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Education and non-marital conception outcomes in Central Europe: A comparison of trends in the Czech Republic, Poland, and Slovakia

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Introduction

Non-marital childbearing has increased vastly and rapidly in the post-socialist countries. What used to be a marginal phenomenon turned to be common behaviour. Several studies conducted so far have reported that the ratio of non-marital conceptions was high already during the state socialism (Poleszczuk 1996; Potančoková et al. 2008; Stloukal 1997; Szukalski 2001). The decline of post-conception marriage was crucial for the spread of nonmarital childbearing after 1989 (Baranowska 2010; Stloukal 1997). However, these studies are limited in examining social differences in non-marital conceptions and post-conception marriages. Available evidence shows that there is a negative educational gradient in nonmarital childbearing in (not only) the post-socialist countries (Hamplová 2007; Perelli-Harris, Gerber 2011; Potančoková et al. 2008), but less is known about the pathways that lead to this disparity. The gradient may simply reflect a disparity in non-marital pregnancies or be a result of education-specific outcomes of non-marital conceptions.

The goal of our paper is to **describe and explain the educational differences in the trend in the outcomes of first non-marital conceptions in the Czech Republic, Poland, and Slovakia**. More explicitly, we aim to find out, which of two perspectives is more helpful in explaining the educational pattern in the shift from post-conception marriages to non-marital births. According to the pattern of disadvantage perspective, the gradient reflects structural disadvantage of people with low educational attainment in the post-socialist context (Perelli-Harris, Gerber 2011). Alternatively the cultural reproduction argument explains the persistence of the gradient by its cultural transmission and relates its strength to

The three countries under study are similar with regard to recent demographic trends. By the late 1980s, non-marital conceptions typically accelerated marriage among young couples. The availability of contraception was limited and costs of childrearing were not high due to generous family benefits and a wide net of state-subsidized childcare facilities. Therefore, people typically started a family in their early 20s (David, Skilogianis 1999). The context for childbearing changed dramatically after 1989 in all three countries and in a rather similar way. Transition to adulthood has become a more lengthy process and the costs of childbearing rose. At the same time, family values became more liberal and the perceived importance of marriage declined (Thornton, Philipov 2009). On the other hand, the cultural context of the studied countries varies between a secular one, with an ideologically neutral reproductive policy (the Czech Republic) to a strongly religious one, with a conservative attitude to

reproductive policy and strict anti-abortion law (Poland). This variability will help us to test the robustness of the explanation.

Rising disadvantage or cultural reproduction?

There is an ongoing debate among sociologists and demographers about the causes of the rise in non-marital childbearing. Two main explanations are usually contrasted: a shift of values proposed by the second demographic transition theory and the structural conditions of family formation emphasised by the pattern of disadvantage argument.

Second demographic transition theory was originally intended to explain demographic change in Western Europe from the mid-1960s (Lesthaeghe 1995; Van de Kaa 1987) and later applied also to populations of other regions, including Central and Eastern Europe (Lesthaeghe and Surkyn 2002; Sobotka et al. 2008; Thornton and Philipov 2009). The demographic changes included a spread of alternative family forms, such as unmarried cohabitation or single motherhood. The theory connects the demographic change to a shift in values. People became less willing to make long-term commitments, such as in marriage or parenthood, and instead sought self-fulfilment and more autonomy in their lives.

According to the pattern of disadvantage perspective, the massive spread of non-marital childbearing reflects growing economic instability and rising socioeconomic inequalities (Perelli-Harris, Gerber 2011; Mikolai 2013). The theory opposes the argument that people dismiss marriage. On the contrary, they assign it with a high value and perceive it as a life-time goal and a symbol of achieving life stability. Unless they consider their life situations stable enough, they avoid marriage (Perelli-Harris et al. 2010). The proponents of the pattern of disadvantage perspective use the negative educational gradient in non-marital childbearing as a sign (or one of the signs) of the disadvantage (Perelli-Harris, Gerber 2011; Mikolai 2013). Without doubt, there is the negative educational gradient in non-marital childbearing in many of the formerly socialist countries, e.g. in the Czech Republic (Hamplová 2007), Russia (Perelli-Harris, Gerber 2011) or Slovakia (Potačoková et al. 2008). We will show below (see Figures 1 and 2) that the educational gradient applied both to the likelihood of becoming pregnant as unmarried and to the outcome of the non-marital conception.

