

The Educational Gradient in Singlehood, Educational Assortative Mating and the Role of Country-Level Inequalities in Europe

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Introduction

In the last decades, scholars have observed great changes in partnership formation behaviour and its association with individuals' socio-economic status. In particular, two type of trends have been showing up in most Western countries since the 1990s. One trend regards the change in women's educational gradient in union formation. In some contexts, a higher level of education is now associated with higher likelihood to enter into a union for both men and women. Earlier, highly educated women were more likely to remain single compared to their lower educated counterpart (Goldscheider et al. 2015; Sweeney 2002). The second trend concerns the rise of educationally hypogamous relative to hypergamous unions, while educational homogamy remains steadily the most common union pattern (Esteve et al. 2012; Grow and Van Bavel 2015).

On the aggregate level, scholars have been increasingly concerned about rising social inequalities across and within countries (OECD 2017), and how these are linked to family demographic processes. A strand of research argues that changes in family structure are responsible for changes in income distributions within a country (Esping-Andersen 2007; McLahanan and Perceski 2008; Kollmeyer 2013). Recent findings regarding Western countries showed that the increase in single-headed households is an important factor associated with rising inequality (Zagel and Breen 2019; Breen and Andersen 2013), rather than the rise in educational homogamy (Boertien and Permanyer 2019).

As a result of these changes at both macro and micro levels, scholars have been increasingly interested in solving the puzzle of the link between individual behaviour and country-level inequalities. In particular, the link between the educational gradient in family formation behaviour and inequalities on the aggregate level has been rarely explored, mostly due to a lack of available comparable multilevel data in many countries. In this paper, we aim to explicitly explore whether differential union formation behaviour by level of education in a country is also associated with the level of socio-economic inequalities. To do so, we use Generations and Gender Surveys (GGS) data of 15 countries linked with data collected from several external sources, which give information about socio-economic inequalities in Europe. We propose a two-stage regression approach to overcome the fact that the number of units on the aggregate-level is not big enough to apply robust-multilevel models (Bryan and Jenkins 2015).

Research questions and hypotheses

We aim to answer three main research questions, each of which focusing on a different aspect of union formation behaviour and its link with education at both individual and contextual levels. First, we ask whether the educational gradient in union formation is positive. Given the societal changes that have occurred in the last decades, we hypothesize that both highly educated men and women are more likely to enter into a union compared to their lower educated counterpart. This is because highly educated individuals are more likely to be considered a better match, due to their higher earning-potential and availability of resources. On the contextual level, we expect that

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stronger socio-economic inequalities within countries are associated with a steeper positive educational gradient in union formation.

Second, we ask whether low educated individuals are more likely to form heterogamous unions rather than homogamous one. Since lower educated individuals aim to improve their socio-economic situation by looking for a more educated partner, we hypothesize a negative educational gradient in heterogamous union formation. On the aggregate level, we expect that the educational gradient in heterogamy relative to homogamy tends to be less steep in more inclusive countries characterized by a higher degree of societal openness.

Third, conditioning on having a high level of education, we ask whether there are gender differences in heterogamous union formation. At individual level, we expect that highly educated women are more likely to form heterogamous unions than highly educated men, especially in the period after the 1990. We chose this year as cut-period because for many European countries the reversal of the gender inequality in education occurred during this decade. Moreover, for several Central and Eastern European countries, the 1990 marks a period of socio-economic change, due to the disruption of Soviet Union.

Data and methods

First, we estimate the educational gradient in the probability to remain single, separately for men and women, born in 1945 or later and aged 35 years old at time of interview. We used GGS data of 15 countries (N=75336) and estimated 32 logistic regressions, one for each combination of country and sex. We control for age of the individual, age squared and cohort. The main independent variable is educational attainment measured in three categories. We focus on the contrast between the highly educated and the low educated. Second, conditional on being partnered, we estimate the educational gradient in the probability to form a heterogamous union relative to homogamous one, before and after the 1990. Since the focus of these analyses are couples, we focus only on individuals who are in a union at the time of interview (N=57214). Respondents (and their unions) have been classified in the two different periods according to the year of union formation, i.e. if the couple formed before or after 1990. When the year of union formation was missing, we have imputed it (5% of cases), using the mean year of union formation for that specific combination of birth cohort, sex and country. Then, we estimated 32 logistic regressions, one for each combination of period and country, controlling for age, age squared, sex and birth year of the respondent. Third, conditional on being in a couple and having a high level of education (N=13851), we estimated 32 logistic regressions for the effect of sex on the probability to be in a heterogamous union versus a homogamous one.

