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Transition to End of Education and Motherhood. A Comparative Analysis of Changes over Time in Eastern Europe

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Introduction

In times when educational investments last longer and longer, it becomes increasingly important to study how motherhood can be combined with continuous investments in human-capital and how the socioeconomic context plays a role in the education-family balance.

Early motherhood, during studies, has usually negative consequences on women's later life. For young women, a pregnancy ending in a birth increases the risks of end of education because she could be in need to handle with child and family.

However, macro-level circumstances could attenuate or even reverse these negative consequences. Flexibility of educational systems, cultural factors of family solidarity, and social policies designed to facilitate combination of student and parental roles, may change the impact of pregnancy or/and childbirth on educational enrolment.

Background, research questions and hypothesis

The literature has usually shown that the transition to a first birth is triggered by the end of education. Mixed evidence has been found on the impact of the level of education. On the other hand, a first birth usually triggers the end of education. However the potential endogeneity of educational enrolment and the timing of first birth have rarely been assessed. In this paper I use a simultaneous-hazard two-equation model to assess the impact of pregnancy and motherhood on educational enrolment, by controlling for potentially common determinants (unobserved heterogeneity).

The aim is to explore the nature of effect of pregnancy and motherhood on educational enrolment in Romania and other former-communist countries, using as benchmark more known situations of Nord and Western European countries. Since around year 1990 major political changes took place in most of former-communist countries, with important consequences on welfare state regimes, I disentangle between three calendar periods: the 1980s, the first 8 years of the transition period (1990-1997), and respectively the last 7-11 available years (1998-2004/08). For the former-communist countries these periods mark: i) the last years of the communist authoritarian regime, ii) the first years of transition to democracy and market economy, and iii) the consolidated capitalist regime. For the countries with stable sociopolitical regimes, the comparative analyses by period reveal the dynamic of the relationship between motherhood and completion of studies, and highlight the differences with Eastern Europe.

Three research questions are at my interest:

Q1. Were in Eastern Europe is easier to combine studies with childbearing?

Q2. How similar are the Eastern European countries and how they differ from Western European ones?

Q3. Is it easier to combine educational enrolment with childbearing in the 2000s than before?

And two research hypothesis:

H1. Conception or/and birth during studies increase the risk of terminating education. The impact is larger in times when and societies where the educational system provides less support to either role combination or a postponement of end of education.

H2. In more familialistic welfare regimes (i.e. Romania), or in societies with more pronounced de-standardization of life–course and welfare systems that do help the compatibility of motherhood and education (i.e. Norway), the correlation between unobserved factors affecting length of education and time-to-motherhood is lower.

Data and methods

The focus is on a yet unstudied institutional setting, namely the Eastern European countries, but I include also some benchmark Nordic and Western European countries in order to explore not only how similar is the Eastern Europe but also how different it is as compared to Western Europe. I use data from Generations and Gender Surveys, namely national subsamples of enrolled, childless women, aged 17-35 years between 1st January 1980 and the date of interview.

Table 1. Sample sizes, share of exits from education and births. Countries grouped by recent history.

	Interview date	Sample size	Completions of education, %	Conceptions before end of education, %	Births before end of education, %
Former-communist countries					
Bulgaria	Oct-Dec 2004	3417	81	22	17
Hungary	Nov 2004 - May 2005	2558	89	13	10
Romania	Nov-Dec 2005	1752	82	16	13
Former soviet-bloc					
Estonia	Sep 2004 - Dec 2005	1997	81	27	20
Georgia	Sep 2004 - Dec 2005	1952	84	28	23
Lithuania	Apr - Dec 2006	2076	69	26	21
Russia	June-Aug 2004	2410	78	31	24
Democratic countries					
France	Sep 2004 - Dec 2005	2354	77	9	8
Germany	June 2005	2151	89	12	9
Norway	Jan 2007 - Oct 2008	3852	74	24	22

Following the approach outlined by Lillard (1993) and by Billari and Philipov (2003), I use a simultaneous-hazard two-equation model to assess the impact of pregnancy and motherhood on educational enrolment, by controlling for potentially common determinants (unobserved heterogeneity). This

heterogeneity may incorporate the effect of ability, or of values and norms that remain unchanged till the end of education and the first birth, whichever comes later. Since value orientations usually change during time, I cannot use information from GGS data on values at time of survey and not at the time when the events took place.

