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Research Article

**Left behind single in the partnering market?
Entry into cohabiting unions by women and men
with low educational attainment across regions
of Europe, cohorts 1960 to 1985**

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Left behind single in the partnering market? Entry into cohabiting unions by women and men with low educational attainment across regions of Europe, cohorts 1960 to 1985

Nadia Sturm¹

Jan Van Bavel²

Abstract

BACKGROUND

In recent cohorts, obtaining an advanced educational qualification has become the norm across European countries and women now outnumber men in tertiary education, possibly leading to shifts in men's preference for equally or higher-educated partners. Women with at most a basic educational qualification might therefore be increasingly marginalized in the partnering market.

OBJECTIVE

We investigate whether women with lower educational qualifications are less likely to ever enter a cohabiting union in different regions of Europe. We analyse whether this association has changed across cohorts and compare it to the results for men.

METHOD

We apply logistic regressions to recent European Social Survey data from 2002–2022 from 28 countries, grouped into four regions. We include women and men born between 1960 and 1985.

RESULTS

In recent cohorts in Western and Southern Europe, compared to higher-educated women the probability of 35 to 45-year-old, lower-educated women having ever entered a cohabiting union has declined significantly. In older cohorts, we find the opposite. Our findings point in a similar direction for the Nordic and Eastern European regions, but the associations remain statistically insignificant. We find that union formation patterns between lower-educated men and women converge in the Western and Southern European regions.

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CONCLUSION

Our results suggest that women with lower educational qualifications are becoming increasingly marginalized in the partnering market.

CONTRIBUTION

We add to the limited cross-country research on the educational gradient of women entering a cohabiting union and on convergence between men and women in union formation patterns.

1. Introduction

In most European countries, highly educated women have been more likely than lower-educated women to remain childless (Wood, Neels, and Kil 2014) or postpone the birth of their first child (Ní Bhrolcháin and Beaujouan 2012; Nitsche et al. 2018). Nevertheless, there are signs that the negative educational gradient – higher education connected to lower fertility – might have shifted and that fertility has especially declined among the lower-educated (Compans 2021; Ermisch 2021; Jalovaara et al. 2019; Kreyenfeld and Konietzka 2017; Reher and Requena 2019). One reason for a shift in the educational gradient of fertility might be that steady partnerships, which continue to be considered a normative prerequisite for having children, are becoming less frequent or stable among lower-educated women. In contexts of women's high labour market participation and earnings, higher-educated women might be more desired as partners, leading to women with lower educational attainment being more marginalized in the partnering market. Similar trends have already been observed for men. Across Europe, low-educated men have been found to have a higher likelihood of remaining single (De Hauw, Grow, and Van Bavel 2017) and this lower likelihood of entering a partnership has been shown to translate into lower transition rates to parenthood across several European countries (Trimarchi and Van Bavel 2017).

While a positive educational gradient of union formation has been the case for men for some time, there may be several reasons why we might see similar developments for women in more recent cohorts. Shifts from a male breadwinner to a dual-earner model (Esping-Andersen 2012), increases in women's earnings relative to men's (Goldin 2014), higher participation in tertiary education (Van Bavel, Schwartz, and Esteve 2018), and declines in the stability of typically male, blue-collar occupations (Adserà 2018; Autor 2014) could lead to men preferring equally or higher-educated partners. Furthermore, as having higher education has increasingly become the norm in European labour markets, from a labour market perspective the lower-educated might have become more marginalized in countries with both low and high shares of lower-educated individuals.

Finally, given increases in the cost of living and housing, a woman's income might be increasingly important in enabling couples to start cohabiting.

Recent findings from single-country studies point in this direction. Higher education promotes cohabitation with a partner in Finland (Jalovaara 2012; Jalovaara and Andersson 2023) and increasingly higher rates of singlehood are found among lower-educated women in West Germany (Hudde and Engelhardt 2023), Sweden, the Netherlands, and Estonia (Sandström and Karlsson 2019). Nevertheless, results vary by operationalization of union formation (i.e., currently or ever living with a partner, timing of cohabitation) and the cohorts under study and general trends across countries remain less clear. If lower-educated women are indeed less likely to form (stable) partnerships than higher-educated women, this potentially hinders subsequent life transitions such as starting a family. Therefore, this study aims to analyse how women's likelihood of selecting into both married and unmarried cohabitation is influenced by educational level and whether this association has changed across cohorts. Furthermore, by comparing the results for women and men we analyse whether the union formation patterns of lower-educated women follow those observed for their male peers (De Hauw, Grow, and Van Bavel 2017; Trimarchi and Van Bavel 2017). Specifically, we ask the following research questions: Are lower-educated women in more recent cohorts less likely than higher-educated women to ever select into cohabiting unions (both married or unmarried)? Is there a noticeable convergence of lower-educated men and women in terms of the likelihood of ever selecting into cohabitation? How do these relationships vary across European regions? Throughout the paper the terms 'cohabiting unions' and 'cohabitation' include both married and unmarried unions.

We apply logistic regression analysis to European Social Survey (ESS) data from 2002 to 2022 and include cohorts from 1960 to 1985. Current research showing an emerging positive educational gradient of cohabitation has mostly focused on single countries rather than broader European regions (Hudde and Engelhardt 2023; Jalovaara and Andersson 2023; Sandström and Karlsson 2019). Previous cross-national studies include less recent data from cohorts up to 1974 and do not explicitly investigate changes and convergence in the educational gradient across cohorts and between genders (Bellani, Esping-Andersen, and Nedoluzhko 2017; Kalmijn 2013). We therefore contribute to the existing literature by, first, focusing on the relationship between educational background and the probability of ever having cohabited by ages 35–45 across 28 European countries, rather than single European countries. Second, by utilizing recent data from the ESS (most recent round with fieldwork in 2022), we specifically analyse whether a reversal in the educational gradient of cohabitation occurred across cohorts 1960–1985, as suggested by the shift from a male breadwinner to a dual-earner model and a possibly ensuing marginalization of lower-educated individuals in the partnering market. Finally, while a lower likelihood of lower-educated men's selection into cohabitation has already

been documented for the 1950–1990 cohorts (Trimarchi and Van Bavel 2017), we add to the empirical evidence on women’s educational gradient of cohabitation and the convergence of men and women in the likelihood of cohabitation.

2. Background

2.1 The decline of the male breadwinner model and women’s position in the partnering market

In the past decades, the prevalence of the traditional male-breadwinner/female-homemaker model has been declining across European countries (Esping-Andersen 2012). As female labour force participation and the diffusion of gender-egalitarian norms continue to increase (Jaumotte 2003; Vitali and Arpino 2016), dual-earner and female-breadwinner couples have been on the rise (Klesment and Van Bavel 2015). Nevertheless, even in the dual-earner family model the still widely held expectation is that the husband’s earnings are of principal importance, while the wife’s earnings are merely an addition to the household income. While considerable variation exists across European countries, Harkness (2013) shows that even in countries with the highest female contributions to family budgets (such as Denmark, Finland, and Ireland), men’s earnings comprise 60% of the total earnings in dual-earner households. Furthermore, the traditional gender division of work persists and women continue to be considered primarily responsible for the household, childcare, and looking after the elderly (Ciccia and Bleijenbergh 2014; Martínez-Pastor et al. 2022). Therefore, even in the dual-earner family model (and certainly in the male-breadwinner model), it seems unlikely that women’s earning potential (and hence their educational level) would be considered of key importance in the process of mate selection.

Yet there are signs that this situation has been changing over the past decades and that women’s earnings have become crucial to secure families’ economic well-being, for several reasons. First, the stability and security of typically male, blue-collar occupations have declined. Indeed, over the past decades in the West men have faced major declines in labour-market opportunities, particularly in low-skilled manufacturing jobs (Adserà 2018; Autor 2014). In line with this development, Vitali and Arpino (2016) find that male unemployment is positively associated with the prevalence of female-breadwinner couples across European countries and regions. Second, while women’s labour market participation remains lower than men’s, and even though there still exists a gender pay gap to women’s disadvantage, women’s labour market position has improved a lot compared to men’s (Goldin 2014). Third, in younger generations, women with degrees outnumber men with equal qualifications (Van Bavel, Schwartz, and Esteve 2018).

According to studies on assortative mating, this change in the educational attainment of women has led to increases in hypogamous couples (i.e., the woman is more educated than the man) across European countries (De Hauw, Grow, and Van Bavel 2017; Erát 2021; Esteve et al. 2016; Grow and Van Bavel 2015). If there is a difference in educational attainment level between husband and wife, the latter now tends to have the higher qualification, while formerly the husband typically had the highest (De Hauw, Grow, and Van Bavel 2017; Esteve et al. 2016). Incorporating a detailed cohort perspective and recent data from 27 European countries, Erát (2021) shows that an increase in the share of women in tertiary education correlates with a decline in educational hypergamy (i.e., the man is more educated than the woman) across cohorts 1954–1980. Even though the husband is still the main earner in a clear majority of cases, across European countries this emerging educational reversal is associated with increases in the relative share of women’s earnings in the total household income (Van Bavel and Klesment 2017).

These developments may imply that women’s earning potential has become a more salient feature in the process of partner choice and that the economic power of potential female partners features more prominently in the mate preferences of men (Grow and Van Bavel 2015; Van Bavel, Schwartz, and Esteve 2018). Men holding more gender-egalitarian views are especially more likely to form a union with a higher-educated partner (Trimarchi 2022). Thus, structural changes in education and women’s earnings, along with the diffusion of gender-egalitarian attitudes, may have made it increasingly difficult for low-educated women, who typically have lower earning potential, to find stable partners. As a larger share of their peers completes more advanced education, the group of lower-educated women become a more selective part of the female population. Men, for their part, encounter a growing pool of women whose level of educational attainment is equal to or higher than theirs. From a household economy point of view these women are more attractive partners, thus reducing the chances of low-educated women forming stable unions. We would therefore expect that highly educated men and women are more likely to select into a partnership than their counterparts with low educational attainment. This implies gender convergence: while in the past the earning potential of men has long been a salient factor in mate choice, notably in the context of the male-breadwinner model, we expect that it has become a more salient feature in men’s mate preferences for women. We expect that lower-educated women in more recent cohorts are facing increasing difficulty entering (stable) relationships. We expect this to be the case especially in more gender-egalitarian countries where women’s labour force participation and earnings are higher and preferences for a similar or higher-educated female partner might be stronger. Consequently, lower-educated women might be in a more marginalized position.

2.2 The educational gradient of union formation: earlier empirical evidence

Studies of the educational gradient of union formation focus on separate measures of selection into married vs. unmarried cohabitation, or jointly measure the likelihood of ever entering a cohabiting partnership. Results on the relationship between union formation and educational attainment are therefore mixed, depending also on the region and cohorts under study. In this paper we focus on a combined measure of cohabiting unions, but in this section we also discuss studies that look at separate measures of married and unmarried cohabitation.

