Men's partnership formation and first birth in Europe: the effect of education

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Introduction

> *"If I were a carpenter and you were a lady, would you marry me, anyway? Would you have my baby?..."*
> ["If I were a carpenter", Tim Hardin, 1969]

It takes two to tango: the transition to parenthood involves two persons (Corijn, Liefbroer, and de Jong Gierveld, 1996). Still, most research has investigated female fertility. Thanks to the availability of data, a growing body of literature pays attention to study fertility from a couple perspective. In particular, scientists have been interested in the relative influence of partners' intentions and characteristics on the transition to parenthood (e.g., Corijn et al., 1996; Thomson, 1997; Vignoli, Drefahl, and De Santis, 2012; Jalovaara and Miettinen, 2013; Begall, 2013)[3].

All these studies have at least two common features. Firstly, the sample includes individuals who are currently into a co-residential union, excluding all those individuals who are less likely of experiencing a union (in general) or *stable* union (in particular). Secondly, the results of earlier studies showed the importance of including men's characteristics in the analysis to improve the model's specification, and consequently to improve the knowledge about the transition to parenthood.

However, while the results relative to the effect of women's socioeconomic resources were consistently pointing in a similar direction in most studies, in line with theoretical expectations, the same cannot be claimed about the effects of men's characteristics. For instance, men's education is positively associated with transition to parenthood in some cases, while in others negatively or not significant. In addition, the rare studies which focused on men as the only unit of analysis to investigate fertility (see, e.g., Pinnelli and Di Giulio, 2007) also showed inconsistent results concerning the effect of men's education.

A possible explanation of this inconsistency is the missing link between union formation and transition to parenthood for men. It is generally accepted that women's family formation behaviors, namely first union and first birth, are interrelated processes determined by similar effects of observed (see e.g., Blossfeld and Huinik, 1991; Macura et al. 2002) and unobserved factors (e.g., Brien at al. 1999; Baizan et al. 2003,). To our knowledge, there are no empirical studies which have showed this relationship for men, even if there are strong reasons for

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[3] Another stream of research analyzes the effect of partner's education on the transition to higher order births (e.g. Kreyenfeld, 2002). By the time being, we won't deal with this literature.

expecting that the effect of men's education on fertility is indirectly driven by men's process of union formation. This will be investigated in this paper.

As Lappegård and Rønsen (2013) pointed out, men may self-select (or/and may be selected by women) away from fatherhood. The selection depends on their propensity to form a family and their attractiveness on the mating markets to those women who want to start a family. In general, men's attractiveness on the mating markets is enhanced by a high educational attainment and high earnings potential. Still, given the recently emerged shortage of highly educated men compared to highly educated women (Van Bavel 2012), mating prospects for low educated men might improve (perhaps especially if they are willing to take care of a larger share of domestic work). These issues have hardly been investigated so far.

All in all, if we want an unbiased measure of men's educational gradient on fertility, we need to jointly model the process of first union and first birth. To contribute significantly to the literature about the relative influence of partners socioeconomic resources on fertility, we aim to investigate the role of male education on the transition to parenthood accounting for the selection into union.

The following paragraphs specify the leading hypothesis and the research questions. We will give a brief description of the data: because we choose to apply a cross country comparison, we used the Generation and Gender Survey (GGS) of 9 countries (we expect to add Italy by the time of the conference). The final paragraphs present preliminary results from the separate modeling of the two events and expected results from the joint modeling.

Research questions

Our main hypothesis claims that the selection at the moment of union formation affects the relationship between men's education and the transition to fatherhood.

The research questions are the following:

- What is the total effect of men's education on the transition to fatherhood? With total effect, we mean the sum of the direct effect and the indirect effect through union formation.
- How strong is the correlation between unobserved factors of the transition to first union and first birth?
- To what extent is the effect of men's education affected by the correlation between the processes?
- After controlling for the selection into union, is the educational gradient of first birth similar for men and women?
- After including partner's characteristics, are the results consistent?
- What are the differences between countries?

Using event history analysis we first explore the effect of education on transition to fatherhood, before and after controlling for the union status. Then, we move to the joint modeling, and we measure the correlation between the processes. If unobserved correlation matters, we will be able to obtain unbiased estimation for the determinants of first union and first birth. In general, we compare the results across countries and across gender.

Data and methods

We use GGS data of 9 countries, limiting our analysis to the countries of the European Union with suitable information: Austria, Belgium, Bulgaria, Estonia, France, Hungary, Lithuania, Norway and Romania. We will soon add Italy, using the Italian *Family and Social Subjects* survey of 2003, which is regarded as the Italian GGS.

