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Educational expansion, "double status positions" and the transition to motherhood in Hungary. [+]

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Abstract

It is widely believed that educational expansion contributed to the decline in fertility in post-communist countries since the social statuses of being a student and becoming mother are incompatible. We argue that this explanation should be reassessed because (i) educational expansion may lead to the expansion of "double status positions" (people who are enrolled and employed at the same time), and (ii) women occupying a double status position might face opposing incentives regarding childbearing: as students, they wish to avoid childcare during the studies (the *role-conflict mechanism*), while as employees, they are in a position to afford the monetary costs of rearing children (the *income effect mechanism*). We examine the implications of educational expansion for the presence of double status positions as well as the effect of double status positions on the transition to motherhood. We use official educational statistics and micro-level longitudinal data from the Hungarian Generations and Gender Survey. After documenting the expansion of double status positions, we estimate multilevel discrete –time logistic regression models of becoming a mother. We find no significant difference between women in double status positions and women who work but are not enrolled. This finding suggests that the role conflict and the income effect mechanism work in the opposite direction and have approximately the same magnitude.

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Motivation, research question, hypotheses

The dramatic decline in fertility in the former socialist countries is often explained in terms of institutional changes including the expansion of higher education (Kantorová 2004, Klasen and Launov 2006, Thornton and Philipov 2009). In their seminal paper, Huinink and Blossfeld (1990) established the micro-level mechanism that links educational expansion to the low level of fertility: the social statuses of being a student and becoming mother are incompatible. Their and subsequent research has empirically demonstrated that school enrolment postpones the transition to motherhood (REFERENCES WILL BE ADDED).

Hungary experienced a rapid educational expansion after the societal transition in the mid 1990s. The main beneficiary of the expansion was higher education. Although the increase was triggered mainly by the expansion of full-time education, the increase of the part time education was also remarkable. The expansion of part-time educational programs goes hand in hand with an increase in the number of "double status positions" (Róbert and Saar 2012). In this paper, "double status position" refers to students who work at the same time; we do not restrict the term to college and university students.

In this paper, we argue that the presence of double status positions might diminish the relevance of the educational expansion explanation in understanding low fertility. The effect of educational expansion on fertility might be overstated if the latter leads to the increase of double status positions. Assume for a moment that educational expansion increases the share of double status positions but do not increase substantially the share of single status student positions. People occupying a double status position might face opposing incentives regarding childbearing: as students, they wish to avoid childcare during the studies (the *role-conflict mechanism*), while as employees, they are in a position to afford the monetary costs of rearing children (the *income effect mechanism*). The net effect of these mechanisms might be both negative and positive. Even if the role-conflict mechanism is the stronger one, it is clear that the previous literature might have overstated the effect of educational explanation on fertility decline.

Our reassessment of the educational expansion explanation of low fertility proceeds in two steps. First, we examine the macro-level evidence on the implications of educational expansion on double status positions. Second, we provide micro-level evidence concerning the effect of double status positions on the transition to motherhood. In this latter step, our analyses are guided by two competing hypotheses:

H1 *The double role conflict hypothesis* Both educational enrollment *and* participation in the labor market (employment) demands women to invest in their human capital and devote time and energy to protect or improve their current social and economic status. Since these expectations are at odds with

childrearing, *women in a double status position have a* lower *risk of becoming mother as those having only one status (either enrolled, or employed).*

H2 *The mitigated role conflict hypothesis* Since income from employment enables one to rear children, *women in a double status position have a* higher *risk of becoming mother as those who are* only enrolled. Given the role-conflict of student status and motherhood, *women in a double status position have a* lower *risk of becoming mother as those who are only* employed.

Educational expansion and double status positions in Hungary

Education expanded without interruptions since the post-communist transiton, however different phases of educational dynamics could be identified according historical time and types of tertiary education. Figures 1 and 2 display the enrollment rates by age group and type of enrollment.

FIGURE 1 AND 2 ABOUT HERE

Full time education kept expanding between 1991 and 1998. (We do not consider events after 1998 because our analyses using micro-data span the time period until 1998.) Not surprisingly, enrollment rates are higher in the age groups 18-23 and 23-25. The enrolment rate is much lower amont those aged 26-30 as far as full time enrollemnt is considered.