I therefore model time to the end of education $h_E(t)$ and the time to first birth $h_B(t)$ using a system of two hazard equations. Both process time starts at age 17, when enrolled people usually are close to complete high schools and decide to continue or not with a tertiary education.

Model 1

$$\ln h_E(t) = y_E(t) + \alpha_1 M(t) + \alpha_2 P(t) + \alpha_3 U(t) + \tau_1$$

$$\ln h_B(t) = y_B(t) + \beta_1 E(t) + \beta_2 P(t) + \beta_3 U(t) + \tau_2$$

where :

$y_E(t)$ and $y_B(t)$ denote age from 17 to 35, variable represented by a linear spline with knots every two years for the end of education and at ages 20, 25, and 30 for the first birth.

M(t) is a time-varying variable denoting the current maternal status , with three possibilities: “childless so far”, “childless and pregnant”, and “mother”.

P(t) is a time-varying variable denoting calendar period. I distinguish three periods: the 1980s, the 1990-1997, and the period starting with 1998 and ending at the date of interview.

U(t) is a dichotomous time-varying variable denoting first-union formation (either marriage or non-marital cohabitation).

E(t) is also a time-varying variable denoting educational attainment with three statuses: “in education”, “out of education, middle level of education or less” and “ out of education, hi level of education”.

τ_1 and τ_1 are normally distributed unobserved characteristics of the individuals with variance equal to one and correlations ρ (which has to be estimated).

A second model (Model 2) includes additional control variables for common observed characteristics of women (number of siblings and type of place until age 15) and interactions between maternal status variables and period, and between educational attainment and period, in order to shed lights on the changing reciprocal impact of motherhood and education.

Results

Table 2. Results of country-specific simultaneous-hazard models of time to end of education and of time to first birth (relative risks from Model 1)

		RO	BU	HU	LI	ES	RU	GEO	FR	DE	NO
Transition to end of education											
Maternal status											
	no children so far	1	1	1	1	1	1	1	1	1	1
	pregnant	1.33	1.20	1.18	**1.46**	**1.86**	**1.26**	0.87	**0.68**	**1.53**	0.92
	mother	**0.64**	**0.52**	**0.45**	**0.71**	**0.73**	**0.75**	0.83	**0.44**	**0.67**	**0.41**
First union											
	no	1	1	1	1	1	1	1	1	1	1
	yes	**1.23**	**1.70**	1.10	**1.28**	1.13	**1.41**	**1.94**	**1.43**	**1.48**	**1.24**
Period											
	1980-1989	**1.50**	**1.14**	**1.25**	**1.74**	**1.39**	1.11	**1.19**	**1.20**	1.11	**0.72**
	1990-1997	1	1	1	1	1	1	1	1	1	1
	1998-2004/08	0.89	1.02	**1.36**	**0.72**	**0.67**	**0.84**	1.07	**1.14**	**1.28**	**1.57**
Transition to first birth											
Educational status											
	in education	1	1	1	1	1	1	1	1	1	1
	out of ed, mid level or less	**1.95**	**1.49**	**1.48**	**2.22**	**2.39**	**1.72**	1.12	**1.76**	**1.55**	**2.02**
	out of ed, hi level	1.03	**1.33**	**1.50**	**1.66**	**1.77**	**1.45**	1.20	1.22	**1.82**	**1.83**
First union											
	no	1	1	1	1	1	1	1	1	1	1
	yes	**25.55**	**18.08**	**8.55**	**11.98**	**12.60**	**12.89**	**77.32**	**13.64**	**6.40**	**8.88**
Period											
	1980-1989	**1.59**	**1.29**	**1.50**	1.04	**1.89**	**1.32**	1.00	1.23	**1.17**	*1.20*
	1990-1997	1	1	1	1	1	1	1	1	1	1
	1998-2004/08	**0.61**	**0.54**	**0.44**	**0.47**	**0.47**	**0.64**	**0.72**	0.97	0.96	**0.68**
ρ		*-0.09*	***0.28***	***0.49***	*-0.13*	*0.00*	*0.13*	*-0.03*	***0.42***	***0.45***	*0.07*