However, we argue, that the mere presence of the gradient should not be interpreted as evidence for the structural explanation of the increase in non-marital childbearing without further examination. Mothers with lower educational attainments were more likely to have a child out of wedlock even before the collapse of state socialism (e.g. Rychtaříková 2008). It is not surprising that non-marital childbearing was typical of marginal social groups when it was infrequent and stigmatising. However, the question is why the negative educational gradient has persisted even though non-marital childbearing has become common. We examine two explanations.

Hypotheses

We aim to contrast the two above described arguments. According to *the pattern of disadvantage hypothesis*, the educational gradient in post-conception marriage reflects the socioeconomic disadvantage faced by women with low level of education. The gap between women with low and high education should then increase when the marginality and economic disadvantage of the group with low education rises. This should happen irrespective of whether general values in society favour marriage or not.

In contrary, *the cultural reproduction hypothesis* perceives the educational gradient as historically rooted and culturally transmitted. Even though the historical pattern probably results from disadvantage, persistence of the educational gradient does not necessarily imply that the disadvantage increases. Erosion of traditional family norms and emphasis on self-realisation come from the higher social strata and should then lead to diminishing of the educational differences. However, this might be a lengthy process. The general relaxation of family norms could promote retreat from post-conception marriage not only among those with attractive career prospects and high control over their life, but also among women with low education, who have more experience with unmarried motherhood in their social context.

We use three indicators of social context to test, which of the two perspectives is more helpful in explaining the size of the educational gradient in the outcome of non-marital conception.

First, we focus on *unemployment* as a measure of disadvantage. People with low education are the most endangered by unemployment and this disadvantage increases when unemployment rises. If the pattern of disadvantage hypothesis holds, the educational gradient in post-conception marriage should rise with rising unemployment.

Second indicator is *educational expansion*. As explained above, the individualist family values are carried by highly educated people. University students and graduates spread their values and life orientations among their families and friends, including those living in towns and rural areas. The number of people who enrolled to universities has increased significantly in our three countries. According to the cultural reproduction hypothesis, the expansion of tertiary education should reduce the educational differences in the post-conception marriage.

On the other hand, educational expansion can also serve as a proxy for the disadvantage of those with the least level of education. The more people have a university degree, the more marginal is the position of people who did not continue their studies after the obligatory primary school. If the educational expansion leads to wider educational differences, it would support for the pattern of disadvantage hypothesis.

Finally, we study the *influence of church*. Church promotes marriage and traditional family values in general. If the influence of church is high, unmarried motherhood is more tied to disadvantage and the related unavailability of suitable marital partners. The lower is its influence the less reluctant mothers (including those with high education) should be to remain unmarried. According to the cultural reproduction hypothesis, the educational gradient in the outcome of non-marital conception should be weaker in a context of lower church influence.

Data

We use data from the national birth registers for period 1992-2010. The data are limited to first-time mothers only. We use information on mother's marital status, date of child's birth, and date of marriage to identify non-marital conceptions and their outcomes. Non-marital conceptions are cases in which mother was not married at the time of birth or got married less than 7 months before birth. The outcome of non-marital conception is a binary indicator of whether she remained unmarried till birth.

Further maternal characteristics are educational attainment, age and the size of the place of the residence. *Education* is measured in 4 categories that are comparable across countries. They correspond to the ISCED-97 levels: 0-2; 3C; 3A, 3B 4; and 5-6. The typical age at childbearing rose substantially during the study period. Therefore, we use a relative measure of *age* with three categories. The low category represents maternal ages that were lower or equal to the 20th percentile of the age distribution at the respective year. The middle category

represents ages between the 20th and 80th percentile. The high category represents ages equal to or higher than the 80th percentile in the respective year. Variable *city* is a binary indicator of whether the mother lives in a city with more than 100,000 inhabitants.

