Women's and men's education and partnership formation: Does the field of education matter?

Teresa Martín-García, Marta Seiz and Teresa Castro-Martín

Abstract:

Using data from the GGS, this study explores the effect of field of education on first union formation for women and men born since the 1960s in Norway, Austria, Belgium and Poland. Educational attainment is known to influence differently the union patterns of men and women. These differences in partnership formation have been traditionally explained using the *economic* interpretation of education. We suggest that looking at fields of study may yield additional insights and offer a more complete picture for understanding union entry patterns. The analysis focuses on the effect of two dimensions of education –educational level and educational field– on first union entry and union type. We find that, in some countries, differences between educational fields have the same weight as those between educational levels. The findings suggest that the field of study reflects unobserved value orientations but also different degrees of opportunities in the labour market. The inclusion of this covariate contributes thus to nuancing and expanding our understanding of how education influences family formation.

Keywords: field of education, union formation, marriage, cohabitation, GGS

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1. Introduction

The massive expansion of women's educational attainment is one of the most impressive social changes that have taken place in Western societies in recent times. The closing and then reversal of the gender gap in tertiary education occurred parallel to a decline in gender segregation in the choice of disciplines up to the early 1990s. Nevertheless, the trend in gender segregation has recently stabilized despite women continuing to earn more university degrees (Alon and DiPrete, 2015). Nowadays, most educational fields have higher female representation because women are more evenly distributed across disciplines than in the past, but women and men continue to choose different lines of education (Begall and Mills, 2012).

In recent years, the vast existing research on the relationship between education and fertility has continued to expand, adding the dimension of the specific field of education (Lappegård and Rønsen, 2005; Hoem et al, 2006a,b; Martín-García and Baizán, 2006; Van Bavel, 2010; Begall and Mills, 2012; Opperman, 2014). Nonetheless, to the best of our knowledge, very few studies have been undertaken to examine how the field of study may affect the process of union formation (Neyer and Hoem, 2008; Guetto and Panichella, 2013).[1] Given this existing research gap, our aim is to analyze whether, and how, the choice of a specific field of study affects partnership formation in four European countries: Norway, Austria, Belgium and Poland.

We make three major contributions to the body of current knowledge. First, when talking about education, we also refer to field of study. The choice of a specific discipline of study mirrors one's preferences and interests, together with a particular social background and some expectations regarding one's professional career and prospective income. But this choice may also capture anticipated future roles and potential family plans however vague such plans may be at the (early) time in life when an individual makes the decision about the field of study (Nurmi 1991). Secondly, we focus not only on the timing of first union entry but also on the type of union formed – cohabitation or marriage. Thirdly, we contribute further by studying these aspects for both women and men.

[1] Neyer and Hoem (2008), for women; Guetto and Panichella (2013), for men. However, both studies only consider union formation indirectly.

2. The relation between education and family formation choices

2.1. Gender, education and union formation

In recent birth cohorts, many life and family transitions have been postponed to older ages. Young adults tend to spend more time in education, enter the labor market later, search for a partner longer, leave the parental home later and become parents at older ages than in the past (Castro-Martín and Martín-García 2013). Marriage, which was once part of the natural transition to adulthood, has lost much of its centrality in shaping young adults' lives and has been gradually replaced by cohabitation, at least as the initial state of family formation. Yet cohabitation has not been incorporated into family trajectories at the same pace across countries. Up to the end of the 1980s, cohabitation was most prevalent in Northern countries, being marginal in the South. Since then, in North-West Europe, "cohabitation has displaced marriage in the early lives of most couples, often as an accepted preliminary to marriage, increasingly as a normal form of union without marriage, and as a setting for the birth at least of the first child" (Coleman 2013: 18; Perelli-Harris et al. 2012). Indeed, in Austria and the Nordic countries, cohabitation is currently the normative way of beginning a union, and in the latter it is increasingly viewed as a substitute for marriage and no inferior to it. While age at first marriage is higher in North-West Europe, mean age at first union is younger than in most Southern countries.

In Southern Europe, until the early 2000s, the delay in marriage had not been compensated by a parallel increase in independent living or cohabitation, as had been the norm in north and western European countries. However, cohabitation has spread rapidly among younger cohorts and hence can no longer be considered to play a marginal role in the family formation process (Domínguez-Folgueras and Castro-Martín 2013). Young people in other traditional countries outside Southern Europe, such as Poland and Belgium, also tended to stay at home until marriage, up to the late 20s and 30s. Since the 2000s, however, cohabitation has also gained ground in Eastern Europe, where we now find the youngest ages for partnership formation, even though cohabitation is by no means a uniform trend in the East. In Poland, cohabitation is still usually a prelude to marriage and relatively few cohabiting couples have children (Coleman 2013). In addition, despite the significance and centrality of marriage having

continued to erode everywhere during the first decade of the 21st century, marriage – although delayed– remains more prevalent in Southern and Eastern Europe, even though nonmarital births have experienced a remarkable increase.

Education has been widely acknowledged as one of the major determinants of the postponement of family formation processes (Corijn and Klijzing 2001). In general, a negative impact of educational enrolment on the transition to first union is shown for both women and men, since there are social expectations and important time/money constraints that deter union entry until after graduation (Blossfeld and Huinink 1991). Nevertheless, the deterring effect of enrolment seems to be stronger in the case of marriage than in the case of cohabitation (Baizán *et al*. 2003).

The relationships between *educational attainment* and union formation may differ for men and women and also across societies, depending on the prevailing patterns of gender specialization within the household (Becker 1991). On the one hand, more education entails better job opportunities and higher wages, enhancing individuals' potential contribution to the household economy (*income effect*). On the other, more educated people may perceive that they would miss career opportunities when entering into a union and, eventually, into parenthood (*opportunity cost*/*independence effect*). Previous research has typically found that the income effect predominates for men and the opportunity cost effect for women (Jalovaara 2012; Begall 2013). The higher a woman's educational attainment, the lower her economic dependence on a male earner and, consequently, the lesser her perceived gains from marriage (Becker 1991; Oppenheimer 1994). Highly educated women are also expected to enter a union at a later stage in their employment trajectories, when they consider themselves to be more established in their jobs.

What do earlier empirical findings say about the effect of educational attainment on the transition to first union? Highly educated men remain single less often (Bledsoe et al. 2000; Corijn and Klijzing 2001; Jalovaara 2012; Begall 2013; Trimarchi and Van Bavel 2015; Jalovaara and Fasang 2015). For women, empirical results are mixed. Previous analyses showed a significant delay of first union entry for highly educated women born between 1961 and 1965 in the Netherlands and Flanders (Belgium) (Liefbroer and

Corijn 1999).[2] Blossfeld and Huinink (1991) found no significant effect in the transition to first marriage for women born before 1951 in West Germany. Neither did Thomson and Bernhardt (2010) in Sweden. The authors found that the risk of cohabitation was not associated with prior educational attainment for Swedish women. However, Sweeney (2002) documented that the rate of entry into first marriage was higher for highly-educated women (and men) in the US. Winkler-Dworak and Toulemon (2007) reported a positive effect of education for younger women born in the 1970s and early 1980s when looking at first union rates in France. Jalovaara (2012) also showed that high education promotes union formation for women born 1969-1981 in Finland (see also Jalovaara and Fasang 2015).

Culture-based theories also presume delayed union formation among better-educated women. More educational attainment is associated with female emancipation, value change and individualistic preferences, offering women more lifestyle paths and alternatives to the traditional wife/mother roles (van de Kaa 1996; Lesthaeghe 2002; Surkyn and Lesthaeghe 2004). Yet more autonomy and more lifestyle options do not necessarily imply that family formation is discarded. Most women have aspirations for both a family and a work career (Lappegård and Rønsen 2005), and better-educated women have more resources to deal with potential conflicts.

Previous studies suggest that institutional context and public policy generally shape the influence of women's educational attainment on union formation. Kalmijn (2013) documented a reversal of the educational gradient of being in a union during midlife for women and showed that, in Europe, the educational gradient is moderately positive in those countries that are most gender egalitarian. In such countries, the *income effect* predominates regardless of gender, since higher education and economic potential increases both men's and women's attractiveness in the marriage market (Thomson and Bernhardt 2010). Taking into account prior research, higher educational attainment is expected to encourage union formation among men in all countries under study. By contrast, for women we anticipate a negative association of educational level and union formation in all the countries under study except Norway, given its gender egalitarian culture.

[2] No effect was found for men.

The income and the opportunity cost effects that shape union formation patterns do not only vary across educational levels but also across *educational fields*. Hakim (2003) argues that women are a heterogeneous group with regard to family and work preferences. She talks about three "ideal types" of women: home-centered, adaptive and career-centered. In contrast, men are often assumed to be a homogeneous group that invariably prioritizes career goals. The view presented in this study challenges that assumption and argues that men may also be heterogeneous in the ways they value and invest in different life domains. Their choice of field of study can provide us with some insights in this regard, on several grounds noted below.