While a positive educational gradient of selection into marriage has increasingly been found in the US (Cherlin 2010), results across European countries vary. In a study of 25 countries, using ESS data from 2002 to 2010, Kalmijn (2013) finds that the chances of living in a marital union at ages 40–49 are highest for highly educated women and men in more gender-egalitarian countries, a context with relatively high labour force participation of women, more equal division of household tasks, and more progressive attitudes towards gender equality. In less gender-egalitarian contexts, a negative educational gradient for marriage is found. Similarly, Perelli-Harris and Lyons-Amos (2016) find a positive educational gradient for staying in marriage for women in several Western and Northern European countries, but not for the majority of Central and Eastern European countries. While a positive educational gradient for marriage emerges in some countries, neither study cited above finds clear results for unmarried cohabitation for cohorts born between 1940 and 1974. On the one hand, higher-educated individuals are considered the main pioneers of growing unmarried cohabitation, while on the other hand cohabitation may be a way to share living costs and a lower-cost alternative to marriage for the economically disadvantaged (Lesthaeghe 2020). While a positive educational gradient of cohabitation (both married and unmarried) is visible for men across European countries (Trimarchi and Van Bavel 2017), a consistent negative educational gradient could still be expected for women where unmarried cohabitation is a less expensive alternative to marriage. Rather than marrying, lower-educated women would then cohabit, meaning that they nevertheless enter a union rather than staying single or living-apart-together.

Analysing the likelihood of ever having cohabited (married or unmarried) by ages 40–55 with ESS Data from 2002 to 2014, Bellani, Esping-Andersen, and Nedoluzhko (2017) find a u-shaped relationship between the likelihood of lifelong singlehood and gender equity across countries for women and men born between 1947 and 1974. Their findings indicate that the likelihood of cohabiting is higher across all educational groups in more gender-equal societies, with the most pronounced effects for higher-educated women. Rather than following the argument that a lower likelihood of selecting into a cohabiting union could increasingly be found for the lower-educated than the higher-educated, their results support a convergence of cohabitation patterns across educational

groups. This partly contradicts findings based on more recent register data from the more gender-equal context of Finland, showing that high education promotes both marriage and cohabitation among women in cohorts from 1969 to 1980 (Jalovaara 2012) and that the prevalence of unions declined especially among low-educated women and men aged 18 to 49 in 1989–2020 (Jalovaara and Andersson 2023). On the other hand, Jalovaara and Andersson (2023) argue that the difference in union prevalence does not indicate a large educational disparity and is partly driven by higher union instability among the lower-educated rather than never entering a union. In line with this argument, a higher likelihood of living alone for lower-educated women between the ages of 30 and 64 is found for Sweden, the Netherlands, and Estonia (Sandström and Karlsson 2019). For Germany, Hudde and Engelhardt (2023) find increasingly high shares of lower-educated women not living with a partner in Western Germany from 1976 to 2019.

In conclusion, findings in terms of the likelihood of selecting into cohabitation for different educational groups vary by the measure of union formation and across the regions and cohorts under study. In this paper we are interested in overall changes in lifelong singlehood by educational background and cohort, rather than differences between married and unmarried cohabitation. We therefore combine both outcomes and model cohabitation irrespective of whether the couple is married or not. To analyse a change in the relationship between educational level and cohabitation we carry out region-specific analyses that include an interaction effect between educational attainment and cohort. By so doing we see whether a significant change occurred for the cohorts between 1960 and 1985, and whether this change indicates convergence across educational groups or a decline in the likelihood of ever entering a cohabiting union, especially for the lower-educated.

2.3 Regional contexts

Across European countries and regions, the share of low-, medium-, and higher-educated women varies, as does their level of labour force participation and earnings and its development in more recent cohorts. We would therefore expect variation in the relationship between education and cohabitation and their association across cohorts. In the following we describe factors that might influence these relationships for each cluster: the share of women in tertiary education, women's labour force participation rates, gender equity in terms of financial and economic resources, and whether family policies support egalitarian or traditional male-breadwinner models.

The Nordic countries (Norway, Sweden, Denmark, Finland, and Iceland in our sample) are typically characterized by higher shares of women in tertiary education. In 2022 the share of women aged 30–34 with tertiary education ranged between 60%–64%

in Norway, Sweden, Denmark and Iceland and 53% in Finland (Eurostat 2023b). Female labour force participation is considered high, with between 77% and 82% of women aged 20–64 in employment in 2022 (Eurostat 2023a). Furthermore, the Nordic countries score higher than the EU average in terms of women's access to financial and economic resources³ (EIGE 2023), and generous family policies support family–work balance to a larger extent than in other European countries (Thévenon 2011). Given higher shares of women with higher education, higher earnings, and more favourable employment conditions, in this context a partner with similar or higher education might be especially favoured. This is reflected in studies that show increasing childlessness and lower rates of union formation among the lower-educated in the Nordic countries (Jalovaara 2012; Jalovaara and Andersson 2023; Sandström and Karlsson 2019).

Compared to the Nordic countries, Western European countries (Great Britain, Ireland, Netherlands, Belgium, Austria, France, Switzerland, and Germany in our sample) on average report lower shares of women with higher education, but there is more variation. In 2022 the share of women with tertiary education ranged between 40% in Germany and 60% in Belgium and the Netherlands (Eurostat 2023b). Female employment rates are also lower than in the Nordic countries, ranging between 68% in Belgium and 79% in the Netherlands (where part-time work is particularly common for women) (Eurostat 2023a). While women's employment rates are historically lower than in the Nordic countries and family policies tend to favour the male-breadwinner model to a larger extent (especially in the German-speaking countries), gender equity in terms of access to financial and economic resources is higher than the EU average in all the Western countries in our sample (EIGE 2023). We would therefore expect a weakening of the negative educational gradient of cohabitation.

On average, the Southern European countries (Croatia, Cyprus, Greece, Italy, Portugal, Slovenia, and Spain in our sample) are characterized by lower shares of women enrolled in tertiary education than in the Nordic countries, but this is mainly driven by the lower shares among Italian women (34%), whereas higher shares are reported for the remaining countries (between 44% and 60% and, as an outlier, 70% in Cyprus) (Eurostat 2023b). Female employment rates are lower than in the Nordic and Western European regions, ranging between 55% in Italy and 74% in Portugal (Eurostat 2023a). Additionally, access to financial and economic resources is less gender-equal, with below EU-average scores for Spain, Portugal, Greece, and Croatia and around average scores for Slovenia, Cyprus, and Italy (EIGE 2023). Limited assistance is provided in terms of combining family and work (Thévenon 2011). As the share of women in tertiary

³ In the Gender Equality Index, inequalities in access to financial resources are measured by women's and men's mean monthly earnings from work and mean equalised net income from sources other than paid work. Economic situation is measured by women's and men's risk of poverty and the income distribution among women and men, measured by the ratio of S20/S80 income quintiles (EIGE 2023).

education and women's earnings have increased, we would expect that the negative educational gradient of cohabitation has also changed for the Southern European countries, but to a smaller extent than in the Western and Northern European regions.

Across Eastern European countries the share of women with higher educational attainment varies, from high shares in the Baltic countries (between 56% and 70% in Lithuania, Latvia, and Estonia) and Poland (58%) to lower shares in Slovakia, Czech Republic, Bulgaria, and Hungary (between 40% and 50%) (Eurostat 2023b). Similarly, employment rates are highest in the Baltic countries (between 76% and 80%), while on average the levels of the remaining countries are higher than in the Western and Southern European countries (between 70% and 75%) (Eurostat 2023a). While employment rates are comparable to the Nordic countries, gender equity in terms of women's access to financial and economic resources is lowest in EU comparison (EIGE 2023). Women's labour force participation was strongly encouraged during communism (Pollert 2003), but declining childcare provision indicates a re-traditionalization of public policies (Pascall and Manning 2000; Robila 2012). We therefore expect a weakening of the negative educational gradient of cohabitation that is less pronounced than for the Northern and Western European regions.

2.4 Hypotheses

The current study aims to investigate how the likelihood of ever entering a cohabiting union (both married and unmarried) varies by educational background and whether this relationship shifts across cohorts. Based on the theoretical framework and previous empirical findings, we expect to see changes in the educational gradients particularly for women. We expect that: *The likelihood of 35 to 45-year-old, low-educated women having ever cohabited with a partner (married or not) has decreased across cohorts compared to women with higher education (Hypothesis 1)*. We expect this change in the educational gradient to be especially pronounced in Northern and Western European countries but less visible in Eastern and Southern European countries. While longer-standing patterns of low union formation rates have been observed for lower-educated men, this would imply a convergence of union formation patterns between lower-educated men and women. Our second hypothesis therefore is that: *The likelihood of 35 to 45-year-old low-educated women and men ever having cohabited with a partner (married or not) has converged across cohorts (Hypothesis 2)*.

3. Data and methodology

3.1 Data and sample selection

To test our hypotheses, we combine rounds 1–10 of the European Social Survey (ESS), collected between 2002 and 2022. Combining the 10 rounds of the ESS not only increases the sample size but also allows including a wider range of cohorts and the most recent data from round 10 (collected between 2020 and 2022). Except for rounds 3 and 9, the ESS does not ask respondents about their age at first cohabitation, but it does ask them if they are currently cohabiting and, if not, whether they have ever cohabited before. In our measure of ever having cohabited with a partner we combine questions on current partnership as well as past marriage, divorce, and cohabitation. We are interested in whether someone has experienced cohabitation in early to mid-adulthood (i.e., in the typical age range of first union formation), at a stage of life when union formation could still be expected to be followed by entry into parenthood. Based on rounds 3 and 9 of the ESS we can calculate the mean ages at first cohabitation and the shares cohabiting by a certain age for cohorts 1960–1985. Most individuals that do cohabit do so before age 35, with mean ages at first cohabitation ranging from 23 in Northern and Eastern Europe to 24 in Western and 26 in Southern Europe. By age 35, around 88% of individuals born between 1960 and 1985 have cohabited at least once. First cohabitation after age 35 is rare, with, on average across regions, 2.4% first starting to cohabit between ages 35 to 45. Never having cohabited with a partner by that age is more common and is reported by 9.6% of individuals in the 1960–1985 cohort. As we are interested in a measure of permanent singlehood as well as in an age range where union formation could still be expected to be followed by parenthood, we select respondents between the ages of 35 and 45 and see whether they have ever cohabited before (or at) the time of the survey or have never cohabited by that age.

