Economic Constraints and Fertility in Europe: the Role of Education

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Introduction and research aims

There is a long tradition of theoretical and empirical studies – in the economic, demographic and sociological literature – dealing with the link between macroeconomic conditions and fertility, the latter measured both at the aggregate and individual levels. Overall, the bulk of results suggest that fertility tends to be pro-cyclical, i.e. fertility is higher in periods of economic growth and decreasing unemployment rates (Sobotka et al., 2011). This logic accords with best evidence on the effects of the Great Recession on fertility in Europe (Comolli, 2017; Matysiak et al., 2018). Importantly, when unemployment rates are controlled for, changes in Gross Domestic Product (GDP) do not directly affect fertility (Matysiak et al., 2018; Sobotka et al., 2011).

In this general framework, results also point to highly heterogeneous effects of unemployment rates on fertility depending on both contextual and individual factors, however. For instance, null (Matysiak et al., 2018) or even positive effects (Aksoy, 2016) of local unemployment rates on fertility have been found in England, the UK and Ireland, while stronger negative effects have been found in Southern Europe (Goldstein et al., 2013; Matysiak et al., 2018). Adsera (2005) argued that relatively lower fertility rates in Southern European countries can be traced back, to a large extent, to their higher female and long-term unemployment rates, relative to other European areas.

At the micro level, substantial heterogeneity in the effects of unemployment rates have been found based on gender and educational differences. Economic resources and earning potentials – proxied by educational attainment – may have both positive and negative effects on fertility decisions depending on whether income or substitution effects prevail (Becker, 1991). Having children entails higher opportunity-costs for women, especially for higher educated women: they are usually found to have less children than their less educated counterparts. This mechanism may be reinforced during negative economic conjunctures, as highly educated women may become even more attached to the labour market and postpone childbearing decisions, to maintain their career chances (Sobotka et al., 2011). It has also been argued that low-educated women – who are more affected by recessions and whose experiences of unemployment tend to be longer – are more likely to perceive having children during negative economic conjunctures "as a means to structure their

otherwise uncertain life course" (Kreyenfeld and Andersson, 2014: 62; see also Friedman et al., 1994). Among men, income effects are generally much stronger than substitution effects – the higher men's economic resources and earning potentials, the higher their fertility. Hence, increasing unemployment rates are usually found to have negative effects on their fertility (Sobotka et al., 2011).

Besides this state of affairs, in a context of decline of the male breadwinner model where women increasingly enter the labour force, the relation between aggregate unemployment and individual-level fertility may have become more negative among women (Adsera, 2005). Karaman Örsal and Goldstein (2018) show that while fertility has been counter-cyclical before 1970, it has become pro-cyclical since then: they found both male and female unemployment rates to be negatively associated with fertility rates in a selection of OECD countries. Adsera (2011), differently from Kreyenfeld and Andersson (2014), argued that precisely because of their higher risks of losing job and remaining unemployed, low-educated women are particularly less sheltered during economic crises, inhibiting childbearing plans. Overall, the effect of rising unemployment rates on women's fertility behaviour and how such association is moderated by their educational attainment remains uncertain.

The aim of this paper is to contribute to this discussion by analysing the relation between unemployment rates and fertility in a selection of European countries. Compared to existing evidence, the contributions of the paper are as follows:

1) we distinguish between male and female unemployment rates to tackle the issue of the (possible) gendered pattern of effects of unemployment on fertility;

2) we analyse how the effects of aggregate unemployment rates on fertility vary by woman's educational attainment.

Data and method

We use data from the European Labour Force Survey (EULFS) on 18 countries – Austria, Belgium, Bulgaria, Czech Republic, Germany, Spain, France, Greece, Croatia, Hungary, Ireland, Italy, Poland, Portugal, Romania, Slovenia, Slovak Republic, United Kingdom – observed between 2005 and 2016.

The EULFS is a repeated cross-section household survey, which allows the calculation of fertility through the own-children method. One of the advantages in using the EULFS is its huge sample size – the analytical sample entails about 3,000,000 women – which allows to calculate reliable labour market indicators at the regional level (NUTS-2).

Our dependent variable is a measure of fertility obtained calculating the *number of children living with their biological mother*. To avoid the bias due to children who may have already left the parental home, we focus on women aged 20-39. We checked that women's average number of children calculated in each of the selected country for women aged 35-39 reproduces quite well completed fertility rates for those countries, although better so for Western compared to Eastern

European countries. Our main independent variable is the *regional unemployment rate* calculated in the age group 15-39, using the population weight provided by Eurostat.