We group the individual observations into time-and-space contexts defined by the combination of country and year. There are 50 contexts in total (19 for each Poland and Slovakia and 12 for the Czech Republic, where the time series is not complete). Three context-level variables are used to test the hypotheses. The educational expansion is measured by the gross enrolment ratio at the tertiary level of education. It is the ratio of tertiary education students and the size of the cohort at typical age of university studies. The data come from the database of the UNESCO Institute for Statistics (UIS2014). The *unemployment rate* is a measure of economic insecurity. The registered unemployment rates are taken from the OECD statistical library (OECD 2014). Finally, the influence of church is measured by *church attendance*. The measure gives the proportion of people who go to church at least once a month. The data are taken from the European Values Survey (EVS 2011). We used waves 2 to 4 (collected in 1990-1991, 1999, and 2008) and created the time series by linearly connecting these time points.

We model the data using multilevel logistic regression with random intercepts (Powers, Xie 2008: 115-165; Rabe-Hesketh, Skrondal 2008). The models divide the variability of the dependent variable which has its cause at the individual level from the variability that arises from the differences between macro-contexts. As explained above, these contexts are defined by the combination of time and county. The model assumes that context-level variability can be captured by allowing the intercept to vary by contexts. Each context is supposed to have a specific baseline value of the outcome (the odds of unmarried motherhood), i.e. the intercept. We let the contextual variables interact with education to see whether and how the educational gradient changes when social conditions change.

Descriptive results: Educational gradient in non-marital conceptions and their outcomes

Figure 1 describes trend in the educational gradient in non-marital conceptions. The first panel depicts remarkable similarity and stability of the general trend in all three countries. The proportion of pregnancies conceived out of marriage ranged roughly between 50 and 60 %. The ratio kept to be slightly lower in Poland (between 45 and 52 %) and higher in the two countries of former Czechoslovakia (between 53 and 63 %). The remaining three panels, that

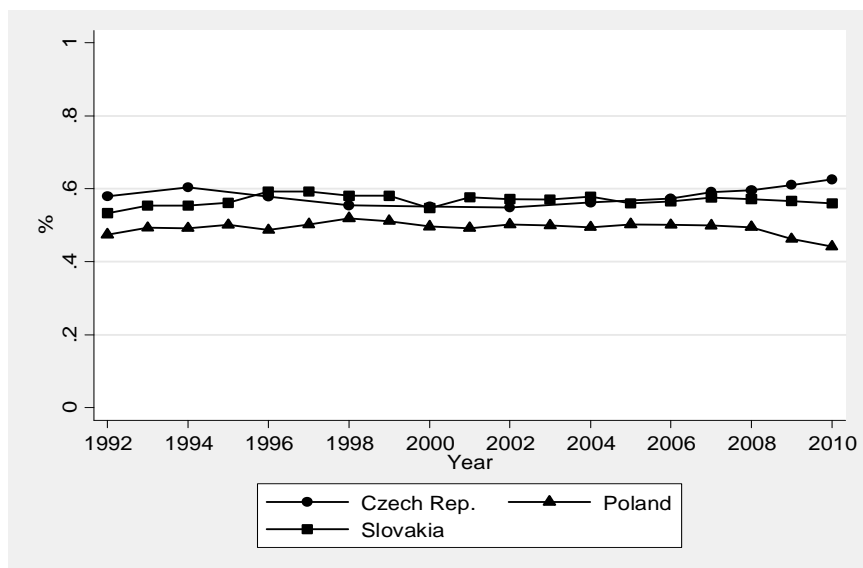
split the trend by education for each of the countries, also show continuity. There is a clear negative educational gradient that does not seem to significantly vary in time. The non-marital conception ratio was stably or increasing moderately among all educational groups in all countries. The only exception was a slightly declining trend among women with secondary education in the in the Czech Republic. However, it was limited to the second half of the 1990s and replaced by an upward trend later. In summary, there was not much change in the educational pattern of non-marital conception.

In contrary, post-conception marital behaviour transformed substantially. Figure 2 shows that only about one quarter of first-time mothers who conceived as unmarried did not marry before birth in 1992. Before 2010, the ratio has increased to 58 % in Poland, 71% in Slovakia, and 82 % in the Czech Republic. Women with the lowest level of education were the most likely to remain unmarried in all countries and periods, but the form of the gradient and the size of educational differences changed. In 1992, there was a large gap between mothers with primary education and all remaining educational groups in the Czech and Slovak Republics. The gap was increasing in the 1990s and then started to diminish after 2000. Educational differences in Poland have been smaller and rather constant. Interestingly, the educational groups did not form a clear gradient in the early 1990s. Mothers with the highest education were second most likely to not legitimise a non-marital conception in 1992. They then adhered to marriage during the 1990s and the upward trend started later. Similar pattern for the university graduates can be seen also in the Czech and Slovakian data, but less pronounced.

