational gradients. Class 5, which represents delayed partnership formation and remaining never partnered until age 45, has a mix of positive and negative gradients. Italy and Spain stand out as having a high probability of falling into class 5 and strong positive educational gradients, due to general delayed union formation and marriage (Castro-Martin et al 2008). The positive educational gradient has emerged more recently in Austria, Lithuania, the Netherlands, Poland, Romania, Russia, and Spain. Cohorts in some countries, however, have no educational gradient or a U-shaped gradient as in Bulgaria and the U.S. In the U.K., the least educated in the youngest cohort have a particularly high probability of falling into class 5, perhaps because of the low rates of forming co-residential unions (Sigle-Rushton 2008). Thus, while we may expect that higher educated women consistently postpone or avoid union formation that may not be the case in the long run.

Results for the divorce and separation classes (classes 6 and 7) are also mixed. In most countries, if the gradient is significant it is usually negative. Estonia is again an outlier for class 6, with a positive gradient for the youngest birth cohort, although the gradients for class 7 are negative and the probability for the least educated is relatively high. Lithuania and Russia have a positive gradient for earlier cohorts, but they too have negative gradients for later cohorts. Italy has a consistently positive educational gradient for class 7, which corroborates previous evidence that the emergence of divorce in Italy has been associated with higher education, although note that the predicted probability for this class is very small. On the whole, if there is a significant gradient for these classes, it tends to be negative.

The class representing cohabitation (class 8) also has inconsistent educational gradients. Belgium, France, Italy, the Netherlands and Russia had positive gradients in the earliest birth cohorts, supporting studies that long-term cohabitation emerged among the most highly educated, especially in the Low Countries and France (Surkyn and Lesthaeghe 2004). However, only Austria has a positive educational gradient for the youngest cohort. In Bulgaria, Lithuania, Romania and the United States, the educational gradient for the most recent cohort is negative. Note the educational gradient for long-term cohabitation is consistently negative in the U.S., supporting other findings that

cohabitation in the U.S. is associated with a pattern of disadvantage (Kennedy and Bumpass 2008, Carlson and England 2011).

Taken as a whole, Table 2a indicates that women with lower education have a significantly higher probability of falling in the earlier marriage classes (classes 1 and 3), while highly educated women are more likely to be in later marriage classes (2 and 4). However, it is difficult to know from Table 2a whether more or less educated women are more likely to enter and stay in stable marriages throughout the reproductive ages, as discussed in the theoretical framework. In addition, it is difficult to know whether women with higher education are diverging from women with lower education with respect to separation after either cohabitation or marriage. In order to answer these questions, we also show Table 3, which combines the results from classes 1-4 and classes 6-7 and specifically looks for differences between high and low education.

		Classes 1-4 Marriage, with and without premarital cohabitation and infrequent divorce before 45			Classes 6 and 7 Divorce and separation followed by some repartnering into cohabitation or marriage		
		1945-54	1955-64	1965-74	1945-54	1955-64	1965-74
Austria	High		0.72	0.63		**0.04**	**0.09**
	Low		0.71	0.70		**0.16**	**0.17**
Belgium	High	0.85	0.72	0.61	0.04	0.09	0.10
	Low	0.83	0.69	0.64	0.03	0.08	0.09
Bulgaria	High	0.90	**0.88**	**0.86**	**0.03**	0.08	0.06
	Low	0.89	**0.83**	**0.75**	**0.08**	0.07	0.09
Estonia	High	**0.76**	**0.72**	0.55	**0.17**	**0.19**	0.16
	Low	**0.64**	**0.46**	0.47	**0.24**	**0.34**	0.21
France	High	**0.70**	0.63	**0.60**	0.11	**0.10**	**0.06**
	Low	**0.79**	0.68	**0.50**	0.11	**0.15**	**0.13**
Lithuania	High	0.76	**0.69**	**0.71**	**0.15**	**0.22**	**0.23**
	Low	0.75	**0.63**	**0.42**	**0.18**	**0.33**	**0.48**
Italy	High	**0.87**	0.77	**0.73**	0.03	0.02	0.03
	Low	**0.97**	0.94	**0.91**	0.00	0.01	0.02
NL	High	**0.81**	**0.70**	0.62	0.11	0.10	**0.06**
	Low	**0.86**	**0.81**	0.68	0.12	0.12	**0.12**
Norway	High	0.76	**0.69**	**0.59**	0.11	**0.13**	0.11
	Low	0.75	**0.61**	**0.48**	0.14	**0.17**	0.13
Poland	High			0.86			**0.05**
	Low			0.84			**0.10**
Romania	High	0.87	0.86	0.83	0.08	0.10	0.09
	Low	0.89	0.86	0.83	0.07	0.08	0.07
Russia	High	0.69	**0.68**	0.62	0.21	0.25	0.23
	Low	0.76	**0.52**	0.61	0.14	0.36	0.28
Spain	High	**0.90**	**0.78**	**0.68**	0.04	0.06	**0.03**
	Low	**0.94**	**0.89**	**0.77**	0.03	0.06	**0.08**
UK	High	0.74	0.63	**0.54**	0.15	0.21	0.16
	Low	0.75	0.57	**0.30**	0.18	0.27	0.23
USA	High	**0.65**	**0.68**	**0.61**	**0.26**	**0.23**	**0.25**
	Low	**0.53**	**0.48**	**0.42**	**0.34**	**0.36**	**0.34**