The identification of the net "causal" effect of negative changes in macroeconomic conditions on fertility is often difficult to disentangle from other structural changes toward delayed and lower fertility due, for instance, to the expansion of female education or changing preferences toward family and children. In this paper we rely on regional (NUTS-2) variation in fertility and unemployment rates to provide more robust evidence as national trends in fertility are controlled for. Following previous research (Goldstein et al., 2013; Comolli, 2017; Matysiak et al., 2018), we also test whether the effects of regional unemployment rates vary across European macro-areas defined based on the prevailing social and family policies.

We specify our empirical model for the woman's number of co-resident children ($Fert_{ijkt}$) as follows:

$$Fert_{ijkt} = \boldsymbol{U_{wr}} + \boldsymbol{R_j} + \boldsymbol{C_k} * \boldsymbol{Y_t} + \boldsymbol{Xb_i} \qquad (1)$$

Equation (1) focuses on Within-Region unemployment rates, $\boldsymbol{U_{wr}}$ which allows to answer the question: *do women have less children in those regions where unemployment rates grew more than the average growth at the national level?* We control for region dummies, $\boldsymbol{R_j}$, country and year dummies and their interactions, $\boldsymbol{C_k} * \boldsymbol{Y_t}$, and a set of control variables at the individual level (four 5-year age groups and three levels of education, namely lower-secondary, upper-secondary and tertiary, as well as their interactions), $\boldsymbol{Xb_i}$.

Preliminary findings

Preliminary results (Table 1) show that women tend to have less children in those regions where unemployment rates grew more than the average growth at the national level (M1). The overall negative effect is almost entirely driven by male unemployment rates, as female ones have non-significant effects, however (M2). Moreover, consistently with previous results (Goldstein et al., 2013; Matysiak et al., 2018), the negative effects of within-region unemployment rates on fertility are stronger at younger ages, but still statistically significant for women aged between 30 and 39 in Belgium and France, and the Southern European area (not shown here).

Table 1 Unemployment rates and women's fertility – coefficients from Poisson regressions models

	M1	M1
$\boldsymbol{U_{wr}}$	-.3035667*** (.0793599)	-
$\boldsymbol{U_{wr_t-1\_men}}$	-	-.2985783*** (.0755746)
$\boldsymbol{U_{wr_t-1\_women}}$	-	-.0736152 (.0711693)
Individual observations	3,448,522	3,050,395

Models controlled for: Year dummies, Country dummies, Region dummies, Region dummies. Robust standard errors (in parentheses) adjusted for region-years clusters. Weighted cases: inverse of the country-year sample size in all models. Interaction effects between age and education included in all models.

Based on these promising preliminary results, we will proceed by exploring a set of more innovative insights compared to existing evidence, also enlarging the set of investigated countries. We will consider the role of education as a moderator of the effects of the macroeconomic context. The role of additional context-level labour market indicators – never employed in the European context, such as the diffusion of temporary contracts – will also be tested.

References

Adsera, A. (2005): Vanishing Children: From High Unemployment to Low Fertility in Developed Countries. American Economic Review, 95(2), pp. 189-193

Adsera, A. (2011): The Interplay of Employment Uncertainty and Education in explaining Second Births in Europe. Demographic Research, 25(16), pp. 513-544

Aksoy, C. G. (2016): The Effects of Unemployment on Fertility: Evidence from England. The B.E. Journal of Economic Analysis & Policy, 16(2), pp. 1-24.

Becker, G. (1991): A Treatise on the Family: Enlarged Edition. Harvard: Harvard University Press.

Comolli, C. L. (2017): The fertility response to the Great Recession in Europe and the United States: Structural economic conditions and perceived economic uncertainty. Demographic Research, 36(51), pp. 1549-1600

Friedman, D., Hechter, M., & Kanazawa, S. (1994): A theory of the value of children. Demography, 31(3), pp. 375-401

Goldstein, J. R., Kreyenfeld, M., Jasilioniene, A., & Karaman Örsal, D. D. (2013): Fertility reactions to the 'Great Recession' in Europe: Recent evidence from order-specific data. Demographic Research, 29(4), pp. 85-104

Karaman Örsal, D. D., & Goldstein, J. R. (2018): The changing relationship between unemployment and total fertility. Population Studies, 72(1), pp. 109-121

Kreyenfeld, M., & Andersson, G. (2014): Socioeconomic differences in the unemployment and fertility nexus: Evidence from Denmark and Germany. Advances in Life Course Research, 21, pp. 59-73

Matysiak, A., Sobotka, T., & Vignoli, D. (2018): The Great Recession and Fertility in Europe: a Sub-National Analysis. OEAW WORKING PAPERS 2

Sobotka, T., Skirbekk, V., & Philipov, D. (2011): Economic Recession and Fertility in the Developed World