Part time education also expended during the period under investigation, but the trend is not linear. The enrollment rate increases slowly until the end of the milleneum, then it increased substantially within the next two years. After a three year period of stagnation, the enrollment rate falled. As expected, the participation rate in part-time education is larger among people aged 26-30 than among the younger ones.

To summarize, less people participated in part-time education than in full time education, especially among people aged 23-25. However, the age groups 26-30 participated mainly in part time education.

Sample, measurement and methods

We use the first three waves of the panel survey *Turning Points of the Life Course*, collected 2001, 2004 and 2008. The second wave of the survey corresponds to the first harmonized wave of the Generations and Gender Survey. For simplicity, we refer to this dataset as the three waves of the

Hungarian GGS. The survey includes retrospective information on fertility, partnership, labor market and education histories, as well as cross-sectional information on the characteristics of partners.

For the purposes of empirical analyses, we use women born between 1961 and 1980 who have participated in all of the three waves (N=2078). The restrictive sample inclusion is due to the fact that retrospective information on employment history was collected in the last wave and the resulting job history information is left-truncated: employment statuses prior to 1975 are unknown. Women born in 1961 will turn 14 in 1975 when they are first at the risk of becoming a mother. Thus the effect of employment status on the transition to motherhood can be studied using women who were born in 1961 or later.

We will use discrete-time event history analysis to examine the effect of employment and enrollment statuses on the transition to motherhood. More specifically, we estimate multilevel logistic regression models of conceptions to account for the interdependence of observations made on the same person. The discrete-time dataset includes 282,208 person-months as observations.

The key explanatory variables are: an indicator variable for employment, an indicator variable for school enrollment, and a categorical variable defined as the combination of the two indicator variables. We will use two measurements of enrollment as well as the combined employment-enrolment status. The reason is as follows. The retrospective information on employment and enrollment are obtained from answers to two different survey questions. The survey question eliciting the employment history included the enrollment status as one of the response categories. Due to obvious recall errors, enrollment spells reconstructed from answers to the employment history survey question do not overlap completely with employment spells as reconstructed from the enrollment history. For this reason, we defined the following two measurements of enrollment and the combined employment-enrollment variables. The basic difference between the two measurement is whether information on employment status is allowed to change the value of the enrollment dummy. More specifically:

Measurement 1. Information from the employment history does not affect the value of the enrollment indicator variable; the latter is left as it is reconstructed from the employment history survey question.

Measurement 2: If the employment history indicates that the respondent was enrolled in time *t* then possible zero value of the indicator variable enrollment is changed into one.

Fortunately the agreement between the two measurements is almost perfect: the two measures differ only in about 2 percent of the observations. We use both measurements during the analyses. Fortunately, the empirical results reported in the remaining of the paper are not sensitive to the choice of measurement.

First empirical results

In the person-month data, about 10 percent of the observations belong to the double status category. It is striking that in the older cohorts, conceptions occur frequently to women in double status. This pattern disappears as we move to younger cohorts. In line with previous research findings, enrolled women face the lowest risk of becoming a mother. The risk of first conception is relatively high among women who are employed but not enrolled.

TABLES 1 AND 2 ABOUT HERE

To control for the presence of confounding factors, we estimated several multilevel logistic regression models. The models include the time-varying covariates educational level, union status, age, period as well as the time-constant covariates including birth cohort, highest education of the parents, number of siblings and an indicator variable for the separation of the parents when the respondent was aged 0-14. Since union status is endogeneous, we estimated models which does not include this variable.

Table 3 shows estimates for regression models in which employment and enrolment are entered as two separate indicator variables. Enrollment and employment have the expected opposite effects on the transition to motherhood. Table 4 shows estimates for models in which the four combinations of employment and enrollment statuses are used. We use "employed, but not enrolled" as the reference category. The main result is that the single status of enrollment differs significantly from the single status being employed (reference categories). The direction of the association is as expected, and in line with the Blossfeld-Huinik results; enrolled have significantly lower risk having the first child. However there is no significant difference between the single employed and the double statuses.