Table 3: The combined predicted probability of women aged 15-45 being in classes 1-4 and 6-7, by country, cohort, and high versus low education.

Table 3 shows that throughout much of Western and Northern Europe and the U.S., the educational gradient for marrying and staying in marriage throughout the reproductive period is significantly positive, supporting the recent findings that marriage is now more likely for the highly educated. This is especially the case in the latest cohorts in France, Lithuania, Norway, the U.K. and the U.S. Nonetheless, the gradient is relatively flat throughout Central and Eastern Europe. In some countries, such as Poland and Romania, the flat gradient is probably due to a high probability of all women

entering and staying in marriage, while in Russia, women are more likely to be in classes with union dissolution and in Estonia, women are more likely to be in long-term cohabitation. On the other hand, in Southern Europe, the gradient for the marriage class tends to be negative, primarily because the most highly educated delay union formation until their late thirties and early forties, as represented by class 5.

However for the separation classes, when the educational gradient is significant, it is consistently negative: in the most recent cohorts in Austria, France, Lithuania, the Netherlands, Poland, Spain, and the U.S., the lower educated have a significantly higher probability of falling into a divorce or separation class than the higher educated. These results might suggest that the higher and lower educated have significantly different partnership trajectories, as suggested by the diverging destinies argument. However, only France, Lithuania, and the U.S. show a positive gradient for the marriage classes and a negative gradient for the separation classes, indicating that the relationship is not uniform within countries. Hence, while the U.S. results provide strong support for the diverging destinies argument, the support in most of the other countries is much weaker.

5.2. RELATIVE CONTRIBUTION OF COUNTRY VERSUS EDUCATION

Table 4 presents the results of the ANOVA analysis to determine the relative importance of education and country for each latent class by cohort. Each analysis presents the relative share of the variation in the predicted probabilities for that class explained by education and country, as well as the proportion remaining unexplained.

	Cohort	Education	Country	Residual
Class 1: Early, direct and stable marriage	1945-54	0.48	0.25	0.27
	1955-64	0.29	0.47	0.23
	1965-74	0.11	0.78	0.11
Class 2: Later, direct and stable marriage	1945-54	0.28	0.64	0.08
	1955-64	0.19	0.74	0.07
	1965-74	0.08	0.88	0.05
Class 3: Early marriage preceded by cohabitation	1945-54	0.06	0.83	0.11
	1955-64	0.05	0.88	0.07
	1965-74	0.09	0.82	0.09
Class 4: Postponed marriage, preceded by cohabitation	1945-54	0.20	0.69	0.11
	1955-64	0.17	0.73	0.10
	1965-74	0.12	0.83	0.05
Class 5: Late union formation/ Never partnering	1945-54	0.22	0.57	0.21
	1955-64	0.17	0.63	0.20
	1965-74	0.16	0.66	0.18
Class 6: Divorce, limited re-partnering	1945-54	0.02	0.96	0.03
	1955-64	0.02	0.96	0.02
	1965-74	0.02	0.95	0.03
Class 7: Varied dissolving union types	1945-54	0.01	0.93	0.06
	1955-64	0.02	0.93	0.06
	1965-74	0.02	0.94	0.04
Class 8: Cohabitation	1945-54	0.05	0.64	0.31
	1955-64	0.04	0.79	0.18
	1965-74	0.02	0.89	0.09

Table 4: Results from ANOVA of education, country, and unexplained variance, by cohort (logit link).