First, individuals opt for a certain discipline guided by expectations about the jobs it might lead to (Begall and Mills 2012). Gender role theory argues that women and men are socialized differently, and this differential socialization leads women into educational fields that provide broader cultural knowledge and resources, and men into competitive fields with more economic capital and quantitative skills. Men internalize a breadwinner role during adolescence and young adulthood and prioritize fields of study that pay higher incomes. Women, on their part, base their decision for a degree and professional field less on the material returns and career prospects it entails, as their gender identity often reflects the traditionally female role of family caregiver (Ochsendfeld 2014).

As a consequence, women are overrepresented in some fields because they expect female-dominated studies to lead to jobs that can be more easily combined with a personal/family life. The human capital approach holds that women rationally anticipate employment interruptions (due to maternity) when choosing a field of study and deliberately sort themselves into fields that prepare for labor market segments where the knowledge acquired must not necessarily be complemented by firm-specific skills. Thus, women anticipating a family life are expected to choose fields with smaller penalties for career breaks and to avoid fields where technological change progresses rapidly (Blau et al. 1992). In general, technological skills tend to depreciate more quickly than skills in the service sector (Hoem et al. 2006a). Educational lines leading to jobs where the cost of opportunity of marriage and motherhood is lower in terms of forgone wages and skill depreciation impose fewer constraints and may favor earlier family formation.

Different fields of study may also convey differences in the chances of finding a job, in the (mis)match with available occupations or in the time that it takes an individual to get established in the labor market. General educational fields often imply a prolonged job search, and persons with such background may end up with lower wages and status than they expected and a higher risk of unemployment. Additionally, different fields of study lead to jobs that vary regarding content, employment stability, working conditions or the general climate surrounding the family-work combination. For instance, some lines of education are more likely to lead to jobs in the public sector than others. A more supportive work-family culture is observed in predominantly female occupations with higher flexibility and where employers are supposed to be used to the needs of childrearing parents. Female-dominated sectors often offer more part-time employment, higher flexibility and more exit and re-entry options. However, certain tasks are socially and economically depreciated precisely because they are done mostly by women. For instance, women and men in care work suffer a wage penalty because care is closely associated with feminity and motherliness (Ochsenfeld 2014). As a matter of fact, occupations dominated by women are often those with lower wages (Folbre 2010).

Secondly, irrespective of opportunity costs and resources, the field of study may also be indicative of personality traits and preferences concerning future roles (Lappegård and Rønsen 2005; Martín-García and Baizán 2006). In general, "men and women may self-select themselves in or out of education and more specifically into a determined field of study according to the gender roles that society expects from them" (Trimarchi and Van Bavel 2015: 7). Individual personality traits (Tavares 2010) and family orientation originating from socialization can affect both the choice of field of study and the rate of entry into union. That is, the same personal attitudes, values and interests that lead a person to choose a specific type of education may also lead her/him to be more prone towards union formation and reproduction (Hoem et al. 2006b). For instance, a nurturant attitude or a preference for working with or caring for people may push women and men into specific fields and later on into helping occupations such as teaching, healthcare or social work. This *selection effect* (Lesthaeghe 2002) leads, at least partly, to an overrepresentation in these fields of individuals with favorable attitudes towards caring and a preference for family life.

Finally, different educational fields may have different socialization effects during the formative years and adult life, which in turn may influence attitudes to family building (West and Zummermann 1987). The experiences, ideas and cultural elements transmitted in the education system while enrolled in a particular field shape women's and men's aspirations, values and attitudes and therefore impact on their future family decisions (Van Bavel 2010). For instance, fields such as teaching and healthcare provide an environment that develops certain cognitive skills and abilities and reinforces gendered attitudes/roles. Moreover, the content of the studies may also affect the social norms and preferences associated with education and union formation.

The role of education type was largely neglected in the past when analyzing individuals' demographic behavior, but since the 2000s researchers have increasingly emphasized that the field of study provides relevant information for understanding fertility decisions (Lappegård and Rønsen 2005; Hoem et al 2006*a*,*b*; Martín-García and Baizán 2006; Neyer and Hoem 2008; Miranti et al. 2009; Stanfors 2009; Bagavos 2010; Van Bavel 2010; Tesching 2012; Begall and Mills 2012; Michelmore and Musick 2013). The findings have been unequivocal, generally reporting a positive association between traditional female fields, such as teaching or healthcare, and fertility. In general, studies concerned with the care of individuals and/or which emphasize interpersonal skills have a positive impact on the timing of motherhood and overall fertility. However, existing research has focused almost exclusively on women.

Few authors have analyzed the effect of the field of study on men's fertility (Martín-García 2009; Guetto and Panichella 2013; Oppermann 2014). Oppermann shows the importance of a man's educational attainment for explaining his probability of becoming a father in Germany. Still, the educational field only has an influence on the transition to parenthood for women, but not for men. By contrast, the type of education is just as important as the level of education in the transition to first birth for men in Spain, although the mechanisms linking a man's field of study to his fertility behavior works in the opposite direction than for women, possibly due to the relevance of men's earning potential in Spain due to the scarcity of family policies (Martín-García 2009). Spanish men trained in fields concerned with care and/or which emphasize interpersonal skills (fields with a positive influence on first birth for women) are those showing lower transition rates into fatherhood. A prospective higher income in male-dominated fields

also seems to play a significant role when it comes to explaining an earlier transition to fatherhood by Italian men (Guetto and Panichela 2013). These studies confirm that the influence of the type of education on childbearing is multi-dimensional (Lappegård and Rønsen 2005) and that the interpretation for women and men may differ. It remains to be seen whether this is also the case when studying the process of union formation.

2.2. Field of study and union formation

In Sweden, previous research has shown that educational field is a better predictor of whether a woman has ever been married than educational level (Neyer and Hoem 2008). Women educated in female-dominated fields and education trajectories that lead to jobs in the public sector are more often married. The question that follows is: are women and men who opt for traditionally female-dominated fields more family-oriented and hence display a higher propensity to enter into partnerships also in other contexts? Women trained in disciplines in which a large share of students are women and where traditional stereotypes prevail may be more inclined to an earlier entry into union due to the three above-mentioned mechanisms (opportunities and conditions in the labor market, self-selection, and socialization). Male-dominated fields typically lead to occupations with higher wages, also for women, but are associated with more time-demanding work environments, longer working hours and less awareness for employees' care responsibilities, which may result in later and lower rates of union formation. On the other hand, male-dominated fields may increase union formation prospects for women via the expanded availability of prospective partners (Michelmore and Musick 2013). In other words, women in male-dominated fields (e.g. STEM degrees)[3] may be less family- and more career-oriented, but may have it easier to find a partner among their peers and, consequently, may enter in union earlier.

With respect to men, young men who choose female-dominated fields (e.g. those in health and welfare, teaching, humanities and arts) deviate somewhat from the traditional male life course. These men may hold attitudes and values that are more favorable to combining a professional career with a personal/family life, which could translate into earlier union entry. Moreover, choosing certain "feminine" disciplines may give them the chance to further develop their own identity as "non-traditional" men by socializing

[3] Science, technology, engineering and mathematics degrees.

and sharing experiences with other similar men, and mostly women, within the same education field (Hoem et al. 2006*a*). In addition, with the reversal of the gender gap in education and the resultant changes in educational assortative mating (Klesment and Van Bavel 2015), men's attractiveness in the marriage market is increasingly enhanced by their predisposition to be actively involved in domestic work and childcare. Men's choice of a 'non-traditional' field of study can give some hints on this predisposition to potential partners, particularly to better-educated women who want to pursue a professional career.

On the other hand, men's potential earnings still matter considerably in the mating market (Begall 2013). Female-dominated fields are more exposed to job precariousness in the labor market, especially in certain institutional contexts, deterring union formation during the early stages of men's careers. Hence, unstable careers with comparatively higher economic insecurity, such as the ones associated with female-dominated fields, may make these men less attractive in the marriage market than those with an education path that leads to more stable job prospects (Oppenheimer 2003).

In sum, the educational field can provide relevant insights into the multifaceted influence of education on union formation. Following previous research focused on fertility, we test in this study the *educational field hypothesis*, anticipating higher first union risks among individuals trained in fields associated with stereotypical female qualities –such as those concerned with the care of individuals and/or which emphasize interpersonal skills– regardless of their educational attainment. Both these women and men are expected to have a faster transition to union formation, partly due to their pre-existing individual orientations towards family and work, but also due to field-specific socialization during their years in education and lower opportunity costs in their prospective occupations. However, it must be borne in mind that fields of study associated with less stable career trajectories or lengthier job-search periods may lead to a postponement in union formation (Oppenheimer 1994, 2003), as may fields with weaker ties to particular jobs (Hoem et al. 2006*b*).

2.3. Field of study and union type

Previous findings regarding the influence of education on the choice between cohabitation and marriage are mixed. Recent research documents that a better education encourages entry into both union types, but especially marriage (Jalovaara 2012). Partners with higher earning potential have higher entry rates into marital unions. Less educated people may be less attractive in the marriage market due to their low socio-economic position, or they may be more likely to choose cohabitation to avoid an expensive marriage ceremony or the prohibitive financial costs of buying a house before moving in together. However, in contexts where cohabitation is still relatively marginal, highly educated young people are usually the "forerunners" in the choice of cohabitation, since they have the intellectual and economic means to contest traditional family norms. As a result, in more traditional countries we could expect a positive effect of educational level on entry into cohabitation for both women and men, although more strongly for women.