TABLES 3 AND 4 ABOUT HERE

Our results does not support the double role conflict hypothesis. If the lack of the statistical significance of the difference between the single employed and the double statuses is due to the absence of effect in the population, the mitigated role conflict hypothesis can be accepted. That is, the conflict between the roles of being a student and being a mother are mitigated among employees, possibly because of the presence of an income effect.

To check the robustness of our results, we will include interaction effects of period/cohort and double status, which may modify our preliminary results.

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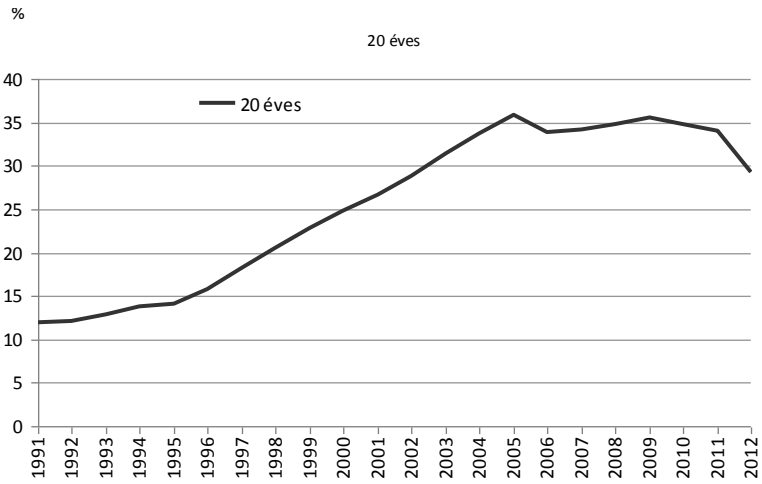
Figure 1.

The ratio of enrolled people among aged 20, in Hungary, 1991-2012.

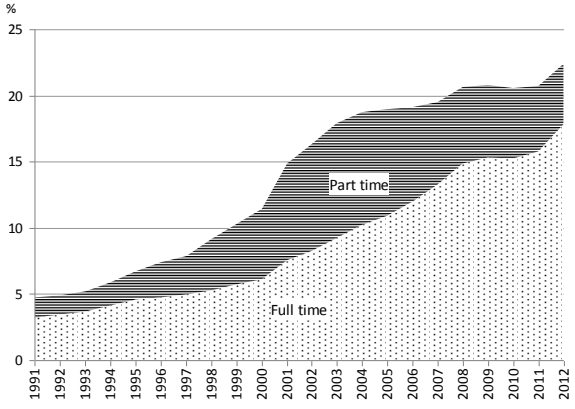


Source: own calculation, official education data, Hungarian Central Statistical Office

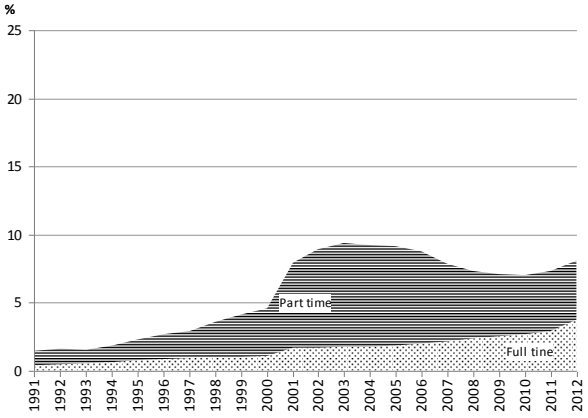
Figure 2.