In the latent class for early, direct marriage (class 1), education was initially very important - it explained almost half of the variation in predicted probabilities for the 1945-1954 cohort. In later cohorts, however, the relative importance of education declined to explain only about 10% of the variation in predicted probabilities. In contrast, cross-national variation increased in importance from explaining just under a quarter of the variation in the 1945-1954 cohorts to nearly 80% in the 1965-1974 cohorts. The percent of unexplained variance also declined across the cohorts, indicating that education and country context began to explain a greater proportion of the variance over time. Although our tests cannot show whether the change across cohorts is significant, the magnitude of the difference suggests that in the earliest birth cohorts, education was more important for determining early direct marriage. Then, as countries started to experience increases in educational attainment and delays in marriage at different rates, country setting became more important.

The pattern is similar in the later direct marriage class (class 2), except that the role of education was less pronounced over the 3 cohorts and cross-national variation was always dominant. In the 1945-1954 cohorts already 64% of the variation was explained by country context. Over time, the country component became even more important; by 1965-1974, only about 8% of the variation was explained by education and 5% was unexplained. This again suggests that while education started out as an important explanation for the timing of direct marriage in the early cohorts, country became more important for understanding variation in this class.

Similar to classes 1 and 2, country was the dominant factor for all cohorts of class 3, the class representing early marriage preceded by cohabitation. However, in this class the role of education was minimal: education explained less than 8% of the variation in all cohorts and between 9-11% of the variance was left unexplained. In contrast, educational attainment explained a greater proportion of the variance in class 4, the class representing postponed marriage preceded by cohabitation. However, the proportion explained by education declined from 20% in early birth cohorts to 12% in the 1965-1974 birth cohorts, and as in the other classes, country was increasingly more important, increasing by 13% points between the oldest and youngest cohorts. Again, education and country explained nearly all of the variation, with only 5% left unexplained for the latest cohort.

In class 5, representing late union formation and never partnering, education initially accounted for roughly one quarter of the total variation in predicted probabilities. Thereafter, the relative importance of education declined to between 15%-18% for the 1955-1964 and 1965-1974 birth cohorts and the proportion of variance explained by country increased from roughly 57% in the 1945-1954 birth cohorts to 65% to 72% in the 1965-1974 birth cohorts. Note that the proportion of variance explained by education in the 1965-1974 birth cohorts was higher in class 5 than in any other class. Therefore, although the relative importance of national setting compared to education declined (as for classes 1, 2 and 4), education was still relatively important for delayed union formation. Also, this class had a relatively high proportion of unexplained variance, suggesting that factors other than country and education were important.

For classes 6 and 7, which characterize union dissolution patterns, education is of limited importance in all cohorts, accounting for less than 2% of variance. This supports the above finding that divorce and separation patterns are less likely to be associated with educational attainment, and that country context is far more important for explaining separation. Note as well that country context is so important for predicting divorce or separation patterns that the proportion of unexplained variance is strikingly low - less than 6% for both classes. In class 8 (long-term cohabitation), education is also only marginally important, accounting for less than 5% of variation in the predicted probability. In contrast, the proportion of variance explained by country increased by roughly 20 percentage points from the 1945-1954 to 1965-1974 cohorts. While unexplained variance was relatively high in the earlier cohorts, less than 10% of variation was unexplained for the 1965-1974 cohort. These results indicate that educational level is only marginally influential in explaining long term cohabiting behavior, but country setting is becoming increasingly important.