Adding the cultural and gender dimension to the role of education (through the *field of education*) also suggests testable differences regarding the (first) union form for both women and men. Women educated in female-typical fields partly conform to the traditional female caregiver role, but their male peers depart from the traditional role of main breadwinner, especially in countries where gender roles are segregated. Less careerist attitudes and/or more conservative values regarding family life would favor that these women opt for a direct marriage over cohabitation. However, their male counterparts have challenged gender stereotypes and consequently may choose cohabitation as the first union form given that it is associated with less traditional gender roles. Men choosing specific female qualifications may be the most progressive men but the least secure in the labor market. Two mechanisms can therefore be at work here: first, the *values* and attitudes of these men who question male stereotypes and social norms; and second, the *employment uncertainty* associated with female-dominated fields that could make these men less competitive in the marriage market (Kalmijn 2013).

Lastly, the particular characteristics of each national context may also be crucial for the effect of field of study (Yu 2015). Both processes –education and union formation– are

shaped by institutional, social and cultural factors, so the influence of field of education on partnership behavior is likely to diverge across countries. Irrespective of personality traits, values and preferences, young men trained in traditionally female fields may experience more or less difficulties in entering and settling down in the labor market and perceive these difficulties as a threat to their "breadwinning" capacity more strongly in some contexts than in others. Employment stability is important to men not just because of income prospects, but because it may also be linked to deep cultural and societal expectations of what being a "good provider" means (Nolan 2005: 3). In contexts where gender egalitarian roles and the dual-earner model are more widespread, it is commonly accepted that men may not be the only (or the main) contributor to family resources. This makes the comparative analysis of this paper particularly attractive. First, the role and meaning of cohabitation and marriage in the family system vary greatly across socio-economic, institutional and cultural settings. Secondly, the extent to which (the field of) education is associated with outcomes such as income, employment and job security on the one hand and with egalitarian gender role attitudes on the other hand differs across countries due to the variety of socio-economic contexts, gender norms and welfare regimes.

3. The sample, the variables and the method used for the analysis

We use data from the first wave of the Generation and Gender Survey (GGS) of four countries with suitable information on field of study: Norway (2007-2008), Austria (2008-2009), Belgium (2008-2009) and Poland (2010-2011).[4] In general, the GGS is a survey of 18-79 year olds, but Austria only included individuals aged 18-46 years in its sample of the first wave. In order to make the analysis as comparable as possible across countries, we confine it to women and men between ages 18 and 46 in all countries. The date of first union formation has been coded using information on the month and year of

[4] The variable a149 (field of study) is also included in the second wave of the GGS in Austria (2012-2013) but we have opted for the first wave in all countries because the analytical samples are much bigger after applying the age selection (18-46 years). In addition, the number of missing cases drastically increased in the second wave for the covariate field of study. France, Czech Republic, Lithuania and Romania also included information on educational field but we decided to confine our analysis to the above-mentioned countries due to missing data and data inconsistencies in the latter.

the first co-residential union.[5] If the month was missing, we imputed it to June. In addition, we distinguish if the partnership started as an unmarried cohabitation or as a direct marriage if the couple had not lived together before the month of marriage. Three *birth cohorts* (1960–1969; 1970–1979 and 1980–1989) are included in the models.[6]

The main focus of the analysis is on the new dimension of education: field of study. *Educational attainment* indicates the highest level of education reported at the time of the interview. Following the international standard classification (ISCED 1997), we group educational attainment in three categories: low education, which includes primary and lower secondary school (ISCED 0-2), medium education, which comprises upper secondary and post-secondary non-tertiary education (ISCED 3-4), and university education, which includes bachelor, master and doctoral degrees (ISCED 5-6). But we also include the variable *educational field*, which refers to the main subject matter of these studies, as coded in the GGS survey.

Due to the small Ns in medium-level education for some fields, we have grouped the original categories into four (Table 1). The first group includes *science, engineering, manufacturing,* and *construction*, all fields traditionally viewed as male-dominated. In the second group, *health and welfare, teacher training* and *education science* (where applicable)[7] have been melded with *humanities and arts*, which are all held to be female-dominated fields. The third group includes the remaining list of studies: *social science, business and law, agriculture* and *services*, all more neutral fields with regard to gender composition. Finally, we have grouped cases with missing information on field together with *basic programs* since exploratory analysis showed that union behavior is very similar within the two categories. Regarding university level education, we have maintained the specification of fields as disaggregated as possible, considering seven categories: *basic programs; humanities and arts; health and welfare* plus *teaching*; *social sciences, business and law; agriculture; services;* and *science,*

[5] The GGS surveys collect information only on partnerships which lasted for at least three months (Vikat et al. 2007).

[6] In order not to leave out of the samples any individuals aged between 18 and 46, we include 75 Austrian respondents born in 1990, 22 Belgian respondents born in 1990, and 765 Polish respondents born between 1990 and 1993 in the 1980s birth cohorts.

[7] Non applicable data on *teacher training and education science* in Norway. The preferred course of line for a Norwegian who wants to become a teacher is to take a degree, either at Bachelor or Master level, at a university within the appropriate subject and then to follow a one-year course in pedagogy before teacher certification is granted. As a result, the group of teachers in this country is not as unambiguous as that in the other countries since they are distributed by each specific specialization.

engineering, manufacturing and construction.[8] The latter category, which serves as reference category, has traditionally been male-dominated and associated with high aspirations in the labor market, and hence is expected to be the least inclined to early union entry.

We also include a number of control variables that have been shown to influence the timing and type of first union formation (Jalovaara 2012; Domínguez-Folgueras and Castro-Martín 2013). We include a variable measuring whether the *respondent has lived independently* from the family of origin, either alone or with unrelated adults, during at least one year before coresiding with a partner. We also distinguish if the *mother was working when the respondent was 15* and *if the mother had university studies*. In addition, we include controls for *urban versus rural* settings and *country of birth*, which is coded 1 if the respondent was born in the country and 0 otherwise.[9] *Educational enrolment* indicates if the respondent is still in education or not at the time of the interview.[10] Pregnancy and parenthood may precipitate union formation or even be the reason for it. The models also incorporate time-varying covariates measuring whether a pregnancy or a birth occurred before union formation. The pre-union pregnancy variable takes the value "0" when the respondent is childless and changes to "1" (pregnancy) eight months before the reported date of birth, changing back to "0" after birth. The birth variable takes the value "1" the month the first child is born. Pregnancies ending in miscarriage or induced abortion remain unobserved since we only identify conceptions that resulted in a live birth. The sample distribution for all variables is described in Table 2.

Cumulative incidence curves for the competing risks of cohabitation and marriage by educational level are presented for the descriptive analyses. Then, we apply a discrete-time event history analysis, using a logit model to examine the transition to first union, and a multinomial logit model to assess the risk of entering into first union through direct marriage (versus cohabitation). Observations are included up to the month when

[8] For highly educated individuals, cases with missing information on field of studies were included in the multivariate analyses in a separate category but results are not included in the tables.

[9] This covariate is not included in the analysis for Poland. In the Polish sample, only 25 individuals were foreigners (19 women and 6 men) and none of them entered into union.

[10] Educational enrolment was not analyzed as a time-varying covariate because GGS wave 1 did not include retrospective education histories. However, it is included as a control variable because a considerable proportion of women and men from the younger cohorts were still studying at the time of the interview.

respondents entered their first union or, for right-censored cases, up to the month of the interview. The multinomial logit models are based on person-months of exposure to the competing risks of marriage or cohabitation. This discrete-time approach, which facilitates the incorporation of time-varying covariates, is analogous to continuous-time hazard regression (Allison 1982; Yamaguchi 1990). Robust standard errors were estimated to account for the nonindependence of observations, and duration is controlled using dummy variables for each month. The model takes the following functional form:

$$\log\left(\frac{P_{ijt}}{1-P_{ijt}}\right)=\alpha_{tj}+\sum_{m=1}^{M}\beta_{mj}X_{mij}+\sum_{n=1}^{N}\beta_{nj}X_{nij(t-1)}$$

where P_{ijt} is the conditional probability of experiencing either marriage or cohabitation ($j= 1$ for marriage, $j= 2$ for cohabitation, $j= 0$ for no event occurring) for a single woman/man i at month t since her/his 18th birthday. The model includes m time-constant predictors and n time-varying covariates, described above.

4. Results

4.1. First union formation by birth cohorts

Figure 1 describes the cumulative probabilities of entry into cohabitation and direct marriage for the birth cohorts under study and confirms the upward trend in cohabitation and the downward trend in direct marriage over the last decades. Irrespective of the birth cohort, the graphs also show that women enter their first union earlier than men in all countries. In addition, the younger the birth cohort, the higher the likelihood that both women and men choose cohabitation as their first union form. The partnership trajectory of the youngest cohort we examine, that born between 1980 and 1989, although incomplete, seems to reinforce the upward trend in cohabitation. However, we find substantial differences across countries. In Norway, the great majority of first unions were already cohabiting unions for the cohorts born in the 1960s. First union formation through cohabitation has also been a common life experience for Austrian women and men. Belgians postpone longer the process of first union and the incidence of marriage, although decreasing, is still higher than in the two

above-mentioned countries. In Poland, for both women and men, cohabitation has surpassed marriage as the first union form only for the birth cohort born in the 1980s.