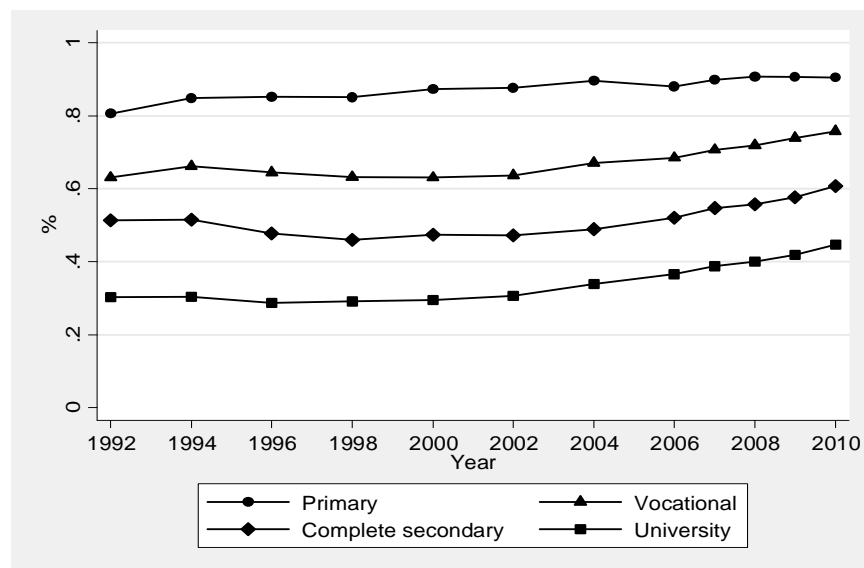
The shift from post-conception marriages towards non-marital births is present in all educational groups in all countries, but its pace varies. The widening of educational disparities during the 1990s may result from growing disadvantage related to the economic transformation after the collapse of state socialism. Narrowing of the gradient (and its absence in Poland) probably reflects growing approval of alternative family arrangements. Next section tests the relationship between the educational gradient and social conditions directly.