6. DISCUSSION

Recent studies in the U.S. and Europe have argued that education has become crucial for understanding new patterns of union formation and dissolution (Isen and Stevenson 2010, Cherlin 2009, Kalmijn 2013, Matysiak et al 2013, Perelli-Harris et al 2010). According to the popular "diverging destinies" argument, the more highly educated are increasingly following a trajectory characterized by delayed but stable marriage, while the least educated are following a trajectory including cohabitation and union instability (McLanahan 2004). Our results provide some support for this argument: higher education is important for understanding the timing and prevalence of stable marriage patterns in the majority of our studied countries, and in some countries partnership patterns which divorce and separation were associated with lower education.

However, we also examined the role of country context in determining partnership patterns. Previous studies have indicated that union formation behaviors have been diverging across Europe (Billari and Liefbroer 2010, Perelli-Harris and Lyons-Amos 2012), suggesting that social and cultural change has been occurring at different rates and producing very different patterns of family formation. Here we find that country context explains far more of the variance in predicted probabilities than education and is

an excellent predictor of partnership patterns as a whole. While education may be important for understanding the timing of marriage or the delay of union formation, it is not the main predictor of partnership patterns in any class except the early marriage class. In fact, the importance of country context is increasing over time, suggesting a growing influence of social, cultural, and economic factors on women's partnership behavior. The increase in cross-national diversity is occurring despite the expansion of educational attainment, an expansion which produces greater within-country heterogeneity and should provide a greater opportunity for education to become more influential as lower education becomes more selective of certain groups. However, our findings show that even though women's education has increased everywhere and should be playing a greater role in partnership behavior, country of residence has become the most important determinant of partnership behavior.

When we do find support for the "diverging destinies" argument, the support is clear for the United States but less consistent across European countries. In the U.S., the latent classes showing stable marriage patterns have an overall positive educational gradient for all cohorts, while the classes that include separation and divorce have an overall negative educational gradient. The class representing long-term cohabitation in the U.S. is also characterized by a persistent negative educational gradient. The results for the other countries, however, are mixed. Although more countries have a significantly positive educational gradient for marriage and a negative educational gradient for separation, the results are not consistent across classes or cohorts.

Nonetheless, education is consistently important for understanding the timing of marriage. Overall, the two early marriage classes were dominated by negative educational gradients, while the two later marriage classes were dominated by positive gradients. Cohabitation, on the other hand, did not seem to change this relationship at all: latent classes with premarital cohabitation and early marriage usually had negative gradients, while those with premarital cohabitation and later marriage had positive gradients. This suggests that premarital cohabitation has increased similarly for all educational levels. Thus, premarital cohabitation is relatively inconsequential for understanding the educational gradient of partnership formation compared to the stronger and more consistent association between education and the timing of marriage.

Note that this study has several limitations. First, the reporting of partnership transitions, especially cohabiting relationships, may be subject to recall error, and each survey is subject to errors and limitations that may bias results (see Perelli-Harris, Kreyenfeld, and Kubisch 2010 for a description of each survey). Second, the number and form of the latent classes are sensitive to the specific countries and cohorts which are included. Due to truncation, the 1965-1974 cohort would not have reached age 45 depending on the year of the survey in each country. This will have reduced the exposure time for these women, possibly underestimating their prevalence in the separation or divorce classes, or even delayed marriage classes, and it could also have implications for the educational gradient. These issues were discussed extensively and tested with sensitivity analyses in Perelli-Harris and Lyons-Amos 2013. Despite these shortcomings however, we feel that the benefits of comparing latent classes across countries and examining the youngest cohort with the available data outweigh these limitations.

Indeed, by including the youngest cohorts, we can see how country context is becoming more relevant across cohorts. Relative to education, country increasingly explained more of the variance in partnership classes over time, or at least did not change substantially. Thus, the increasing variation between countries has become more important for understanding holistic patterns of union formation and dissolution. However, the reason for the divergence in partnership behavior may be because some countries are at the forefront of new developments, while others are lagging behind (Liefbroer and Billari 2010, Lesthaeghe 2010). As cohabitation and divorce increase in all countries, Europe and the U.S. may eventually experience greater convergence. On the other hand, with the increasing de-standardization of the lifecourse, convergence may become less likely, as each country takes its own unique path. In order to better understand these developments, it is important not only to search for common explanations for changes in partnership, but also to examine context-specific factors. Only in-depth investigation into historical, cultural, economic, and policy developments will lead to a better understanding of how and why partnership patterns are changing.