We experimented with other age cut-offs that could be chosen given the underlying theoretical argument, and these experiments yielded similar results. For example, we tested our model on a sample of 40–50 year olds. We decided to opt for the younger age category to be able to include more recent cohorts in our sample. Since the age group covers 10 years, and to test whether age at survey influences the likelihood of ever having cohabited (i.e., a respondent aged 45 might be more likely to have experienced cohabitation than someone aged 35), we also control our models for age at interview. We include cohorts born between 1960 and 1985 (ensuring they are at least 35 years old at the time of interview). For the descriptive results we distinguish two cohorts, 1960–1974 and 1975–1985. For the multivariate analysis we measure cohorts continuously from 1960 to 1985. We run additional analyses interacting the three educational levels with a categorical measure of cohort to account for a non-linear effect of educational level across

cohorts. As this yields similar results, and to simplify the interpretation of the interaction effect, we opt for a continuous measure of cohort. In total, the sample consists of 35,373 women (and 31,145 men for comparison).⁴

In general, the ESS allows for a very broad geographical coverage of Europe, including Northern, Eastern, Western, and Southern European countries. The ESS data quality is considered to be high, since sampling strategies, dealing with non-response, and data cleaning are standardized across countries and monitored according to the highest scientific standards (Stoop et al. 2010). We focus our analysis on EU countries but include Great Britain, Iceland, Norway, and Switzerland. We exclude Romania and Luxembourg as they only took part in wave 4 (Romania) or waves 1 and 2 (Luxembourg) and do not include respondents born between 1975 and 1985. In total, our sample includes respondents from 28 European countries. Not all countries participated in all 10 waves of the ESS and a country-specific analysis was not always feasible, so we opted for grouping them by geographic region for our main analysis but add controls for country in our models.⁵ An overview of country participation per wave is given in Appendix Table A-1. Table 1 shows the number of respondents by country, cohort, and gender.

Table 1: Sample size by country, cohort, and gender

COUNTRY	CODE	WOMEN			MEN		
		1960–1974	1975–1985	Total	1960–1974	1975–1985	Total
NORDIC							
Denmark	DK	855	198	1,053	832	195	1,027
Finland	FI	791	426	1,217	850	435	1,285
Iceland	IS	107	173	280	119	170	289
Norway	NO	936	331	1,267	1,117	395	1,512
Sweden	SE	666	294	960	700	270	970
WESTERN							
Austria	AT	1,006	324	1,330	739	280	1,019
Belgium	BE	1,060	436	1,496	1,019	425	1,444
Switzerland	CH	1,187	398	1,585	1,108	395	1,503
Germany	DE	1,797	435	2,232	1,657	463	2,120
France	FR	1,199	593	1,792	1,051	541	1,592
Great Britain	GB	1,438	552	1,990	1,190	395	1,585
Ireland	IE	1,465	853	2,318	1,089	713	1,802
Netherlands	NL	1,345	455	1,800	1,081	384	1,465

⁴ Round 10 of the ESS was collected via self-completed interviews in 7 countries in our sample. In this analysis we exclude self-completed interviews as they miss information on parental education of the respondent. As a robustness check, we ran the analysis including the self-completed interviews of Round 10 and excluding parental education, which led to similar results other than small changes in the coefficients.

⁵ As an additional robustness check, we ran the analysis on (1) a pooled sample of countries (including countries as a control), (2) a pooled sample with clustered standard errors by country, and (3) a multi-level analysis with country fixed effects. Results from the three robustness checks support our main hypothesis that the likelihood of experiencing singlehood has increased significantly for lower- compared to higher-educated women in more recent cohorts, averaged across countries. As hypothesized, we do not find significant differences between the educational groups across cohorts for men.

Table 1: (Continued)

COUNTRY	CODE	WOMEN			MEN		
		1960–1974	1975–1985	Total	1960–1974	1975–1985	Total
SOUTHERN							
Cyprus	CY	387	97	484	288	88	376
Spain	ES	1,192	458	1,650	1,134	508	1,642
Greece	GR	1,045	72	1,117	764	40	804
Croatia	HR	253	298	551	171	233	404
Italy	IT	241	487	728	210	486	696
Portugal	PT	1,107	514	1,621	808	375	1,183
Slovenia	SI	635	333	968	548	304	852
EASTERN							
Bulgaria	BG	673	449	1,122	501	397	898
Czechia	CZ	1,008	749	1,757	982	704	1,686
Estonia	EE	936	546	1,482	765	443	1,208
Hungary	HU	789	486	1,275	720	376	1,096
Lithuania	LT	404	576	980	281	384	665
Latvia	LV	205	63	268	139	38	177
Poland	PL	840	371	1,211	822	313	1,135
Slovakia	SK	577	262	839	490	220	710
TOTAL		24,144	11,229	35,373	21,175	9,970	31,145

Source: ESS Rounds 1–10.

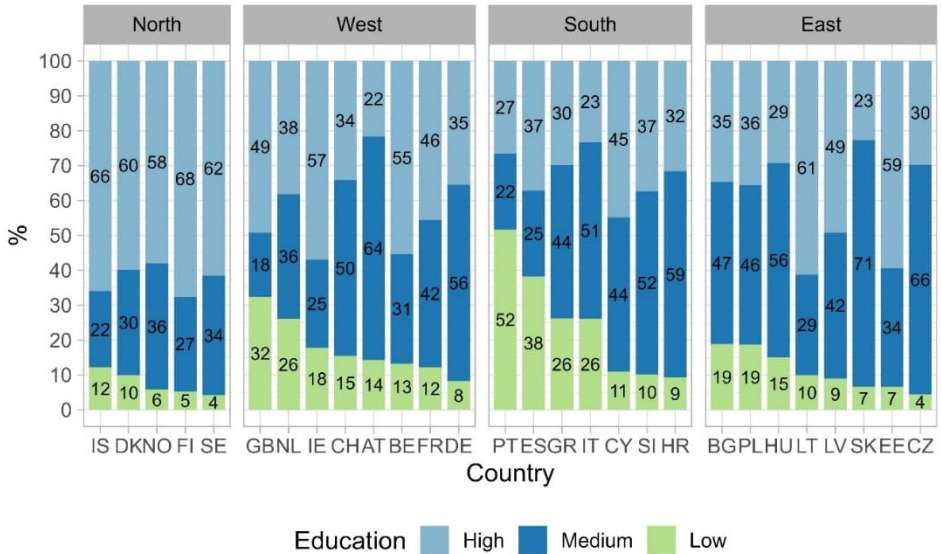
3.2 Independent variables

Our main independent variable is educational level. Following the 1997 International Standard Classification of Education (ISCED 1997), educational attainment is categorised in three levels: 1 = Low-educated (ISCED 0–2), 2 = Medium-educated (ISCED 3–4), and 3 = Highly educated (ISCED 5–6). Low education corresponds to everyone who completed lower secondary education or below, medium education to those who completed at least upper secondary education, and high education to completing at least the bachelor level of post-secondary education. Respondents are asked which level of education they have obtained at the time of interview. While several studies have analysed the likelihood of selecting into cohabitation by educational level measured continuously (Brons, Liefbroer, and Ganzeboom 2017) or relative to a country average (Kalmijn 2013), we are specifically interested in the results for the group of low-educated measured by the absolute level of education, which we can compare across countries and cohorts. We exclude respondents reporting currently being enrolled in education since in that case we do not know what level of education they will reach in the future. As we are looking at a sample of respondents aged between 35 and 45 the share of currently enrolled is small (on average 2.8% across regions and gender).

Figure 1 shows the distribution of the three educational levels across countries for women aged 35–45. The share of those obtaining lower education at most varies across

European regions, with the lowest levels in the Northern and Eastern European regions and the highest shares in the Western and Southern European regions (Figure 1).

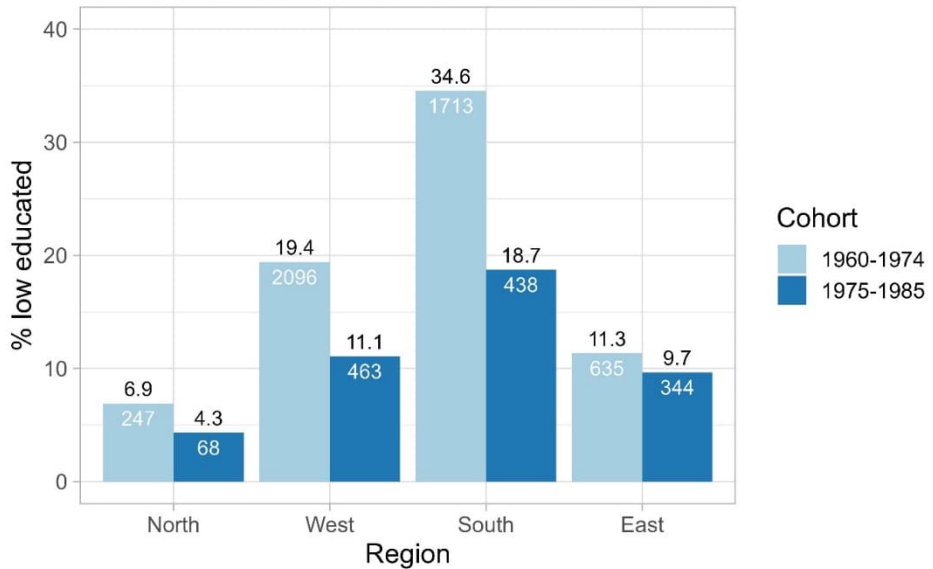
Figure 1: Share (in %) of educational level by country for women aged 35–45



Source: ESS Rounds 1–10 (own calculation)

Figure 2 shows the share and sample size of lower-educated women across cohorts born between 1960–1974 and 1975–1985. The share of lower-educated has declined substantially in the Southern and Western European regions (–17.9 and –8.3 percentage points respectively) and declined slightly (but was already substantially lower) in the Eastern and Northern European regions (–1.6 and –2.6 percentage points respectively). In countries with low shares of lower-educated individuals, this group might be especially marginalized. Nevertheless, from a labour market perspective, marginalization might also increasingly affect the lower-educated group in countries with high shares of lower-educated people, as obtaining higher education has increasingly become the norm in European labour markets (OECD 2022).

Figure 2: Share (in %) and sample size of lower-educated women, by cohort and region



Source: ESS Rounds 1–10 (own calculation)

Union formation behaviour is influenced not only by own socioeconomic status but also by that of parents (Brons, Liefbroer, and Ganzeboom 2017). Furthermore, religiosity continues to play a role in both partnership and family formation (Berghammer 2012; Vignoli and Salvini 2014). Cultural differences in union formation behaviour between country of residence and country of origin can also influence an individual's partnership formation (González-Ferrer, Hannemann, and Castro-Martín 2016; Hannemann et al. 2020; Wiik, Dommermuth, and Holland 2021). Following earlier studies, we distinguish between respondents being born in a European country vs. born outside of Europe (Lacroix, Mikolai, and Kulu 2024). Our models are therefore controlled for parental educational background (both parents low-educated, only father medium/high, only mother medium/high, both medium/high, both unknown), belonging to a religious denomination, and migration background (born in a European country vs. outside).