Figure 1 Non-marital conception ratio by country and education

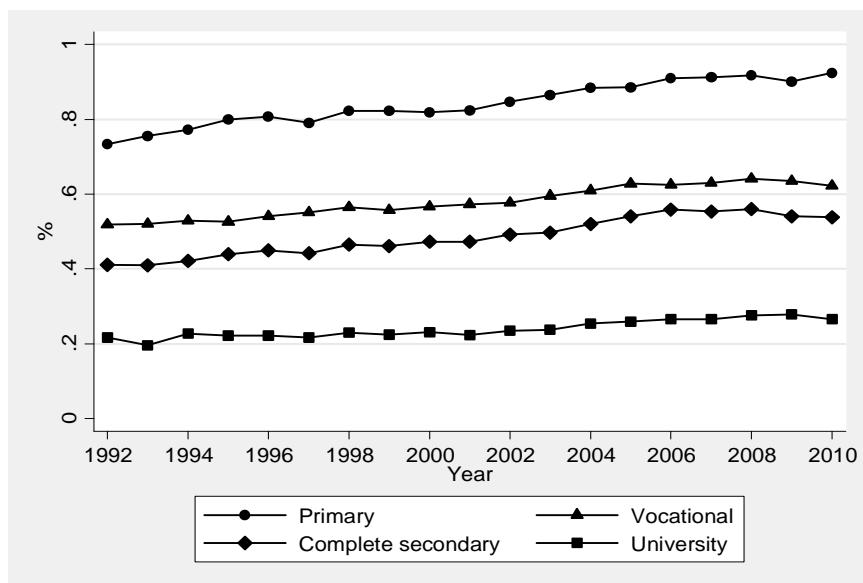
General trend



Czech Republic



Poland



Slovakia

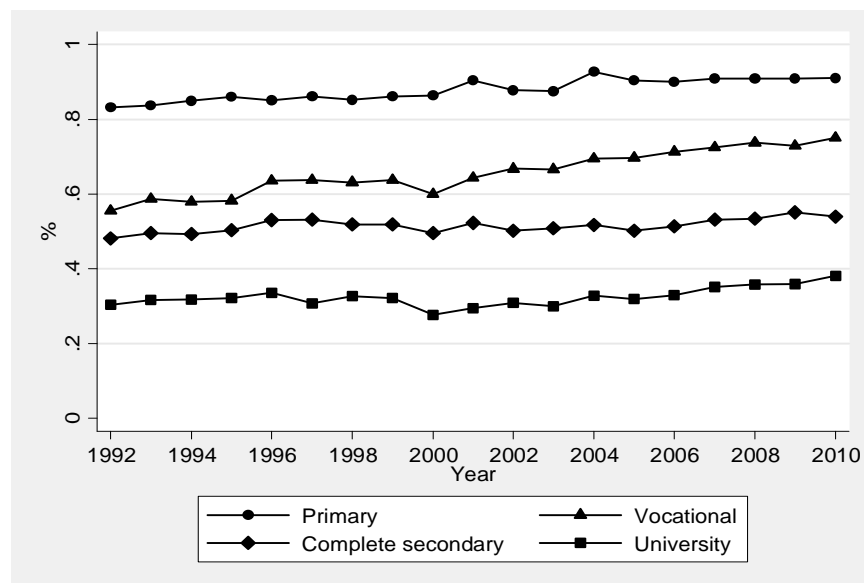
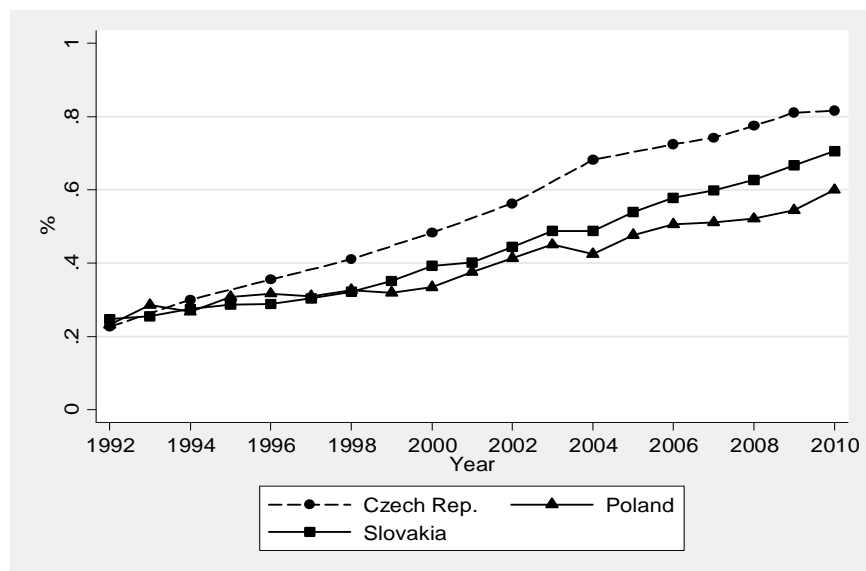
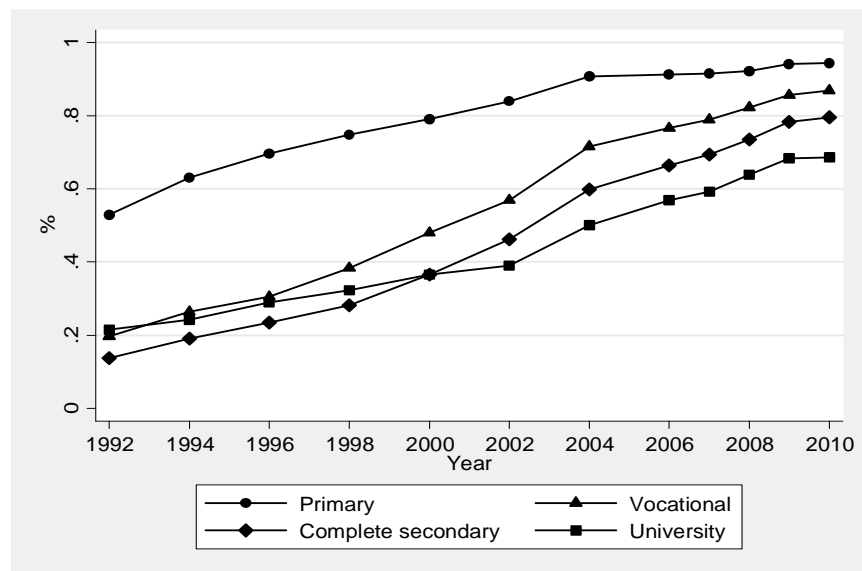


