Extended abstract for European Population Conference 2026

Education and family formation across Europe: are women with lower educational attainment less likely to enter stable unions and parenthood?

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Background & research question

In the past, fertility decline below replacement level was largely attributed to women's increasing participation in higher education and the labour market (Mills et al., 2011; Neels et al., 2017). In recent cohorts, however, there are signs that the negative educational gradient – higher education connected to lower fertility – might have shifted and that fertility declined especially among women with lower educational attainment (Compans, 2021; Ermisch, 2021; Jalovaara et al., 2019; Kreyenfeld & Konietzka, 2017; Reher & Requena, 2019).

One reason to expect a shift in the educational gradient of fertility might be that stable unions, which continue to be considered a prerequisite for having children, are becoming less frequent or stable among lower-educated women – especially in contexts of high labour market participation and earnings of women (Jalovaara, 2012; Jalovaara & Andersson, 2023; Sturm & Van Bavel, 2024). There, similar or higher-educated women might be the more desired partners, in turn, leading to marginalization of women with lower educational attainment on the partnering market. Similar trends have already been observed for men: across Europe, lower educated men are more likely to remain single (De Hauw, Grow, & Van Bavel, 2017), translating into lower transition rates to parenthood across several European countries (Trimarchi & Van Bavel 2017).

While a positive educational gradient of union formation and fertility has been longer standing for men, findings for lower educated women are less clear. Higher-educated women are typically found to postpone or forego motherhood (Ní Bhrolcháin & Beaujouan, 2012; Wood et al., 2014), but more recent developments indicate a change in this long-standing relation: 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 et al., 2018) and declines in the stability of typically male, blue-collar occupations (Adserà, 2018; Autor, 2014) may have led to men's preference for equally or higher-educated partners, disadvantaging lower educated women on the partnership market. Indeed, recent evidence from Southern and Western Europe shows that lower-educated women are now less likely to have ever cohabited with a partner by ages 35 to 45 than their higher-educated peers (Sturm & Van Bavel, 2024).

Nevertheless, key questions remain. First, while recent studies suggest a weakening of women's educational gradient in fertility in several European countries (Compans, 2021; Ermisch, 2021; Jalovaara et al., 2019; Reher & Requena, 2019), the underlying mechanisms – particularly the role of partnership formation and stability – are not yet analysed in detail. For men, Trimarchi and Van Bavel (2017) jointly model the effect of educational attainment on the likelihood to enter a union and the transition to parenthood, but studies for women remain descriptive rather than testing causality. Second, focusing solely on first union formation (Trimarchi & Van Bavel, 2017) or the likelihood of ever cohabiting with a partner (Sturm & Van Bavel, 2024) might obscure higher rates of union instability among lower educated women. Despite earlier union entries (Badolato et al., 2024; Ferraretto & Vitali, 2024), recent studies find that women with lower educational attainment have an overall higher probability of living alone during their life course (Hudde & Engelhardt, 2023; Sandström & Karlsson, 2019). Both a lower likelihood of ever cohabiting with a partner and higher union instability could potentially explain why fertility might decline among lower educated women.

This study, therefore, aims to analyse how women's likelihood of selecting into parenthood is influenced by educational level and in how far this relationship is mediated by 1) the likelihood to ever enter a cohabiting union and 2) union instability. Specifically, I answer the following research questions: *Are lower-educated women less likely than higher-educated women to transition to parenthood in recent cohorts? To what extent can this be explained by the likelihood to ever enter a cohabiting union or higher union instability? How do these relationships vary across European countries?*

Using recent data form the Generations and Gender Survey (Round II) from 9 European countries, this study makes the following main contributions. First, by exploiting information on partnership histories and applying logistic regression analysis, I analyse how the relationship between educational attainment and union formation is mediated by the likelihood of ever entering a cohabiting union as well as union instability. Second, following Trimarchi and Van Bavel (2017), I jointly model union formation and entry into parenthood and their interrelationships by applying multiprocess event-history analysis. This allows me to control for unobserved factors that might influence both the likelihood of completing higher education as well as entering a partnership and parenthood. Third, while previous studies on women's educational gradients have typically focused either on single countries – often in the Nordic region – or on aggregated European regions (Sturm & Van Bavel, 2024), the larger sample size of the GGS enables both country-specific analyses and cross-regional comparisons.

Data & Methods

The analyses are based on data from Round II (Wave 1) of the GGS. I use the Harmonized Histories Data set, containing information on the timing of all cohabiting unions, births of biological children as well as information on educational level, parental educational background, migration background and religiosity. For the preliminary results, I analysed 9 countries that have recently been added to the Harmonized Histories data set. For the final paper, I will also add data for Sweden, France and the Netherlands, collected between 2021 and 2024. Educational level is measured on the ISCED scale, with lower education corresponding to ISCED level 0-2.

Country	**Data collection**	**Sample size Women**
Austria	2022-2023	3002
Croatia	2023	3351
Czech Republic	2020-2022	2230
Denmark	2021	3940
Estonia	2021-2022	3790
Finland	2021-2022	1292
Germany	2021	10504
Norway	2020	2068
United Kingdom	2022 - 2023	2954

The analysis is structured the following way. In the first step, I analyse the transition to a cohabiting union and the transition to parenthood separately. First, I model the eventual transition to first union/birth up to a certain age cut-off (age 35 and 40). As the GGS surveys respondents aged 18 to 45, I include individuals born between 1970 and 1988. Second, I model the timing to first union/birth using discrete event history analysis, as events are recorded by month. There, I include women from age 18 and follow them until the eventual transition to first union/birth.