Note. Boldface indicates relative risks with $p < 0.10$

Table 1, with the results of Model 1, shows that a pregnancy before end of education increase the risk of end education in four countries – three from the former-soviet bloc (Estonia, Lithuania, Russia) and Germany -, it has an opposite influence in France, but it has no significant impact in Bulgaria, Hungary, Romania, Georgia and Norway.

However, a first birth before end of education increases the duration of studies for women of everywhere, as obvious.

Entering a first union slightly triggers the end of education (with exception of Hungary and Estonia where the result is not statistically significant), and highly triggers everywhere the transition to motherhood.

Estimated correlation coefficients of unobserved heterogeneity are positive and statistically significant in two former-communist countries (Bulgaria and Hungary) and in two countries with conservative welfare regime (France and Germany), which may indicate the prevalence of common factors simultaneously affecting both processes in the same direction, i.e. unobserved orientation towards career both prolongs the length of education and delays transition to motherhood. Correlation coefficients close to zero in rest of the countries may indicate that personal characteristics and value orientations play less in combining human capital investments with family life and motherhood in countries with familialistic regime, like Romania and those from the former soviet-bloc, or in countries, like Norway, where the social-democratic welfare regime permit the de-standardization of the life-course.

In results of Model 2 (Figures 1), one may notice changes in time of the impact of pregnancy and motherhood on educational enrolment.

In the 1980s, significantly higher risk of terminating education among pregnant women were found only in Estonia and Germany, while significantly lower risk among of already mothers were found only in Bulgaria, Hungary, France and Norway.

In the first eight years of the 1990s, pregnancy had no effect on duration of education, but motherhood definitely increased studies' duration in all the countries. It seems that everywhere the period 1990-1997 was benefic for combination of education and family.

The opposite may be observed for the years around 2000. Only in Norway motherhood still induce prolonged studies, while pregnancy almost everywhere strongly triggers end of education (exception Georgia and France).

Two cases apart in respect of dynamic of impact of pregnancy and motherhood on end of education are Georgia, where maternal status does not seem to have any impact on the length of education, and France where pregnancy and motherhood generally increase the length of education. No significant changes over time were found in these two countries.

As regard the change over time of the impact of educational attainment on motherhood, our results from Model 2 (Figure 2) show, as literature has usually shown, that the transition to a first birth is triggered by the end of education. Very few exceptions are some countries, in specific periods, where there are no significant differences between first birth risk of students and of those with completed education: Georgia and France in the 1980s, Georgia and Hungary in the 1990s. In the years around 2000 we found two to three times increasing risks of transition to motherhood after end of education as the risks during studies in almost all countries and regardless the level of education attained. Even in Georgia around the year 2000, women with tertiary education have higher risk of birth than students or women out of education but with lower level of education. Romania is special because in all the three periods investigated the completion of education triggers transition to motherhood only for those with less than high level of education, while women with completed tertiary education do not differ from students. The latter is also documented for Bulgaria during the communist period 1980-89.

Figure 1. Relative risks of conclusion of education by period and maternal status (vs. no children so far). Model 2

