

# **The reversal of the gender imbalance in education and union dissolution in Europe**

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## **Abstract**

In many Western countries, the gender imbalance in higher education has reversed with women being now on average more educated than men. This has led to increases in the proportion of marriages in which she is higher educated than her partner and in which she is the main earner. Such couples are commonly found to experience higher risk of separation. Our assumption is that the reversal of the gender imbalance in education has affected separation rates. In this study, we analyze rates in 19 European countries during the period of 2004-2012. We focus on the association between women's relative resources, i.e. her education and income compared to the partner's, and the probability of separating. Data come from merged EU-SILC longitudinal files. Our findings show that women's higher relative education increases dissolution risks but the effect varies by her relative income. Female breadwinner couples are more likely to separate. Furthermore, we find that separation risks are generally higher in countries where the proportion of women among the tertiary educated is high (60% or more).

## **Extended abstract**

### **Introduction**

The second half of the 20<sup>th</sup> century was marked by increasing divorce rates in many Western countries, although substantial cross-country variation existed. In many countries the crude divorce rate doubled, in some even quadrupled, between 1960 and 1990. This happened in parallel with women's increasing labor market participation and was associated with women's better education and increasing earnings that guaranteed more financial independence. Up to the end of the 20<sup>th</sup> century, women were usually less educated than the men they were marrying. Such educational imbalance in marriages was in line with a family model in which specialization was common – men were more oriented towards market work while women focused on household and children. Becker's theory of family economics referred to this specialization as the most suitable context for stable marriages. Marriages in which the woman's education exceeded that of the man were assumed to be more prone to divorce due to lower gains from specialization (Becker 1981). Similarly, relative income of the wife was believed to be positively correlated to the divorce risk, although the evidence was not unequivocal on this (Sayer and Bianchi 2000).

However, these associations are changing as societies evolve. In recent decades, the educational imbalance in many advanced countries has reversed in favor of women (Schofer and Meyer 2005). This trend has resulted in an increasing number of educational hypogamous marriages, i.e. where the woman is better educated than the husband (Esteve et al 2012, Grow and Van Bavel 2015) and in a higher share of female breadwinner marriages (Klesment and Van Bavel 2015). There has been a decrease in the educational gradient of divorce (Matysiak, Styrc and Vignoli 2014).

and the once positive relationship between dissolution risk and hypogamy has been found disappearing (Schwartz and Han 2014). For the US, it has also been shown that the once positive relationship between female breadwinning and divorce does not hold in the recent marriage cohorts (Schwartz and Gonalons-Pons, forthcoming). Recent research on Belgium has documented that this argument does not only hold over time but also holds across space (Theunis et al. 2015).

In this paper we investigate the associations between women's relative resources, i.e. her education and income compared to the partner's, and partnership separation in Europe using the EU-SILC longitudinal survey data. We observe couples in which women were aged 20 to 50 during the period of 2004-2012. Our results indicate that female breadwinners are more likely to separate. For women's relative education, the positive association between marrying down and the risk of separation remains only for women who earn significantly less than their husband.

### **Theoretical background and questions**

Based on Becker's (1981) argument that gendered specialization is advantageous for couples, it can be expected that couples in which the woman is more educated than the husband (and thus contributing more to the couple's income) are more likely to divorce because it reduces the woman's gains from marriage. A wife earning more than her husband can be seen as at odds with the traditional understanding of gender roles in marriage (Bertrand et al. 2013). The conflict between traditional attitudes and the division of labor in real life can lead to tensions within the couple, hence undermining the stability of the union.

Yet the evidence about the effect of women's income is inconsistent. Some studies have supported the independence effect hypothesis, which suggests that the woman's high relative income reduces her dependence on the marriage and increases the risk of divorce (see Sayer and Bianchi 2000). They have found a positive association between her relative income and dissolution in several countries, such as in the US (Heckert et al. 1998), Finland (Jalovaara 2003), and the Netherlands (Kalmijn, Loeve and Manting 2007). Some studies do not find such links (Greenstein 1990). Schwartz and Gonalons-Pons (forthcoming) suggest for the US that the positive effect of the woman's relative income has disappeared for most recent marriage cohorts. They associate this with increasing egalitarian attitudes and relaxation of norms about breadwinning.