4.2. First union formation by education

4.2.1. First union formation by educational attainment

Figure 2 displays different patterns of first union formation by educational attainment across countries. The second demographic transition narrative postulates that the lower an individual's educational attainment, the higher his/her likelihood of entering direct marriage, given that low education is generally tied to more traditional attitudes towards family. In effect, entry into direct marriage is more common for the lower-educated than the higher-educated in Austria and Belgium. However, differences by educational level are barely visible in the case of Norway. Interestingly, in Poland, where the choice of marriage as first union form is –irrespective of educational attainment– considerably more common than in the other three countries, low educational level is negatively associated with direct marriage for men.

Tables 3 to 6 present the odds ratios derived from logistic regression models predicting the probability of entering a first union versus remaining single (Column 1), and the relative risk ratios obtained through multinomial logit models predicting the conditional probability of choosing direct marriage as opposed to cohabitation as union form (Column 2). We present two models for each country. First, we include individuals' educational attainment and the control variables. Second, we combine in one variable both level and field of education. The models are fitted separately for women and men in each country. An odds ratio or relative risk ratio above 1 indicates a positive effect, and those below 1 represent a negative effect on the transition to first union or the choice of marriage over cohabitation.

As expected, the effect of educational attainment differs by gender and across countries. In Norway, no significant differentials are observed either for women or for men in different educational levels regarding the likelihood of entering in union and of choosing marriage over cohabitation. However, in the three other European countries, education gradients are discernible for women not only concerning union entry, but also

the choice of union form. The results support the hypothesis of the *independence effect* for women and suggest that the negative association between education and union entry is stronger the more traditional the country is. Women's high educational attainment not only has a strong negative effect on the likelihood of union entry in Poland, Belgium and Austria, but also on the likelihood of direct marriage in the two latter countries. This effect is consistent with the idea that marriage is losing centrality among economically independent women (Oppenheimer 1994).

For men, no association is observed between educational attainment and union formation (or union type) in Norway and Belgium. An inverse U-shaped relationship is found among Austrian men and we do find empirical evidence for the *income effect hypothesis* in Poland, the most traditional context in our sample of countries. Polish college-educated men are more prone to enter in union and to choose marriage over cohabitation. This result differs from that obtained in Austria, where college education decreases substantially the odds of entering marriage versus cohabitation among men.

4.2.3. First union formation by educational field

Educational level has been shown to have no apparent effect on union formation in Norway, but some relevant differentials emerge when we compare educational fields. Although women with medium and high education trained in humanities and arts or health and welfare do not show a faster transition to first union than those with technical studies, those with studies in the field of agriculture at the tertiary level and those with studies in science and technology, basic programs and others in the medium educational level do show an increased probability of transition to first union. Furthermore, education in humanities and arts or health and welfare does have a strong positive effect on the likelihood of entering marriage directly (7.63*** for medium education; 5.17*** and 4.06† for tertiary education in humanities and arts and health and welfare, respectively).[11]

[11] The low number of individuals involved in calculating the category *health and welfare* in Norway means exercising caution when interpreting this particular result. We could not ascertain whether a number of cases referring to care services could have been included in other fields.

As for women, no significant effect of educational level on the timing of union formation and type of union formed was discernible for Norwegian men. However, some significant effects of educational field appear: the categories medium STEM subjects, humanities, arts, health and welfare (1.36**) and others are all associated with greater transition rates into first union as compared to tertiary education in science and technology. So is high education in services. However, highly educated men trained in unspecified basic programs are least prone to enter in union, perhaps due to their reduced employability prospects. Most interestingly, tertiary education in humanities and arts (2.21**) or health and welfare (9.58*) are associated with a greater probability of choosing marriage instead of cohabitation, which suggests a possible relation, also for men, between the choice of a "softer", more female-dominated (and perhaps nurture/family-oriented) educational field and more traditional union formation behaviors.

In Austria, the field categories also add nuance to the relationship between educational attainment and union formation, but we do not find full support for our *educational field hypothesis*. Among women, educational level shows a clear association with union entry (the lower the level, the greater the propensity to enter in union) and with direct marriage (only low education is significant in this case). In fact, compared with highly educated women in technical fields, low educated women are almost twice more likely to enter in union and also to choose marriage over cohabitation. But not all highly educated women display a lower propensity towards union formation. The categories agriculture and services in tertiary education are associated with greater rates of transition to first union, although some kind of selection effect could be at play here if these fields attract more traditional women. All medium level categories are associated with higher transition rates into first union (1.37** for those trained in humanities, arts, teaching, health and welfare). Accordingly, it seems as though it is educational level, rather than field of study, that matters for Austrian women. We do not find any significant association either between field of education and opting for marriage instead of cohabitation as first union form.

For Austrian men, medium-level education is associated with higher transition rates into first union and, within medium education, those men trained in business, agriculture and services are those with a faster transition to first union (1.52**). Nevertheless, within

high education, union formation risks are lower for men trained in humanities and arts (.55**) than for those with technical studies. Accordingly, it is not evident that the relationship between certain field choices and first union entry patterns can be readily explained by subjacent value orientation. It might well rather be a matter of different studies leading to different employability scenarios that are more or less supportive of earlier union formation. As in the case of women, a positive effect on the likelihood of entering in union is found for highly educated men in services. Regarding the choice of union form, low educated men are more prone to choose marriage over cohabitation. Highly educated men in agriculture also display very high odds of marrying instead of cohabiting. However, Austrian men in traditional female fields do not display higher preference towards marriage.[12]

In Belgium, low educated women display higher risks of union entry and also a greater propensity to choose marriage as first union form. However, no significant differences emerge by field of education among medium-educated women. Contrary to our expectations, college-educated women trained in humanities and arts are significantly less prone to enter in union (.69**) than those trained in STEM fields. One may speculate whether this association has to do with their relatively worse prospects in the labor market in Belgium.

In the case of Belgian men, educational level does not appear to have any significant effect on union entry patterns. However, some relevant differentials emerge when field of education is introduced into the models. The STEM field in medium education is associated with higher rates of union entry than the STEM field in tertiary education. The reason may be that this type of studies requires greater education and labor market investments in tertiary education, which in turn delay the family formation process. In line with our hypothesis, highly educated men in health, welfare and teaching (1.31**), together with those in social sciences, business and law, are more prone to enter in union. Belgium may be viewed as a relatively traditional setting and these men trained in female-dominated fields somehow contest the traditional breadwinner model as they do not opt for a conventional employment path. Still, no significant differences in the

[12] When it comes to the effect of educational field on the choice between marriage and cohabitation, we find very small and not reliable effects for the categories *basic programs* and *humanities and arts* in high education due to sample size problems.

choice between marriage and cohabitation as first union form can be observed among Belgian men in different educational fields.

In Poland, there is a clear negative gradient of educational level and union entry among women. All medium-education field categories are associated with greater propensity to enter first union but, among medium-educated women, those trained in humanities, arts, health, welfare and teaching do not display the highest propensities, possibly because these study fields are associated with lengthier job-search periods. Among high-educated women, no significant differences among fields of education are found. Interestingly, the effect of educational level on the choice of marriage over cohabitation only becomes statistically significant when field of education is included in the model. Then, contrary to the patterns observed in other countries, a negative effect of low educational attainment on the probability of opting for direct marriage appears. Among medium- and high-educated women, we do not find any effects of educational field on the choice of first union form.

For Polish men, low and medium education level is associated with lower union entry rates. This reflects a very different pattern than that observed in the other countries, and it is likely that what matters in Poland for men's union entry is their economic/labor market position. When it comes to the field of education, all medium-level categories except for humanities, arts, health, welfare and teaching are associated with lower rates of transition into first union than technical subjects in high education. Among the college educated, all men but those with unspecified basic programs and those in the arts and humanities group are less prone to enter in union than those in the STEM category.[13] It is worth underscoring that also highly educated men in health, welfare and teacher training show a lower likelihood of entering in union (.83*). Rather than being a proxy for individual attitudes or the means to confirm/change these attitudes over the post-schooling period, men's field of study seems to act as a human-capital indicator associated with different work conditions and opportunities in the Polish context. Fields of study do not seem related to the choice of first union form. Highly educated men in technical subjects are more prone to choose marriage over cohabitation, only surpassed by highly educated men in services.

[13] Highly educated men with an unspecified field may constitute a less career-oriented group with lower expectations in the labor market.

5. Conclusions

This study has explored the effects of educational field, in addition to those of educational level, on first union formation for women and men born since the 1960s in four European countries. With regard to the impact of educational attainment on first union patterns, the findings are not homogeneous for women and men or across countries. In general, we find a negative association between education and union formation for women (*independence effect*), and a neutral/positive relationship for men (*income effect*). However, the empirical results suggest that these effects are stronger in more traditional contextual settings, whereas they are not significant in more egalitarian settings such as Norway. These gender differences in partnership formation have usually been explained using an *economic* interpretation of education. Our analysis suggests that educational field is also an important dimension to take into account, inasmuch as the actual effect of educational level does not really surface in some models until we control for field categories. The inclusion of this covariate contributes thus to nuancing and expanding our understanding of how education influences family formation.