Full time and part time educational enrollment in Hungary, 1991-2012

A) People aged 23-25



B) People aged 26-30



Source: own calculation, official education data, Hungarian Central Statistical Office

Table 1

Distribution of joint employment-enrolment status in the person-month data

Variable	Frequency	Percent
Measurement 1		
Neither enrolled, nor employed	27822	9.555
Not enrolled, but employed	108779	37.358
Enrolled, but not employed	121308	41.661
Both enrolled and employed	33270	11.426
Total	291179	100
Measurement 2		
Neither enrolled, nor employed	20600	7.075
Not enrolled, but employed	108779	37.358
Enrolled, but not employed	128530	44.141
Both enrolled and employed	33270	11.426
Total	291179	100

Table 2

Percentage distribution of conceptions by birth cohort in the person-month data

	1961-65	1966-70	1971-75	1976-80
Measurement 1				
Neither enrolled, nor employed	0.418	0.594	0.372	0.371
Not enrolled, but employed	0.715	0.521	0.525	0.437
Enrolled, but not employed	0.093	0.114	0.051	0.041
Both enrolled and employed	0.915	0.665	0.472	0.269
Measurement 2				
Neither enrolled, nor employed	0.395	0.529	0.384	0.450
Not enrolled, but employed	0.715	0.521	0.525	0.437
Enrolled, but not employed	0.110	0.141	0.069	0.053
Both enrolled and employed	0.915	0.665	0.472	0.269

Table 3

Multilevel logistic regressions of conception on separate employment and enrolment statuses

Variable	Union status excluded		Union status included	
	Measurement 1	Measurement 2	Measurement 1	Measurement 2
Employed	0.628***	0.619***	0.470***	0.467***
	(6.20)	(5.86)	(4.60)	(4.40)
Enrolled	-0.342***	-0.275**	-0.276**	-0.205*
	(3.96)	(3.16)	(3.14)	(2.32)
Education				
lower secondary	0.266*	0.288*	0.243	0.263*
	(2.19)	(2.37)	(1.92)	(2.07)
upper secondary	0.097	0.115	0.115	0.128
	(0.79)	(0.93)	(0.88)	(0.98)
Higher	0.305*	0.335*	0.247	0.270
	(2.03)	(2.22)	(1.54)	(1.68)
Age-25	0.016	0.017	-0.034	-0.033
	(0.78)	(0.83)	(1.78)	(1.70)
Age-25 squared	-0.015***	-0.015***	-0.009***	-0.009***
	(9.84)	(9.91)	(5.72)	(5.79)
Period				
1990-1994	-0.100	-0.099	-0.047	-0.048
	(0.75)	(0.74)	(0.34)	(0.35)
1995-1998	-0.336	-0.336	-0.196	-0.198
	(1.78)	(1.78)	(1.01)	(1.02)
1998-2002	-0.497*	-0.498*	-0.203	-0.204
	(2.06)	(2.06)	(0.82)	(0.83)
2003-	-0.187	-0.185	0.107	0.108
	(0.62)	(0.61)	(0.34)	(0.35)
Birth cohort				
1966-1970	-0.187	-0.188	-0.148	-0.146
	(1.65)	(1.65)	(1.24)	(1.23)
1971-1975	-0.254	-0.251	-0.160	-0.155
	(1.53)	(1.51)	(0.94)	(0.90)
1976-1980	-0.545*	-0.540*	-0.387	-0.378
	(2.40)	(2.38)	(1.66)	(1.62)
Father's education				
lower secondary	-0.163	-0.166	-0.207*	-0.213*
	(1.72)	(1.75)	(2.10)	(2.15)
upper secondary	-0.088	-0.094	-0.120	-0.128
	(0.72)	(0.77)	(0.94)	(1.01)
Higher	-0.009	-0.019	-0.108	-0.119
	(0.05)	(0.11)	(0.62)	(0.68)
Mother's education				
lower secondary	-0.045	-0.048	-0.012	-0.016
	(0.47)	(0.50)	(0.12)	(0.16)
upper secondary	-0.623***	-0.633***	-0.473***	-0.482***
	(5.17)	(5.25)	(3.85)	(3.92)
Higher	-0.476**	-0.487**	-0.330	-0.340
	(2.65)	(2.72)	(1.80)	(1.86)
Number of sibligns	0.047	0.050	0.043	0.046
	(1.85)	(1.96)	(1.57)	(1.70)
Parents separated when R aged 0-14	0.064	0.067	0.042	0.043
	(0.58)	(0.61)	(0.36)	(0.37)
Constant	-4.970***	-4.991***	-6.263***	-6.290***
	(26.39)	(26.23)	(30.75)	(30.55)
SD of random effect	0.362	0.364	0.520	0.524
N of observations	282208	282208	282208	282208
N of individuals	2078	2078	2078	2078
Wald chi-squared	415.507	412.289	1026.479	1023.378