The effect of relative education and income may differ from country to country as contextual factors vary. The reversal of gender imbalance in higher education is more advanced in some countries and may affect dissolution rates as these countries already have a larger proportion of hypogamous unions. If educational combinations and divisions of labor in couples are more diverse, hypogamy and female breadwinning may become more socially accepted. According to Theunis et al. (2015), a changing effect can also be explained with the idea that new behaviors start to spread among a small group of innovators, who differ from the rest of society through their lower integration into society and their lower risk aversion (Liefbroer and Dourleijn 2006). As an innovation spreads, it is adopted by larger segments of the population who do not share these specific characteristics. This decreases the social costs of adopting this behavior for the remaining population. In consequence, differences in characteristics between adopters and nonadopters of this innovation become smaller. Hypogamous marriages and female breadwinner marriages can be seen

as an innovation in mating behavior as a response to structural changes on the mating and labor market (Schwartz and Han 2014).

In this paper we relate union disruption to women's relative resources in the couple and in society. First, we hypothesize that the woman's relative income is positively related to the probability of dissolving a union. In other words, female breadwinner unions are expected to be more likely to separate than unions in which the woman earns less than her partner. Second, we hypothesize that women who are more educated than their husbands are more likely to dissolve their union than women who share their educational level with their partner or who are less educated.

The association between income and dissolution raises the question of causality, i.e. whether women increase their income in anticipation of separation (Özcan and Breene 2012; Poortman 2005). We plan to address this by taking into account changes in women's activity status (inactivity, part-time work, or full-time work) and labor supply (hours worked) before the separation event. However, the length of individuals' participation in the panel, which is on average 3 years, sets limits to this approach.

## **Data and methods**

We use EU-SILC longitudinal survey data provided by Eurostat and combine several longitudinal user database files together to include more households that are followed throughout the maximum length of the panel (see Berger and Schaffner 2015). In the analysis we focus on couples existing at the start of the survey or formed during the survey years 2004-2012. We restrict the sample to couples with a female partner aged between 20 and 50 years. Countries included in the analysis are Austria, Belgium, Estonia, Cyprus, Czech Republic, Denmark, France, Greece, Hungary, Iceland, Italy, Latvia, the Netherlands, Norway, Poland, Slovenia, Spain, Sweden, and the UK.

The event of separation is indirectly generated from variables that indicate partner linkage, household membership status, and individual's time of exit from the household. Our basic assumption is that if only one of the partners moved out, it can be considered an event of separation. We create a binary dependent variable to indicate for each year whether the partnership is ongoing or has been ended. In the study sample we observe 4,520 separation events per 121,858 couples in 19 countries, appearing in the panel altogether as 334,593 person-years. After separation the persons drop out of the analysis. Follow-up unions, i.e. those after the observed separation, are not considered.

Our main independent variables are women's relative income, both partners' educational attainment (ISCED 0-2 coded as low, 3-4 as medium and 5-6 as high), her relative education, and her transitions between activity statuses. We control for woman's age, motherhood status, absolute income, calendar year, and country. A country level categorical variable indicates the proportion of women among the highly educated population in each year.

Since we do not know the time when the union is formed it is not practical to model the separation event in the framework of survival analysis. Instead, we employ a logistic regression model with panel setting. Given that respondents appear more than once in the data, the model includes an individual random effect.