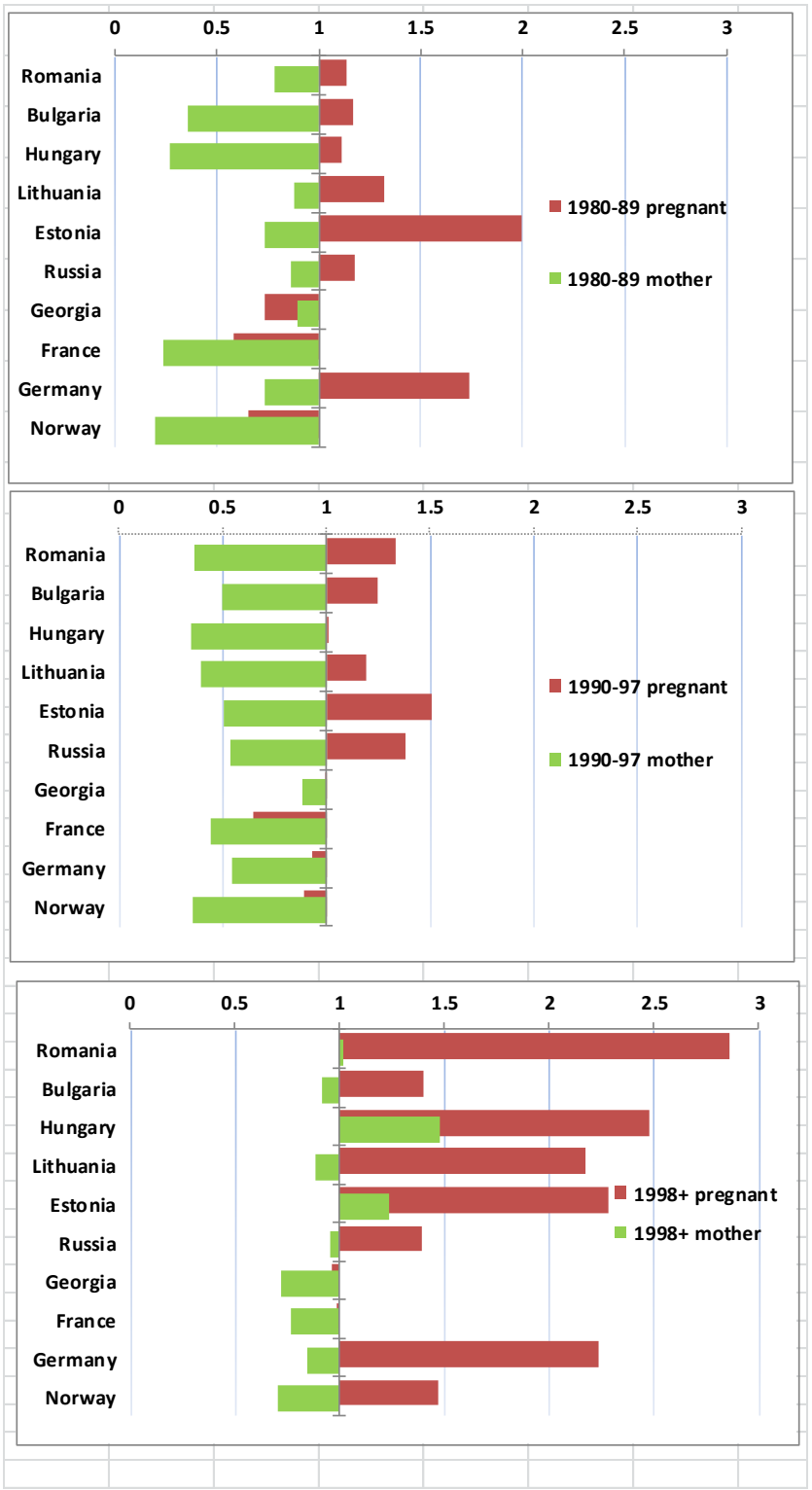
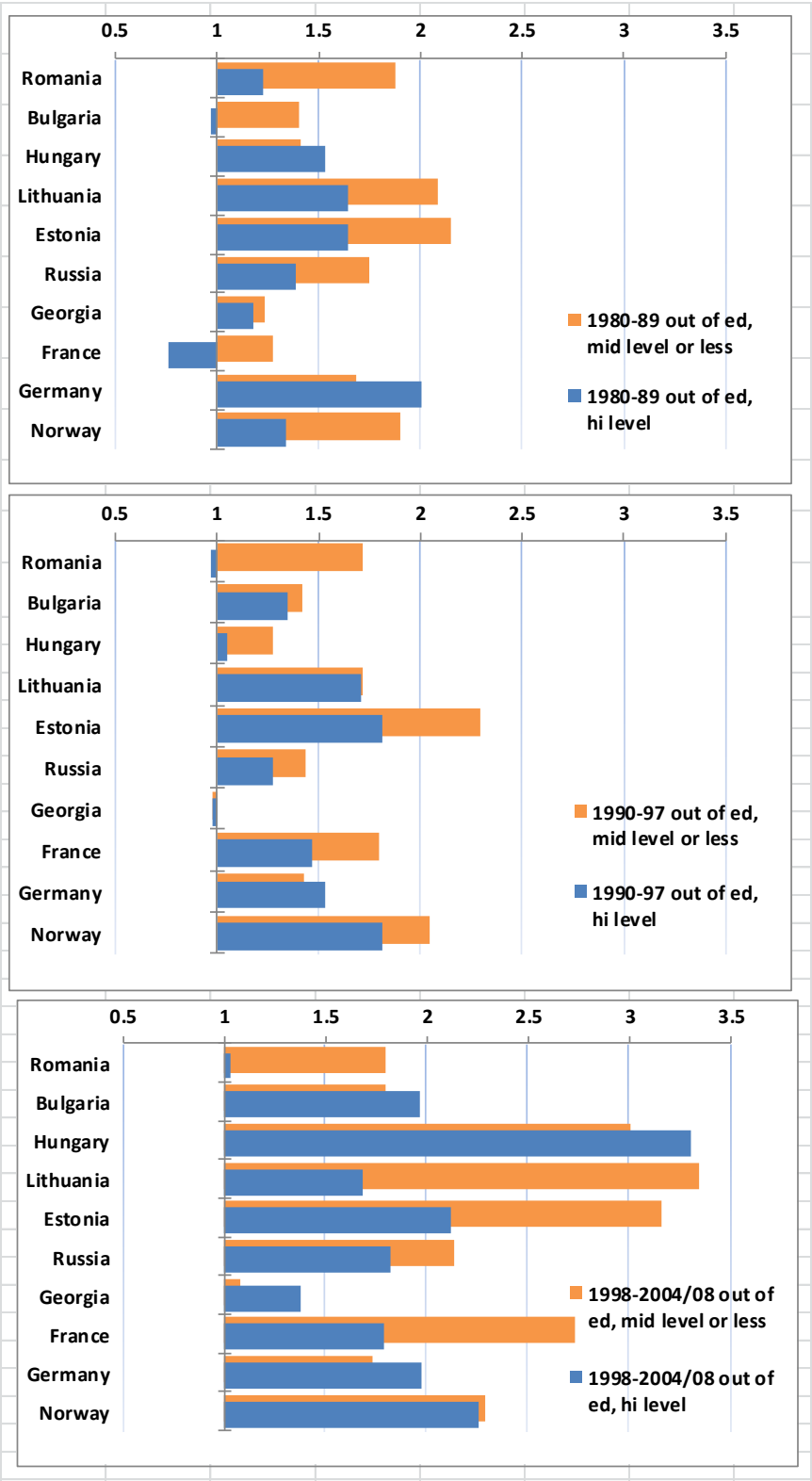


Figure 2. Relative risks of first birth by period and educational status (vs. out of education, middle level or less). Model 2.



Conclusions

Regardless the type of welfare-state regime, in the period around year 2000, all countries former-communist or not (except Georgia and France), converged to the situation where pregnancy and/or motherhood during studies triggers the end of education. I interpret this either the 2000s were more demanding in terms of combining human investments, professional career and family life as it was before, or women planed better the first birth close to the time of end of education (before or after). By contrast, the period 1990-1997 permitted to combine better studies with childbearing.

Unobserved personal characteristics and value orientations play more in two of the Eastern European countries (Bulgaria and Hungary), and in two of the Western European countries (France and Germany, both with conservative welfare regime). In the other former communist countries, namely Romania, Georgia, Estonia, Lithuania, and Russia, the unobserved personal characteristics play less, maybe because these countries are more familialistic, and the family solidarity permits young mothers to continue their studies. The latter is true also for Norway where the social-democratic welfare regime permit the de-standardization of the life-course.