3.3 Analytical strategy

To test our hypotheses we run binomial logistic regressions where those aged 35–45 who are currently cohabiting or have cohabited before are coded 1 and those who have never cohabited are coded 0. To test the first hypothesis, we run our analysis only on the sample of women. In the first model (Model 1) we add all main variables in order to estimate the overall association between educational level and cohabitation. In the second model (Model 2) we enter an interaction effect between cohort and educational level to measure a possible change in women’s educational gradient of cohabitation.

To test the second hypothesis, we run two analyses. First, we run our analysis on a sample including both men and women and add a three-way interaction between gender, cohort, and education. Second, to formally test the convergence between the union formation patterns of lower-educated men and women, we run models jointly for men and women but separately by educational level. In these models we include an interaction between gender and cohort to test whether the probability of having cohabited with a partner by ages 35–45 has converged in the younger cohorts. To estimate the magnitude of our results and to facilitate the interpretation of the interaction effect between cohort and educational level, we present the results graphically as predicted probabilities of ever having cohabited by the three educational levels, gender, and across cohorts.

4. Results

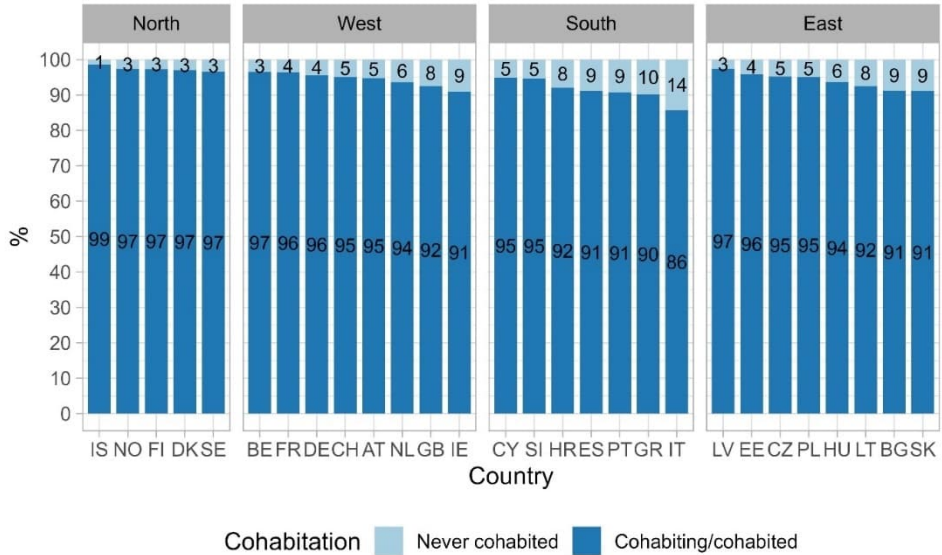
We first present some basic descriptive results before proceeding to the model-based hypothesis testing. We focus on the descriptive results for women, as we are primarily interested in adding to the empirical evidence of changes in the transition rates and likelihood of ever cohabiting for the group of lower-educated women. Nevertheless, we compare with what we found for their male peers. The related figures for men are included in the Appendix (Figures A-1–A-4).

4.1 Descriptive results

Figure 3 displays the share of women having ever cohabited and those never having cohabited by the ages 35–45 across single European countries. Across all countries, by far the largest share of 35–45 year olds have cohabited at least once in their lives, amounting to about 94% across the whole sample. There is some variation between large European geographical regions: the highest shares of respondents who have cohabited are found in the Nordic countries (97.2% on average), followed by the Western (94.3%)

and Eastern regions (93.9%), the on average lowest shares being in Southern Europe (91.1%). A specific outlier among the Southern European countries is Italy, where 14% of the 35–45-year-old women report never having cohabited with a partner by then.

Figure 3: Share (in %) of women aged 35–45 who have ever cohabited, by country

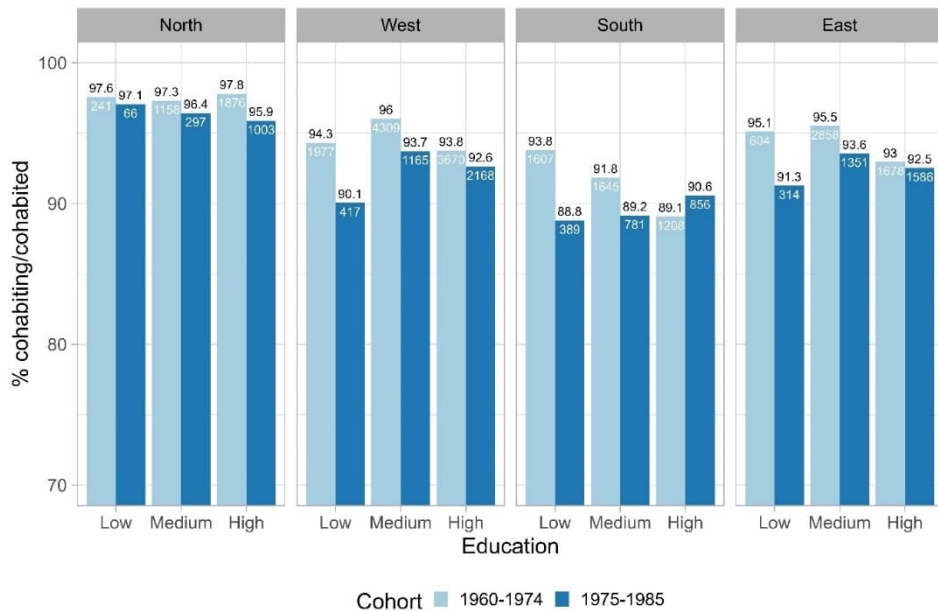


Source: ESS Rounds 1–10 (own calculation).

Figure 4 shows how the share of women who have ever cohabited changed between two broad cohorts across regions and according to educational attainment level (note that the number of respondents with low educational attainment who have never cohabited is too small to present robust country-specific proportions). For the Nordic region the share of ever-cohabiters has decreased only very slightly between the two cohorts (by around 1–2 percentage points) for all educational groups. In Eastern Europe the share of ever-cohabiters has declined for both the low- and medium-educated (around 3 pp and 2 pp, respectively). For the Western European region, this share has also declined across cohorts but only by 1 percentage point for the highly educated and 2 percentage points for the medium-educated, while it has declined by 4.2 percentage points for the lower-educated women. Finally, across the Southern European region a similar pattern emerges. There has been a slight increase for the higher-educated respondents but a decline for both the medium-educated (–2.6 pp) and lower-educated (–5 pp).

Except for the Nordic region, these results are consistent with the hypothesis that the lower-educated might be less likely to select into cohabitation in more recent cohorts. Although the changes in percentage points are small, the largest differences between cohorts in terms of shares ever cohabiting are found among the lower-educated group. This is notable, given that the percentage of individuals who never enter cohabitation, whether married or unmarried, is generally small.

Figure 4: Share (in %) of women aged 35–45 who ever cohabited, by region, cohort, and educational attainment



Source: ESS Rounds 1–10 (own calculation).

4.2 Multivariate analysis

For the multivariate analysis, we turn to the results of the logit model for the likelihood of respondents aged 35–45 ever having cohabited with a partner versus never having cohabited. For both Hypothesis 1 (sample of women) and Hypothesis 2 (joint sample of men and women) we focus particularly on possible changes in the association between

the likelihood of ever cohabiting and educational level across cohorts; i.e., the interaction effect between educational level and cohort.

4.2.1 Probability of women ever having cohabited by ages 35–45

To analyse women's likelihood of ever having cohabited by ages 35–45 across educational groups and cohorts, we combined 10 waves of the ESS. Table 2 displays the results of the logistic regression with the main effects (Model 1) and after including an interaction effect between education and cohort (Model 2). Based on Model 2, we display the predicted probabilities of ever having cohabited across educational level and cohort (see Figure 5).

For Western Europe we find a positive and significant interaction between educational background and cohort: Compared to the higher-educated, the lower-educated experience a declining probability of ever having cohabited as we move towards the more recent cohorts. The coefficient of cohort after including the interaction in Model 2 is significantly negative. This implies that the likelihood of lower-educated women cohabiting by ages 35–45 also decreased across cohorts in absolute terms and not just compared to the other educational levels. Similar results can be found for the Southern European region. The lower-educated experienced a significantly larger decline in the likelihood of ever cohabiting than the medium- and higher-educated and also a decreasing likelihood of ever cohabiting in absolute terms. For the Northern and Eastern European regions we do not find significant interactions between cohort and educational level (both medium- and high-educated) and no significant changes in the absolute likelihood of cohabiting across cohorts for the lower-educated.

In terms of the control variables, being born outside of Europe compared to within Europe and belonging to a religious denomination do not have a significant influence on the odds of ever cohabiting across regions after controlling the model for countries. Finally, only the mother being highly educated compared to both parents being low-educated increases the odds of ever cohabiting in the Western region.

To facilitate the interpretation of the interaction effects, Figure 5 plots predicted probabilities of cohabitation across regions. For the Northern European countries the likelihood of cohabiting by ages 35–45 is not significantly different across the three educational groups and cohorts. Furthermore, moving to the younger cohorts we see that the estimates for the group of lower-educated vary more, as indicated by the larger confidence intervals. As mentioned earlier, in the Nordic countries the lower-educated group becomes very small in the younger cohorts, which undermines the precision of the estimate for the likelihood of cohabiting in this group.