That said, we must acknowledge that our results do not yield a clear-cut effect of field of education on union formation. We had anticipated that both women and men who had opted for female-dominated and/or care-oriented educational fields would have an earlier transition to first union and would be more inclined to choose marriage over cohabitation compared to those in male-dominated technical fields. However, the empirical findings are not fully consistent across countries. In Norway, women and men trained in humanities and arts or health and welfare do not have an earlier union entry pattern, but they do display a higher likelihood to enter direct marriage than their counterparts in technical fields. In Austria, educational level has a much stronger impact on union patterns than field of education, yet the field of agriculture is associated with higher transition rates to first union among women and higher propensity to enter direct marriage among men. In Belgium, no effects in the expected direction are found for women, but for Belgian men, we do find evidence for the positive association between care-oriented fields in tertiary education on union entry. In Poland, not only the field of education has a much weaker impact than the level of education on union formation, but some associations are in the opposite direction than anticipated: college-educated men

trained in health, welfare and teaching display lower rates of union entry than those in technical fields, probably reflecting their worse position in the labor market.

The heterogeneity of results underscores the central role of gender norms and labor market context. What educational field really stands for in each national setting requires further investigation. However, although the effect of educational field on union formation seems less strong than that previously reported for fertility behavior and despite female-dominated fields of study not being conducive to union formation across all countries under study, the educational field is a variable to take into consideration. Perhaps the reason why it is important is not always so much (or not solely) its ability to reflect unobserved value orientations as its standing for different degrees of stability and opportunities in the labor market. In some countries, we find that differences between educational fields have the same weight as those between different levels of education. As a growing proportion of women spend more years in education and their educational attainment also increases, the role of qualitative variables such as the field of study will become more relevant. For their part, men are becoming a more heterogeneous group with different career prospects, and the field of education may help us to capture variations in males' attitudes towards family and work.

Nevertheless, we must bear in mind the limitations of the current data regarding the field of study, which sometimes make it difficult to gauge clear-cut associations. Data collectors usually group the field categories following the UNESCO guidelines. But this grouping often leaves room for large variations across countries even within the same survey programme.[14] Following the example of the international standard classification for educational attainment (ISCED 1997), there is an undoubted need for harmonized/standardized data and the categorization of educational fields to enhance comparability across countries and thus more accurate research on this topic in the future.

Finally, it remains to be seen whether the choice of educational field is reflected on individuals' conjugal trajectories over the life course, i.e. to what extent the field of

[14] As an example, we can cite the French GGS data, which provides no information for the categories *teacher training and education science*, *health and welfare*, and *personal services*. We could not find documentation to ascertain whether these categories had been included in other fields. Due to these limitations, we could not include France in the comparative analysis.

study can be extended to explain the (possible) transition from cohabitation to marriage. In a time when cohabitation has become a common experience among recent cohorts, it would be interesting to see whether (first) cohabitors instructed in care and relational skills categories may end up marrying more often at a later stage of their lives. Further research is also needed to clarify the interesting issue of educational homogamy in couples (including field of education) and its impact on union form and union transitions.

The potential linkages highlighted by this study between women's and men's choices regarding the field of study and union formation patterns could have several policy implications. Firstly, the identification of certain fields of education that are apparently linked to later union formation patterns raises concerns about possible barriers to employability –and thereby to the transition to adulthood– posed by education in certain fields. Secondly, given the persisting gender segregation in the choice of fields of study, attention should be paid from public institutions to the different potential consequences in this respect for men and women, not only in terms of prospective employability and income, but also regarding family formation prospects.

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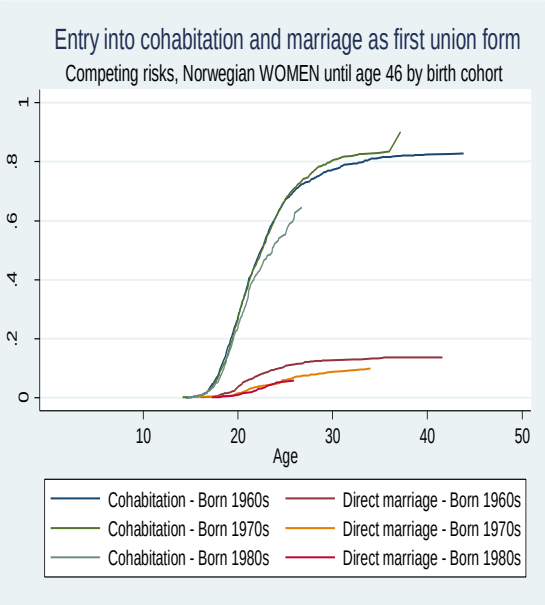
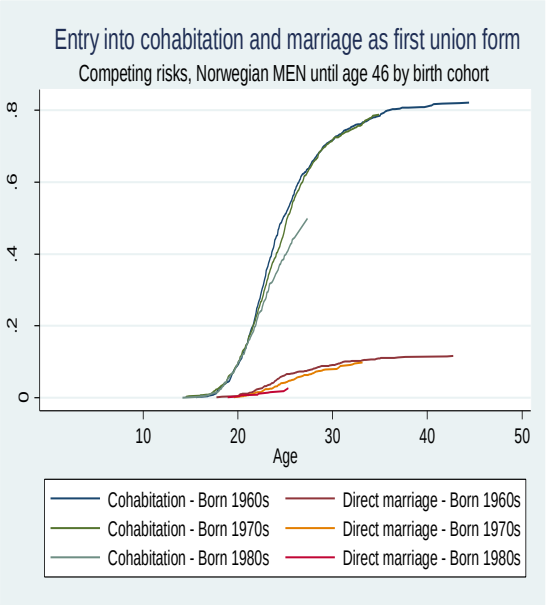
Figures and Tables

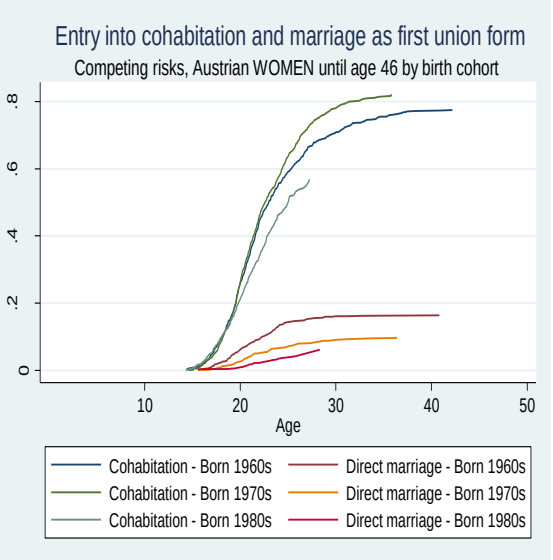
Figure 1: Cumulative probability of entry into first cohabitation or direct marriage, by birth cohort| Women and men under age 46