Figure 2 Proportion of non-marital conceptions ending as non-marital birth by country and education

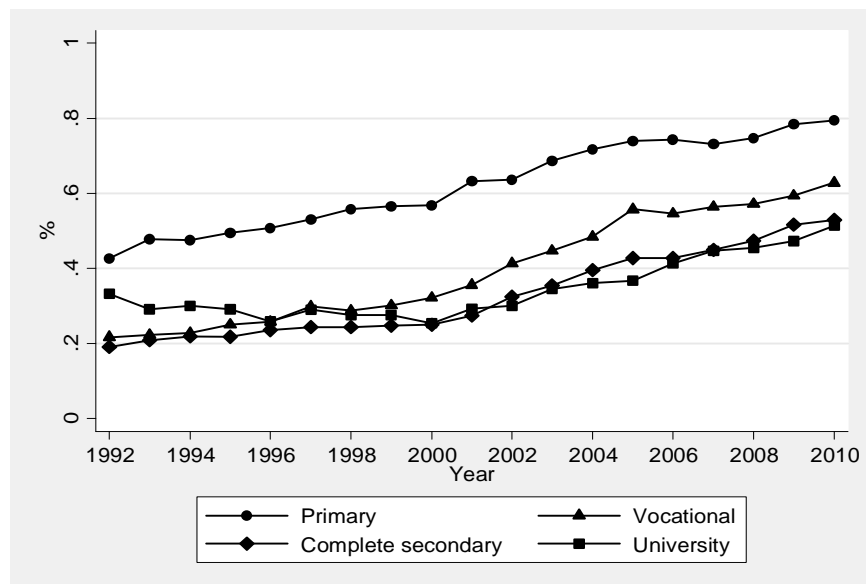
General trend



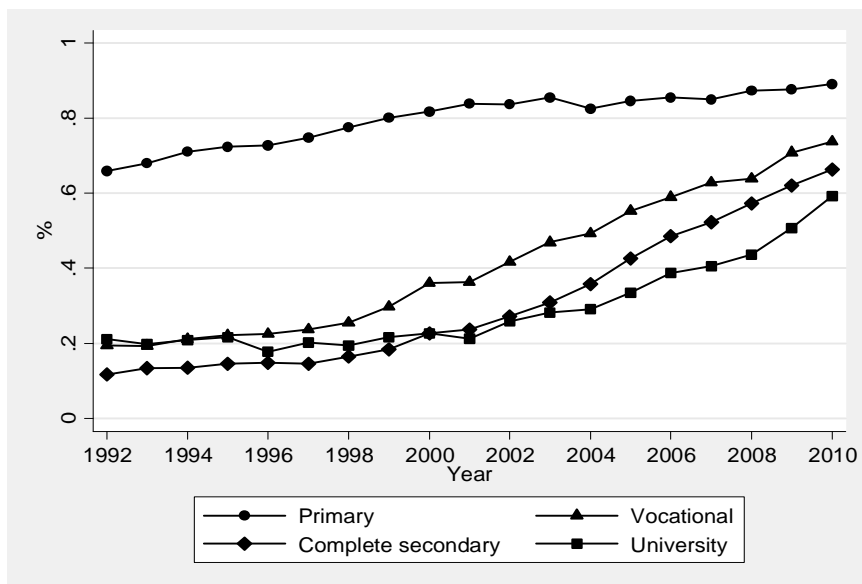
Czech Republic



Poland



Slovakia



Models

Multilevel models show whether the educational differences in the outcomes of non-marital conceptions depend on the size of economic disadvantage of people with low education or rather on the more or less liberal value climate in the society. We estimated four models. All models include three micro-level variables, education, age, and size of the place of residence, and three macro-level variables, the unemployment, expansion of tertiary education, and church attendance. Model 1 is the baseline. Models 2 to 4 add interactions of education with the three macro-level factors (respectively). Results are presented in Table 1.