Table 2: Odds ratios of ever cohabiting for women aged 35–45

	North		West		South		East	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Education (ref: Low)</i>								
Medium	0.949 [0.406, 1.957]	0.734 [0.117, 3.352]	1.284 [1.035, 1.589]	0.897 [0.559, 1.430]	0.702 [0.560, 0.879]	0.458 [0.279, 0.747]	1.142 [0.826, 1.563]	1.332 [0.582, 2.912]
High	1.024 [0.441, 2.081]	0.818 [0.133, 3.588]	0.984 [0.796, 1.212]	0.460 [0.292, 0.716]	0.602 [0.474, 0.763]	0.288 [0.172, 0.481]	0.742 [0.529, 1.032]	0.447 [0.193, 0.990]
<i>Cohort</i>	0.949 [0.917, 0.983]	0.932 [0.831, 1.045]	0.966 [0.954, 0.979]	0.928 [0.902, 0.954]	0.992 [0.976, 1.008]	0.957 [0.930, 0.986]	0.971 [0.954, 0.988]	0.962 [0.916, 1.009]
<i>Migration background (ref: Born in Europe)</i>								
Born outside Europe	0.897 [0.429, 2.198]	0.898 [0.430, 2.203]	0.955 [0.729, 1.272]	0.962 [0.734, 1.283]	0.736 [0.535, 1.037]	0.765 [0.555, 1.078]	> 10 ^a	> 10 ^a
<i>Religious denomination (ref: Religious)</i>								
Not religious	1.078 [0.758, 1.535]	1.079 [0.758, 1.535]	0.909 [0.782, 1.056]	0.905 [0.779, 1.052]	1.108 [0.905, 1.365]	1.106 [0.904, 1.362]	1.107 [0.891, 1.378]	1.111 [0.894, 1.384]
<i>Parental education (ref: Both low)</i>								
Only Father medium/high	0.996 [0.559, 1.831]	0.996 [0.559, 1.831]	1.038 [0.832, 1.302]	1.031 [0.826, 1.293]	1.248 [0.926, 1.712]	1.256 [0.932, 1.722]	0.831 [0.590, 1.185]	0.836 [0.593, 1.193]
Only Mother medium/high	0.863 [0.492, 1.544]	0.861 [0.491, 1.542]	1.356 [1.016, 1.837]	1.340 [1.005, 1.816]	1.221 [0.789, 1.985]	1.187 [0.767, 1.929]	1.319 [0.910, 1.944]	1.330 [0.918, 1.960]
Both medium/high	1.028 [0.641, 1.624]	1.027 [0.640, 1.622]	0.990 [0.816, 1.203]	0.978 [0.806, 1.187]	0.990 [0.767, 1.284]	0.956 [0.741, 1.239]	1.068 [0.823, 1.378]	1.087 [0.838, 1.403]
Both unknown	0.566 [0.212, 1.973]	0.562 [0.210, 1.959]	0.889 [0.653, 1.237]	0.890 [0.653, 1.239]	1.031 [0.558, 2.131]	1.028 [0.556, 2.127]	0.660 [0.396, 1.167]	0.677 [0.405, 1.197]
<i>Interaction Education x Cohort</i>								
Medium x Cohort		1.022 [0.904, 1.156]		1.032 [0.997, 1.068]		1.037 [1.002, 1.074]		0.989 [0.938, 1.043]
High x Cohort		1.019 [0.905, 1.147]		1.064 [1.031, 1.098]		1.061 [1.023, 1.100]		1.034 [0.981, 1.090]
<i>No. Obs.</i>	4,777	4,777	14,543	14,543	7,119	7,119	8,934	8,934

Note: 95% confidence intervals in parentheses. Models are controlled for age at interview and country (not displayed here).

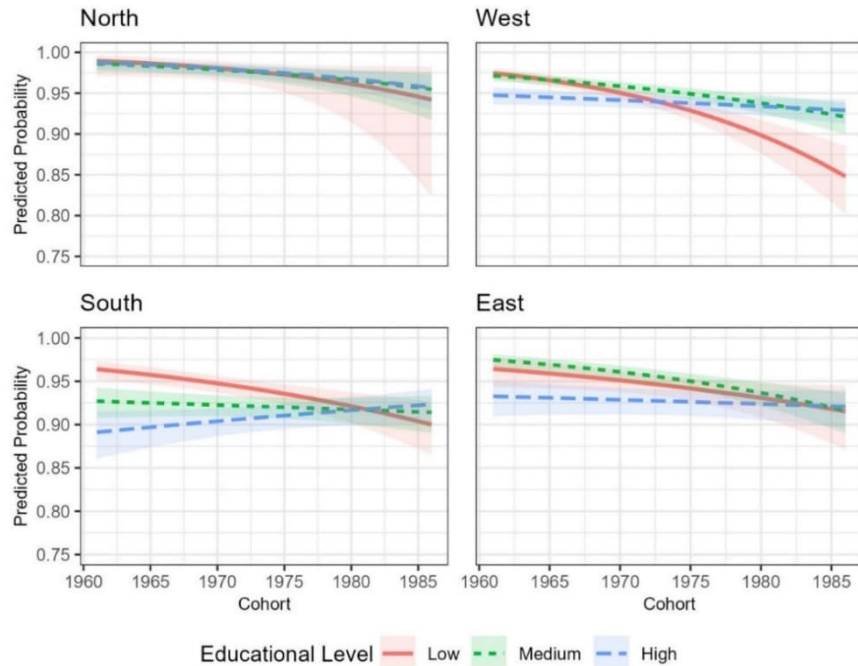
^a The log odds and standard errors for migration background for the Eastern region are very high due to the small number of respondents born outside the EU (N = 15) and the coefficients are therefore not interpretable.

Source: ESS Rounds 1–10 (own calculation).

For the Western European countries, the probability of ever having cohabited at ages 35–45 decreases significantly for the lower-educated compared to the medium- and higher-educated, for whom the association between educational level and likelihood of cohabiting remains more stable. While lower- and medium-educated women have higher probabilities of selecting into stable cohabitation in the older cohorts, in recent cohorts lower-educated women have a significantly lower likelihood of cohabiting than both the medium- and higher-educated. This is also reflected in the regression results by the

significant decline in the probability of cohabiting for the group of lower-educated women across cohorts.

Figure 5: Probability of ever cohabiting for women aged 35–45



Note: 83.4% confidence intervals. Adjusted for migration background (= Born in Europe), religious denomination (= Not religious), parental education (= both parents low-educated), and age at interview (= 40), and averaged across countries.
Source: ESS Rounds 1–10 (own calculation).

In the Southern European countries, lower-educated women experience a larger decline in the probability of cohabiting than the highly educated, leading to a convergence of probabilities in the more recent cohort. While the higher-educated have lower transition rates to cohabitation than the lower- and medium-educated in the earlier cohorts, their transition rates remain more stable across cohorts.

For the Eastern European region, in the older cohorts we find a higher probability of ever cohabiting for medium- and lower-educated women than highly educated women, but the results are not statistically significant for the low-educated compared to the more highly educated. While the trends across educational groups are similar to the Southern European region, we can therefore not confirm a significant change in the educational

gradient of cohabitation. As is apparent from the regression results in Table 2 and the main coefficient for cohort when including the interaction effect, we do not find a significant absolute decline in the likelihood of cohabiting by ages 35–45 for lower-educated women in the Eastern European region.

In conclusion, for the Western and Southern European regions, our results confirm the first hypothesis that the likelihood of selecting into cohabitation at least once before the ages 35–45 decreased significantly for lower-educated women compared to their higher-educated peers. While in the earlier cohorts the lower-educated had higher chances of cohabiting than the higher-educated, the likelihood reversed (in the case of the Western European countries) or converged (in the Southern European region). While we find similar trends for the Eastern European region, the results do not reach statistical significance. Interestingly, the results for the Nordic countries go against our expectations. For women, we do not find significant differences between the educational groups at any point across cohorts. Nevertheless, these findings are affected by the small sample size of lower-educated in the region in the more recent cohorts, as indicated by the larger uncertainty in the estimates.

4.2.2 Convergence between men and women in the likelihood of ever cohabiting

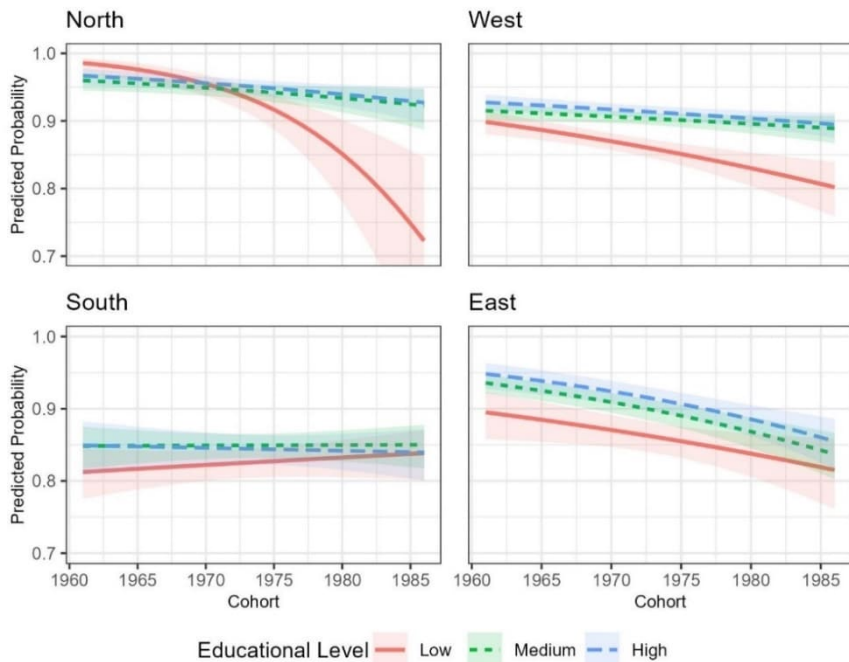
Comparing the findings for men and women offers interesting insights into the educational gradient of cohabitation and the varying likelihood across cohorts of lower-educated men experiencing cohabitation. Following our theoretical argument, we would expect lower-educated men to already have lower transition rates to cohabitation in the earlier cohorts, as suggested by the male breadwinner model and higher salience of men's education and income in the partnering market. We argue that the declines in the likelihood of lower-educated women cohabiting imply gender convergence in recent cohorts.

First, we run the same analysis on the sample of men as we did for women and compare the results. After adding the interaction effect between education and cohort the coefficients for educational attainment show the probability of cohabiting for men born in 1960 (Table A-2 in the Appendix). In line with our expectations, we find that in the earlier cohorts highly educated men in the Eastern regions were already significantly more likely to cohabit than lower-educated men. This finding is positive but insignificant for the higher-educated in the Western and Southern European region, which could be explained by their older ages at transitioning to cohabitation, and negative but insignificant for the higher-educated men in the Northern European region. With the exception of the Nordic countries, where we see a stronger decline across cohorts in

probabilities for the lower-educated men than the higher-educated, the interaction between education and cohort does not change significantly across cohorts.

These findings become more apparent when plotting the predicted probabilities of cohabitation across cohorts (Figure 6). For the Western and Eastern regions we find that already in the earlier cohorts lower-educated men were less likely to have entered a cohabiting union than medium- and higher-educated men (starting in 1960). By contrast, for the Nordic region, lower-educated men born in the 1960s seem to be more likely to have cohabited by ages 35–45 and the relationship only reverses in the more recent cohorts. For men in the Southern European region we do not find significantly different probabilities across cohorts for the educational groups. These findings are in line with the argument that during the entire period under study, higher-educated men are more likely to select into a partnership, while in the more recent cohorts a reversal in the relationship and a stronger decline in the likelihood of entering cohabitation can be found for lower-educated women.