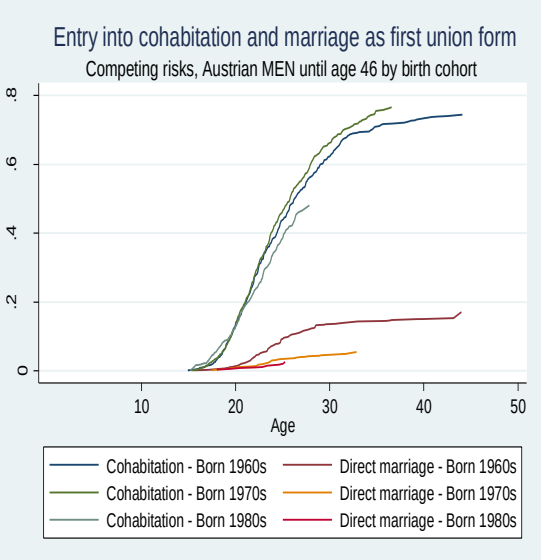
Norway



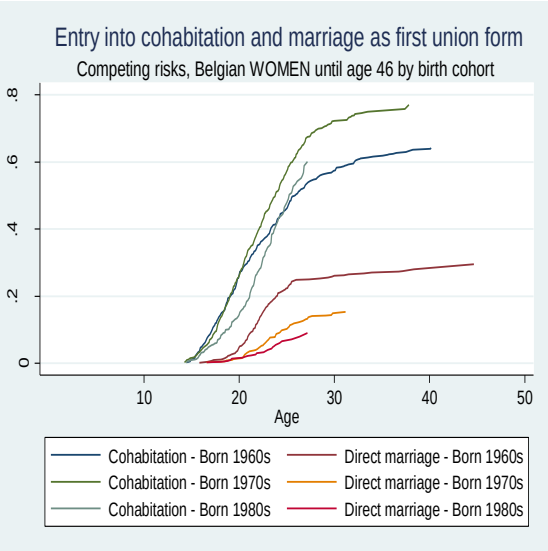


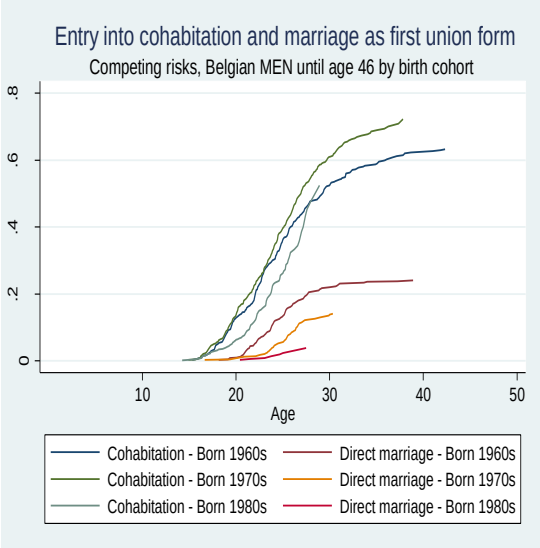
Austria





Belgium





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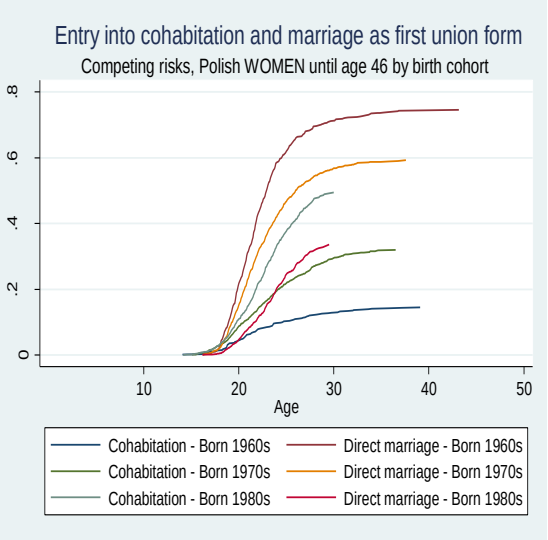
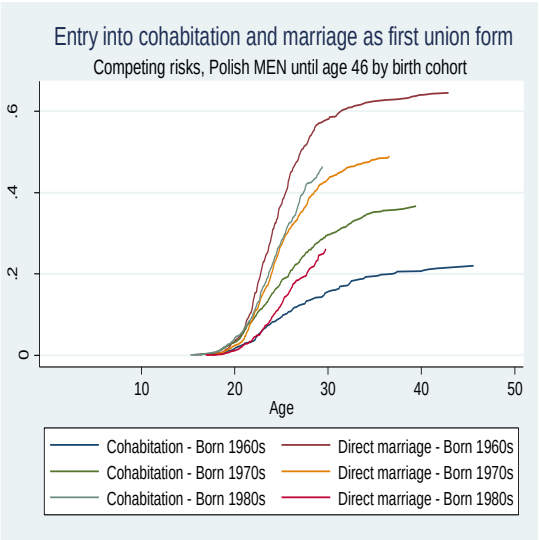


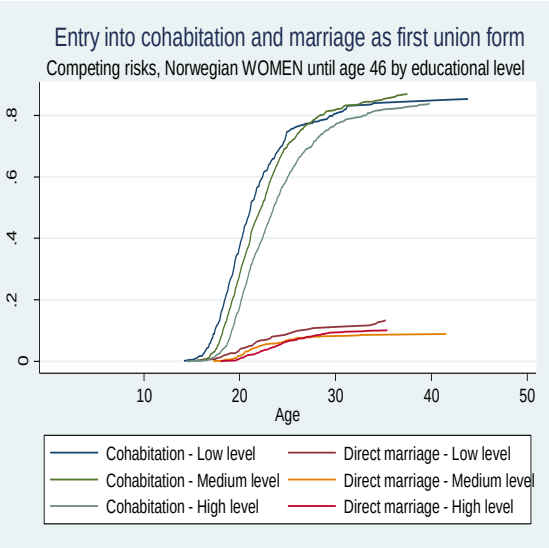


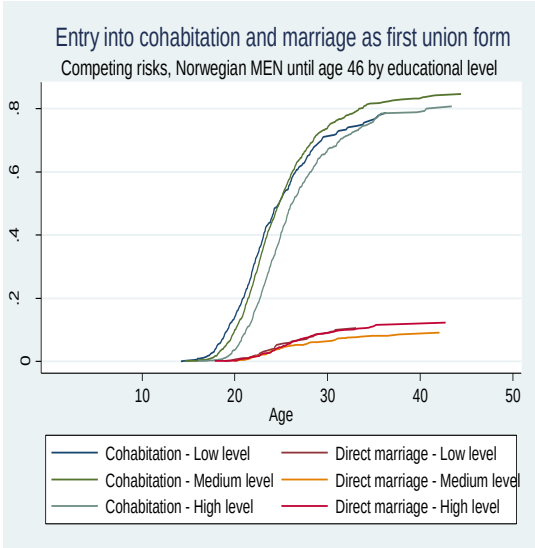
Source: GGS.

Note: Life time estimates of the proportion of women and men who have opted for cohabitation or direct marriage as their first conjugal union at each consecutive age.

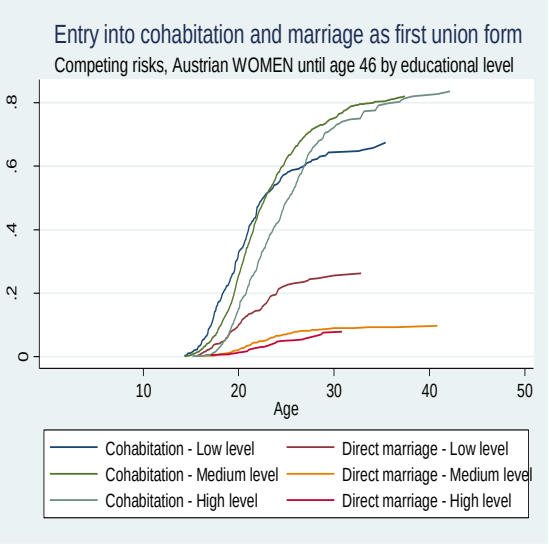
Figure 2: Cumulative probability of entry into first cohabitation or direct marriage, by educational attainment | Women and men under age 46

