Jan Van Bavel and Yolien De Hauw

# **1. Introduction**

A major social development of the second half of the twentieth century has been the spectacular increase of participation in higher education in general, and participation by women in particular. In North America and Europe today, women excel men in terms of participation and success in higher education. Yet, research on the demographic consequences of the reversal of gender inequality in higher education is rare, even if education, and especially women's level of education, has proven to be relevant for all kinds of demographic behaviour.

The aim of this paper is to analyze the implications of the reversal of gender inequality in education (RGIE) for educational assortative mating in European countries. Recent recearch based on IPUMS by Esteve et al. (2012) shows for a number of European as well as non-European countries that RGIE is correlated with a decline of hypergamy and rising hypogamy in marriage on the aggregate level. After describing trends on the aggregate level, including a replication of the results found by Esteve et al. (2012), this paper will analyse trends in educational assortative mating on the micro couple level, using country level indicators of RGIE as contextual variables. To this end, pooled couple level data from five rounds of the European Social Survey are used (ESS1-5, see http://www.europeansocialsurvey.org/), yielding information about his and her education for couples from 28 countries. The contextual level variables are calculated from the IIASA/VID population projections by education, in addition to age and gender (Lutz et al. 2007; KC et al. 2008).

# 2. Updating "the marriage squeeze": education specific mating squeeze

In twentieth century Europe, the dominant pattern of assortative mating has been a combination of educational homogamy combined with female hypergamy and male hypogamy: women have tended to marry men who are at least as highly educated as themselves; conversely, men have tended to marry women who are at most as highly educated as themselves. This traditionally observed pattern reflects a combination of male and female preferences on the one hand and what is possible given the educational distribution on the other. Until recently, the traditional pattern was compatible with the gender-specific distribution of level of education: there were more highly educated men than highly educated women available in the population. But that has turned around now. This leads to a new kind of "mating squeeze" (Van Bavel 2012).

A long-standing theory in family demography holds that marriage rates for both men and women are affected by the number of suitable marriage partners available in the local marriage market. In its most basic form, the "marriage squeeze" hypothesis holds that marriage prospects are lower if the number of unmarried persons of the desired age is low (Schoen 1983; Crowder & Tolnay 2000).

A first useful step to investigate the implications of the reversed gender imbalance in higher education is to determine the dimensions of the marriage squeeze in ways that are relevant for partnership and family formation today. This entails at least two things. First, given the increasing importance of unmarried cohabitation and given the fact that a growing proportion of children are born outside marriage in Europe, the concept and idea of the marriage squeeze should be broadened to include the effects of age specific sex ratio imbalances on the mating market rather than on the marriage market only. Second, and crucial for this paper, education should be added to the dimensions of age and sex to quantify the mating squeeze in a more meaningful way. The expansion of higher education among women implies that women who want to find a male partner with the same or a higher level of educational attainment would increasingly suffer an education-specific mating squeeze (Van Bavel 2012). This paper investigates how this relates to recent trends in educational assortative mating in Europe.

### 3. Educational assortative mating: research questions

If there are more highly educated women than men entering the dating and mating market, the old pattern of female educational hypergamy and male hypogamy can clearly not persist. Esteve, Garcia and Permanyer (2012) recently showed that in populations with a reversed gender imbalance in education, female educational hypogamy starts to exceed female hypergamy: couples where the wife is more highly educated than the husband are becoming more prevalent than couples where the husband is more highly educated than the wife.

This paper will address the following questions: How did the gender gap in education evolve in recent generations and how is the gender gap in educational attainment related to the partnership situation (single/in a union)? What are the trends over recent cohorts of couples in educational homogamy, hypergamy, and hypogamy? Do the conclusions from the Esteve et al. (2012) also hold when taking into account not just marriage but also unmarried cohabitation? This is important because in many European countries, unmarried cohabitation has become a very common alternative to marriage. Are patterns of assortative mating related to trends in education-specific mating squeeze? Esteve et al. (2012) showed that there are clear correlations on the aggregate country level, but do these also hold on the micro-level, using education-specific sex ratios as contexual variables?

# 4. Preliminary findings

Figure 1 shows that the gender gap in education among people in a union has reversed dramatically over just one generation: while the fathers of ESS respondents had benefited higher educations more often then their mothers, the gender gap is to the advantage of women in the generation of respondents.

Figure 1. Proportion of people in a union (marriage or unmarried cohabitation) with a degree in post-secondary education: generations of ESS respondents (birth cohorts 1950-1979, filled bullet points) versus generation of the parents (empty bullet points), by country and gender



Source: pooled ESS1-5

Figure 2 charts cohort specific patterns of educational assortative mating at the level of individual couples within the generation of ESS respondents, distinguishing between the cohorts born in the 1950s, '60s and '70s. While female hypergamy was still more common in the cohorts of the 1950s, hypogamy is more prevalent in the cohorts of the 1970s. Homogamy is still dominating but has not been on the rise anymore.





Source: pooled ESS1-5

Figure 3 shows that the pattern of educational assortative mating is correlated with the sex ratio (number of men divided by number of women) for highly educated people aged 25-29 years: hypogamy becomes more common as this sex ratio goes down (middle panel), and the opposite holds for hypergamy. There is no correlation with the degree of homogamy.

Figure 3. Scatterplot of (log of) the sex ratio for people aged 25-29 years with a degree in post-secondary education and the proportion of homogamous, hypogamous, or hypergamous couples, along with OLS regression lines



Results from preliminary multilevel regression analysis (not shown here) indicate that the likelihood of homogamy is a function of the own educational level of the wife: the more highly educated she is, the more likely it is that she is in a homogamous union (if in a union at all), with no effect of the education-specific sex ratio as a contextual level variable (with context defined by country and birth cohort). In contrast, the likelihood of hypergamy or hypogamy seems to be affected not just by the own level of educational attainment but also by the education specific mating squeeze.

#### **References**

- Crowder, K.D. and S.E. Tolnay. 2000. A new marriage squeeze for black women: the role of racial intermarriage by black men, *Journal of Marriage and Family* 62(3): 792-807.
- Esteve, Albert, Joan Garcka-Romin, and Ińaki Permanyer. 2012. The gender-gap reversal in education and its effect on union formation: the end of hypergamy?, Population and Development Review 38(3): 535-546.
- KC, Samir, Bilal Barakat, Anne Goujon, Vegard Skirbekk, Warren Sanderson, and Wolfgang Lutz . 2010. Projection of populations by level of educational attainment, age, and sex for 120 countries for 2005-2050, *Demographic Research* 22(15): 383-472.
- Lutz, W., J. Crespo Cuaresma, and W. Sanderson. 2008. The demography of educational attainment and economic growth, *Science* 319(5866): 1047-1048.
- Schoen, Robert. 1983. Measuring the tightness of the marriage squeeze, Demography 20(1): 61-78.
- Van Bavel, Jan. 2012. The reversal of gender inequality in education, union formation, and fertility in Europe, Vienna Yearbook of Population Research 10: 127-154.