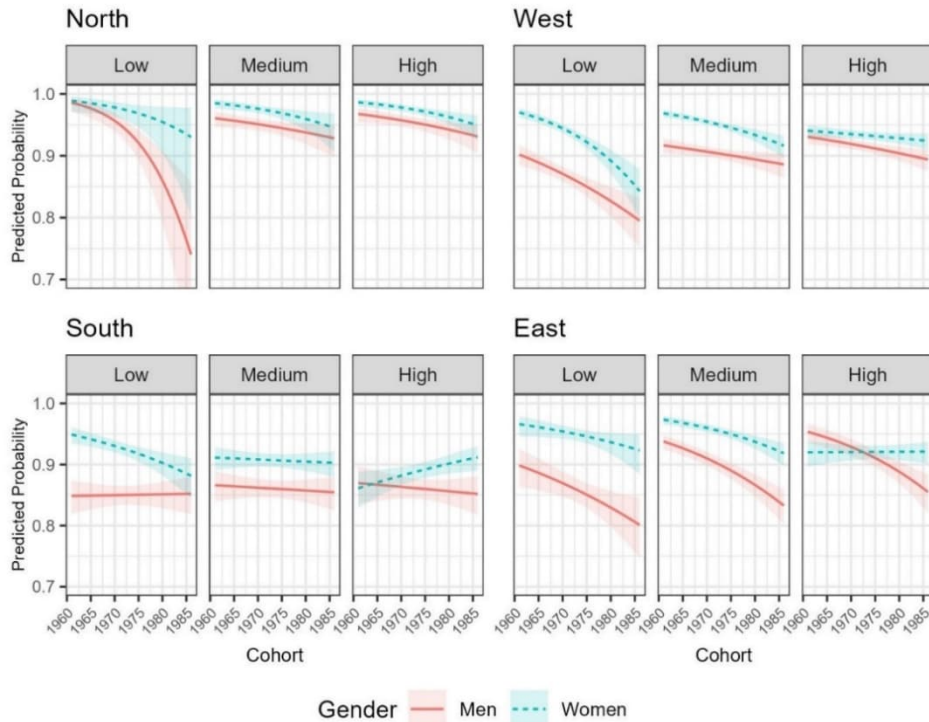
Figure 6: Probability of ever cohabiting for men aged 35–45



Note: 83.4% confidence intervals. Adjusted for migration background (= Born in Europe), religious denomination (= Not religious), parental education (= both parents low-educated), age at interview (= 40), and averaged across countries.
Source: ESS Rounds 1–10 (own calculation).

Secondly, to analyse a possible convergence between men and women in terms of the likelihood of cohabiting, we run our analysis on a joint sample of men and women including a 3-way interaction between gender, education, and cohort. Figure 7 plots the predicted probabilities by region, educational level, and gender, based on the model (see Table A-3 in the Appendix for the full regression table).

Figure 7: Probability of ever cohabiting for women and men aged 35–45, by region and education



Note: 83.4% confidence intervals. Adjusted for migration background (= Born in Europe), religious denomination (= Not religious), parental education (= both parents low educated), age at interview (= 40), and averaged across countries. Source: ESS Rounds 1–10 (own calculation).

Based on these results and in line with our second hypothesis, we find a clear convergence of the likelihood of ever entering cohabitation for lower-educated men and women in the Western and Southern European regions. While in the older cohorts lower-educated women have a higher likelihood of ever cohabiting than lower-educated men,

in the more recent cohorts the likelihood of cohabiting converges for both regions. This is further confirmed by running a logistic regression separately for the lower-educated and adding an interaction between gender and cohort (Table 3, Model 2). Indeed, we find a significantly negative interaction between cohort and gender for the Southern and Western regions. This means that between the 1960 and 1985 cohorts the likelihood of ever having cohabited has decreased more strongly for lower-educated women than lower-educated men.

Table 3: Odds ratios of ever cohabiting for lower-educated men and women aged 35–45

	North		West		South		East	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Gender (ref: Men)</i>								
Women	2.182 [0.999, 5.294]	1.405 [0.243, 10.206]	2.370 [1.940, 2.905]	3.596 [2.297, 5.687]	2.141 [1.741, 2.642]	3.354 [2.113, 5.373]	2.866 [2.084, 3.984]	3.073 [1.322, 7.399]
Cohort	0.904 [0.839, 0.971]	0.895 [0.821, 0.971]	0.950 [0.933, 0.968]	0.963 [0.941, 0.985]	0.984 [0.965, 1.004]	0.997 [0.974, 1.021]	0.975 [0.945, 1.006]	0.977 [0.942, 1.013]
<i>Migration background (ref: Born in Europe)</i>								
Born outside Europe	0.986 [0.301, 4.484]	0.995 [0.302, 4.532]	1.329 [0.936, 1.929]	1.334 [0.939, 1.936]	0.598 [0.426, 0.856]	0.600 [0.427, 0.859]	> 10 ^a	> 10 ^a
<i>Religious denomination (ref: Not religious)</i>								
Religious	0.861 [0.407, 1.769]	0.867 [0.410, 1.785]	1.044 [0.843, 1.291]	1.046 [0.845, 1.294]	0.725 [0.576, 0.916]	0.721 [0.573, 0.910]	1.153 [0.791, 1.693]	1.154 [0.791, 1.694]
<i>Parental education (ref: Both low)</i>								
Only father medium/high	2.702 [0.715, 17.678]	2.710 [0.717, 17.742]	0.912 [0.647, 1.317]	0.916 [0.649, 1.323]	1.043 [0.606, 1.921]	1.026 [0.596, 1.890]	1.255 [0.677, 2.557]	1.257 [0.678, 2.562]
Only mother medium/high	0.758 [0.281, 2.283]	0.770 [0.284, 2.329]	1.234 [0.788, 2.024]	1.225 [0.783, 2.007]	1.143 [0.537, 2.830]	1.122 [0.528, 2.776]	1.042 [0.603, 1.894]	1.041 [0.603, 1.892]
Both medium/high	0.466 [0.193, 1.145]	0.470 [0.194, 1.158]	1.378 [0.878, 2.263]	1.365 [0.871, 2.242]	1.299 [0.543, 3.855]	1.254 [0.525, 3.717]	0.643 [0.413, 1.023]	0.643 [0.413, 1.023]
Both unknown	0.423 [0.100, 2.933]	0.425 [0.100, 2.951]	0.731 [0.540, 1.001]	0.733 [0.542, 1.005]	1.307 [0.703, 2.716]	1.297 [0.698, 2.694]	0.833 [0.451, 1.667]	0.834 [0.451, 1.668]
<i>Interaction cohort:gender</i>								
Women:cohort		1.036 [0.905, 1.185]		0.965 [0.932, 0.999]		0.963 [0.931, 0.997]		0.995 [0.940, 1.053]
No. Obs.	780	780	4,774	4,774	4,110	4,110	1,897	1,897

Note: 95% confidence intervals in parentheses. Models are controlled for age at interview and country (not displayed here).

^a The log odds and standard errors for migration background for the Eastern region are very high due to the small number of respondents born outside the EU (N = 15) and the coefficients are therefore not interpretable.

Source: ESS Rounds 1–10 (own calculation).

For the lower-educated in the Eastern and Northern European regions, on the other hand, a convergence across gender is not noticeable. For the Eastern European region we

find that the likelihood of cohabiting is continuously higher for lower-educated women than for lower-educated men, with no signs of convergence. For the Nordic region we find strong declines in the likelihood of cohabiting for both lower-educated men and lower-educated women, but the results for men and women are not significantly different. Nevertheless, as we can see from the large confidence intervals, the sample size for lower-educated individuals in the Nordic region is too small to draw reliable conclusions. In conclusion, the second hypothesis on gender convergence among the lower-educated group in recent cohorts is confirmed for the Western and Southern European regions but not for the Eastern and Northern regions. Possible reasons for these regional differences are discussed in the conclusion.

For the higher-educated individuals, we find that in recent cohorts in the Southern and Eastern European regions the higher-educated women have a higher likelihood of cohabiting by ages 35–45 than the higher-educated men (see Figure 7). For the Northern and Western European regions we also find that higher-educated women are slightly more likely to cohabit than higher-educated men by ages 35–45, but the differences are small and not significant across all cohorts. This could indicate a shift to highly educated women being as likely as highly educated men to ever cohabit by ages 35–45, or, in the case of the Southern and Eastern European regions, even more likely.

5. Conclusion and discussion

In many European countries, women's negative educational gradient of married and unmarried cohabitation – higher educational attainment connected to lower levels of cohabitation – is weakening across countries. Results from recent studies focusing on single countries show higher levels of singlehood and lower levels of union formation among the lower-educated in the more recent cohorts (Hudde and Engelhardt 2023; Jalovaara 2012; Jalovaara and Andersson 2023; Sandström and Karlsson 2019). Nevertheless, empirical evidence of more general trends across countries is limited and does not take a cohort perspective into account (Bellani, Esping-Andersen, and Nedoluzhko 2017; Kalmijn 2013). In this paper we analyse how women's and men's likelihood of entering a cohabiting union is influenced by educational level and explicitly include an interaction between educational level and cohort, as well as gender. We apply logistic regression to recent ESS data from 2002–2022 from 28 countries, grouped into four regions, and include men and women born between 1960 and 1985. Based on the shift from a male breadwinner to a dual-earner model across European countries, we argue that women with higher educational attainment are increasingly desired as partners, while women with lower educational attainment might be increasingly marginalized in the partnering market. This could especially be the case in more gender-equal contexts

where women's labour force participation and earnings are high and government policies support a family-work balance.

First, we hypothesized that the likelihood of 35–45-year-old, low-educated women ever having cohabited with a partner has decreased across cohorts compared to women with higher education. For recent cohorts in the Western European region, we find that the probability of 35–45-year-old women having ever entered a cohabiting union is significantly lower than for the higher-educated. In older cohorts we find the opposite. Similarly, for the Southern European region we find that lower-educated women had the highest likelihood of cohabiting in older cohorts, but no significant differences between educational groups in the recent cohorts. For the Nordic and Eastern European regions our findings point in a similar direction, but the associations remain insignificant. On the other hand, for higher-educated women across all regions the probability of cohabiting with a partner remains stable and does not vary significantly across cohorts. In summary, while women with low educational attainment typically exhibit the highest rates of union formation in the oldest cohorts, this changes drastically in the more recent cohorts, where they either exhibit the lowest rates compared to women with higher degrees or no longer significantly differ from each other.

Second, we hypothesized that the likelihood of 35–45-year-old, low-educated women and men ever having cohabited with a partner has converged across cohorts. While we see more recent changes in the educational gradient of entry into cohabitation for women, this implies longer standing patterns of lower union formation rates for lower-educated men. In the Western and Southern European regions, lower-educated women born in the 1960s had a significantly higher probability of ever entering cohabitation than higher-educated women. For men, on the other hand, across cohorts from 1960 to 1985 we find either a higher likelihood of cohabiting for the higher-educated than the lower-educated or no significant differences between educational levels. In line with our hypothesis, we find that in the Southern and Western European regions the likelihood of ever cohabiting has declined more strongly for lower-educated women than lower-educated men, leading to a convergence across genders in the recent cohort. Similar to the first hypothesis, our second hypothesis is not confirmed for the Nordic and Eastern European regions. In the following we discuss possible reasons for these regional differences.