Collapsing categories from the international standard classification (ISCED 1997), we grouped men in three educational categories: low, medium and high. The first group includes those who completed primary plus lower secondary school (at least 8 years of schooling, ISCED 0, 1, 2). The medium category consists of men who attained the upper-secondary and those who also got a post-secondary level (ISCED 3, 4). Finally, highly educated men are those who got a bachelor/master/PhD degree (ISCED 5, 6). To catch the effect of a long-term dimension of the social status, we included parents' educational attainment, coded with 4 categories ("both parents low educated", "only the father medium-high educated", "only the mother medium-high educated", "both medium-high educated").

For the hazard of first union other explanatory variables are: cohort (1950-1959, 1960-1969, 1970 -1990) and conception as time varying. The hazard of first birth includes union status ("single", "unmarried cohabitant", "married") as time varying instead of conception which, now, is the dependent one. In addition, the model of first birth includes the number of siblings as a time constant variable. In both cases we include a variable which indicates if the respondent is still in education or not. If any of the independent variables present missing cases, we created a category of not available information. If missing information are relative to the dependent variable, then we deleted the record from the analysis.

For the exploratory analysis we applied a piecewise constant exponential hazard model. Next, we estimate a multiprocess event history models, where two different event histories of an individual are correlated and the parameters are estimated jointly (see e.g., Lillard, 1993). We are collaborating with statisticians to find new methods for fitting these models.

Preliminary results and expected findings

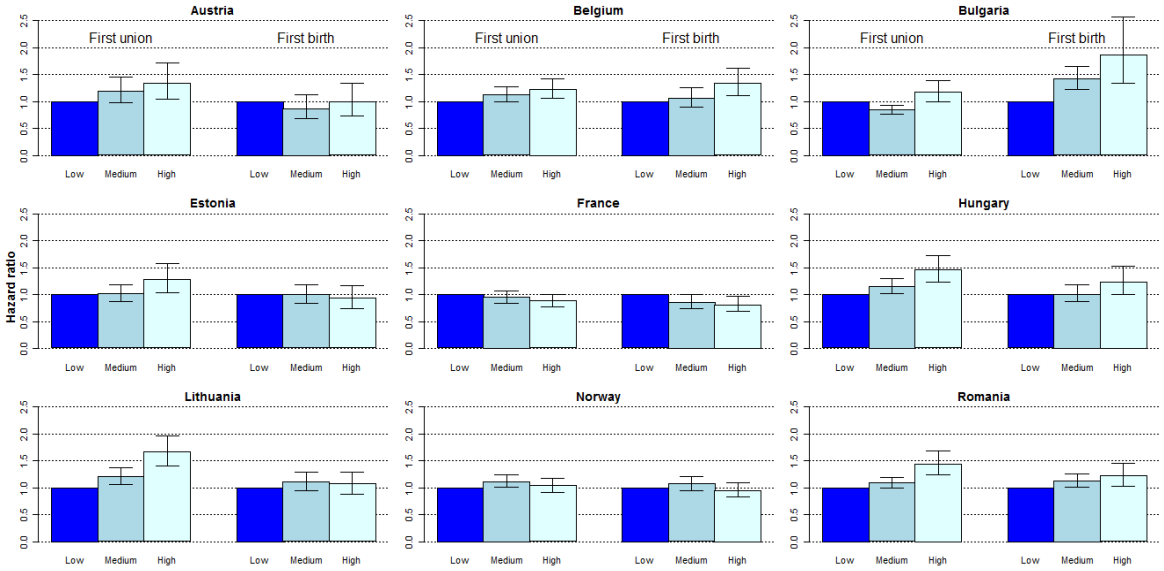
The results of the exploratory analysis (Figure 1) show that the effect of education, if significant, is positively associated to the process of first union and/or first birth. The only exception is France, where education has no significant effect on first union formation and it is negatively associated with the risk of becoming a father. In addition, exceptionally for Bulgaria, the results show that education matters more, in terms of significant effect, for the process of first union than first birth.

We also tested the proportionality assumption for education. In most cases, the inclusion of an interaction between the educational attainment and the time process variable improved the specification of the model. In other terms: the effect of education varies by age. The highly educated are those with the higher risk of experiencing the first union and first birth, if we compare men in the same age class.

From the joint model, we expect a strong correlation between the process of first union and first birth, which in turn will affect the effect of education on the transition to parenthood. We expect that, taking into account the selection into union, the educational gradient for first birth

might even get the same sign for men and women. Eventually, we expect that the effect of partner's characteristics (either when the respondent is a male or a female) will be consistent with the results obtained by the joint modeling for the single respondent.

Figure 1 – The effect of men's education for the entry into first union and the transition to first birth: 9 European countries.



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