In the second step, I combine both outcomes. First, applying logistic regression, I analyse the probability of having a first child by 35 (40), controlling for the likelihood of having had a partner by that age as well as the likelihood of experiencing union dissolution during the life course. Second, applying multi-process event history analysis, I jointly model the transition to first birth and a cohabiting union controlling for unobserved factors. In that model, I also account for enrolment in education as a time-varying variable (Trimarchi & Van Bavel, 2017).

Summary of preliminary findings

The preliminary results clearly confirm earlier findings by Sturm and Van Bavel (2024) also for single countries. I find that medium and higher educated women are significantly more likely than lower educated women to enter a cohabiting union by age 35 in Denmark, Finland (for higher educated women), Austria, Germany (for medium educated women), the United Kingdom, Czech Republic and Estonia. This confirms a stronger marginalization of lower educated women on the

partnering market for cohorts 1970 to 1988, controlling for parental educational level, migration background and religiosity.

In terms of a first birth by age 35, I find that medium and higher educated women in Denmark are significantly more likely than lower educated women to experience a first birth by age 35, indicating a clear departure from the usual lower fertility among higher educated women. I find similar results for Finland, although the results are not significant. While higher educated women in Germany and the UK are less likely to have a first birth by age 35, I do not find significant differences in the remaining countries. While this does not show a reversal in the educational gradient of fertility, it does indicate a departure from the positive educational gradient of past cohorts.

Figure 1 AME of education on likelihood of entering cohabiting union by age 35

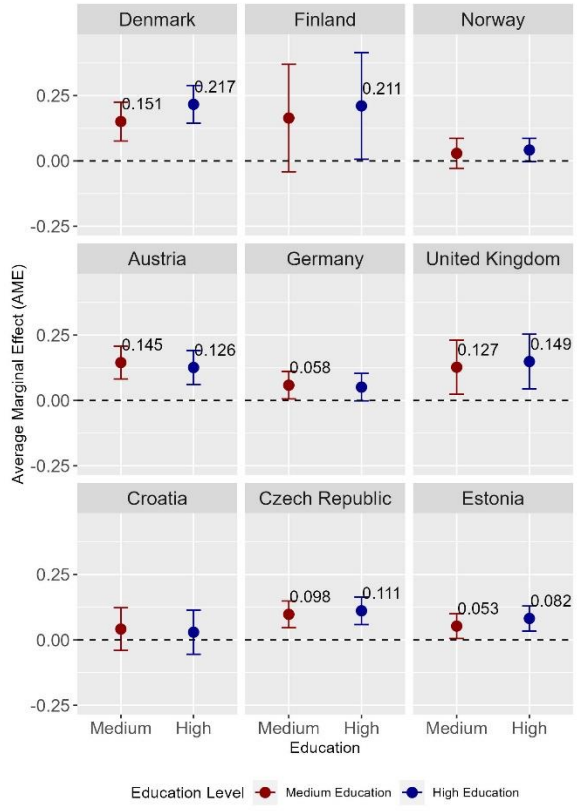
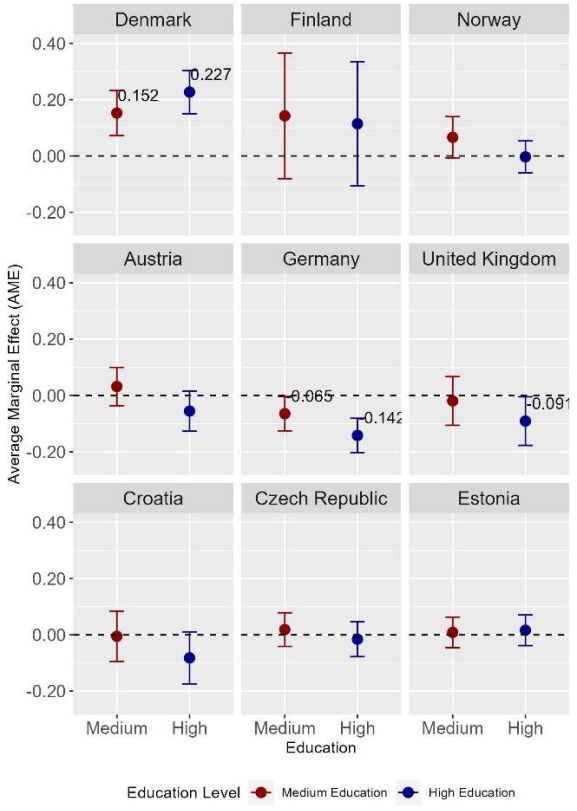


Figure 2 AME of education on likelihood of first birth by age 35



Source: GGS – Round II (Wave 1). Models are controlled for cohort, parental education, migration background and religiosity.

Outlook

In the actual paper, I will (1) more thoroughly address the interrelation between educational attainment and fertility by applying structural equation modelling, (2) include a measure of union instability rather than only the likelihood of ever entering a union and (3) extend the analysis to additional countries that have completed the GGS (including Sweden, France and the Netherlands) and other currently finalizing data collection (Iceland, Italy, Lithuania and Poland).

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