REFERENCES

Barlow, A. (2004) Regulation of cohabitation, changing family policies and social attitudes: a discussion of Britain within Europe. *Law and Policy, 26* (1), 57-86.

Becker, G. (1991) A Treatise on the Family. *Cambridge,* Harvard University Press.

Bernhardt, E., Noack, T., and Lyngstad, T.H. (2008) Shared housework in Norway and Sweden: advancing the gender revolution. *Journal of European Social Policy, 18* (3), 275-288.

Billari, F.C., and Liefbroer, A.C. (2010) Towards a new pattern of transition to adulthood? *Advances in Life Course Research,* 15 (2-3), 59-75.

Blossfeld, H.P., and Huinink, J. (1991) Human capital investments or norms of role transition? How women's schooling and career affect the process of family formation. *The American Journal of Sociology, 97* (1), 143-168.

Bryan, M.L., and Jenkins, S.P. (2013) Regression analysis of country effects using multilevel data: A cautionary tale. *ISER*, University of Essex, UK.

Carlson, M., and England, P. (2011) Social class and changing families in an unequal America. *Stanford University Press.*

Castro-Martín, T., Domínguez-Folgueras, M., and Martín-García, T. (2008) Not truly partnerless: Non-residential partnerships and retreat from marriage in Spain. *Demographic Research,* 18.

Cherlin, A. (2009) The marriage-go-round: The state of marriage and the family in America today. *New York,* Knopf.

Coale, A.J., and Cotts Watkins, S. (1986) The Decline of Fertility in Europe: The Revised Proceedings of a Conference on the Princeton Fertility Project. *Princeton,* Princeton University Press.

Coontz, S. (2005) Marriage, A History: From Obedience to Intimacy, or How Love Conquered Marriage. *New York,* Viking.

Coppola, L. (2004) Education and union formation as simultaneous in Italy and Spain. *European Journal of Population/Revue européenne de Démographie,* 20 (3), 219-250.

Dariotis, J.K., Pleck, J.H., Astone, N.M., and Sonenstein, F.L. (2011) Pathways of early fatherhood, marriage, and employment: A latent class growth analysis. *Demography,* 48 (2), 593-623.

Edin, K., and Kefalas, M. (2005) *Promises I can keep: why poor women put motherhood before marriage*. *Berkeley and Los Angeles,* CA, University of California Press.

Elzinga, C., and Liefbroer, A. (2007) De-standardization of Family-Life Trajectories of Young Adults: A Cross-National Comparison Using Sequence Analysis. *European Journal of Population,* 23 (3), 225-250.

Galezewska, P., Perelli-Harris, B., and Berrington, A. (2013) Repartnering after divorce and separation in Europe and the United States. *Paper presented at the Divorce Conference*, Oxford.

Gibson-Davis, C.M. (2007) Marriage Among Low-Income Couples. *Unmarried couples with children*, 84.

Goldberg, R.E. (2013) Family Instability and Pathways to Adulthood in Cape Town, South Africa. *Population and Development Review,* 39 (2), 231-256.

Goldstein, J.R., and Kenney, C.T. (2001) Marriage Delayed or Marriage Forgone? New Cohort Forecasts of First Marriage for U.S. Women. *American Sociological Review,* 66, 506-519.

Härkönen, J., and Dronkers, J. (2006) Stability and Change in the Educational Gradient of Divorce. A Comparison of Seventeen Countries. *European Sociological Review,* 22 (5), 501-517.

Heard, G. (2011) Socioeconomic marriage differentials in Australia and New Zealand. *Population and Development Review,* 37 (1), 125-160.

Heuveline, P., Jeffrey M. Timberlake, and Furstenberg Jr., F.F. (2003) Shifting childrearing to single mothers: results from 17 Western countries. *Population and Development Review,* 29 (1), 47-71.

Hox, J., van de Schoot, R. and Matthijsse, S. (2012) How few countries will do? Comparative survey analysis from a Bayesian perspective. *Survey Research Methods,* 6, 87-93.