The second step of our analytical strategy regards the association between the educational gradient at the individual level in union formation behaviour and contextual factors. To test our hypotheses relative to the role of socio-economic inequalities, we consider factors that indicate differences in income and educational inequalities. As indicator of income inequalities, we used the Gini index, which has been constructed using an average of this index for the years before and after 1990 (<https://www4.wider.unu.edu/>). Next, we constructed two variables indicating the proportion of educational mobile people in the whole GGS sample, highlighting two aspects of educational mobility. First, among those with parents that are medium or low educated, we calculated the proportion who attained a tertiary level of education. Second, among the highly educated individuals, we calculated the proportion of those with none of the parents tertiary educated. To measure differences in unemployment across educational levels, using information from EUROSTAT database (<https://ec.europa.eu/eurostat/data/database> [lfsa_urgaed]), we calculated the ratio of the unemployment rate of highly educated people aged 25-39 years old and the unemployment rate of low educated in the same age group. We run OLS regressions, weighted by the uncertainty of the estimates, and use estimated coefficients obtained from previous steps, indicating the difference between highly and low educated in union formation behaviour as dependent variables.

Preliminary findings and future steps

Figure 1 shows the estimated effect of educational attainment on the probability to remain single. As expected, highly educated men are less likely to remain single after the age of 35 than low educated men, whereas for women results tend to be more mixed. Figure 2 shows the estimated effect of education on the probability to form a heterogamous union relative to the homogenous one, before and after the 1990. In line with our expectation, low educated individuals are more likely to form heterogamous union than the highly educated, this pattern can be observed for unions formed before and after the 1990. In line with our expectations, Figure 3 shows that highly educated women were more likely to form heterogamous unions relative to highly educated men in the period after the 1990. Preliminary results from the second step show an association between educational inequalities indicated as the ratio in unemployment rates between the highly and low educated and the educational gradient in singlehood. A stronger differential in unemployment rates by level of education is associated with a stronger negative educational gradient in singlehood. Next, focusing on two periods, before and after the 1990, we found that compared to their highly educated peers, low educated are more likely to form heterogamous unions. This gradient is more marked in the period after the 1990. Still, contrary to our expectations, we found that the negative gradient in heterogamy becomes flatter in countries with stronger income inequalities, as indicated by the Gini Index. To explain this finding, we will need to account for structural changes occurred in the tertiary educated population. We will alternatively perform a meta-regression analysis in which country-specific effects of education (and sex) on union formation behaviour are regressed on country-level indicators of inequalities.

Figure 1 Estimated regression coefficients and 95% confidence interval for the effect of education on the probability to remain single