We expected a weakening of the negative educational gradient of cohabitation for women across all regions, but particularly in more gender-egalitarian contexts where women's labour force participation and earnings are higher. Indeed, for the Western European region we find the clearest absolute and relative declines in the likelihood of ever cohabiting for lower-educated women. Additionally, we find convergence in the likelihood of ever cohabiting between men and women. Although variation across regions exists, in the Western region women's employment rates and participation in

higher education and gender equity in terms of access to financial and economic resources are on average higher in European comparison. This is in line with findings by Kalmijn (2013) using ESS data from 2002–2010, which point to a reversal rather than a convergence in the educational gradient of being in a union in more gender-egalitarian countries.

For the Southern and Eastern European countries we find a similar but less pronounced weakening of women's negative educational gradient of ever cohabiting with a partner, which reaches significance for the Southern European region. The Southern region is characterized by, on average, the highest shares of women with low educational attainment, with approximately 19% of women completing lower secondary education (ISCED Level 0–2) in the 1975–1985 cohort. Female labour force participation is lower in European comparison and several countries in our sample score lower than the EU average in terms of gender-equal access to financial and economic resources. While the likelihood of cohabiting does converge across women's educational groups in recent cohorts, this could explain why women's educational gradient has not (yet) reversed, as is the case for the Western European region. Nevertheless, we find a convergence in the likelihood of cohabiting for lower-educated men and women, indicating an increasing marginalization of lower-educated women in the partnering market in the Southern European region as well. While in the earlier cohorts they were more likely to cohabit than higher-educated women and lower-educated men, this is no longer the case.

The Eastern European region is also characterized by lower gender equity in terms of access to financial and economic resources, the lowest in European comparison, but historically general shares of women in tertiary education have been high, as is also reflected in the low shares of respondents with low education (around 10%–11% across cohorts from 1960 to 1985). Nevertheless, we do not find significant differences in the likelihood of cohabiting across educational groups and cohorts for women. Lower-educated women have a higher likelihood of ever entering cohabitation than lower-educated men, with no signs of convergence in recent cohorts.

For the Nordic countries, the results in terms of ever cohabiting go against our expectations. We do not find an increasing marginalization of lower-educated women in the partnering market, although results from previous studies (Jalovaara 2012; Jalovaara and Andersson 2023) as well as high female labour force participation and high levels of gender equity would suggest this. We assume this finding to be rooted in the small sample size of lower-educated in the Nordic region, especially as we move to the younger cohort. Adding the universality of ever cohabiting in the Nordic countries – around 96% of 35–45 year olds cohabit at least once – our sample might not be big enough to say much about those who did not complete secondary education. This could explain the difference in results compared to studies using register data, where sample size is not an issue (Jalovaara 2012; Jalovaara and Andersson 2023).

Some limitations must be acknowledged. A drawback of the ESS is that we only have information on the first transition to cohabitation. This is especially important, since individuals with lower educational attainment might, on average, start cohabiting with a partner earlier but the cohabitation could be less stable. For Finland, Jalovaara and Andersson (2023) show that union instability rather than never entering a union leads to lower union prevalence among lower-educated men and women. This could imply that we underestimate the marginalization of lower-educated women in the partnering market. Due to a lack of data, we also do not have information on whether someone does have a partner but is not living with them ('living apart together'). Are people less likely to start cohabiting with a partner, potentially indicating resource inequality, or are they also less likely to have a partner at all, which might have particularly adverse consequences for their well-being? Having data on couples living apart together, such as provided in the Generations and Gender Survey, could help disentangle these possibly different phenomena. Including information on income or social class could be a further way to more explicitly model the influence of economic means on life course transitions (see e.g., Bastianelli, Guetto, and Vignoli 2023). Finally, the issue of selectivity is important to mention. While we control for a measure of migration background and religiosity, unobserved factors might affect both the likelihood of cohabiting with a partner as well as attaining below-secondary education – an increasingly small group in recent cohorts.

Despite these shortcomings, our paper clearly shows that the likelihood of lower-educated women cohabiting with a partner has drastically changed in recent cohorts, while a positive association between education and cohabitation has existed longer for men. We find that this to be most visible in the Western European region, but to a lesser extent it also applies to the Southern and Eastern European regions, adding to the empirical evidence of a changing educational gradient of cohabitation across broader regions rather than single European countries.

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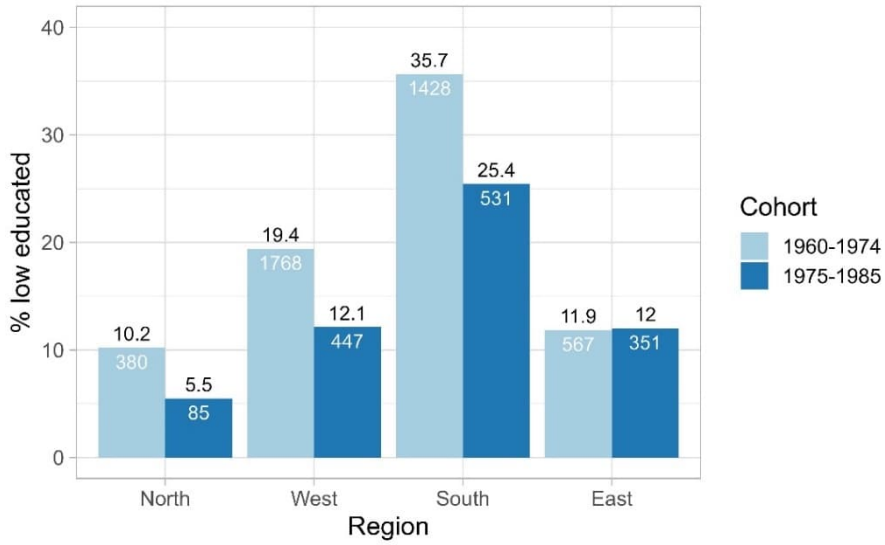
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Appendix

Table A-1: Participation of countries in ESS Rounds 1–10

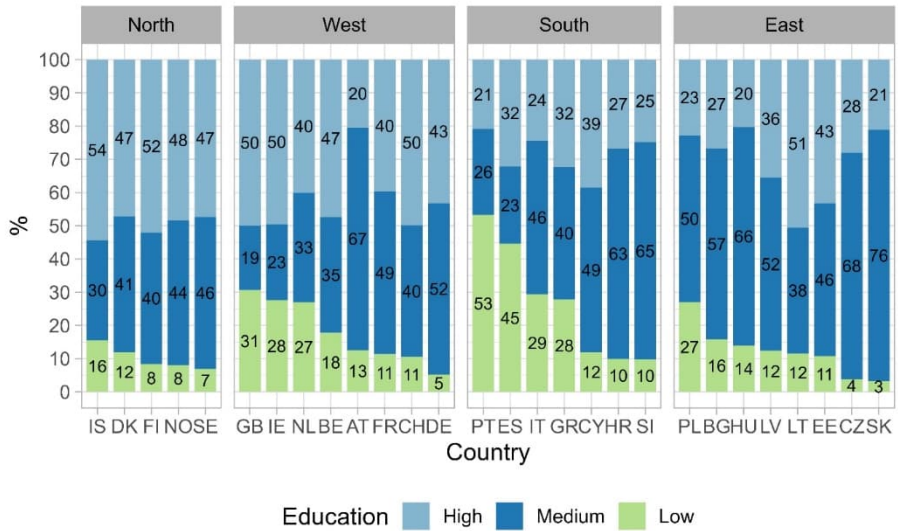
Country	Rounds of the ESS									
	1	2	3	4	5	6	7	8	9	10
AT	•	•					•	•	•	•
BE	•	•	•	•	•	•	•	•	•	•
BG			•	•	•	•			•	•
CH	•	•	•	•	•	•	•	•	•	•
CY			•	•	•	•			•	•
CZ	•	•	•	•	•	•	•	•	•	•
DE	•	•	•	•	•	•	•	•	•	•
DK	•	•	•	•	•	•	•		•	
EE		•	•	•	•	•	•	•	•	•
ES	•	•	•	•	•	•	•	•	•	•
FI	•		•	•	•	•	•	•	•	•
FR	•	•	•	•	•	•	•	•	•	•
GB	•	•	•	•	•	•	•	•	•	•
GR	•	•		•	•					
HR				•	•				•	•
HU	•	•	•	•	•	•		•	•	•
IE	•	•	•	•	•	•	•	•	•	•
IS		•				•		•	•	•
IT	•					•		•	•	•
LT					•	•	•	•	•	•
LV				•					•	•
NL	•	•	•	•	•	•	•	•	•	•
NO	•	•	•	•	•	•	•	•	•	•
PL	•	•	•	•	•	•	•	•	•	•
PT	•	•	•	•	•	•	•	•	•	•
SE			•	•	•	•	•	•	•	•
SI	•	•	•	•	•	•	•	•	•	•
SK		•	•	•	•	•			•	•

Figure A-1: Share (in %) of educational level by country, men aged 35–45



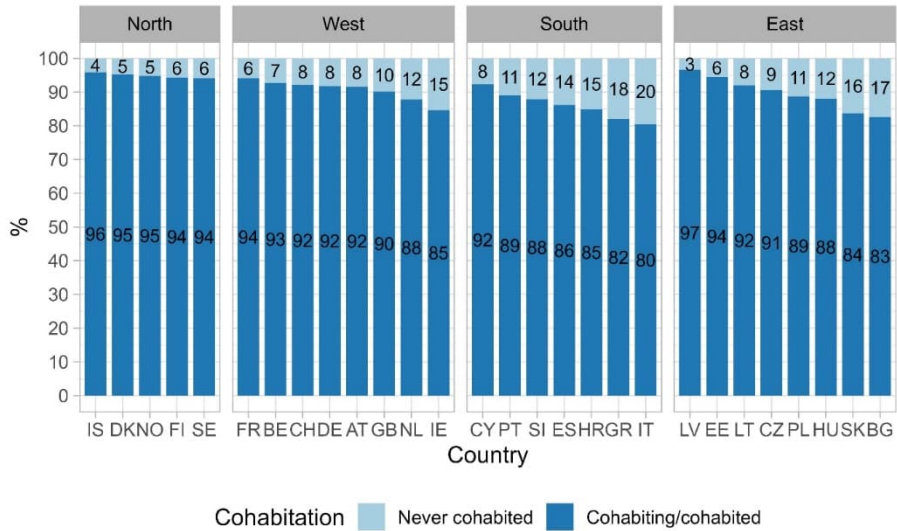
Source: ESS Rounds 1–10 (own calculation).