Isen, A. and Stevenson, B. (2010) Women's education and family behavior: trends in marriage, divorce and fertility. *National Bureau of Economic Research.*

Kalmijn, M. (2007) Explaining cross-national differences in marriage, cohabitation, and divorce in Europe, 1990-2000. *Population Studies*, 61 (3), 243-263.

Kalmijn, M. (2011) The influence of men's income and employment on marriage and cohabitation: Testing Oppenheimer's theory in Europe. *European Journal of Population/Revue européenne de Démographie,* 27 (3), 269-293.

Kalmijn, M. (2013) The educational gradient in marriage: A comparison of 25 European countries. *Demography,* 50 (4), 1499-1520.

Katus, K., Põldma, A., Puur, A., and Sakkeus, L. (2008) First union formation in Estonia, Latvia and Lithuania: patterns across countries and gender. *Demographic Research,* 17, 247.

Kennedy, S. and Bumpass, L. (2008) Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research,* 19, 1663-1692.

Klüsener, S., Perelli-Harris, B. and Gassen, N. S. (2013) Spatial aspects of the rise of nonmarital fertility across Europe since 1960: the role of states and regions in shaping patterns of change. *European Journal of Population,* 29 (2), 137-165.

Klüsener, S., Perelli-Harris, B. and Gassen, N. S. (2013) Spatial aspects of the rise of nonmarital fertility across Europe since 1960: the role of states and regions in shaping patterns of change. *European Journal of Population,* 29 (2), 137-165.

Kneip, T. and Bauer, G. (2009) Did unilateral divorce laws raise divorce rates in Western Europe? *Journal of Marriage and Family, 71* (3), 592-607.

Konietzka, D. and Kreyenfeld, M. (2002) Women's Employment and Non-Marital Childbearing: A Comparison between East and West Germany in the 1990s. *Population -E,* 57 (2), 331-358.

Köppen, K. (2011) Marriage and Cohabitation in western Germany and France. *Rostock,* Univ., Diss.

Lesthaeghe, R. (2010) The Unfolding Story of the Second Demographic Transition. *Population and Development Review,* 36 (2), 211-251.

Lesthaeghe, R. and Neels, K. (2002) From the first to the second demographic transition: An interpretation of the spatial continuity of demographic innovation in France, Belgium and Switzerland. *European Journal of Population,* 18 (4), 325-360.

Lesthaeghe, R. J. and Neidert, L. (2006) The Second Demographic Transition in the United States: Exception or Textbook Example? *Population and Development Review,* 32 (4), 669-698.

Lichter, D.T. Turner, R.N. and Sassler, S. (2010) National estimates of the rise in serial cohabitation. *Social Science Research,* 39 (5), 754-765.

Lo, Y., Mendell, N.R. and Rubin, D.B. (2001) Testing the number of components in a normal mixture. *Biometrika,* 88, 767-778.

Martin, S.P. (2006) Trends in marital dissolution by women's education in the United States. *Demographic Research, 15*(20), 537-560.

Matysiak, A., Styrc, M. and Vignoli, D. (2013) The educational gradient in marital disruption: A meta-analysis of European research findings. *Population Studies* (ahead-of-print), 1-19.

McLanahan, S. (2004) Diverging Destinies: How children are faring under the Second Demographic Transition. *Demography,* 41 (4), 607-627.

McLanahan, S. and Percheski, C. (2008) Family structure and the reproduction of inequalities. *Annu. Rev. Sociol,* 34, 257-276.

Mikolai, J., Perelli-Harris, B. and Berrington, A. (2014) Partnership Pathways to First Birth and the Role of Education in Europe and the United States. *Paper presented at the Population Association of America,* Boston.

Mills, M. and Blossfeld, H.P. (2005) 'Globalization, uncertainty, and the early life course: A theoretical framework.' In E. K. Hans Peter Blossfeld, Melinda Mills and Karin Kurz (Ed.), *Globalization, uncertainty and youth in society*. Oxon, ON, Routledge.

Muthén, L.K. and Muthén, B.O. (2011) Mplus User's Guide (Sixth Edition ed.). *Los Angeles,* CA.

Mynarska, M. and Bernardi, L. (2007) Meanings and attitudes attached to cohabitation in Poland. *Demographic Research,* 16 (17), 519-554.