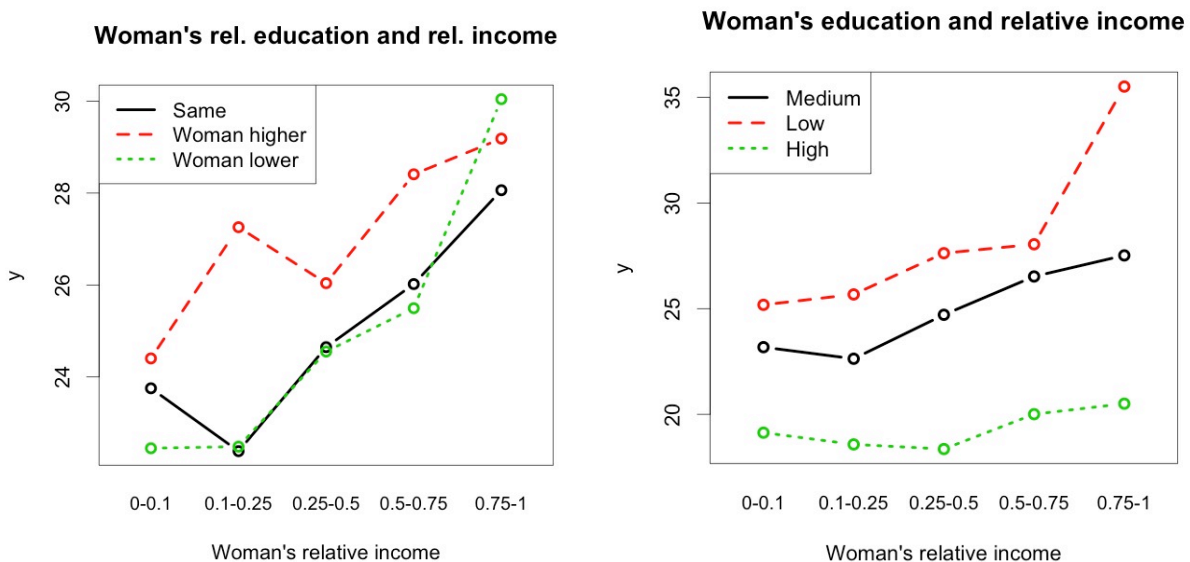
## Preliminary results

In the descriptive part (not shown) we find that the yearly rate of separation for most countries is around 10 to 20 events per 1000 couples in the study sample. Separation rates are higher for couples including women in their early 20s and are decreasing in older age groups. When the rate of separation is compared by women's relative income, those couples in which the woman is earning more than half of the couple's income show a higher separation rate. Considering the couple's educational composition, hypogamous couples are more likely to separate compared to other educational combinations.

In the modeling part we focus on the effect of relative income, relative education, and the proportion of tertiary educated women in the country. Selected model results are presented in Table 1. The effect of breadwinning on the probability of separation is positive and consistent throughout the models, thus our first hypothesis finds support. It is also noteworthy that the absolute income of the woman affects separation negatively. While completely dependent women are less likely to separate than income-earning women, an increasing absolute income is also reducing the probability of separation among those who earn income.

We also find support to the second hypothesis – hypogamous unions are more likely to dissolve, but in the interaction model (M3) this effect remains significant only for women who earn 10-25% of the couple income (see also Figure 1, left graph). Regarding the influence of the absolute level of education, tertiary degree has a prohibitive effect in all models (see also Figure 1, right graph). In general, we find that separation is more likely in countries where there is high (60-65%) proportion of women among tertiary educated compared to countries with low proportion.

**Figure 1 Model predicted rate of separation per 1000 women**



Note: left figure based on M3 in Table 1; right figure based on an interaction model not shown here.

**Table 1 Logistic regression of union dissolution**

	M1	M2	M3	M4
<b>Her relative income (ref. 0.25-0.5)</b>				
0-0.1	-0.328***	-0.295*	-0.263	-0.479**
0.1-0.25	-0.165*	-0.147	-0.241*	-0.237
0.5-0.75	0.285***	0.239***	0.193*	0.409***
0.75-1	0.560***	0.510***	0.487***	0.576***
<b>Her abs. education (ref. medium)</b>				
Low	0.108	0.187**	0.188**	0.191**
High	-0.308***	-0.462***	-0.473***	-0.464***
<b>His abs. education (ref. medium)</b>				
Low	0.0453			
High	-0.179**			
<b>Her relative education (ref. homogamy)</b>				
Hypogamy		0.142*	0.0625	0.145*
Hypergamy		-0.0413	-0.00418	-0.0409
<b>She is childless</b>		1.312***	1.343***	1.313***
<b>Her log income</b>		-0.106**	-0.104**	-0.112***
<b>She without income</b>		-0.874***	-0.866***	-0.908***
<b>Proportion of women among tertiary (ref. 45-55%)</b>				
55-60%		0.180	0.176	0.180
60-65%		0.662***	0.664***	0.610***
<b>Interactions with relative income</b>				
Hypogamy X				
0-0.1			-0.0175	
0.1-0.25			0.408*	
0.5-0.75			0.197	
0.75-1			0.0250	
Hypergamy X				
0-0.1			-0.125	
0.1-0.25			-0.0811	
0.5-0.75			-0.0003	
0.75-1			0.102	
Proportion of women tertiary educated 55-60% X				
0-0.1				0.255*
0.1-0.25				0.145
0.5-0.75				-0.290*
0.75-1				-0.182
Proportion of women tertiary educated 60-65% X				
0-0.1				0.220
0.1-0.25				0.0809
0.5-0.75				-0.0907
0.75-1				0.145
Constant	-0.293	-2.412**	-2.574***	-2.306**
lnsig2u	2.113***	1.949***	2.023***	1.958***

Source: EU-SILC 2006-2012, own estimation.

Note: country dummies, her age and age squared, and calendar year variable not shown.

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