Model 1 shows that, among the macro-level predictors, educational expansion has the strongest effect on the logit of remaining unmarried after a non-marital conception. It rises by 0.5 with each 10-percentage-point increase in the enrolment to tertiary education. The gross enrolment ratio at universities increased by 40 to 50 percentage points in the three countries, so its effect is massive. The effect of unemployment rate is small and insignificant. The effect of church attendance is only marginally significant (at the 0.1 level) and, surprisingly, positive. The sign is influenced especially by the development in Slovakia, where the churchgoing increased during the 1990 (unlike the other two countries).¹

Although only one of our macro-level predictors influenced the retreat from post-conception marriage substantially, they could have an effect on the size of the educational gradient. Model 2 examines whether this applies to unemployment. The interaction terms are all significant and negative. When unemployment rises, educational differences in the outcome of non-marital conception increase. An increase of 10 % widens gap between primary and vocational education by 0.13 and the gap between primary and complete secondary or university education even by about 0.3. These results are in line with the pattern of disadvantage perspective.

Model 3 shows that the size of the educational gradient is influenced also by educational expansion. Widening educational opportunities indicate both increasing marginalisation of poorly educated people and a change in values. The interaction between educational expansion and education of mothers is positive, which favours the value interpretation. When more people go to university and spread individualist values, the differences in post-conception marriage diminish. This applies especially to the difference between primary and

¹ We also estimated all models for each couple of countries separately to check whether any of the countries biases the overall results. The effect of church attendance was insignificant when Slovakia was excluded.

secondary (either vocational or complete) level of education. The gap between them closes by 0.11 or 0.12 when the enrolment ratio increases by 10%. This supports the cultural reproduction hypothesis. On the other hand, the interaction term for university education is much smaller, only 0.02.

A similar result was found also for the other proxy for value climate, the church attendance. When less people go to church, the educational differences in post-conception marriage diminish. A 10% decrease in churchgoing implies that the gap between primary and vocational education decreases by 0.25. The interaction effect for complete secondary education is even higher, 0.35. However, the pattern again differs for the highest educational level. The interaction term for university education is zero.

Table 1 Results of multilevel logistic regression models of unmarried motherhood (beta coefficients)

	Model 1	Model 2	Model 3	Model 4
<i>Fixed effects</i>				
Education (Primary=ref.)				
Vocational	-1.30***	-1.30***	-1.25***	-1.32***
Complete secondary	-1.77***	-1.76***	-1.73***	-1.78***
University	-2.21***	-2.21***	-2.09***	-2.24***
Age (Middle= ref.)				
Low	0.01*	0.01*	0.01**	0.01*
High	0.67***	0.67***	0.66***	0.67***
City (Non-city=ref.)				
	0.37***	0.37***	0.37***	0.37***
Unemployment rate (10%=1)				
	-0.15	0.08	-0.15	-0.14
Tertiary education expansion (10%=1)				
	0.52***	0.52***	0.42***	0.52***
Church attendance (10%=1)				
	0.42*	0.42*	0.41*	0.20
Unemp. rate x Education				
Unemp. rate x Vocational		-0.13***		
Unemp. rate x Complete secondary		-0.30***		
Unemp. rate x University		-0.34***		
Educ. expansion x Education				
Educ. expansion x Vocational			0.12***	
Educ. expansion x Complete secondary			0.11***	
Educ. expansion x University			0.02**	
Church attendance x Education				
Church attendance x Vocational				0.25***
Church attendance x Complete sec.				0.32***
Church attendance x University				0.004
Intercept	0.93***	0.93***	0.89***	0.95***
<i>Random effect</i>				
Variance(Intercept)	0.43	0.43	0.43	0.43

Note: *** p<0.01, ** p<0.05, * p<0.1

Conclusion

Central-European post-socialist countries experienced a fast retreat from legitimization of non-marital conceptions. Despite the profoundness of the change, the post-conception marital behaviour shows remarkable continuity in terms of its stratification by education. We have shown that women with lower education have a higher likelihood of remaining unmarried after a non-marital conception. We examined two explanations of the continuity of the educational gradient. The pattern of disadvantage hypothesis assumes that gradient reflects growing socio-economic disadvantage of people with low education. The argument of the cultural reproduction hypothesis is that the educational gradient is culturally transmitted and that the general value climate, which is formed rather by highly educated people, influences the size of educational disparities. Our results provide some support for both of these explanations, however, the evidence in favour of the cultural reproduction is stronger.

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