Neels, K. and Perelli-Harris, B. (2013) Heterogeneity in Demographic Change: The Educational Gradient of New Family Behaviors in Europe and the United States. *Paper presented at the Population Association of America,* New Orleans.

Nylund, K.L., Asparouhov, T. and Muthén, B.O. (2007) Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural equation modeling,* 14 (4), 535-569.

Oppenheimer, V.K. (1988) A theory of marriage timing. *American Journal of Sociology,* 94 (3), 563-591.

Oppenheimer, V.K. (1997) Women's employment and the gain to marriage: the specialization and trading model. *Annual Review of Sociology,* 23, 431-453.

Oppenheimer, V.K. (2003) Cohabiting and Marriage During Young Men's Career-Development Process. *Demography,* 40 (1), 127-149.

Perelli-Harris, B., Kreyenfeld, M. and Kubisch, K. (2010) "Technical Manual for the Harmonized Histories Database." *MPIDR Working paper, 011*.

Perelli-Harris, B. and Lyons-Amos, M. (2013) The Heterogeneity of Relationship Patterns: An Examination of 15 Countries using Latent Class Growth Models. *CPC Working Paper 37*, ESRC Centre for Population Change, UK.

Perelli-Harris, B. and Sanchez Gassen, N. (2012) How Similar are Cohabitation and Marriage? Legal Approaches to Cohabitation across Western Europe. *Population and Development Review,* 38 (3), 435-467.

Perelli-Harris, B., Sigle-Rushton, W., Lappegård, T., Keizer, R., Berghammer, C. and Kreyenfeld, M. (2010) The educational gradient of nonmarital childbearing in Europe. *Population and Development Review,* 36 (4), 775-801.

Raymo, J. (2003) Educational attainment and the transition to first marriage among Japanese women. *Demography,* 40 (1), 83-103.

Reed, J. (2006) Not crossing the ''extra line'': How cohabitors with children view their unions. *Journal of Marriage and Family,* 68, 1117-1131.

Reher, D.S. (1998) Family ties in Western Europe: Persistent contrasts. *Population and Development Review,* 24 (2), 203-234.

Smock, P.J., Manning, W.D. and Porter, M. (2005) "Everything's there except money": How money shapes decisions to marry among cohabitors. *Journal of Marriage and Family,* 67 (3), 680-696.

Sobotka, T.L. and Toulemon, L. (2008) Overview Chapter 4: Changing family and partnership behavior: Common trends and persistent diversity across Europe. *Demographic Research,* 19 (6), 85-138.

Stevenson, B. and Wolfers, J. (2007) Marriage and Divorce: Changes and their Driving Forces. *The Journal of Economic Perspectives,* 21 (2), 27-52.

Surkyn, J.A.R.L. (2004) Value orientations and the Second Demographic Transition (SDT) in Northern, Western, and Southern Europe: an update. *Demographic Research, Special Collection 3* (Article 3), 45-86.

Sweeney, M. (2002) Two Decades of Family Change: The Shifting Economic Foundations of Marriage *American Sociological Review,* 67 (1), 132-147

Thornton, A., Axinn, W.G. and Teachman, J.D. (1995) The influence of school enrollment and accumulation on cohabitation and marriage in early adulthood. *American Sociological Review,* 60 (5), 762-774.

van de Kaa, D. (1987) Europe's Second Demographic Transition. *Population Bulletin,* 42 (1), 1-59.

Vignoli, D. and Salvini, S. (Forthcoming) Religion and union formation choices in Italy: Catholic precepts, social pressure, and tradition. *Demographic Research*.

Virtanen, P., Lipiäinen, L., Hammarström, A., Janlert, U., Saloniemi, A. and Nummi, T. (2011) Tracks of labour market attachment in early middle age: A trajectory analysis over 12 years. *Advances in Life Course Research,* 16 (2), 55-64.

Wang, C.P., Brown, C.H. and Bandeen-Roche, K. (2005) Residual diagnostics for growth mixture models: Examining the impact of a preventive intervention on multiple trajectories of aggressive behavior. *Journal of the American Statistical Association,* 100 (471), 1054-1076.

Watkins, S.C. (1991) From provinces into nations. *Princeton University Press,* Princeton, NJ.

ISSN 2042-4116

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