Figure A-2: Share (in %) and sample size of lower-educated men, by cohort and region



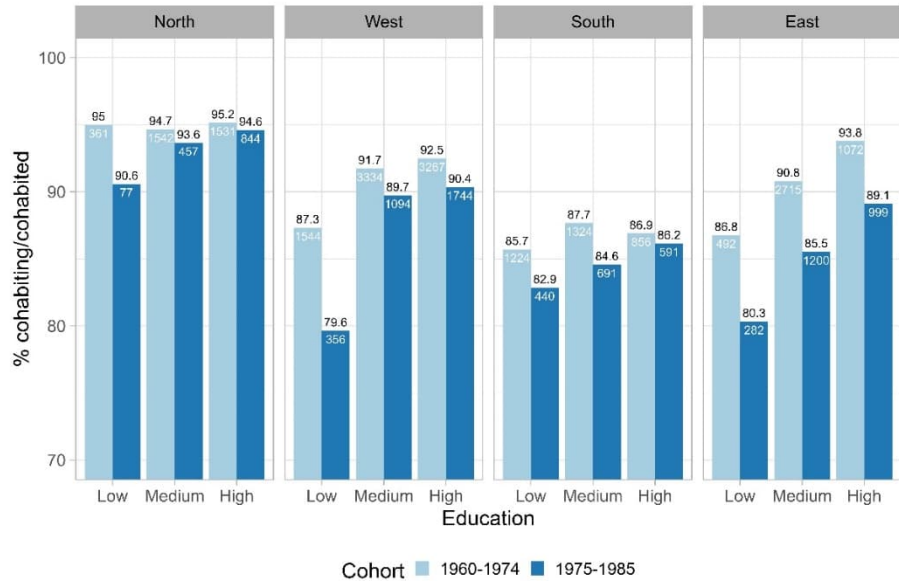
Source: ESS Rounds 1–10 (own calculation).

Figure A-3: Share of male respondents aged 35–45 who ever cohabited, by country



Source: ESS Rounds 1–10 (own calculation).

Figure A-4: Share (in %) of male respondents aged 35–45 who ever cohabited, by region, cohort, and educational attainment



Source: ESS Rounds 1–10 (own calculation).

Table A-2: Odds ratios of ever cohabiting for men aged 35–45

	North		West		South		East	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Education (ref: Low)</i>								
Medium	1.075 [0.680, 1.644]	0.314 [0.096, 0.901]	1.485 [1.253, 1.759]	1.192 [0.843, 1.682]	1.198 [0.991, 1.448]	1.302 [0.869, 1.951]	1.398 [1.109, 1.754]	1.733 [1.000, 2.951]
High	1.254 [0.784, 1.944]	0.385 [0.115, 1.137]	1.686 [1.418, 2.003]	1.422 [0.994, 2.033]	1.148 [0.931, 1.418]	1.314 [0.820, 2.120]	1.654 [1.264, 2.160]	2.191 [1.113, 4.313]
<i>Cohort</i>	0.961 [0.938, 0.985]	0.877 [0.813, 0.943]	0.982 [0.971, 0.993]	0.969 [0.949, 0.990]	1.002 [0.987, 1.017]	1.007 [0.985, 1.030]	0.961 [0.947, 0.975]	0.974 [0.943, 1.006]
<i>Migration background (ref: Born in Europe)</i>								
Born outside Europe	0.997 [0.549, 2.004]	1.018 [0.559, 2.052]	1.626 [1.248, 2.156]	1.636 [1.255, 2.169]	0.704 [0.523, 0.964]	0.702 [0.521, 0.961]	1.879 [0.384, 33.981]	1.868 [0.382, 33.759]
<i>Religious denomination (ref: Not religious)</i>								
Religious	1.070 [0.828, 1.378]	1.068 [0.827, 1.376]	0.978 [0.860, 1.112]	0.976 [0.858, 1.110]	0.760 [0.645, 0.896]	0.759 [0.645, 0.896]	1.029 [0.861, 1.230]	1.027 [0.860, 1.228]
<i>Parental education (ref: Both low)</i>								
Only father medium/high	1.063 [0.719, 1.590]	1.067 [0.722, 1.597]	1.033 [0.856, 1.249]	1.032 [0.856, 1.249]	1.238 [0.941, 1.647]	1.235 [0.939, 1.644]	1.037 [0.779, 1.392]	1.036 [0.778, 1.390]
Only mother medium/high	1.257 [0.810, 2.004]	1.287 [0.828, 2.052]	1.080 [0.852, 1.382]	1.080 [0.852, 1.383]	0.982 [0.672, 1.473]	0.983 [0.673, 1.476]	0.957 [0.715, 1.291]	0.954 [0.713, 1.288]
Both medium/high	1.090 [0.789, 1.498]	1.092 [0.791, 1.500]	1.182 [0.994, 1.406]	1.178 [0.991, 1.402]	1.190 [0.935, 1.521]	1.194 [0.937, 1.527]	1.337 [1.081, 1.652]	1.341 [1.083, 1.658]
Both unknown	0.554 [0.267, 1.303]	0.537 [0.258, 1.265]	0.822 [0.639, 1.071]	0.820 [0.637, 1.069]	0.875 [0.517, 1.574]	0.873 [0.516, 1.570]	1.074 [0.684, 1.759]	1.078 [0.686, 1.764]
<i>Interaction education:cohort</i>								
Medium:cohort		1.109 [1.025, 1.202]		1.020 [0.993, 1.047]		0.993 [0.965, 1.022]		0.985 [0.951, 1.020]
High:cohort		1.103 [1.020, 1.195]		1.015 [0.989, 1.042]		0.990 [0.959, 1.022]		0.981 [0.942, 1.022]
<i>No. Obs.</i>	5,083	5,083	12,530	12,530	5,957	5,957	7,575	7,575

Note: 95% confidence intervals in parentheses. Models control for age and country (not displayed here).
Source: ESS Rounds 1–10 (own calculation).

Table A-3: Odds ratios of ever cohabiting for men and women, including 3-way interaction

	North		West		South		East	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Education (ref: Low)</i>								
Medium	1.045 [0.703, 1.512]	0.317 [0.097, 0.908]	1.414 [1.238, 1.613]	1.173 [0.834, 1.647]	0.954 [0.827, 1.101]	1.160 [0.777, 1.732]	1.299 [1.080, 1.559]	1.725 [0.999, 2.928]
High	1.187 [0.795, 1.727]	0.390 [0.117, 1.149]	1.356 [1.187, 1.546]	1.437 [1.009, 2.046]	0.867 [0.742, 1.013]	1.199 [0.753, 1.922]	1.155 [0.941, 1.413]	2.359 [1.204, 4.627]
Cohort	0.957 [0.938, 0.976]	0.880 [0.816, 0.946]	0.975 [0.966, 0.983]	0.966 [0.946, 0.987]	0.996 [0.985, 1.007]	1.001 [0.980, 1.023]	0.965 [0.954, 0.975]	0.969 [0.939, 1.000]
<i>Gender (ref: Men)</i>								
Women	1.910 [1.547, 2.369]	1.213 [0.215, 8.531]	1.752 [1.597, 1.923]	3.662 [2.348, 5.771]	1.646 [1.473, 1.841]	3.444 [2.170, 5.516]	1.910 [1.703, 2.144]	3.214 [1.393, 7.687]
<i>Migration background (ref: Born in Europe)</i>								
Born outside	0.950 [0.592, 1.622]	0.961 [0.597, 1.645]	1.282 [1.059, 1.564]	1.292 [1.068, 1.577]	0.720 [0.578, 0.904]	0.736 [0.591, 0.926]	2.700 [0.576, 48.196]	2.618 [0.558, 46.750]
<i>Religious denomination (ref: Not religious)</i>								
Religious	1.072 [0.872, 1.316]	1.067 [0.868, 1.310]	0.945 [0.857, 1.041]	0.943 [0.855, 1.040]	0.889 [0.784, 1.010]	0.890 [0.785, 1.011]	1.058 [0.922, 1.214]	1.061 [0.924, 1.218]
<i>Parental education (ref: Both low)</i>								
Only Father	1.044 [0.755, 1.457]	1.047 [0.757, 1.462]	1.031 [0.894, 1.192]	1.028 [0.891, 1.189]	1.235 [1.009, 1.524]	1.237 [1.010, 1.526]	0.947 [0.760, 1.185]	0.954 [0.765, 1.194]
Only Mother	1.084 [0.767, 1.550]	1.103 [0.781, 1.578]	1.177 [0.980, 1.423]	1.184 [0.985, 1.431]	1.082 [0.812, 1.469]	1.071 [0.803, 1.453]	1.095 [0.871, 1.384]	1.119 [0.890, 1.415]
Both medium/high	1.068 [0.819, 1.387]	1.070 [0.821, 1.389]	1.087 [0.955, 1.237]	1.080 [0.949, 1.229]	1.098 [0.922, 1.312]	1.085 [0.910, 1.296]	1.218 [1.034, 1.433]	1.236 [1.049, 1.455]
Both unknown	0.567 [0.312, 1.121]	0.553 [0.304, 1.095]	0.849 [0.698, 1.041]	0.846 [0.695, 1.038]	0.930 [0.621, 1.449]	0.930 [0.620, 1.450]	0.891 [0.633, 1.286]	0.903 [0.640, 1.305]
<i>Interaction education:cohort</i>								
Medium:cohort		1.108 [1.025, 1.201]		1.021 [0.994, 1.048]		0.995 [0.967, 1.023]		0.987 [0.953, 1.023]
High:cohort		1.101 [1.018, 1.193]		1.016 [0.990, 1.043]		0.993 [0.962, 1.025]		0.982 [0.942, 1.023]
<i>Interaction education:gender</i>								
Medium:women		2.305 [0.285, 15.591]		0.791 [0.447, 1.394]		0.461 [0.246, 0.861]		0.758 [0.288, 1.946]
High:women		2.070 [0.259, 13.726]		0.320 [0.181, 0.560]		0.263 [0.132, 0.520]		0.166 [0.058, 0.462]
<i>Interaction cohort:gender</i>								
Cohort:women		1.053 [0.924, 1.202]		0.963 [0.931, 0.997]		0.963 [0.930, 0.997]		0.997 [0.942, 1.055]
<i>Interaction education:cohort:gender</i>								
Medium:cohort:women		0.923 [0.798, 1.065]		1.010 [0.967, 1.054]		1.038 [0.993, 1.085]		1.000 [0.939, 1.065]
High:cohort:women		0.928 [0.806, 1.067]		1.047 [1.005, 1.090]		1.066 [1.017, 1.118]		1.055 [0.987, 1.128]
No. Obs.	9,860	9,860	27,073	27,073	13,076	13,076	16,509	16,509

Note: 95% confidence intervals in parentheses. Models control for age and country (not displayed here).
Source: ESS Rounds 1–10 (own calculation).