Note: The multilevel logistic regression models assumint random effects at the level of individuals were estimated using the person-month dataset. Ceofficents for union status are omitted.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 4

Multilevel logistic regressions of conception on joint employment and enrolment statuses

Variable	Union status excluded		Union status included	
	Measurement 1	Measurement 2	Measurement 1	Measurement 2
Employment and enrollement status				
Neither enrolled, nor employed	-0.036	0.064	0.014	0.065
	(0.33)	(0.53)	(0.12)	(0.50)
Enrolled, but not employed	-1.526***	-1.259***	-1.243***	-0.974***
	(10.75)	(9.98)	(8.46)	(7.46)
Both enrolled and employed	0.031	0.032	0.040	0.043
	(0.36)	(0.37)	(0.43)	(0.47)
Eduation				
lower secondary	0.124	0.223	0.124	0.213
	(1.07)	(1.91)	(0.99)	(1.69)
upper secondary	-0.011	0.089	0.014	0.091
	(0.10)	(0.75)	(0.10)	(0.69)
Higher	0.177	0.312*	0.130	0.231
	(1.24)	(2.16)	(0.82)	(1.44)
Age-25	-0.002	-0.002	-0.044*	-0.039*
	(0.10)	(0.11)	(2.32)	(2.04)
Age-25 squared	-0.014***	-0.014***	-0.007***	-0.008***
	(9.05)	(9.31)	(4.97)	(5.29)
Period				
1990-1994	-0.125	-0.124	-0.066	-0.067
	(0.95)	(0.95)	(0.48)	(0.49)
1995-1998	-0.350	-0.346	-0.221	-0.217
	(1.88)	(1.86)	(1.15)	(1.12)
1998-2002	-0.499*	-0.500*	-0.229	-0.232
	(2.10)	(2.11)	(0.93)	(0.94)
2003-	-0.176	-0.178	0.085	0.076
	(0.60)	(0.61)	(0.27)	(0.24)
Birth cohort				
1966-1970	-0.158	-0.167	-0.134	-0.140
	(1.45)	(1.54)	(1.14)	(1.18)
1971-1975	-0.226	-0.223	-0.141	-0.141
	(1.41)	(1.40)	(0.84)	(0.83)
1976-1980	-0.484*	-0.487*	-0.340	-0.348
	(2.18)	(2.20)	(1.47)	(1.49)
Father's education				
lower secondary	-0.101	-0.113	-0.167	-0.187
	(1.11)	(1.25)	(1.73)	(1.91)
upper secondary	-0.008	-0.026	-0.064	-0.093
	(0.07)	(0.22)	(0.52)	(0.74)
Higher	0.068	0.046	-0.038	-0.074
	(0.42)	(0.28)	(0.22)	(0.43)
Mother's education				
lower secondary	-0.015	-0.022	0.016	0.007
	(0.16)	(0.24)	(0.17)	(0.07)
upper secondary	-0.553***	-0.572***	-0.422***	-0.447***
	(4.93)	(5.09)	(3.49)	(3.64)
Higher	-0.361*	-0.380*	-0.234	-0.268
	(2.11)	(2.22)	(1.30)	(1.47)
Number of sibligns	0.022	0.028	0.017	0.028
	(0.96)	(1.21)	(0.66)	(1.03)
Parents separated when R aged 0-14	0.047	0.059	0.029	0.043
	(0.45)	(0.57)	(0.26)	(0.38)
Constant	-4.416***	-4.495***	-5.777***	-5.844***
	(28.84)	(28.92)	(31.30)	(31.14)
SD of random effect	0.014	0.048	0.441	0.501
N of observations	282208	282208	282208	282208
N of individuals	2078	2078	2078	2078
Wald chi-squared	508.297	512.180	1038.988	1025.712

Note: The multilevel logistic regression models assumint random effects at the level of individuals were estimated using the person-month dataset. Ceofficents for union status are omitted.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$