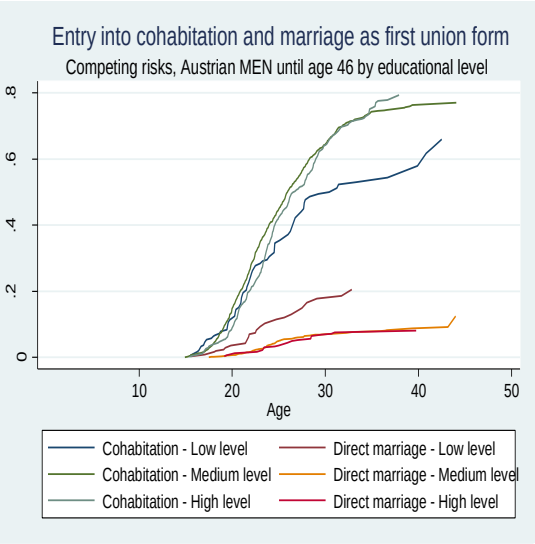
Norway



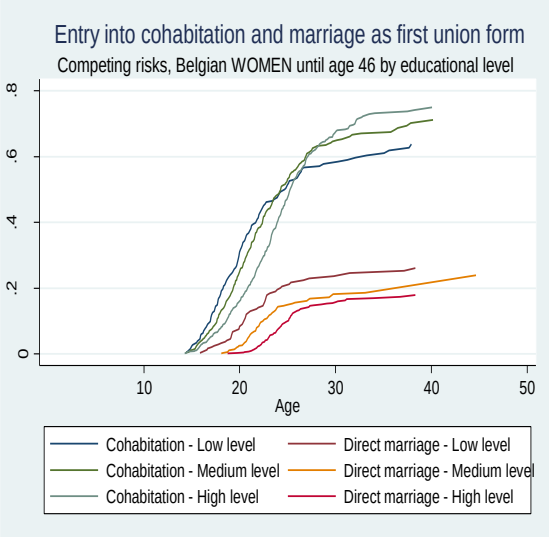


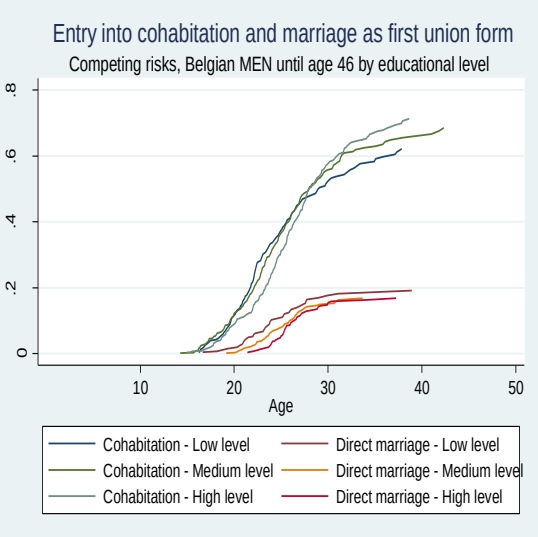
Austria



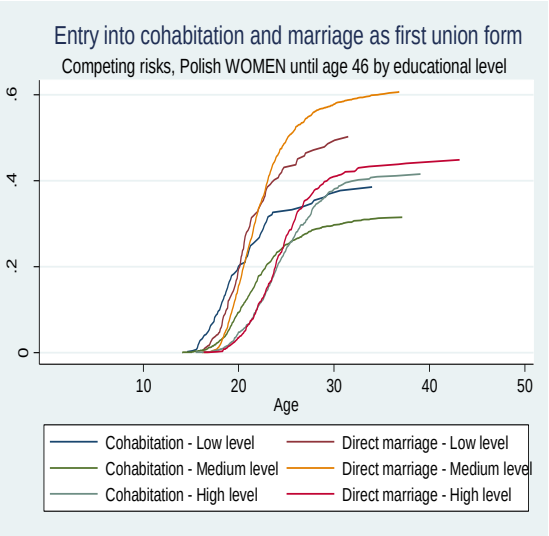


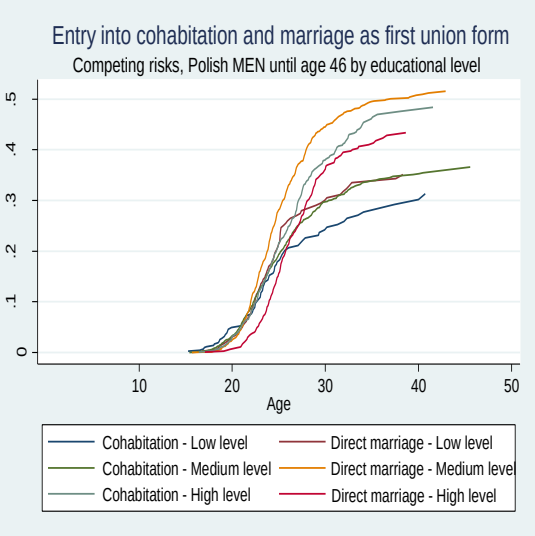
Belgium





Poland





Source: GGS.

Note: Life time estimates of the proportion of women and men who have opted for cohabitation or direct marriage as their first conjugal union at each consecutive age.

Table 1: Categories of field of study considered in the analysis (UNESCO guidelines)

Medium education	General/Unspecified field
	Science; Technology
	Humanities and Arts; Health and Welfare; Teacher Training and Education Science
	Others: Social Science, Business, Economics, Law; Agriculture; Services
University	General/Unspecified
	Science; Technology (Engineering, Manufacturing, Construction, Architecture)
	Humanities and Arts
	Health and Welfare, Teacher Training and Education Science
	Social Sciences, Business, Economics, Law
	Agriculture
	Services

Notes: Field not applicable in low education (ISCED 0-2).

Source: UNESCO (2015). Institute for Statistics: Education Indicators.
http://www.uis.unesco.org/DataCentre/Pages/BrowseEducation.aspx

Table 2: Sample distribution of women and men aged 18–46 across countries

Variable	NORWAY 2007/08		AUSTRIA 2008/09		BELGIUM 2008/10		POLAND 2010/11	
	W	**M**	**W**	**M**	**W**	**M**	**W**	**M**
Educational attainment								
Low education	25.1	29.0	15.2	10.7	16.2	21.1	9.5	11.1
Medium education	36.3	43.8	66.6	72.3	38.4	40.9	58.7	64.5
University	35.2	24.7	18.0	16.9	45.0	37.4	31.2	23.7
missing values	3.2	2.3	.0	.0	.3	.4	.4	.5
Type of education according to level & field								
Low education:	25.1	29.0	15.2	10.7	16.2	21.1	9.5	11.1
Medium education:								
Science; Engineering, Manufacturing, Construction	11.1	27.3	4.7	40.8	11.3	4.3	13.4	39.0
Basic Programs; Missing	14.4	11.5	10.7	8.3	16.6	15.6	16.3	12.7
Humanities and Arts; Health and Welfare; [Teaching]	.7	1.4	9.1	1.9	1.3	13.1	3.2	.8
Others: Social Sciences, Business and Law; Agriculture; Services	10.0	3.6	42.0	21.2	9.0	7.8	25.6	11.8
UNIVERSITY EDUCATION:								
Science; Engineering, Manufacturing, Construction	7.5	12.0	2.2	9.3	6.4	13.5	3.4	8.5
Basic Programs	4.0	2.7	.6	.0	.0	.0	.0	.0
Humanities and Arts	8.4	2.3	2.6	.6	8.2	5.6	3.6	1.4
Health and Welfare; [Teaching]	.2	.1	6.0	1.4	17.1	6.5	7.5	2.1
Social Sc., Business, Law	3.5	3.1	5.2	4.0	8.2	7.3	14.2	9.2
Services	.8	1.9	.8	.4	.0	.6	1.4	1.6
Agriculture	10.4	2.3	.3	.8	.3	.0	.6	.5
Missing	.0	.0	.0	.0	4.7	3.7	.2	.2
Level missing	3.2	2.3	.0	.0	.3	.4	.4	.5
Birth cohort								
1960 – 1969	34.6	35.8	30.2	30.6	30.4	31.0	17.6	18.7
1970 – 1979	36.1	33.6	34.8	34.4	35.9	35.6	39.2	37.5
1980 – 1989	29.2	30.4	34.8	34.9	33.6	33.3	43.1	43.8
Premarital Pregnancy	9.5	6.9	11.0	8.5	9.1	5.5	27.1	18.6
Premarital Birth	6.2	3.2	8.2	5.3	6.5	3.5	8.8	4.7
Mother has university studies	22.1	22.9	6.7	6.3	22.3	24.7	9.7	12.0
Mother was working when respondent was 15	75.0	72.0	58.5	57.1	60.1	54.5	82.9	84.4
Urban	83.5	83.3	61.6	59.6	40.5	40.4	66.7	66.5
Born in country of interview	90.4	91.3	79.6	81.8	86.2	87.3	99.5	99.8
Enrolled in education at the time of the interview	16.2	11.8	20.5	16.2	16.8	15.6	20.3	17.4
Experience of premarital independent living	61.2	71.4	36.6	36.8	32.2	36.7	24.8	26.1
N	3849	3717	3001	1999	1864	1658	4791	3856

Notes: Weighted percentages and unweighted Ns.

Non applicable data on teacher training and education science in Norway.

Table 3a: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | WOMEN – Norway.

Variable	Any union vs. No union		Marriage vs. Cohabitation.	
Educational attainment				
Low education	1.03		1.02	
Medium education	.97		.95	
University (Ref.)				
Type of education according to level and field				
Low education		1.67***		1.88†
Medium education:				
Science; Engineering, Manufacturing, Construction		1.35***		1.76†
Basic Programs		1.14**		1.46
Humanities and Arts; Health and Welfare		1.21		7.63***
Others: Social Sc., Business and Law; Agriculture; Services		1.50***		2.46**
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		1.02		.88
Humanities and Arts		1.11		5.17***
Health and Welfare		.86		4.06†
Social Sc., Business and Law		.96		0.65
Agriculture		1.15*		2.83***
Services		1.05		1.61
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.04	1.07†	.58***	.53***
1980 – 1989	.84**	.79**	.38**	.39**
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	.86†	.84*	3.41***	3.76***
Birth	.78*	.73**	.35**	.31***
Mother has university studies	.84***	.92*	1.54*	1.66**
Mother worked when R was 15	1.05	1.07	.50***	.46***
Urban	.73***	.74***	1.65**	1.93***
Born in country of interview	1.17	1.15	.50*	.46*
Currently studying	.64***	.65***	.79	.86
Has lived independently[a]	.30***	.33***	.96	.93
Number of person-months	198322	198235	198322	198235
Number of individuals	3511	3509	3511	3509
Log pseudo likelihood	-14409	-14363	-14195	-14136

Note: Ref. = reference category; [a] Time-varying covariate.
Norway does not provide information on teacher training and education science.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 3b: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | MEN – Norway.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	.97		1.06	
Medium education	1.02		.95	
University (Ref.)				
Type of education according to level and field				
Low education		1.10		.75
Medium education:				
Science; Engineering, Manufacturing, Construction		1.14**		.68†
Basic Programs		1.01		.96
Humanities and Arts; Health and Welfare		1.36**		1.97
Others: Social Sc., Business and Law; Agriculture; Services		1.18*		.64
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		.88**		1.34
Humanities and Arts		1.21		2.21**
Health and Welfare		1.08		9.58*
Social Sc., Business and Law		1.03		.50
Agriculture		1.12		.44†
Services		1.36**		.69
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	.99	.99	.80	.79
1980 – 1989	.60***	.59***	.31**	.29**
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	1.41***	1.39***	1.93**	2.21***
Birth	.50***	.51***	.53	.48†
Mother has university studies	.86**	.89**	1.64**	1.46*
Mother worked when R was 15	1.11**	1.11**	.58***	.58***
Urban	.86***	.88**	1.50*	1.50*
Born in country of interview	1.11	1.11	.19***	.18***
Currently studying	.57***	.59***	1.42	1.48
Has lived independently[a]	.50***	.51***	1.27	1.23**
Number of person-months	272823	272497	272823	272497
Number of individuals	3409	3404	3409	3404
Log pseudo likelihood	-13459	-13435	-13824	-13780