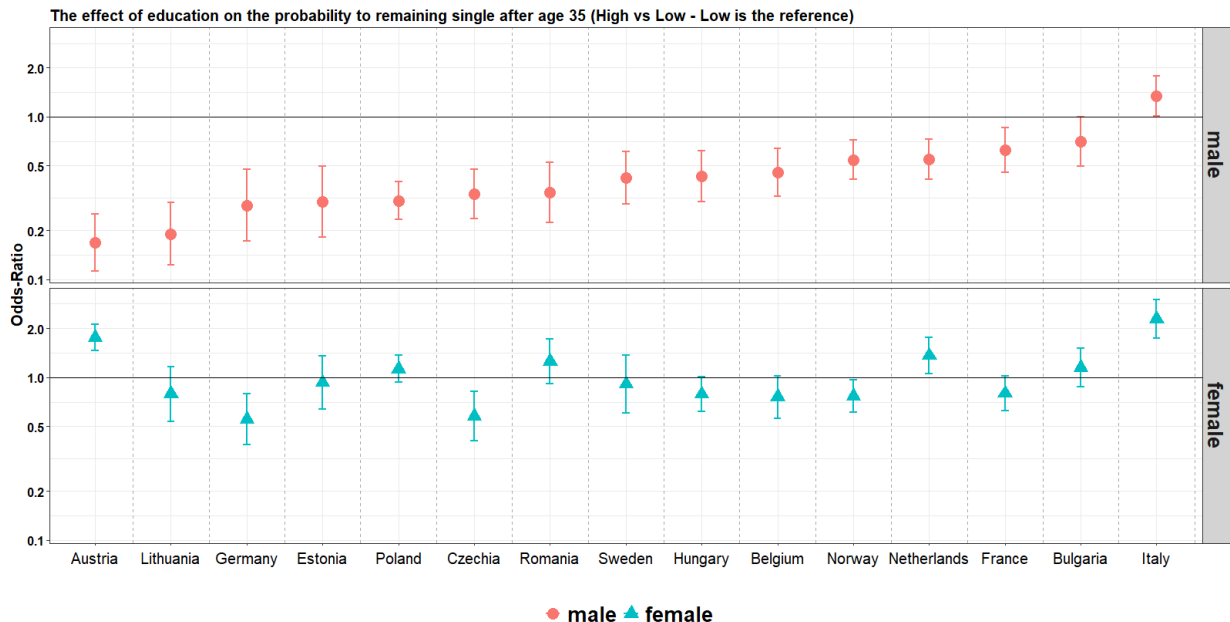
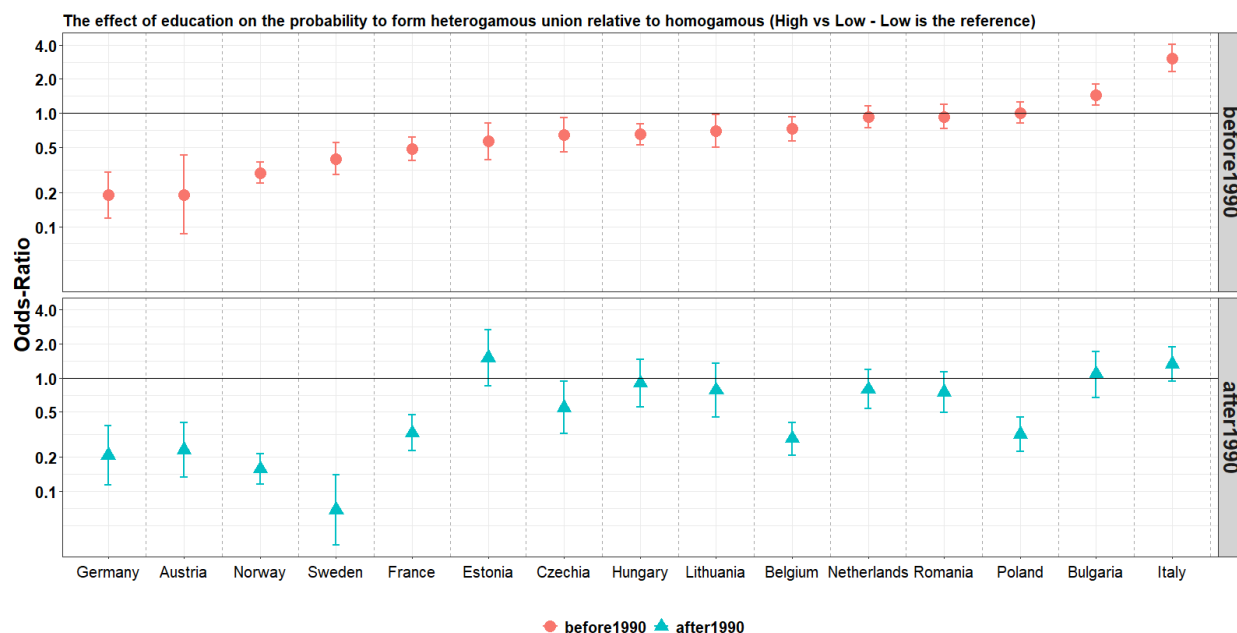


Figure 2 Estimated regression coefficients and 95% confidence intervals for the effect of education on the probability to be in a heterogamous union relative to homogamous one



References

- Boertien, D., & Permanyer, I. (2019). Educational Assortative Mating as a Determinant of Changing Household Income Inequality: A 21-Country Study. *European Sociological Review*, 1–16.
- Breen, R., Andersen, S. (2013). Educational Assortative Mating and Income Inequality in Denmark. *Demography*, 49: 867–887.
- Bryan, M. L., & Jenkins, S. (2015). Multilevel Modelling of Country Effects: A Cautionary Tale. *European Sociological Review*, 1–20.
- Esping-Andersen, G. (2007). Sociological explanations of changing income distributions. *American Behavioral Scientist*, 50, 639–658
- Esteve, A., García-Román, J., & Permanyer, I. (2012). The Gender-Gap Reversal in Education and its Effect on Union Formation: The End of Hypergamy? *Population and Development Review*, 38, 535–546.
- Goldscheider, F., Bernhardt, E., & Lappegard, T. (2015). The gender revolution: Understanding changing family and demographic behaviour. *Population and Development*, 41(2), 207–239.
- Grow, A., & Van Bavel, J. (2015). Assortative Mating and the Reversal of Gender Inequality in Education in Europe – An Agent-Based Model. *PLoS ONE*, 10(6): e01.
- Kollmeyer, C. (2013). Family structure, female employment, and national income inequality: A cross-national study of 16 western countries. *European Sociological Review*, 29(4), 816–827.
- McLanahan, S., & Percheski, C. (2008). Family Structure and the Reproduction of Inequalities. *Annual Review of Sociology*, 34(1), 257–276.
- OECD (2017). Understanding the socio-economic divide in Europe. *Centre for Opportunity and Inequality - Background Report*.
- Zagel, H., & Breen, R. (2019). Family demography and income inequality in West Germany and the United States. *Acta Sociologica (United Kingdom)*, 62(2), 174–192.