Note: Ref. = reference category; a Time-varying covariate.
Norway does not provide information on teacher training and education science.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 4a: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | WOMEN – Austria.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	1.68***		2.58***	
Medium education	1.30***		1.27	
University (Ref.)				
Type of education according to level and field				
Low education		1.85***		2.03†
Medium education:				
Science; Engineering, Manufacturing, Construction		1.50**		1.00
Basic Programs		1.23*		.73
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		1.37**		1.84
Others: Social Sc., Business, Law; Agriculture; Services		1.49***		.91
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		.96		1.02
Humanities and Arts		1.17		.80
Health and Welfare; Teacher Training, Education Science		1.13		.75
Social Sc., Business and Law		1.01		.33
Agriculture		1.37*		3.63
Services		1.60**		.58
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.05	1.05	.57***	.56***
1980 – 1989	.95	.96	.48**	.46***
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	.79**	.79**	3.06***	2.92***
Birth	.99	.99	.76	.78
Mother has university studies	.95	.98	.42†	.51
Mother worked when R was 15	.98	.98	.68**	.68**
Urban	1.16**	1.17***	.59***	.60***
Born in country of interview	.93	.91†	.15***	.15***
Currently studying	.77***	.79***	.80	.76
Has lived independently[a]	.69***	.70***	.73*	.72*
Number of person-months	115895	115895	115895	115895
Number of individuals	2376	2376	2376	2376
Log pseudo likelihood	-10475	-10470	-9885	-9874

Note: Ref. = reference category; [a] Time-varying covariate.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 4b: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | MEN – Austria.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	.94		2.18*	
Medium education	1.11*		.78	
University (Ref.)				
Type of education according to level and field				
Low education				
Medium education:		.95		2.59*
Science; Engineering, Manufacturing, Construction				
Basic Programs		1.12†		1.07
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		.90		.45
Others: Social Sc., Business, Law; Agriculture; Services		1.52**		.95
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)		1.17**		.91
Basic Programs		.76		(.)
Humanities and Arts		.55**		(.)
Health and Welfare; Teacher Training and Education		1.03		.96
Social Sc., Business and Law		1.10		.82
Agriculture		.98		7.72***
Services		2.11**		3.21
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.04	1.05	.43***	.44***
1980 – 1989	.83**	.84*	.39*	.40*
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	1.14	1.14	3.13***	3.28***
Birth	.69**	.66**	.56	.52
Mother has university studies	.84†	.83†	(.)	(.)
Mother worked when R was 15	1.12**	1.11**	.70†	.70†
Urban	1.16**	1.18**	.76	.82
Born in country of interview	.94	.93	.19***	.18***
Currently studying	.88	.92	.75	.83
Has lived independently[a]	.98	.98	.50**	.52**
Number of person-months	108786	108786	108786	108786
Number of individuals	1571	1571	1571	1571
Log pseudo likelihood	-6681	-6675	-6560	-6549

Note: Ref. = reference category; [a] Time-varying covariate.
(.) Small and not reliable effects due to sample size problems.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 5a: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | WOMEN – Belgium.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	1.72***		1.76*	
Medium education	1.21**		1.14	
University (Ref.)				
Type of education according to level and field				
Low education		1.43**		2.52*
Medium education:				
Science; Engineering, Manufacturing, Construction		1.03		1.83
Basic Programs		.99		1.42
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		.84		.81
Others: Social Sc., Business and Law; Agriculture; Services		1.03		1.82
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		-		-
Humanities and Arts		.69**		1.25
Health and Welfare; Teacher Training and Education		.86		1.75
Social Sc., Business and Law		.84		1.36
Agriculture		1.49		1.24
Services		-		-
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.03	1.04	.44***	.49***
1980 – 1989	.53***	.53***	.29***	.29***
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	1.21	1.24	.87	.89
Birth	.31***	.31***	1.74	1.72
Mother has university studies	.97	.98	.70	.74
Mother worked when R was 15	.94	.93	.80	.79
Urban	.98	.98	.54***	.55**
Born in country of interview	.99	.99	.61*	.60*
Currently studying	.67**	.67**	.55	.59
Has lived independently[a]	.38***	.38***	.45***	.46***
Number of person-months	84815	84815	84815	84815
Number of individuals	1313	1313	1313	1313
Log pseudo likelihood	-5016	-5013	-4785	-4779

Note: Ref. = reference category; [a] Time-varying covariate.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 5b: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | MEN – Belgium.

Variable	Any union vs. No union		Marry vs. Cohabitation	
Educational attainment				
Low education	1.02		1.01	
Medium education	1.10		.93	
University (Ref.)				
Type of education according to level and field				
Low education		1.14		.95
Medium education:				
Science; Engineering, Manufacturing, Construction		1.75**		.34
Basic Programs		1.12		1.01
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		1.07		1.02
Others: Social Sc., Business and Law; Agriculture; Services		1.62**		.77
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		-		-
Humanities and Arts		.84		.69
Health and Welfare; Teacher Training and Education		1.31**		.79
Social Sc., Business and Law		1.36**		1.27
Agriculture		.94		1.78
Services		-		-
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.07	1.02	.62*	.63*
1980 – 1989	.44***	.42***	.18***	.19***
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	1.14	1.13	2.68*	2.96**
Birth	.43***	.41***	.31†	.30†
Mother has university studies	1.11	1.13	.62	.61
Mother worked when R was 15	1.10	1.09	.80	.80
Urban	.98	.98	.76	.77
Born in country of interview	.76**	.74**	.65†	.66
Currently studying	.74**	.77*	1.03	1.02
Has lived independently[a]	.63***	.62***	.68†	.70†
Number of person-months	105295	105295	105295	105295
Number of individuals	1194	1194	1194	1194
Log pseudo likelihood	-4265	-4256	-4304	-4293

Note: Ref. = reference category; [a] Time-varying covariate.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 6a: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | WOMEN – Poland.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	1.95***		.83	
Medium education	1.44***		1.14	
University (Ref.)				
Type of education according to level and field				
Low education		1.89***		.89*
Medium education:				
Science; Engineering, Manufacturing, Construction		1.45***		1.31
Basic Programs		1.33**		1.25
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		1.23*		1.37
Others: Social Sc., Business, Law; Agriculture; Services		1.42***		1.13
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		-		-
Humanities and Arts		.87		1.17
Health and Welfare; Teacher Training and Education		.96		1.15
Social Sc., Business and Law		.97		1.05
Agriculture		.88		1.96
Services		1.11		.75
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.14**	1.14**	.36**	.37**
1980 – 1989	1.07	1.07	.14***	.14***
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	1.65***	1.64***	3.07***	3.11***
Birth	.48***	.48***	.14***	.14***
Mother w/ university studies	.95	.95	.84	.83
Mother worked when R was 15	.97	.97	.99	1.00
Urban	1.09**	1.10**	.42***	.42***
Born in country of interview	-	-	-	-
Currently studying	.61***	.62***	1.08	1.06
Has lived independently[a]	.53***	.53***	.51***	.51***
Number of person-months	272432	272432	272432	272432
Number of individuals	4232	4232	4232	4232
Log pseudo likelihood	-16551	-16548	-17268	-17262

Note: Ref. = reference category; [a] Time-varying covariate.
Only 19 women were foreigners and none of them entered into union.
† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 6b: Odds Ratios from Binomial and Multinomial Logistic Regression Models of Transition to First Marriage or First Cohabitation | MEN – Poland.

Variable	Any union vs. No union		Marriage vs. Cohabitation	
Educational attainment				
Low education	.62***		.57**	
Medium education	.90**		.86	
University (Ref.)				
Type of education according to level and field				
Low education		.57***		.68†
Medium education:				
Science; Engineering, Manufacturing, Construction		.85**		.99
Basic Programs		.74***		.83
Humanities and Arts; Health and Welfare; Teacher Training and Education Science		.86		1.38
Others: Social Sc., Business, Law; Agriculture; Services		.83**		1.19
University education:				
Science; Engineering, Manufacturing, Construction (Ref.)				
Basic Programs		4.94***		(.)
Humanities and Arts		1.01		1.09
Health and Welfare; Teacher Training and Education		.83*		1.41
Social Sc., Business and Law		.87*		1.18
Agriculture		.69†		2.89
Services		.78*		1.77†
Birth cohort				
1960 – 1969 (Ref.)				
1970 – 1979	1.06	1.07†	.53***	.53***
1980 – 1989	.94	.96	.21***	.21***
Fertility status[a]				
Childlessness (Ref.)				
Pregnancy	2.35***	2.33***	2.82***	2.82***
Birth	.50***	.50***	.24***	.21***
Mother has university studies	1.01	1.01	.70**	.71*
Mother worked when R was 15	.89**	.89**	1.05	1.05
Urban	1.33***	1.33***	.46***	.46***
Born in country of interview	-	-	-	-
Currently studying	.68***	.69***	1.17	1.21
Has lived independently[a]	.80***	.80***	.54***	.54***
Number person-months	304265	304265	304265	304265
Number of individuals	3419	3419	3419	3419
Log pseudo likelihood	-12416	-12411	-13457	-13446

Note: Ref. = reference category; a Time-varying covariate.
(.) Small and not reliable effects due to sample size problems.
Only 6 men were foreigners and none of them entered into union.
† p < .10. * p < .05. ** p < .01. *** p < .001.